



CURRENT AFFAIRS for UPSC

30th June to 6th July 2024

DreamIAS

DreamIAS



INTERNATIONAL

DANGEROUS PRECEDENT

The majority ruling by the United States Supreme Court that the President has either absolute or presumptive immunity from criminal prosecution raises disconcerting questions about the supremacy of the rule of law in the country. In a ruling based mainly on the doctrine of separation of powers and the need to insulate the Presidency from the fear of future prosecutions, and not the text of the U.S. Constitution, the court, dominated by conservative justices, by 6:3 majority has ruled in favour of presidential immunity. The verdict does not decide whether former President Donald J. Trump will enjoy immunity from prosecution for allegedly trying to interfere with or alter the outcome of the November 2020 presidential elections that he lost to Joe Biden. Instead, it lays down a threshold for any intended prosecution of a President to see whether the act complained of involved the exercise of a core constitutional duty, or was an official or unofficial act. In respect of a President's core constitutional duties, the immunity is absolute; for other official acts, he enjoys presumptive immunity, that is, he is presumed to be immune unless rebutted by facts; and for unofficial or private acts, there is no immunity at all. For official acts, any prosecution is permissible only if it does not intrude into the power and authority of the executive.

The majority has remanded issues that arise in the prosecution of Mr. Trump for his attempts to influence the electoral outcome, culminating in the January 6, 2021 attack on the Capitol, to the trial court for analysis based on this ruling. The dissenting views speak with moral clarity when they question the claim that only immunity from criminal prosecution can enable a President to function in an unhesitating and bold manner. While it is valid to argue that the President should be free from intrusive probes and fear of trivial prosecution, it is inconceivable that such a powerful office should come with little accountability and the freedom to violate criminal law. Critics of the verdict see great peril for democracy in its implications. As the dissent asks, can a President take a bribe in lieu of a pardon, or authorise a rival's assassination? The majority wants to protect the Presidency from any intrusion in the name of criminal prosecution, but what it fails to see is that Mr. Trump's actions may have been destructive of his successor's Presidency. While there is a passing mention of the possibility that he may have been acting in his capacity as a candidate or a party leader in some instances, it is astonishing that the verdict allows the use of the presidency as a shield even in matters that solely concern the election process.

LABOURED CHANGE

In his first speech after leading the Labour Party to its best ever performance in the U.K. general election, Prime Minister Keir Starmer was clear about the task before him: to "begin the work of change" for national renewal and rebuilding the country. With a more than generous mandate — 412 seats in the 650-member House, Mr. Starmer will be virtually unchallenged inside Parliament for his agenda on "wealth creation for the working classes", taxing higher incomes, banning fossil fuel car sales by 2030 and building a new Border control agency. It should be equally clear that more than the Labour win, this is a Conservative loss. After its 14-year run in power, five Prime Ministers and considerable turmoil, the British voter clearly chose to punish the Conservatives led by Prime Minister Rishi Sunak for compounded errors: from the mishandling of Brexit and the economic crisis, a failure to support public services, especially health and schooling, to a series of scandals from 'Partygate', pornography in Parliament and the Post Office scandal. The rising cost of living was a major campaign issue, spurred by the COVID-19 pandemic, as well as the impact of

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



the Ukraine war and post-Brexit shortages, although Mr. Sunak said that the economy had turned a corner more recently. Immigration has been another big issue. While Mr. Starmer has disavowed Mr. Sunak's plans to send "small boat arrivals" or illegal immigrants demanding asylum to countries such as Rwanda while they are processed, he will be under pressure to do more to cut down the numbers of migrants. The remarkable performance of ultra-right wing leader Nigel Farage, who won after losing seven times, and his party, Reform UK, that won more than 14% of the vote, albeit only four seats, will be a worry on this account, with its openly xenophobic rhetoric.

For many in India, the defeat of Mr. Sunak will feel somewhat personal, given their pride in his being the first British Prime Minister of Asian origin, with Indian ancestry — a bond he affirmed as well. Despite attempts by Prime Minister Narendra Modi and Mr. Sunak, the India-U.K. FTA could not be taken across the finish line. All eyes will be on how quickly Mr. Starmer's government, that criticised the delay, would be able to do so, as its priorities will be in shoring up the economy. The India-UK Roadmap 2030, signed in 2021, will no doubt be tweaked. An early visit to India by new U.K. Foreign Secretary David Lammy has already been outlooked by the Labour leadership, and it will be important for both countries which have completed their elections, to hit the floor running and frame their priorities for future ties.

WHAT LABOUR ELECTION WIN MEANS FOR INDIA-UK FREE TRADE AGREEMENT (FTA)

New Delhi and London have been negotiating a proposed free trade agreement (FTA) for more than two years to boost trade between the two nations. The agreement could result in a mutual tariff relaxation on a range of goods such as cars, clothes, alcoholic beverages, and medical instruments.

However, a landslide victory for the Labour Party in the UK elections could lead to a change in the dynamic of the FTA negotiations.

Political certainty a plus

Since the UK unexpectedly voted in a referendum to leave the European Union (EU), London has not seen the kind of political stability needed for a deal with India that has a high tariff regime.

But if Labour wins comfortably, there might finally be enough political legroom to sign a deal with India. Since Brexit, the majority of the trade deals signed by the UK have been rollover agreements, that resemble deals that London previously had when it was an EU member.

Not an 'anti-India' Labour Party

Under Keir Starmer, Labour has changed. It is not the same party as that headed by his predecessor, Jeremy Corbyn, who called for international intervention in Kashmir.

Starmer has recognised the growing political clout of the UK's Indian origin population — the largest immigrant group in the country — and has tried to stamp out 'anti-India sentiments' within his party. In an event on Friday, Labour Party Chair Anneliese Dodds claimed that the party, under Starmer, is confident of having cleansed its ranks of any members with "extremist views" on India.

In fact, under Starmer's leadership, Labour has even raised questions regarding the Tories' delay in signing the FTA with India.



Visas a likely sticking point

That said, immigration remains among the most heated issues in British politics. While the Tories and Labour disagree on how to restrict immigration into the UK, there is a bipartisan consensus on the fact that it must be restricted. This could be a sticking point for a trade deal with India.

New Delhi is seeking temporary visas for its service sector workforce under the FTA — this is where it expects to gain the most in the deal. With the UK being a powerhouse in the IT and financial services segment, India's service sector could benefit from the integration. But given the UK's political climate, Labour is likely to negotiate hard on the visa issue.

Tougher negotiations on climate

India will also likely face tougher negotiations on climate from a Labour government, which has repeatedly cornered the Tories for deviating from the UK's 2030 net zero goals.

India has sought a relaxation on the carbon tax that the UK is expected to implement along the lines of the EU. New Delhi argued during the FTA negotiations that the proposed carbon border adjustment mechanism could take away much of the tariff concessions agreed during the FTA.

AN OVERVIEW OF THE FRENCH ELECTIONS

How are elections in France conducted?

There are 577 seats in the French parliament, which include 13 overseas districts and 11 constituencies that represent French citizens abroad. So to hold an absolute majority in parliament, a party needs 289 seats.

The first phase of the elections is equivalent to a qualifying round wherein candidates must at least get 12.5% of locally registered votes in order to stay in the race and not get eliminated. If a candidate gets more than half of the total votes cast in the first round itself, they will automatically win. If not, candidates who have met the qualifying criteria will move on to the second phase. At this stage of the elections, 'horse-trading' is a common practice wherein parties form blocs among themselves and drop candidates in constituencies which may split the vote and favour a rival party/alliance.

RABBLE-ROUSER

While addressing a gathering late last year, far-right German politician Björn Höcke, then on trial for raising a Nazi slogan at a 2021 rally, invoked the phrase "Everything for..." prompting the crowd to respond "Germany" to complete the banned Nazi slogan, which was inscribed on the knives of Adolf Hitler's storm troopers, who played a key role in his rise to power in the 1930s.

The former history teacher had earlier faced criticism for inciting racial hatred and using anti-Semitic language when he described the Holocaust memorial in Berlin as a "monument of shame" and called for a "180-degree turn" in how Germany remembers its past.

"Never, never must we allow ourselves to let the demagogy of a Björn Höcke go unchallenged," the then Germany's Vice Chancellor, Sigmar Gabriel, said. The Central Council of Jews said the "anti-Semitic and utterly inhuman words" had revealed the true face of the Alternative for Germany (AfD). The party nearly expelled him, warning that his approach could "damage its acceptance."



Despite a string of controversies, the 52-year-old rose through the ranks of the AfD to become one of the most powerful figures in the shifting German political landscape. He has consistently pushed the limits of public discourse with controversial stances on history, nationalism, race and migrants.

He now stands trial for the second time on charges of using a Nazi slogan, just months ahead of the regional elections in Thuringia, where he plans to run for Governor.

Mr. Höcke participated in far-right demonstrations, made racist comments, attempted to normalise Nazi-era words, and questioned national guilt over the Holocaust. “Germans are the only people in the world who plant a monument of shame in the heart of their capital... the laughable policy of coming to terms with the past is crippling us,” he said. He claimed multiculturalism threatened Germany’s existence.

Following the AfD’s strong show in the EU elections, Mr. Höcke is now focused on Thuringia, aiming for victory in the regional polls. If successful, Björn Höcke could secure his first constitutional post, transitioning from a polarising figure to a potential state Premier.

WHY CHINA PLANS TO RUN TRAINS FROM KUNMING ALL THE WAY TO SINGAPORE

During his visit to Malaysia last week, Chinese Premier Li Qiang said China was willing to study a plan to connect its railway projects in the Southeast Asian countries of Malaysia, Laos, and Thailand for “enhancing regional connectivity”.

Li attended the groundbreaking ceremony for Malaysia’s East Coast Rail Link (ECRL) Gombak Integrated Terminal Station with Malaysian Prime Minister Anwar Ibrahim.

The nearly \$10 billion ECRL project is sometimes linked to a China-led “pan-Asian” railway network that would connect the southern Chinese city and transportation hub of Kunming with Singapore at the tip of the Malaysian peninsula by lines running across multiple Southeast Asian countries.

China has made significant investments in the region as part of its Belt and Road Initiative (BRI) to enhance infrastructure development in Asia, Africa and South America. What is the ECRL project, where does it stand currently, and how does it fit into China’s greater regional and geopolitical aspirations?

What is the ECRL?

The 665-km-long ECRL will connect Kota Bharu on the Kelantan river, close to Malaysia’s northeastern coast with Port Klang on the strategically important Strait of Malacca on the country’s west coast.

What is the planned pan-Asian rail network?

Infrastructure projects to link Southeast Asian countries have been proposed in the past, including during European colonial rule in the region.

More recently, the pan-Asian rail network was conceptualised in the form of three links — a western line from Kunming via Myanmar and Thailand; a central line via Laos and Thailand; and an eastern line via Vietnam, Cambodia, and Thailand.



The proposed routes of the pan-Asian rail network. The red portion, connecting Laos and China, is the only operational route yet.

Another line would connect Thailand's capital Bangkok with Malaysia and Singapore. The latter is one of the most developed countries in the region, with around 30% of global trade passing through the global shipping choke point at which the city state sits.

What is the current status of the railway project?

While the idea "remains powerful" for bolstering economic growth and regional cooperation, it has faced roadblocks for multiple reasons. Only the Laos-China section has been operational since 2021, connecting the north and south of Laos with Kunming.

Like Malaysia, Thailand has also faced problems of high costs and the government's wariness about taking assistance from China. In January this year, Chinese Foreign Minister Wang Yi asked Thailand to increase the pace of its work, which is expected to be completed in 2028 but may be delayed.

Doubts have been expressed over the projections of the economic gains from the project. Jonathan E Hillman, a political economist with the Center for Strategic and International Studies (CSIS) and an expert in emerging infrastructure in Eurasia, pointed out that the width of the railway tracks across these countries vary, making seamless transportation of cargo challenging. ('The Emperor's New Road: China and the Project of the Century')

There are concerns over demand as well. "Most people travelling from Kunming to Singapore would still prefer to fly, which will remain cheaper and faster. Likewise, cargo shuttled between the two destinations would be cheaper if transported first to the coast and then by boat to Singapore. Most studies have found that a pan-Asian rail system would complement maritime shipping rather than compete with it," Hillman wrote.

What is the larger context of China's interest in this regional connectivity project?

China's aggressive moves and territorial claims in the South China Sea have made many countries in the region nervous, and Beijing hopes to leverage economic ties built through infra investments to develop goodwill and trust. China has rejected accusations of practising "debt trap diplomacy", which involves providing loans at high interest rates, and then seizing control of strategic assets when the debtor countries fail to pay back.

PAK COURT ASKS PMO TO REFRAIN INTELLIGENCE AGENCIES FROM INTERFERING IN ANY JUDICIAL MATTERS

A top Pakistani court on Saturday directed the Prime Minister's Office to issue directives to the country's powerful intelligence agencies, including Inter-Services Intelligence (ISI), from approaching any judge or member of their staff to obtain favourable verdicts.

The intelligence agencies especially ISI, Military Intelligence (MI) and Intelligence Bureau (IB) have been accused by several judges of pressuring them through different means to get desired verdicts, especially in the cases of the former prime minister and founder of Pakistan Tehreek-e-Insaf (PTI) Imran Khan, his party leaders and supporters.

Almost all — six of eight judges of the Islamabad High Court — and a couple of judges of the anti-terrorism courts in Punjab have written to the chief justice of Pakistan and chief justice of the

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



Lahore High Court (LHC), respectively, drawing their attention towards the intelligence agencies' open interference in judicial matters forcing them to get desired verdicts.

Some of them had complained that their family members were picked up (by intelligence agencies) to put pressure on them (judges).

The Lahore High Court Justice Shahid Karim on Saturday issued written directions to the Prime Minister's Office on the complaint of an ATC judge in the Sargodha district of Punjab against harassment by the personnel of ISI.

"The prime minister is responsible and answerable for the actions of intelligence agencies as they come under his command. Instructions shall go out by the Prime Minister's Office to all civil or military agencies, including the ISI and IB, regarding strict directions not to approach or contact any judge whether of the superior judiciary or subordinate judiciary or any member of their staff for any purpose in the future," the judge said in his written order. Similar directions have also been issued for the Punjab police.

The court said the inspector general and police chief would be held personally responsible and contempt proceedings would be initiated in case of non-implementation of its order.

The LHC also directed ATC judges across Punjab to "download call-recording applications on their mobile phones to have the record of all such calls (from intelligence agencies) made to influence judicial proceedings."

The Sargodha ATC judge was scheduled to hear the cases of some PTI leaders including opposition leader in the National Assembly Omar Ayub when he was told that a senior ISI officer wanted to meet him at his chamber. As the judge refused, several harassment incidents targeted at his family took place in the following days.

DreamIAS



NATION

WHAT IS HOLDING UP THE TEESTA TREATY?

The story so far:

During the recent state visit of Sheikh Hasina, Prime Minister of Bangladesh, to India, Prime Minister Narendra Modi on June 22 said: "A technical team will soon visit Bangladesh to discuss conservation and management of the Teesta river in Bangladesh." The remark triggered fresh speculation about the Teesta water sharing treaty with Bangladesh, a key bilateral agreement that has been pending between the two countries for over a decade.

What is India's stand?

After Mr. Modi's comment, Foreign Secretary Vinay Kwatra told the media that the discussion "between the two leaders was less about water sharing per se, and more about the management of the water flows within Teesta". West Bengal Chief Minister Mamata Banerjee took issue with the Centre's stand. On June 24, she wrote a letter to Mr. Modi conveying her strong reservation that no discussion on the sharing of Teesta waters should be taken up with Bangladesh without the involvement of the State.

Why is Bengal upset?

Ms. Banerjee pointed out that if Teesta's water is shared with Bangladesh, lakhs of people in north Bengal will get severely impacted. This is not the first time she has voiced her opposition to the proposed water sharing agreement of India with Bangladesh. In July 2019, the Trinamool Congress chairperson admitted that Bangladesh is hurt because the Teesta waters could not be shared and added, "If I had the ability, I would have definitely shared Teesta waters with them." In 2017, the Chief Minister had also referred to an alternative proposal of sharing waters of the Torsa, Manshai, Sankosh and Dhansai rivers but not Teesta.

In all, 54 rivers flow between India and Bangladesh and sharing of river waters has been a key bilateral issue. India and Bangladesh agreed on the sharing of waters of the Ganga in 1996 after the construction of the Farakka Barrage and by the 2010s the issue of sharing of the Teesta came up for negotiation. In 2011, during the United Progressive Alliance-II government, India and Bangladesh were close to signing an agreement on the Teesta but Ms. Banerjee walked out of the deal, and since then, the agreement has been pending.

What is the proposal?

In 2011, when the proposal for sharing Teesta water was drawn up, it was said India would get 42.5% and Bangladesh 37.5% of the river water from December to March.

A tributary of the Brahmaputra, the Teesta river originates from the Tso Lhamo Lake at an elevation of about 5,280 metres in north Sikkim. The river travels for about 150 km in Sikkim and 123 km in West Bengal, before entering Bangladesh from Mekhligunj in Cooch Behar district; it flows another 140 km in Bangladesh and joins the Bay of Bengal. Teesta is Bangladesh's fourth largest trans-boundary river and its floodplain covers an area of 2,750 square kilometres in Bangladesh. But 83% of the river's catchment area lies in India and the remaining 17% is in Bangladesh, supporting 8.5% of its population and 14% of its crop production.



What are the political considerations?

While the Awami League government in Bangladesh is facing questions from the Opposition about the delay in inking an agreement on the Teesta, the dams for hydro-electric power generation in Sikkim and the Teesta Barrage Project at Gazoldoba in West Bengal is making the flow of the river erratic in Bangladesh, leading to either floods or scarcity of water. The visit of a technical team from India to discuss conservation of the Teesta in Bangladesh also comes amid the backdrop of China proposing major dredging work on the river and building reservoirs and embankments in 2020. The Bangladesh government has put the proposal on hold for the past four years.

Soon after returning to Bangladesh, Prime Minister Hasina announced that her country would accept India's proposal to develop the Teesta River basin. Ms. Banerjee raised questions about the health of the Teesta river after the construction of a series of hydropower projects in Sikkim, deforestation in upper catchment areas and impact of climate change. She expressed surprise that no concrete steps have been taken by the Ministry of Jal Shakti to restore the river to its original form and health on the Indian side when a bilateral cooperation between India and Bangladesh for restoration of Teesta in Bangladesh is being proposed.

Environmental activists have also been raising questions on the ecological impact of hydro-electric projects on the river. In October 2023, a glacial lake outburst triggered floods in the Teesta basin that claimed hundred lives and destroyed the Teesta III hydroelectric dam.

Sharing of waters of transboundary rivers have been mandated by international laws including The Helsinki Rules on the Uses of the Waters of International Rivers in 1966. Article 253 of the Indian Constitution gives powers to the government to enter any transboundary river water-related treaty with a riparian state.

Why is Bengal talking about Ganga treaty?

The Ganga water sharing treaty with Bangladesh completes 30 years in 2026 and a renewal of the agreement is on the cards. The Trinamool Congress chairperson has pointed out that water sharing with Bangladesh has changed the Ganga's morphology and affected lakhs of people in West Bengal owing to river erosion.

"Lakhs of people have been displaced from their habitation rendering them homeless and also leading to their loss of livelihood. The reduced silt load in Hooghly has impeded the nourishment of the Sundarban delta," she wrote in the letter to the Prime Minister.

JAISHANKAR ATTENDS SHANGHAI COOPERATION ORGANISATION SUMMIT: WHAT THE GROUPING IS, WHY IT MATTERS

On Thursday (July 4), the final day of the Shanghai Cooperation Organisation (SCO) Summit in Kazakhstan's capital Astana, Indian External Affairs Minister S Jaishankar held talks with Chinese Foreign Minister Wang Yi.

Earlier, Jaishankar also held bilateral meetings with his counterparts from SCO members Tajikistan and Russia, and the newest member Belarus, on the sidelines of the two-day summit that began on Wednesday.

"Pleased to meet FM Maksim Ryzhenkov of Belarus today. Welcome Belarus to the SCO as its newest member. Discussed our bilateral relationship and its future growth potential," the Minister



posted on X. Belarus and Iran earlier held Observer Status in the grouping. While Iran formally joined it last year, Belarus was formally admitted on Thursday.

What is the Shanghai Cooperation Organisation?

Its origins lie in the “Shanghai Five”, formed in 1996 and consisting of China, Russia, Kazakhstan, Kyrgyzstan and Tajikistan.

With the dissolution of the USSR in 1991 into 15 independent countries, there were concerns in the region about extremist religious groups and ethnic tensions coming to the fore. To manage these issues, a grouping was created for cooperation on security matters.

Building on this, SCO was established on June 15, 2001, in Shanghai as an international organisation, and also included Uzbekistan as a sixth member. Before the inclusion of Belarus, it had nine members: India, Iran, Kazakhstan, China, Kyrgyzstan, Pakistan, Russia, Tajikistan, and Uzbekistan.

Afghanistan and Mongolia hold Observer Status.

Why is the SCO significant?

SCO is one of the few international organisations which deal with security issues and primarily has Asian members. Regional heavyweights Russia and China have stressed its position as an alternative to a “Western” international order. Along with the BRICS grouping, which has India, South Africa and Brazil as well, the two countries are seen positioning against US influence.

But despite declarations of a “limitless friendship” between China and Russia in recent years, there is also a sense of competition between them over who wields greater influence at such forums.

While the Central Asian republics have traditionally been viewed as part of Russia’s backyard or sphere of influence, China has also sought to leverage the oil and gas-rich nations through investments in massive infrastructure projects in the region. This has happened alongside China’s rising economic strength in recent years, with the projects also part of its larger Belt and Road Initiative (BRI).

The inclusion of India and Pakistan in SCO in 2017 was also seen as reflecting this jostling. While Russia supported India’s entry as a longstanding strategic partner, China backed its ally Pakistan to prevent the balance of powers from tilting in Russia’s favour.

SCO’s larger expansion of late also has to be seen in the context of the United States’ deteriorating ties with Russia and China. Events such as the 2022 Russia-Ukraine War and trade tensions with China that began under US President Donald Trump have further given them impetus to include more countries in their grouping.

Chinese state media outlet Global Times said in 2023, that Iran’s inclusion was seen as a step for further enhancing “the international status and influence of the organization, and for Iran, it is an important step in breaking the US diplomatic blockade”.

However, there may not be many tangible outcomes from the SCO. An article in the Financial Times noted: “The opaque parameters it uses to launch its initiatives and institutions allows countries to look past the rivalries they have with others in the group. But it does nothing to heal



the rifts. Thus the SCO embraces both Pakistan and India, which acknowledge their mutually hostile ties. India's relationship with China itself is also tense on several fronts."

It quotes Yun Sun, director of the China Program at the think-tank Stimson Center, as saying, "The vague language of most of the initiatives made it easy for countries to pay lip service to them. China could then point to this rhetorical support as evidence that a large number of countries backed its world view... However, these countries would only be willing to accommodate China's demands up to a certain point. When push came to shove, they would follow their own interests."

What relevance does the SCO hold for India?

On one level, SCO membership allows India to participate in a forum which enhances its scope of cooperation with Central Asian countries, which have not had particularly close relations with India since their formation in 1991. It also matters for maintaining communication with major actors in the region on common security issues.

For example, an important permanent structure within the SCO is the Regional Anti-Terrorist Structure (RATS). It assists members in the preparation and staging of counter-terrorism exercises, analyses key intelligence information coming in from the member states, and shares information on terrorist movements and drug trafficking.

However, the relevance of the organisation comes into question given the difficulty in managing ties among the partners. As the FT article notes, India shares tense relationships with China and Pakistan at present. Last year, when the summit was to be held under India's presidency as part of the rotation, it decided to hold a virtual summit instead.

The New Delhi Declaration issued at the end of the leaders' summit saw India refuse to sign off on a paragraph supporting the BRI. India's opposition to the BRI comes from its constituent China-Pakistan Economic Corridor (CPEC), which is proposed to pass through Pakistan-occupied Kashmir. India sees it as a violation of its territorial integrity and sovereignty.

BOOSTING A SPECIAL BOND

Shankar P Sharma Writes- "Nepal and India have a unique relationship. The open border, shared culture, economic interdependence and deep-rooted people-to-people relationship make bilateral ties special."

— "India is Nepal's largest trading partner, the top-source country for tourists, the only supplier of petroleum products and the largest source of total foreign investment. India also provides transit for almost all of Nepal's third-country trade and accounts for a significant share of inward remittances from pensioners, professionals and labourers working in India. It has always been the first responder during disasters and emergencies in Nepal."

— "Nepal and India, unlike before, are now focusing on reducing the trade deficit, initiating and strengthening cross-border digital financial connectivity to ease trade, tourism, and remittance flows. This is in addition to other physical connectivities to reduce the cost of doing business and facilitate people-to-people ties."

— "Agreements have helped to initiate several new projects by investors from India and Nepal. Both countries have also initiated significant partnerships in building cross-border transmission lines. Investment in hydroelectricity production and distribution has overall increased."



— “Avenues for a regional grid in the BIMSTEC and SAARC regions to promote, develop and trade renewable energy, which is the priority of member countries, have also opened up. These activities will also boost India’s economy. By importing clean energy, India will reduce its reliance on coal and gas, help reduce pollution, and achieve renewable energy goals.”

— “Several measures have also been taken in partnership with India to reduce the cost of doing business in Nepal. The countries are working on constructing two new petroleum pipelines between Siliguri, India and Jhapa, Nepal and Amlekhgunj and Chitwan.”

— “Established bilateral mechanisms between the two countries to address areas of cooperation and concerns including boundary issues should be activated. This will keep the relationship robust.”

NINE INTERNAL SECURITY CHALLENGES

“The dust of elections has settled... The government should have a well-orchestrated plan for the next five years. On internal security, the following nine points should merit serious attention.”\ — “One, internal security doctrine. Ideally, the country should have a national security doctrine (NSD). The National Security Advisory Board has, from time to time, worked on it and prepared drafts. For inexplicable reasons, those were never approved.”

— “Two, Internal Security Ministry. The Ministry of Home Affairs has become much too heavy and therefore unwieldy. Internal security matters, which demand immediate attention, quite often do not get the prompt and thorough attention they deserve.”

— “Three, Jammu and Kashmir. The state is far from normal in spite of the Home Minister’s claim that terror incidents are down by 66 per cent since the abrogation of Article 370...The government must take early steps to reorganise the security grid, restore statehood to J&K and hold elections for the Assembly.”

— “Four, the Northeast... Five, the naxal problem...Six, Intelligence Bureau/CBI... Seven, state police... Eight, Central Armed Police Forces... Nine, technology. There is enormous scope for technological inputs into the functioning of police in the country.”

— “A country projects its strength at the international level in direct proportion to its internal cohesion, its ability to resolve the differences within and not have any swamps where terrorists or extremists of any shade can breed. The internal security scenario of the country would be much better if action on the above lines is initiated with foresight and imagination.”

For Your Information:

— “The strength of a chain, as they say, is determined by its weakest link, and the weakest link today is the police station. Visit any police station and the stark reality hits you. Leaving aside the model police stations and some in the metro cities, the average police station presents a dismal picture — dilapidated building...”

— “According to the Status of Policing in India Report 2019, police in India work at 77 per cent of their sanctioned strength and these personnel work for 14 hours a day on average. There are 70 police stations which have no wireless, 214 police stations that have no telephone and 240 police stations that have no vehicles. Housing facilities are unsatisfactory.”



WEAPONISING PMLA

The grant of bail to former Jharkhand Chief Minister and Jharkhand Mukti Morcha leader Hemant Soren exposes the questionable practice of the Enforcement Directorate in slapping money-laundering cases just to arrest political adversaries of the ruling dispensation. The Prevention of Money Laundering Act (PMLA) forces courts to render a preliminary finding on whether there is reason to believe that those jailed for laundering money are guilty of the offence and grant bail only if they record a negative finding. Weaponising such provisions against political opponents can have grave consequences for their personal liberty. In Mr. Soren's case, he spent five months in prison and had to resign as Chief Minister when his arrest was imminent. It is equally true that when bail is granted, it causes considerable embarrassment to the prosecution and government, as it can only be based on a preliminary view that the accused are not guilty. Justice Rongon Mukhopadhyay of the Jharkhand High Court has analysed the material and circumstances of the case and given him bail based on a conclusion that there is reason to believe that Mr. Soren is not guilty. The Enforcement Directorate registered a case under the PMLA against him based on a police case related to forgery and fabrication of documents involving a revenue inspector and his associates. It sought to build a case that 8.86 acres of land, as part of a larger extent sold to those not entitled to buy it, belonged to Mr. Soren and was in his possession since 2010.

The Enforcement Directorate also claimed that its timely intervention and the arrest of those involved prevented the illegal acquisition of the land. The court has raised pertinent questions as to why no one who had allegedly been unlawfully evicted from the land had ever approached any court for redress even when Mr. Soren was out of power. It also questioned the agency's inference that Mr. Soren was planning to build a banquet hall on the land, based only on the image of a plan given by a consultant and found on the phone belonging to one of the accused. The inference was on the basis that the area depicted in the plan was close to the land parcel involved in this case. The court also discounted the Enforcement Directorate's argument that Mr. Soren, on receiving a summons, had set up a man by name Raj Kumar Pahan to approach a special court and get the land restored in his (Pahan's) name so that it would exculpate Mr. Soren. The High Court's findings such as these may be the subject of appeal or may be revisited during the trial. However, they also shine a light on how central agencies are showing unseemly haste in arresting political functionaries in office based on inferences and surmises.

SENSE OF UNCERTAINTY

The three new criminal laws have come into force in the country, amidst widespread fears that the policing and judicial systems are not yet ready for their introduction. Barring reports of some rudimentary training to station-house police personnel, some workshops here and there, and an upgrade to the Crime and Criminal Tracking Network and Systems, which will help ease the filing of complaints in electronic form, the exact level of preparedness among the upper and lower echelons of the police is unknown. Earlier the government had appointed July 1 as the day on which the three laws — the Bharatiya Nyaya Sanhita in place of the Indian Penal Code, the Bharatiya Nagarik Suraksha Sanhita to supersede the Code of Criminal Procedure and the Bharatiya Sakshya Adhinyam, which has replaced the Indian Evidence Act — will come into force. It appears that the Union government decided that it is better to implement them and let the police, courts and lawyers fumble their way towards a rough transition than await a time when everyone involved in the administration of criminal law is brought up to speed. How much the initial period of possible confusion will last is anybody's guess. There is little doubt that more time



ought to have been given to the police and legal fraternity to prepare themselves before the codes were brought into force.

The very names of the new laws appear obscure, with many questioning why there is no English equivalent for the new codes, and why they should bear unfamiliar Hindi names. There was no change in the name of the criminal procedure code when the 1898 original was replaced with a new one in 1973. There is also a persistent feeling that the laws were not fully debated in the legislature — even though a Standing Committee of Parliament went into the draft and recommended some changes — or widely discussed with civil society. There is a looming fear that some of the new provisions, especially the one relating to police custody that can be availed of in multiple tranches, will sharply empower the police to the citizen's disadvantage. The inclusion of 'terrorism' as an offence in ordinary penal law in addition to the present special anti-terrorism law is bound to cause confusion. The Centre's announcement that States are free to make their own amendments is fine, but there is no assurance that such amendments will get early Presidential assent. Some procedural reforms such as registering FIRs regardless of jurisdiction and introduction of videography of searches and seizures are welcome initiatives, but there is a palpable sense of uncertainty over the overall impact of these new laws.

EXPLAINED: NEW CRIMES UNDER THE BHARATIYA NYAYA SANHITA, AND SOME GREY AREAS

The three criminal laws, passed in Parliament last December, will come into effect on July 1, 2024. They bring a host of changes to India's dated criminal justice framework, but a few critics have raised concerns regarding some of the new introductions.

Three new criminal laws will come into effect on Monday (July 1).

The Bharatiya Nyaya Sanhita (BNS), the Bharatiya Nagrik Suraksha Sanhita (BNSS), and the Bharatiya Sakshya Adhinyam (BSA), passed in Parliament last December, will replace the Indian Penal Code (IPC), 1860, the Criminal Procedure Code (CrPC), 1973, and the Indian Evidence Act, 1872 respectively.

Since Independence, the colonial-era IPC (which provides the substance of criminal law), CrPC (which provides the procedure for law's enforcement), and Evidence Act have seen several revisions. But as Union Home Minister Amit Shah said during the new laws' passage in Parliament, the sanhitas represented laws that had been framed by Indians, for Indians.

Even leaving aside the government's 'decolonisation' narrative, there has been an overwhelming consensus that India's criminal laws needed updating. At the same time, the consultation process during the pandemic for drafting the laws, and their hasty passage through Parliament, has caused much disquiet. Some legal experts opine that although the new laws make significant changes, they do not 'overhaul' the existing laws.

New crimes in BNS

The BNS introduces a handful of new crimes. Notable among them is Clause 69, which penalises sexual intercourse through the employment of "deceitful means".

The provision reads: "Whoever, by deceitful means or by making promise to marry to a woman without any intention of fulfilling the same, has sexual intercourse with her... shall be punished with imprisonment" of upto 10 years, and also be liable for a fine. "Deceitful means" includes the



false promise of employment or promotion, inducement, or marrying after suppressing identity. Critics say that this might, in some cases, end up criminalising consensual relationships and provide a fillip to the “love jihad” narrative.

The BNS, under Clause 103, for the first time also recognises murder on the ground of race, caste, or community as a separate offence. The SC had, in 2018, directed the Centre to consider a separate law for lynching. The new provision could now ensure such crimes, which have been on the rise in recent years, get legal recognition.

Another big-ticket addition to the BNS is the inclusion of offences such as organised crime and terror, previously in the ambit of specific stringent laws like Unlawful Activities Prevention Act for terrorism, and state-specific laws such as the Maharashtra Control of Organised Crime Act for organised crime. On terrorism, the BNS borrows heavily from the UAPA. Organised crime, in Clause 111(1), encompasses “any continuing unlawful activity including kidnapping, robbery, vehicle theft, extortion, land grabbing, contract killing, economic offences, cyber-crimes having severe consequences, trafficking in people, drugs, illicit goods or services and weapons, human trafficking racket for prostitution or ransom...” But vague descriptions such as “cyber-crimes having severe consequences” will have to be addressed.

Snatching, defined in Clause 304(1), is also a ‘new’ crime, distinct from theft. The definition reads: “in order to commit theft, the offender suddenly or quickly or forcibly seizes or secures or grabs or takes away from any person or from his possession any moveable property”. Both theft and snatching prescribe a punishment of upto three-years in jail.

The rearrangement of provisions in the BNS signals legislative intent. Like the IPC, it starts with chapters dealing with general exceptions, punishments, abetment, and the Right of Private Defense. Offences against the state comes before offences against women and offences against body. But in the BNS crimes against women, comes before in Chapter V before offences against the state (like sedition).

New timelines, processes

A big change in the BNSS is the expansion of detention in police custody from the 15-day limit in the CrPC to up to 90 days.

According to Section 167(2) of the CrPC, an accused had to be sent to judicial custody (prison) after a maximum of 15 days in police custody. This was intended to incentivise the police to complete investigations in a time-bound manner, and curtail the likelihood of custodial torture and forced confessions. Clause 187(3) of the BNSS has deleted the words “otherwise than in police custody,” essentially, allowing the police to keep custody of an accused for upto 90 days for all offences listed in the BNS.

Shah had said in Parliament that the BNSS takes a “victim-centric” approach by bringing in tighter timelines for the completion of trials. The BNSS also states that in cases where the punishment is seven years or more, the victim shall be given an opportunity of being heard before withdrawal of the case by the government.

Trials in absentia — where a person accused of a crime can be tried and convicted in his absence, as if he was present in court and has waived his right to a fair trial for all offences — are another new introduction in the BNSS. While such a provision already exists under the UAPA, the burden of proof is reversed in the terror law, i.e. the onus is on the accused to prove himself not guilty,



rather than the state to prove his guilt. Critics argue that the introduction of trials in absentia under normal criminal law allows the state to forgo its duty to properly locate the accused before the trial begins.

The BNSS also removes the provision for statutory bail if an accused has more than one offence against his name. Under the CrPC, an accused could be granted statutory bail if he has served at least half of the maximum sentence prescribed for the offence. This was to ensure that trials do not take forever, and when they do, the accused does not suffer continued incarceration for no fault of his. This is how the Delhi High Court granted bail to JNU student Sharjeel Imam last month.

The upside

Among key positive changes in the new laws is the introduction of community service as an alternate form of punishment for some offences. These include small theft, defamation, and attempt to die by suicide with an intention to keep a public official from discharging her duty.

While it is unclear how offences deserving no jail time were chosen, with three-fourths of India's prison population being undertrials, community service as punishment keeps first-time convicts and those convicted for minor offences out of prison. The BNS, however, does not define what constitutes community service, leaving it to the discretion of judges.

Also, sexual intercourse with a minor wife has been brought under the ambit of rape. The IPC had carved out only one exception for marital rape — intercourse with wife who is less than the age of 15 years. In 2017, the SC had held that this 15 year limit was at odds with child rape laws under the POCSO Act. The new law addresses the grey area that 15-18 year old married girls fell in, under the IPC.

The inclusion of offences for mob-lynching is crucial, and signals a legislative acknowledgement of such hate crimes. The emphasis on video-conferencing of trials, and prescription of timelines for speedy trials should improve justice delivery but their success will depend on implementation on the ground.

Remaining grey areas

Among the big announcements made by the government on the three laws was “doing away with sedition.” This was crucial since it came over a year after the SC in May 2022 virtually stalled the operation of sedition law deeming it “prima facie unconstitutional.”

Despite the government's claims, the BNS has in fact introduced the offence with a wider definition, while incorporating the SC guidelines in the 1962 Kedarnath Singh case, which upheld the constitutional validity for the crime of sedition. In Hindi, the law carries out a simple name change — from rajdroh (rebellion against the king) to deshdroh (rebellion against the nation).

The other big concern, as the criminal laws are rolled out, is the issue of penalising rape in cases where the victims are male. The BNS, with a seemingly progressive outlook, entirely leaves out the contentious Section 377 of the IPC which criminalises “carnal intercourse against the order of nature”. In 2018, this provision had been read down by the apex court in its landmark Navtej Singh Johar v Union of India ruling to the extent that it criminalised consensual sex among adults, including those of the same sex.

But Section 377 is still invoked to penalise non-consensual sex, and is often the only recourse in cases of rape of men (specific rape laws are applied in cases of women victims). With the exclusion



of this provision in the BNS, and with rape laws still not made gender-neutral, there is little criminal recourse for male victims of sexual assault.

HOW GOVERNMENT IS PREPARING FOR NEW CRIMINAL LAW REGIME, SET TO COME INTO EFFECT TODAY

Since December 2023, the Union Home Secretary has held more than a dozen meetings with various central ministries, and state/UT chief secretaries and police chiefs. PM Narendra Modi has said the driving spirit of the new laws is 'Citizen First, Dignity First, Justice First', and asked police to work with data, not 'danda'.

India's three new criminal laws — Bharatiya Nyaya Sanhita (BNS), Bharatiya Nagarik Suraksha Sanhita (BNSS), and Bharatiya Sakshya Act (BSA) — will come into effect on Monday (July 1). According to an official, the government has held meetings with various central ministries, state/UT chief secretaries and police chiefs in the run-up to the day. A host of events have also been planned to commemorate July 1.

Here is a look at the preparations.

OPERATIONAL TRAINING

Bar Council of India has mandated that the new laws be incorporated into curricula of universities and Centres of Legal Education from the 2024-25 academic year. The Department of School Education will have special modules for Classes 6 upward between October and March.

Lal Bahadur Shastri National Academy Of Administration (LBSNAA), Mussoorie has conducted a five-day training programme for IAS/ IPS /judicial officers, and those from crime records bureaus, forensic labs, etc.

Ministries of WCD, Rural Development, Panchayati Raj held a Hindi webinar on June 21 on the new laws for almost 40 lakh grassroots functionaries; a second webinar in English on June 25 was attended by almost 50 lakh.

PUBLICITY, AWARENESS

The Bureau of Police Research and Development is coordinating efforts of the Inter-Ministerial Group for a coordinated publicity campaign. Thematic posters and flyers have been shared with all departments. Extensive visibility for the new laws is planned through advisories, press releases, infographics etc. on social media platforms.

The Press Information Bureau has conducted vartalap (conversations) and workshops for regional media persons in 20 state capitals on the new criminal laws. The vartalaps have received significant traction, with widespread participation of the regional media, according to a government official. "More vartalaps will be held in other capital cities as well," the official said.

TECH UPGRADATION

National Crime Records Bureau has made 23 functional modifications in the Crime and Criminal Tracking Network and Systems (CCTNS) application to facilitate tech compatibility, including on registration of FIRs. Technical assistance is being provided to states/ UTs, and support teams and a call centre are being set up for review and handholding. A mobile web application, NCRB Sankalan of Criminal Laws, was launched on March 14.



National Informatics Centre has developed applications such as eSakshya, NyayShruti, and eSummon to facilitate videography/ photography of crime scenes, judicial hearings, and delivery of court summons electronically. The apps have been shared with states/UTs, an official said.

CAPACITY OF POLICE

The Bureau of Police Research and Development has developed 13 training modules to build capacity of the police, prisons, prosecutors, judicial officers, forensic experts, and central police organisations. A group of master trainers is being built to disseminate training and knowledge down the line.

BPR&D has already conducted 250 training courses/ webinars/ seminars, and trained more than 40,000 officers/ personnel. States/ UTs have undertaken capacity building of a large number of officials from the police, prisons, forensics, and prosecution etc, an official said. A control room has been set up with law and police officers to address queries from field functionaries.

LEGAL AFFAIRS DEPT

The Department of Legal Affairs has organised four conferences with delegates from a diverse range of fields, in which the Chief Justice of India, judges of the Supreme Court and High Courts, senior police personnel and domain experts have participated, an official said. A fifth conference is scheduled to be held in Mumbai on June 30.

Comprehensive guidance will be provided to individual civil service officials on the iGOT Karmayogi online platform. Three training courses on the new criminal laws have been offered as a curated program on iGOT from February 21 onward, and almost 2,18,000 officials have enrolled, an official said.

PLANNED EVENTS

All higher education institutions under UGC, AICTE and CFIs, and in the states/UTs will organise a day-long activities on Monday. Group discussions, workshops, seminars, etc on various provisions of new criminal laws have been planned. Police stations across India will also conduct events.

DECODE POLITICS: RAHUL GANDHI, OM BIRLA AGAIN FACE OFF OVER PARLIAMENT MICS. WHO CONTROLS THEM?

For the second time in the new Parliament Session, Leader of the Opposition Rahul Gandhi claimed that his mic had been switched off in the House.

Rahul made the claim during his first address as the Leader of the Opposition on Monday, after his remarks that the BJP promoted violence set off a bedlam. Lok Sabha Speaker Om Birla reiterated in response that presiding officers do not have any switch or remote control to turn off the microphones of members in the House, and objected to members “casting aspersions on the Chair” by alleging that this was done when they rose to speak.

“The Chair only gives ruling / directives. The member whose name is called gets to speak in the House. The mic is controlled as per the directives of the Chair. The person sitting in the Chair does not have a remote control or a switch for the microphones,” he said.



Pointing out that members of all political parties have representation on the panel of chairpersons who preside over the proceedings in the absence of the Speaker, Birla said: "At least those who occupy the Chair should not raise such objections."

Who administers the mics in Parliament?

A manual put out by the Lok Sabha Secretariat in May 2014 says that each MP is provided an individual microphone and a switch set at their specific desks, with each of these desks numbered based on the designated seat numbers of members. Each switch board contains switches in different colours. A grey switch can be pressed for a request to speak. The microphones on the desks, with an LED, light up red when the mic is activated.

So, when a member wants to speak, the manual notes, they have to raise their hand to indicate the same to the Speaker, while pressing the grey button. The mic is "activated from the control room only when the member has been permitted by the Speaker to speak", the manual notes.

This is indicated in two ways: with the LED ring going red and the LED on top of the microphone also going red.

Where does the current controversy stem from?

Last week, Rahul claimed that his microphone was switched off as he tried to raise the issue of NEET irregularities. In his statement, Gandhi said, "There has been a disaster... Everyone knows the paper was leaked... Students were hurt... I tried to raise it in Parliament... I wasn't allowed to speak."

Is it the first time the Congress has alleged that mics of its members in the House were switched off?

During the course of his Bharat Jodo Yatra from September 2022 to January 2023, Rahul Gandhi asserted several times that he was compelled to hit the streets as the government was "choking" the voice of the Opposition by not even letting elected members speak in Parliament.

In February 2023, after Rahul gave a 52-minute-long speech in the Lok Sabha, Birla, who was the Speaker in the previous Parliament as well, noted this, saying: "We should refrain (now) from commenting outside the House that the Speaker switches off the microphone."

Rahul responded, saying: "But Speaker Sir, it's a reality that you switch off the microphone."

A month later, in March 2023, Adhir Ranjan Chowdhury, the then Leader of the Congress in the Lok Sabha, wrote to Birla saying that his microphone had been muted for three days. "I am deeply disheartened to observe that ever since the House resumed after the break on March 13, 2023, there has been a government-sponsored disruption in the House. It appears to me that there is a well-hatched conspiracy on the part of the party in power to tarnish the image of an individual member of an Opposition Party (Sh Rahul Gandhi)," he said.

Days later, on March 17, the Congress alleged that microphones of the House were muted for 20 minutes. Sharing a video on its official Twitter account, the Congress wrote: "Earlier the mike used to be off, today the proceedings of the House have been muted. The house is mute for PM Modi's 'friend'." The Opposition was at the time demanding a Joint Parliamentary Committee report into the Adani Group in light of the Hindenburg report on the business group's financial dealings.



In the 21 minutes that the House functioned that day, there was no audio link for all but 1.20 minutes. The Lok Sabha Secretariat said this was due to a “technical glitch” at the official broadcaster’s end, but the Congress said it was another move to “silence voices in Parliament”.

Around this time, speaking at an event at the British House of Parliament, Rahul talked of Opposition leaders back home being “silenced” to stop them from speaking. The BJP criticised him for making such statements while abroad.

Has the row been confined to the Lok Sabha?

During the passage of the three farm Bills (later withdrawn) in September 2020, the audio feed of Rajya Sabha TV was disrupted briefly. The Central Public Works Department, which maintains the Parliament Building, had blamed it on the damage caused to microphones at the Chairman’s seat by some MPs who were protesting over the Bills.

The legislation had been later passed amidst a bedlam.

In July 2023, during the Monsoon Session of Parliament, Leader of the Opposition in the Rajya Sabha and Congress national president Mallikarjun Kharge claimed he was “insulted” after his mic was turned off while he was speaking in the House. “It was a breach of my privilege... My self-respect has been challenged. If the House is run on the instructions of the government, I understand that it is not a democracy,” Kharge said, with Opposition MPs supporting him.

Later, Rajya Sabha Chairman and Vice-President Jagdeep Dhankhar attacked Rahul over his comments, saying “shutting off the Opposition” was a thing done during the “black chapter of the Emergency”. “It is not possible now.”

Does a breach of privilege claim hold?

The powers, privileges and immunities of either House of Parliament and of its Members and committees are laid down in Article 105 of the Constitution. Article 194 deals with the powers, privileges and immunities of the State Legislatures, their Members and their committees.

While the Constitution has accorded special privileges and powers to parliamentarians and legislators so as “to maintain the dignity and authority of the Houses”, these powers and privileges are not codified. Thus, there are no clear, notified rules to decide what constitutes a breach of privilege, and the punishment it attracts.

It is a breach of privilege and contempt of the House to make speeches or to print or publish libel reflecting on the character or proceedings of the House, or its Committees, or on any member of the House for or relating to his character or conduct as a legislator.

PROCESS BEGINS TO RECONSTITUTE PARLIAMENTARY COMMITTEES

The process to reconstitute Parliamentary panels was set rolling Friday with Parliamentary Affairs Minister Kiren Rijju moving two motions to set up the Public Accounts and Estimates committees.

— The Estimates Committee is tasked with suggesting alternative policies to bring about efficiency and economy in administration, examine whether the money is well laid out within the limits of the policy implied in the estimates, and recommend the form in which estimates are to be presented to Parliament.



For Your Information:

- Legislative business begins when a Bill is introduced in either House of Parliament. But the process of lawmaking is often complex, and Parliament has limited time for detailed discussions... As a result of which a great deal of legislative business ends up taking place in the Parliamentary Committees instead.
- A Parliamentary Committee is a panel of MPs that is appointed or elected by the House or nominated by the Speaker, and which works under the direction of the Speaker. It presents its report to the House or to the Speaker.
- Parliamentary Committees have their origins in the British Parliament. They draw their authority from Article 105, which deals with the privileges of MPs, and Article 118, which gives Parliament authority to make rules to regulate its procedure and conduct of business.
- Broadly, Parliamentary Committees can be classified into Financial Committees, Departmentally Related Standing Committees, Other Parliamentary Standing Committees, and Ad hoc Committees.
- The Financial Committees include the Estimates Committee, Public Accounts Committee, and the Committee on Public Undertakings. These committees were constituted in 1950.

NO MP IN LS, VOTE SHARE DOWN TO 2.04%, BSP RISKS LOSING NATIONAL PARTY TAG

With no elected MP in Lok Sabha and its vote share this general election down to 2.04%, the Bahujan Samaj Party (BSP), the only national-level Dalit party in the country, could lose its national status once the Election Commission carries out its customary review post general elections, The Indian Express has learned.

— Founded in April 1984 by Kanshi Ram who later named Mayawati as his successor, BSP was recognised as a national party in 1997.

— Currently, there are six political parties recognised as national parties by the poll watchdog – BJP, BSP, Congress, AAP, National People’s Party, and CPM.

— According to the Election Symbols (Reservation and Allotment) Order, 1968, a national party is one that has at least 6% of the total valid votes in four or more states in the last general election and at least four MPs; or wins at least 2% of the seats in the Lok Sabha, with the winners being from at least three states; or is a recognised state party in at least four states.

— As per the Symbols Order, a state party is one which has got at least 6% of the total valid votes in a state and at least two MLAs; or at least 6% of the total valid votes polled in the state in the last Lok Sabha elections and at least one MP from that state; or at least 3% of the total seats in the Assembly or three seats, whichever is higher; or at least one MP for every 25 seats allotted to that state in the Lok Sabha; or at least 8% of the total valid votes in the last Lok Sabha election in that particular state or Assembly election.

— Post the 2014 elections, the Symbols Order was amended in 2016 with effect from January 1, 2014 saying that a party’s national or state recognition would not be reviewed in the first election after the one in which they gain the status, meaning the first review would be after 10 years. This benefit was given to all parties, even the BSP, which became a national party in 1997.



DECODE POLITICS: WHY A THINK TANK IS IN THE MIDST OF LATEST ROW BETWEEN AAP, LG

In yet another flashpoint between the two power centres that administer the Capital, Delhi's Lieutenant Governor V K Saxena Thursday dissolved the Dialogue and Development Commission of Delhi (DDCD), the Aam Aadmi Party (AAP)'s flagship think tank and advisory body.

This comes as another blow to the AAP, which is facing a leadership vacuum with both party supremo and Delhi Chief Minister Arvind Kejriwal and his former second-in-command, Manish Sisodia, in jail.

What is the DDCD?

The DDCD is a policy think tank set up by the Kejriwal government in 2015, after it came to power in Delhi for the first time with a huge majority, on the lines of the Centre's Planning Commission and NITI Aayog. Seen as an official extension of the "dialogues" with citizens that was part of the AAP's election game plan, the DDCD was meant to comprise domain experts, and help "consider ideas, identify the best practices and policies from around the world" and translate these into "concrete recommendations" to the Delhi government for "transformative change".

Over the years, the AAP government has claimed that the think tank played a key role in shaping the "Delhi model of governance".

Kejriwal served as the think tank's chairperson. It also comprised a vice-chairperson and other non-official members. Their terms were to coincide with that of the incumbent government and their appointments were made by Kejriwal.

What are some of the measures undertaken by the DDCD?

According to the Delhi government, the commission worked on several key AAP government projects over the years.

These include the Delhi's Rozgar Bazaar portal, a platform bringing together employers and employees that was conceived and created in July 2020 as an emergency response during Covid-19 to help both sides affected by the lockdown; as well as the One Delhi App, which helps track live location of public buses and facilitate contactless ticketing, among other facilities.

The AAP government says the DDCD also conceptualised the Delhi Electric Vehicle Policy, launched in August 2020, for mass adoption of electric vehicles to reduce vehicular air pollution in Delhi. The commission has helped the Delhi Transport Department operationalise 'faceless transport services', involving digitisation of 33 transport-related services such as getting a licence. The DDCD claims to have benefited 22 lakh users through this project.

Why was the DDCD shut down?

LG Saxena has alleged that the DDCD was created "only to extend financial benefits" and patronage to "certain favoured political persons" at the "whims and fancies" of Kejriwal, as only the CM approved its members till a mechanism was developed for "screening and selection of domain experts as its vice-chairman and members".

Saxena also questioned why the positions in the Commission that earlier started out as honorary were later converted so as to involve "high" salaries and perks. The DDCD vice-chairperson, for



instance, occupies the rank, pay and facilities equivalent to a Delhi government minister, while its non-official members enjoy perks comparable to a Secretary working for the Government of India.

The L-G alleged that there had been “no transparent process” of identification, screening and selection of suitable candidates to occupy the body and that these positions had been filled in an “arbitrary” manner without following due process.

Saxena added that the shutdown was “temporary”, till appointments to it could be made “as per rules”.

How has the AAP reacted to the move?

The AAP has termed Saxena’s move “illegal” and said it aimed to stop “all works and policy reforms” being carried out by its government. The party also threatened to move court over the issue.

The AAP has also justified that as the think tank’s main member and CM, only Kejriwal has the authority to take any action on appointments and dissolution.

The government has also stated that the appointment process for the DDCD vice-chairperson and members is “similar to the process followed for public commissions in all state governments across India, including in BJP governments”.

Has DDCD been involved in other rows?

In November 2022, Saxena had ordered the sealing of the office of DDCD vice- chairperson Jasmine Shah over allegations that he had used the office for political purposes.

The AAP challenged the move in the Delhi High Court. The matter is still being heard.

WHAT WENT WRONG WITH THE HAJJ PILGRIMAGE THIS YEAR?

The story so far:

Hajj, a gathering of nearly two million Muslim pilgrims, which falls in the last month of the Islamic calendar, has been in news again. More than 1,300 casualties were reported due to extreme heat in Saudi Arabia at this time of the year. Most casualties were reported from Arafat, where the pilgrims pause on their way to Muzdalfa. Arafat is the place where the Prophet Muhammad delivered his farewell sermon to 1,44,000 pilgrims in 632 A.D. This vigil at Arafat is an essential part of the pilgrimage without which the Hajj is considered invalid. Many casualties took place as the pilgrims moved from Arafat to Mina in the scorching heat.

What is Hajj?

Hajj is one of the five pillars of Islam. This pilgrimage to Mecca is an essential part of the faith and any person who is economically and physically sound has to undertake the trip once in their lifetime. Prophet Muhammad is said to have undertaken this pilgrimage shortly before breathing his last in 632 AD. The Hajj journey follows the lunar calendar. Accordingly, it falls about 11 days earlier every year. This year’s pilgrimage started at the conclusion of the second week of June. For the upcoming couple of years, the pilgrimage will be undertaken in harsh weather with temperature exceeding 50 degrees Celsius.



What happened this year?

The Saudi authorities reserve a fixed quota for all major countries, depending on the Muslim population, for issue of Hajj visas. It helps to plan the stay and movement of pilgrims in the desert state. The authorities issued Hajj visas to a little more than 18 lakh people but the Hajj was undertaken by over two million pilgrims. This means that around 2 lakh people were unauthorised entrants.

The Saudi authorities insisted that most pilgrims with valid Hajj visas were able to complete the Hajj rituals with the best possible facilities, and there were few deaths beyond natural causes of old age or illness. According to Saudi Health Minister Fahad bin Abdurrahman Al-Jalajel, some 83% of the 1,301 fatalities were unauthorised pilgrims who undertook the journey without requisite precautions at this time of extreme summer temperatures.

Who are 'unauthorised' pilgrims?

The unauthorised, non-documented pilgrims often come over from neighbouring countries of Jordan, Egypt and Iraq on a visit visa a little before the Hajj season begins. Some are also blue collar workers from India and Pakistan who while having a valid work visa, are not entitled to undertake the pilgrimage without proper permission and documentation. The non-documented visitors are usually economically too weak to bear the cost of the pilgrimage through the official route which takes at least 3,000 dollars. Hence, they often take recourse to agents who offer them the journey for half the cost. The agents take the money in advance and often disappear after these men and women land in Saudi Arabia, leaving them in the lurch. The visit visa holders are not allowed entry into Mecca at the time of Hajj. So, these visitors/pilgrims often undertake arduous routes through the desert to circumvent officials.

While those who take the approved route are provided with all possible facilities by the host country, including transportation on air-conditioned vehicles with constant supply of water and medical facilities, illegal entrants are left under the blazing sun with temperatures often crossing 50 degrees Celsius. Many walk on their own from Arafat to Mina, a distance of around 15 kilometres. Unlike others, they have no healthcare facilities to fall back on. Also, most pilgrims in this category are old, having saved every penny for years for this journey.

Hajj has always been a high-risk journey. Besides the spread of communicable diseases due to the intermingling of millions, there were major tragedies in 1990, 1994, 1998 and 2003. Many of these were avoidable incidents as they resulted from stampede caused by pilgrims taking a non-specified route or going in the opposite direction, in ignorance of Hajj rituals. Since then, Saudi authorities have widened the pathways, adding new floors to the Haram in Mecca to enable the pilgrims to complete the journey peacefully.

AVOIDABLE TRAGEDY

The stampede on Tuesday at a religious congregation at Hathras in western Uttar Pradesh, claiming over 120 lives, is only the latest in a series of such tragedies in the country. There have been at least half-a-dozen such incidents in the last 20-odd years. In this instance, at least a lakh of people flocked to Fulrai village to listen to an address by a preacher Suraj Pal, also known as Narayan Sakar Hari or "Bhole Baba". There are reports that there were over 2.5 lakh participants at the venue, which could accommodate no more than 80,000. The preacher is said to have followers in States such as Madhya Pradesh, Rajasthan and Haryana too. Most of the deceased,



mainly women and children, were from the economically vulnerable sections of society, and were in search of spiritual solace. While only a fair investigation can find out the cause for the stampede, the reasons being cited include overcrowding, and the bid by some to collect soil from around the feet of the preacher. Not surprisingly, the responses, particularly from the field-level public health system, have exposed how ill-prepared the Uttar Pradesh administration is. Visuals of bodies lying outside the place of post mortem and of the kin desperate for help, as well as an inadequate number of ambulances and medical staff have become the common features of such tragedies. What has made it worse is the preacher and his aides reportedly leaving the site even as panic-stricken people were dying.

The most tragic aspect, as seen in the past, is that it was all avoidable had there been proactive steps taken by a vigilant administration. Unfortunately, the authorities in many States do not appear to have learnt lessons or made use of the availability of better technology and communication. Apart from stringent action against those responsible, the U.P. administration should ensure a just compensation package, the cost of which has to be borne by the organisers. The tragedy is a classic study in the management of large crowds. The officials concerned should ensure that the organisers have the wherewithal to handle large gatherings of any size. The local authorities and organisers should also conduct a drill ahead of such events. What is more important is that the political executive, the bureaucracy and organisers of any public event should be conscious of the fact that the loss of a life is a tragedy for the person's family. The arrangements for mass functions should be governed by this fact.

WALK THE TALK

A day after a searing speech by debutant Congress MP, Bimol Akoijam, who questioned Prime Minister Narendra Modi's silence on the situation in Manipur, Mr. Modi responded by making his first substantial remarks in Parliament on the ethnic conflict that broke out over a year ago. While acknowledging the crisis, he asserted that adequate steps had been taken to restore law and order and that several institutions were functioning normally. He spoke of the need to "go beyond politics and bring peace and stability" to the State, but also blamed the Congress for the way it had handled similar incidents in the past, and suggested that the social tensions in the State are deep rooted. However, the effort must now be to focus on peace and not allow the stakeholders to continue to play the blame game. Mr. Modi has never shied away from claiming glory over achievements — his government's or those of others — but his stock response to embarrassing questions or crises that show the regime in bad light has been one of silence. While such gestures have helped build his image and deflect criticism, the absence of a concrete reaction by the undisputed leader of India's government to a crisis like Manipur has only exacerbated the problem. Albeit late, his remarks should revive the search for a way out of the crisis.

Manipur, unlike what Mr. Modi asserts, is not any close to normalcy. The people displaced during the conflict remain so; a report by the Geneva-based Internal Displacement Monitoring Centre says Manipur accounted for 67,000 of the 69,000 displaced in South Asia last year. Kuki-Zo residents in Imphal and Meitei residents in Churachandpur among other areas are still unable to return to their homes. Even government servants and legislators from these communities remain displaced, affecting governance, welfare, schooling and health services. Self-claimed "village defence squads" or armed vigilantes still roam the valley and the hill areas as the conflict has spread to hitherto peaceful districts such as Jiribam. The State government's remit has been supplanted by that of central agencies, as a de facto central rule, without the imposition of Article 355, seems to be in place even as Union Home Minister Amit Shah claims this has transpired with



the “cooperation” of the N. Biren Singh-led government. Mr. Singh does not enjoy the confidence of his own partymen from the minority communities and any chance of a peace breakthrough or reconciliation remains difficult without any change in leadership. But neither Mr. Modi nor Mr. Shah has shown any inclination to effect it. Bluster and mere acknowledgment of the crisis will not solve the problems in Manipur and Mr. Modi has to become proactive in leading changes that will lead to peace and reconciliation.

WHEN TEXTBOOKS LEAVE OUT INTERNATIONAL LITERATURE, STUDENTS ARE ROBBED OF A WINDOW TO A LARGER WORLD

There is a Robert Frost poem that students of a particular vintage would be familiar with: “I shall be telling this with a sigh/ Somewhere ages and ages hence:/ Two roads diverged in a wood, and I — / I took the one less travelled by,/ And that has made all the difference.” One of the joys of literature is to lead the reader to the unexpected thrills of this unfamiliar road: A writer one has never heard of; a world view that shocks; a piece of writing so achingly beautiful that one does not want it to end. It leads one to a world beyond the familiar and the comfortable, turning readers into seekers. In its newly revamped English textbook for Class VI, Poorvi, developed in line with the New Education Policy 2020’s call for a curriculum “rooted in the Indian and local context and ethos”, the NCERT has sought to locate this universe in India’s diversity. The poems, essays and stories it now features are by some of India’s best-known writers, including S I Farooqi, Sudha Murty and others. It offers students a glimpse of the heterogeneity that exists in the country. But in leaving out international writers largely, it does young people a disservice — it robs them of a window to a wider world.

Periodic revisions of textbooks are essential. There is pragmatism in introducing children to the multitudes contained in India, cutting across boundaries of region and language, custom and religion. There is heft, too, in the idea of decolonisation that can serve as an introduction to the wide arc of literature that exists outside of the traditional canon. The study of any discipline requires context and a colonial trajectory is anything but representative. But such revisions must not lose sight of the goal: To expose students to a vibrant curriculum that encourages curiosity, enhances critical thinking and acts as a springboard to the lives and experiences of those both culturally and geographically like and unlike themselves. For that, merely “made in India” literature is not enough.

One of the comforts of literature — unlike social science, for instance — is that it deals not merely with the specificities of events but with the universality of emotions. The world can be a strange unfamiliar place but human nature is the same everywhere, governed by love and hate, greed and goodness, hope and despair. It is this delicate balance between home and the world, between what lies within and what meets the eye that should determine what goes into the curriculum and in what proportion. The NCERT would do well to keep that in mind for future revisions.

SHOULD EDUCATION BE BROUGHT BACK TO THE STATE LIST?

The story so far:

The NEET-UG exam has been embroiled in controversies over the award of grace marks, allegation of paper leaks and other irregularities. The government also cancelled the UGC-NET exam after it was held, while the CSIR-NET and NEET-PG exams have been postponed.

What is the historical background?

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



The Government of India Act, 1935 during the British rule created a federal structure for the first time in our polity. The legislative subjects were distributed between the federal legislature (present day Union) and provinces (present day States). Education which is an important public good was kept under the provincial list. After independence, this continued and education was part of the 'State list' under the distribution of powers.

However, during the Emergency, the Congress party constituted the Swaran Singh Committee to provide recommendations for amendments to the Constitution. One of the recommendations of this committee was to place 'education' in the concurrent list in order to evolve all-India policies on the subject. This was implemented through the 42nd constitutional amendment (1976) by shifting 'education' from the State list to the concurrent list. There was no detailed rationale that was provided for this switch and the amendment was ratified by various States without adequate debate.

The Janata Party government led by Morarji Desai that came to power after Emergency passed the 44th constitutional amendment (1978) to reverse many of the controversial changes made through the 42nd amendment. One of these amendments that was passed in the Lok Sabha but not in the Rajya Sabha was to bring back 'education' to the State list.

What are international practices?

In the U.S., State and local governments set the overall educational standards, mandate standardised tests and supervise colleges and universities. The federal education department's functions primarily include policies for financial aid, focussing on key educational issues and ensuring equal access. In Canada, education is completely managed by the provinces. In Germany, the constitution vests legislative powers for education with landers (equivalent of States). In South Africa, on the other hand, education is governed by two national departments for school and higher education. The provinces of the country have their own education departments for implementing policies of the national departments and dealing with local issues.

What can be the way forward?

The arguments in favour of 'education' in the concurrent list include a uniform education policy, improvement in standards and synergy between Centre and States. However, considering the vast diversity of the country, a 'one size fits all' approach is neither feasible nor desirable. Further, as per the report on 'Analysis of Budgeted expenditure on Education' prepared by the Ministry of Education in 2022, out of the total revenue expenditure by education departments in our country estimated at ₹6.25 lakh crore (2020-21), 15% is spent by the Centre while 85% is spent by the States. Even if expenditure by all other departments on education and training are considered, the share works out to 24% and 76% respectively.

The arguments against restoring 'education' to State list include corruption coupled with lack of professionalism. The recent issues surrounding the NEET and NTA have however displayed that centralisation does not necessarily mean that these issues would vanish.

Considering the need for autonomy in view of the lion's share of the expenditure being borne by the States, there needs to be a productive discussion towards moving 'education' back to the State list. This would enable them to frame tailor-made policies for syllabus, testing and admissions for higher education including professional courses like medicine and engineering. Regulatory mechanisms for higher education can continue to be governed by central institutions like the



National Medical Commission, University Grants Commission and All India Council for Technical Education.

WHAT ARE PRIVATE PAPERS OF PUBLIC FIGURES LIKE PM NEHRU, AND WHAT RULES GOVERN THEIR DECLASSIFICATION?

The Prime Ministers' Museum & Library (PMML) has decided that it will not permit future donors of Private Papers of eminent personalities to impose indefinite conditions on the declassification of such material.

In 2008, Congress leader Sonia Gandhi reclaimed boxes of papers from Jawaharlal Nehru's Private Collection that the family had donated to the museum earlier, and also barred access to several sets of these papers.

How private are the 'Private Collections' of eminent public personalities? What rules govern the declassification of correspondence involving occupants of high government offices? Who is responsible for declassifying access to such papers?

First, what are Nehru's papers at the PMML, and how did they get there?

The Jawaharlal Nehru Papers were the first set of Private Papers obtained by PMML, which was set up originally as the Nehru Memorial Museum & Library (NMML) in the memory of India's first Prime Minister.

The Private Papers of Nehru, spanning both the pre-Independence and post-Independence periods, were transferred to PMML in several batches starting in 1971. The transfer was facilitated by the Jawaharlal Nehru Memorial Fund (JNMF) on behalf of Nehru's legal heir, Indira Gandhi, who apparently remained the owner of these documents until her assassination in October 1984.

Subsequently, a substantial collection of Nehru's Papers from the post-1946 period were handed over to PMML by Sonia Gandhi.

Does the PMML have Private Papers of other leaders as well?

The PMML has the largest collection of Private Papers in the country, which originally belonged to some 1,000 personalities of modern India, encompassing the entire spectrum of its leadership. In this collection are the papers of Mahatma Gandhi, B R Ambedkar, Rajkumari Amrit Kaur, Maulana Abul Kalam Azad, Bhikaji Cama, Chaudhary Charan Singh, and many others.

Among its recent acquisitions are papers of former Himachal Pradesh Chief Minister Shanta Kumar, which include letters written by him to Prime Minister Narendra Modi on One Nation, One Election, the abrogation of Article 370, and Indo-Pak relations, according to the PMML.

There are also the papers of the legendary environmental activist Sundarlal Bahuguna, which were donated to PMML by his wife, Vimla Bahuguna, and papers pertaining to Hindi writer and author Yashpal, comprising correspondence pertaining to his revolutionary activities during the freedom struggle.



RSS CHIEF MOHAN BHAGWAT RELEASES BOOK ON 1965 WAR HERO ABDUL HAMID: WHAT WAS HIS ROLE IN THE BATTLE?

Born on July 1, 1933, Company Quarter Master Havildar (CQMH) Abdul Hamid laid his life down while fighting Pakistan Army's Patton tanks in the Battle of Asal Uttar — one of the largest tank battles fought during the 1965 India-Pakistan War. Hamid was awarded Param Vir Chakra — India's highest gallantry award — posthumously.

On Monday, Rashtriya Swayamsevak Sangh chief Mohan Bhagwat visited the native village of Hamid, Dhamupur, where he released a book on Hamid titled 'Mere Papa Paramvir' and another book titled 'Bharat ka Musalman'.

Here is a look at Hamid's contribution.

But first, what was the Battle of Asal Uttar?

Situated in Punjab, Asal Uttar is quite close to the India-Pakistan border and around seven kilometres away from the town of Khem Karan.

In September 1965 — almost a month after the war broke out — Pakistan Army's 1 Armoured Division launched an offensive by crossing the border and capturing many parts of Khem Karan. They aimed to reach the bridge over the Beas River, and cut off large areas of Punjab, including Amritsar, from the rest of India.

The offensive caught India's 4th Mountain Division, which was deployed near Khem Karan, by surprise, and was forced to fall back. However, the situation quickly turned around after Western Army Commander, Lt Gen Harbaksh Singh, visited the 4th Mountain Division headquarters. He advised stout defence of the Asal Uttar road junction, and in addition, moved 2nd Armoured Brigade to the area to dodge any Pakistani armoured attack.

The battle took place between September 8 and September 10, and resulted in the decimation of Pakistan's offence. The Pakistan Army lost 97 Patton tanks during the battle. Moreover, one entire armoured regiment of Pakistan and its commanding officer surrendered to the Indian Army.

But the town of Khem Karan remained under Pakistani occupation till the ceasefire was announced. It was returned to India in exchange for Indian-occupied areas in Pakistan.

What was Hamid's contribution?

At the time, Hamid was serving with the 4th Grenadiers Battalion of the Indian Army, and he was deployed on the outskirts of Chima village, located on the Amritsar-Khem Karan road. He was leading a detachment of Recoilless Guns, which was hunting for enemy tanks in the fields of villages around Asal Uttar.

On September 10, Hamid found four Pakistani Patton tanks and fired at them from near point-blank range. When three of the tanks were destroyed, one was disabled. In doing so, Hamid came under fire from another Pakistani tank and lost his life.

For his bravery, Hamid was later awarded the Param Vir Chakra. The site of his death is now part of a war memorial. A captured Pakistani Patton tank stands guard at the entrance of the building, with its turret down, as a tribute to the Indian soldiers who fought and died in the battle.



FIVE ARMY MEN SWEEP AWAY AS TANK GETS STUCK IN LADAKH RIVER

Five army personnel died early Saturday morning while de-inducting or withdrawing from a military training activity that involved crossing the Shyok River at the Daulat Beg Oldie (DBO) area of eastern Ladakh, the Indian Army said.

— A troop of Russian-origin T-72 tanks was engaged in fording activity as part of the exercise, Army sources said. The training area is ahead of the river, and fording training is carried out while crossing the river on tanks.

— Fording is a manoeuvre used by tanks or other semi-amphibious vehicles to cross water obstacles which are usually several metres deep. At times, the platform traversing the depth gets fully submerged in water.

— A rescue squad, comprising nine combat engineers attempted a mission in a BAUT (boat assault universal type), a type of military boat, but the operation failed due to strong river currents, the officials said.

— In the area where the training was on, the Border Roads Organisation (BRO) has been constructing an alternate road to DBO—connecting Sasoma, Saser La and Gapshan. The existing 255-km long Durbuk-Shyok-DBO road running along the LAC is currently the only full operational road to reach DBO.

— Since the Galwan Valley clashes in 2020, there has been an increased armoured deployment in strategic DBO area of eastern Ladakh. DBO lies less than 10 km west of the Line of Actual Control (LAC) at Aksai Chin. A military outpost was created in DBO in reaction to China's occupation of Aksai Chin and is at present manned by a combination of Army's Ladakh Scouts and the ITBP.

For Your Information:

— The DSDBO highway provides the Indian military access to the section of the Tibet-Xinjiang highway that passes through Aksai Chin. The road runs almost parallel to the LAC at Aksai Chin, the eastern ear of erstwhile Jammu and Kashmir state that China occupied in the 1950s, leading to the 1962 war in which India came off worse.

GENERAL DWIVEDI ASSUMES CHARGE AS THE 30TH CHIEF OF THE ARMY STAFF

General Upendra Dwivedi took over as the 30th Chief of the Army Staff (COAS) on Sunday from General Manoj Pande, who superannuated after more than four decades of service.

The change in the post also initiated a series of changes among other senior appointments, including the Vice-Chief of the Army Staff and several Army Commanders.

Born on July 1, 1964, General Dwivedi was commissioned into the Infantry (Jammu & Kashmir Rifles) of the Indian Army on December 15, 1984. Like the Navy chief, Admiral Dinesh K. Tripathi, he is an alumnus of the Sainik School, Rewa, in Madhya Pradesh.

FIELD EVALUATION TRIALS OF SUBMARINE BIDS UNDER PROJECT-75I COMPLETE

The Navy's mega-submarine deal under Project-75I, estimated at over ₹43,000 crore, has crossed a major milestone in the process with the field evaluation trials (FET) — to check the compliance



of the bids received — now complete. There are two contenders in the fray: Germany's Thyssenkrupp Marine Systems (TKMS) and Navantia of Spain.

While an Indian Navy team visited the TKMS shipyard in March for FET, the evaluation of Navantia's offer was conducted last week, officials confirmed.

The evaluation report will now be compiled and presented to the Defence Ministry, which will declare the technical complaint bids which is expected to take about two months, a defence official explained.

Diplomatic sources said that Navantia would be demonstrating the Air Independent Propulsion (AIP) system fitted in a submarine operating on the surface and not submerged and that the submerged performance would be demonstrated in due course.

The design offered by TKMS, which has partnered with Mazagon Dock Shipbuilders Limited (MDL), is based on its highly successful Class 214 submarine as well as Class 212CD. Navantia, which has tied up with Larsen & Toubro, has offered a vessel based on its new S80 class of submarines, the first of which was launched in 2021 and was commissioned into the Spanish Navy as S-81 'Isaac Peral' in November 2023.

The Request For Proposal (RFP) issued by the Navy, detailing the specifications required, states that the first submarine should have indigenous content (IC) of 45% which should go up to 60% for the sixth and last submarine.

The key determinant, however, to qualify for P-75I is the AIP system which enhances the endurance of a submarine.

In the backdrop of a decision on the deal, the top leaders of Germany and Spain are scheduled to visit India in the next few months during which they are expected to make a pitch for an inter-governmental agreement.

German Chancellor Olaf Scholz is scheduled to visit India in the second half of October for inter-governmental consultations. Spain's President Pedro Sanchez is also expected to visit in the next few months.

Only Germany and Spain submitted bids for the deal. The deal is being progressed under the Strategic Partnership model of the defence acquisition procedure and L&T and MDL are the two Indian shipyards shortlisted to partner with foreign submarine manufacturers to produce six advanced conventional submarines in India under technology transfer.

AFTER HOOCH DEATHS, TN GOVT AMENDS ACT: UP TO LIFE TERM FOR BOOTLEGGERS

Days after the Kallakurichi hooch tragedy in the state that claimed over 60 lives, the Tamil Nadu government on Saturday amended a prohibition act to substantially enhance the punishment, which included life imprisonment for bootleggers in case of fatalities following consumption of spurious liquor.

— The state amended the Tamil Nadu Prohibition Act, 1937 to enhance the punishment term and quantum of fine for offences like manufacture, possession and selling of illicit liquor that endangers lives.



- The Tamil Nadu Prohibition (Amendment) Act, 2024, which shall come into force on such date as notified by the government, aims to completely eradicate the menace of illicit liquor from the state.
- The amendment substantially enhances the term of imprisonment and quantum of fine for various offences under sections 4,5,6,7 and 11 of the Act.
- Accordingly, a maximum punishment of 10 years Rigorous Imprisonment (RI) and a penalty of up to `5 lakh has been proposed in the amendment.
- In case of death due to consumption of illicit liquor, then the punishment for bootleggers will be RI for life with a fine not less than `10 lakh, it said.

For Your Information:

- Hooch is a commonly used term for poor quality alcohol, derived from Hoochinoo, a native Alaskan tribe that was known to produce very strong liquor. Unlike branded liquor which is produced in factories with sophisticated equipment and rigorous quality control, hooch is made in much more crude settings.
- There is an inherent risk associated with the crude methods of hooch production. The fermented mixture which is distilled contains more than just consumable alcohol (ethanol). It also contains methanol, an industrial alcohol that is highly toxic for human beings.

AIR POLLUTION BEHIND 7% OF DEATHS IN 10 CITIES: LANCET STUDY

About 11.5 per cent of deaths in Delhi every year, roughly 12,000 deaths, can be attributed to air pollution, the highest for any city in the country, a first-of-its-kind multi-city study in India, published in the Lancet, has revealed.

— Across 10 cities — Ahmedabad, Bengaluru, Chennai, Delhi, Hyderabad, Kolkata, Mumbai, Pune, Shimla and Varanasi — more than 33,000 deaths could be attributed to air pollution every year on an average, the study said.

— Shimla has the lowest mortality burden among these cities, with only 59 deaths every year, about 3.7 per cent of its total, that could be attributed to pollution.

— Together, about 7.2 per cent of all deaths in these cities, amounting to about 33,000 deaths every year, could be said to be caused by air pollution every year, the study said.

— The study found 1.42 per cent rise in mortality for every increase of 10 micrograms/cu metre in the PM2.5 levels when all the ten cities were taken together. There was large variation among the cities, with Delhi showing a rise of 0.31 per cent in mortality while Bengaluru having an increase of 3.06 per cent. This suggested that people living in less polluted cities carried a higher risk of mortality due to increase in pollution than those living in polluted cities.

— “In our results, we see that cities such as Bengaluru and Shimla which have relatively lower levels of air pollution showed stronger effects. This is likely due to the sharp increase in risk at lower levels of exposure which plateaus at higher levels which are unlikely to be experienced in these cities,” Dr Siddharth Mandal of the Centre for Chronic Disease Control, one of the co-authors of the study, said.



For Your Information:

— Air pollution has caused 8.1 million deaths around the world in 2021 with China and India accounting for more than half of the global burden at 2.3 and 2.1 million deaths respectively, according to the recently released State of Global Air Report.

LARGE GAP TO BRIDGE IN QUANTUM CAPABILITIES: REPORT

India may have done the right thing by launching a Rs 6,000 crore-worth National Quantum Mission to develop some of the most sought-after technologies for the future, but it would have to overcome a significantly large gap that currently exists between its capabilities and those of other leading countries...

— The assessment by Itihaasa, a non-profit that studies the evolution of technology and business domains in the country, shows that India was just one among 17 countries to have a dedicated government programme to back research in quantum technologies, and one of the 12 to have committed separate investments for the purpose.

— India's Rs 6,000 crore translates to about USD 0.75 billion over five years...India was far behind of the United States and China in terms of patents obtained in quantum technologies till now, and in publications in top journals.

— Quantum technologies exploit the extremely weird and counter-intuitive — but very special nonetheless — properties of sub-atomic particles like an electron to develop processes and devices with capabilities and efficiencies that are impossible to achieve with classical, non-quantum, systems.

— A quantum computer, for example, can perform certain tasks that a normal computer, however fast or powerful it may be, might not be able to finish in any useful amount of time.

— India's National Quantum Mission, launched last year, aims to develop capabilities in four areas – quantum computing, communications, sensors and metrology (the science of measurements), and materials.

— It said that the government should explore the possibility of facilitating a dedicated science and technology cadre in each of the four areas identified for National Quantum Mission, similar to the dedicated cadres in India's space and nuclear sectors.

For Your Information:

— Small particles, the size of atoms or its constituents like protons or electrons, exhibit a number of strange properties that go entirely against our everyday experiences. For example, these particles can exist at multiple locations at the same time, a phenomenon called superposition, but only till no one is looking.

INDIA LACKS DIAGNOSTIC TESTS FOR EMERGING INFECTIOUS DISEASES

A recent case of Zika virus infection in Pune has renewed concerns about India's preparedness for diagnosing emerging infectious diseases. After experiencing symptoms like fever and rashes, the 46-year-old doctor was hospitalised and diagnosed with Zika virus infection after his samples were sent for testing to the apex virology institute. Subsequent testing of his family members



revealed that his 15-year-old daughter was also infected. This is not the first time Zika has been identified in India. Cases have been identified in multiple States in India in the past, with larger outbreaks occurring in Kerala and Uttar Pradesh as recently as 2021.

Zika virus is a mosquito-borne pathogen belonging to the flavivirus family of viruses which also includes dengue. Clinical symptoms of Zika infection in many cases could be mild and indistinguishable from other infectious diseases including dengue. However, for pregnant women, the Zika virus poses a significant risk as it can be transmitted from mother to child, potentially leading to microcephaly in the offspring.

Due to climate change, it is not surprising that multiple dengue outbreaks are making headlines. The same vectors that spread dengue could also spread Zika. However, India's lack of significant Zika surveillance means we might never fully understand its spread. In March 2023, CDSCO, India's apex organisation for diagnostic approvals, confirmed that there is no approved diagnostic test for Zika. This limitation hinders our ability to diagnose Zika, relying only on classical symptoms and high clinical suspicion, making it complex as we see a concurrent upsurge in dengue cases across the country. Surveillance by ICMR on Aedes mosquitoes showed Zika virus positivity following human cases, indicating that many cases are likely being missed. Zika is not an isolated case. A case of avian influenza A/H5N1 was recently reported from Australia in a child who had travelled to India, hinting at more undetected infections. Despite multiple avian influenza outbreaks in India this year affecting poultry, and an ongoing outbreak in Kerala, human testing and surveillance have remained limited. This is partially compounded by the lack of widely available diagnostic tests and over-reliance on a few apex institutes.

Consider the case of the Nipah virus, which has seen multiple outbreaks in Kerala. India has experienced several Nipah virus outbreaks, notably in West Bengal (2001 and 2007) and Kerala (2018, 2021, and 2023). In Kerala, identification of the virus relied heavily on clinical suspicion. Some cases were indeed missed during initial admissions due to the lack of routine testing. Rapid identification and isolation of cases, contact tracing, and targeted screening of contacts are key to the effective containment of Nipah outbreaks.

While many countries grant emergency approvals for diagnostics based on synthetic genomic material, India requires validation on clinical samples, which are not readily accessible. These limitations hamper rapid development. Although there have been multiple publications on Zika and Nipah outbreaks over many years now, the genomes from these outbreaks are still not rapidly released in public repositories. For example, the Nipah virus genome from the 2023 outbreak in Kerala was only released last month. Even with ongoing avian influenza outbreaks in multiple States, we do not yet have the whole genome sequences available in GISAID, the primary repository for influenza sequences, hampering our understanding of the disease and spread and more importantly, our ability to rapidly develop and deploy diagnostics.

During the COVID-19 pandemic, India swiftly expanded its testing infrastructure by rapidly decentralising and leveraging the existing network of hospitals, medical colleges, and private laboratories nationwide and tapping into the industry with a systematic approach for approvals of diagnostic tests making diagnostics widely available and accessible. The experience gained from the COVID-19 pandemic can be a stepping stone for improving testing capacities for other emerging diseases.

By decentralising testing facilities particularly at the district and sub-district levels, and developing accessible and affordable diagnostic tests for Zika, Nipah, avian influenza, and many



more emerging infectious diseases, India can ensure a more effective response to future outbreaks. There has never been a better time to swiftly establish a decentralised system for diagnostics, genomic surveillance, and data sharing to enable preparedness and public health response to emerging infectious diseases.

WHAT WAS THE TUSSLE OVER COVAXIN IPR?

The story so far:

The maker of the indigenous coronavirus vaccine, Covaxin, Bharat Biotech International Limited (BBIL), has admitted to an “inadvertent error” in patent filings to protect the vaccine’s Intellectual Property Rights (IPR). One of India’s leading biotechnology companies, it had failed to include scientists from the Indian Council of Medical Research (ICMR) as co-inventors in the Covaxin patent filings.

What kind of rights govern vaccine patents?

India’s patent laws govern both product and process patents. Product patents grant an inventor a monopoly over, say, a drug. Process patents bar competitors from making a similar drug using the same sequence of steps. In response to queries from The Hindu, Bharat Biotech said it had patented the process, namely of making a batch of vaccines from the virus strains that were provided by the ICMR-NIV (National Institute of Virology). This is the lab that has expertise in extracting viruses from blood samples, identifying its characteristics, conducting various tests to gauge its infectiousness and qualify it in comparison to related strains. However, preparing a vaccine out of this at an industrial scale is beyond the capabilities of a lab and requires a different order of facilities that only established vaccine manufacturers have. Covaxin is an inactivated version of COVID-causing coronavirus; once injected into the body it coaxes it into producing antibodies that can potentially protect against severe disease from a coronavirus infection. To do this effectively, an ‘adjuvant’ is added which increases the vaccine’s potency. Vaccine makers may have their own ways of bringing all of these steps together and, given the competitive nature of the field, strive to ward off competitors from imitating these processes to gain a temporary monopoly in the market and rake profits.

To be sure, while companies are free to file for a product or process patent in as many countries as they can afford, a patent is only granted after regulatory authorities grant them one or are convinced that this process is indeed novel or inventive. BBIL, as far is publicly known, hasn’t yet been granted these patents.

What were the roles of BBIL and ICMR?

BBIL had collaborated with the ICMR-NIV for all the steps in developing a vaccine. The two organisations had signed an agreement that spelt out each entity’s responsibilities. As ICMR is a public entity and because of the scale of the COVID crisis, there were Right To Information requests to make this agreement public. However, it was only in July 2021, that parts of the agreement were made public in Rajya Sabha.

Beyond transferring the strains and making vaccines, the agreement said, ICMR would also test these vaccines on animals — rodents to monkeys — and then on people to establish that the vaccine worked as intended. The ICMR also funded these clinical trials — ₹35 crore — and incurred costs in developing Covaxin. In return it was to get 5% of royalties that BBIL earned from the sale of Covaxin. Since the announcement of the BBIL and ICMR collaboration, it was generally

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



accepted that both entities would contribute to the vaccine and would therefore hold “joint intellectual property rights,” as was stated in Parliament.

However, BBIL first told The Hindu that it made a distinction between the rights governing the making of the vaccine and the rights over the data generated from clinical trials. The ICMR hadn’t invested in the actual making of the vaccine and so wasn’t included in patent applications. However, a day after the matter became public, BBIL said it had made a mistake, and that it would be making amends by filing fresh applications that listed ICMR personnel as inventors. It is unclear what prompted this.

Why does being cited as an inventor matter?

IPR is a vast, complex domain and spans the minutest parts of the product invention process. As the development of pharmaceutical products involves a wide range of expertise, it is hard for single firms or entities to develop everything in-house. Just like the BBIL-ICMR collaboration, companies may enter into several licensing agreements — BBIL for instance had a technology licensing agreement with Virovax for the adjuvant — with other companies. If a single product thus involves multiple entities and collaborators, being listed as an inventor has a bearing on the sharing of intellectual property rights, royalties and even determining how a product can be used. There is no field of human activity that is untouched by disputes over IPR. In patent filings, not listing out all the inventors — in the U.S especially — could even lead to patent applications being rejected.

EDUCATION ‘REMAINS THE MOST EFFECTIVE CONTRACEPTIVE’

According to United Nations estimates, India’s population which is currently 1.4 billion, will peak at 1.7 billion or so in 2064 before settling at 1.53 billion in 2100. But even though these numbers are staggering, data indicates that population growth is slowing —the total fertility rate has dipped below the replacement level of 2.1 and is projected to dip further.

With World Population Day (July 11) around the corner, experts say India’s thrust should be on ensuring the sexual and reproductive health of its young people.

A study that referenced the National Family Health Surveys (NFHS) concluded that there is a significant association between years of schooling and total unmet needs for family planning and unmet needs for spacing. The results of the study are contained in the paper ‘Changes in discourse on unmet need for family planning among married women in India: evidence from NFHS-5.’ It was published in the Scientific Reports journal last year. According to the study: “The demand for unmet needs for spacing and limiting was the highest among the women in the age categories 15–19 (17.8%) and 20–24 (17.3%).”

This, says Poonam Muttreja, executive director, Population Foundation of India, is primarily due to two factors: women who get married very young are usually from backward regions and not very educated, and therefore, their agency to negotiate or even talk about family planning is limited. “This is a social norm: even if the young woman does talk to a healthcare worker, the thinking is that once they are married, they must prove their fertility with children before family planning, and therefore there is no room for access to contraception,” she says.

The other issue, Ms. Muttreja says, is that the country is increasingly seeing teenage pregnancies both among married and unmarried women, and yet, families are unwilling to accept that their unmarried children may be sexually active. “This is compounded by the lack of sex education.



Globally, evidence has shown that where sex education is given, the sexual debut of a young person is postponed. It also helps eradicate misconceptions. In India, for a young person to even access condoms or any other form of contraception is culturally and socially against norms,” she adds.

There is an urgent need to focus on young people, both men and women, and on their sexual and reproductive health through culturally sensitive behaviour change communication, and by offering them a basket of contraceptive options to meet their needs. She reiterated that women’s education continues to be the most effective contraception.

Sumana Manohar, senior consultant obstetrician and gynaecologist at Apollo Hospitals, Chennai, also highlights the need for education among older students — those in classes 11 and 12.

Even abortion, points out Dipika Jain, director, Centre for Justice Law and Society, Jindal Global Law School, is a qualified right. “Abortion is largely criminal in India except under the Medical Termination of Pregnancy (MTP) Act, the person must qualify for the service as per the conditions of the act. Any abortion outside of the Act is criminalised. This makes access to safe and legal abortions difficult for a large section of pregnant people in India,” Ms. Jain says.

WHY ASSAM KEEPS FLOODING

Last year in October, after flood waters had receded in Assam, Chief Minister Himanta Biswa Sarma announced 54 projects to mitigate the effects of swelling rivers. These initiatives, he had said, “would bring us close to a flood-free Assam”. The state government, however, is nowhere close to securing people’s lives and properties against the rising and raging waters. This year, according to the Assam State Disaster Management Authority, floods have claimed more than 50 lives and displaced 3,60,000 people. More than 40,000 hectares of crop area have been affected and large parts of Dibrugarh and Guwahati are under water. Now, CM Himanta Biswa Sarma has struck a note of despair — “floods are due to geographical factors beyond the state’s control”, he has said.

Assam’s vulnerability stems from a complex combination of hydrological and climatic factors. The state has more than 120 rivers, several of which originate from the hills and mountains of extreme rainfall hotspots in Arunachal Pradesh and Meghalaya as well as in China and Bhutan. But it’s also a fact that for nearly 70 years, the Centre and Assam government have not found ways to control the damage caused by rivers in spate. Despite flood after flood exposing the hazards of the embankment-centred approach, the state’s authorities have not course corrected. Most of these flood control structures date back to the 1960s and 1970s, when the hydrology of Assam’s rivers, including the mighty Brahmaputra, was poorly understood. Solutions such as tapping into the knowledge systems of indigenous people to build flood-resistant houses, dredging rivers, arresting erosion or even building more resilient embankments have either remained on paper or haven’t been adequately implemented. In 2021, a parliamentary panel asked the Centre to set up modern weather stations in the upstream catchment of the Northeast’s dams and install sirens to alert people downstream of floods. However, the region continues to lack state-of-the-art warning systems.

Guwahati is a bowl-shaped lowland, susceptible to water logging. Historically, marshes and water channels worked together to make the city habitable. In the last 70 years, however, construction projects have chipped away at these critical ecological features. Like in most Indian cities, Guwahati’s drainage system is in disrepair. Rainwater from neighbouring Meghalaya and the



surrounding hills causes flash floods. For at least a decade now, it's been evident that governments in the Northeast — and the Centre — need to put their heads together to mitigate flood-related damages. The people of Assam, and the Northeast, deserve governance solutions, instead of an administration that blames floods on geography.

BRAHMAPUTRA'S LONE FEMALE GHARIAL'S LONG WAIT FOR A MATE COULD END SOON

Wildlife officials and specialists are not sure how this gharial came to inhabit a stretch of the Brahmaputra within the national park. But they are certain that the reptile, presumed to be an adult by its size, is the key to repopulating the river with gharials.

Distinguished from other crocodylians by its elongated snout, the gharial (*Gavialis gangeticus*) was believed to have been wiped out from the Brahmaputra river system during the 1950s, though there were claims of sightings in the 1990s. The female gharial was first spotted in 2021 within the Biswanath Wildlife Division of the 1,307.49-sq. km Kaziranga.

The gharial, now 2.55 metres in length, was recorded twice, 500 metres apart, in one of the three priority habits chosen during a 10-day survey of aquatic reptiles along the Brahmaputra in January.

Teams of the Turtle Survival Alliance Foundation India (TSAFI), an NGO specialising in reptiles, and the Assam Forest Department surveyed the Brahmaputra on a 160-km stretch from the Kaliabhomora bridge in the west to the Kamalabari Ghat in Majuli beyond the eastern edge of the Biswanath division.

The female gharial was found to be the only one of its kind moving between a “sandy shoreline” and a “sandbar with a shoreline water depth of 4.5 metres”.

“We do not know much about gharials in the Brahmaputra but we do know that this female has been lonely for more than three years and is close to the size of an adult ready to breed,” Sushmita Kar, TSAFI's project director in the northeast, told The Hindu.

One of the 10 recommendations in the report was the “high-priority” reintroduction of gharials in the Brahmaputra.

Kaziranga's Director Sonali Ghosh said the tiger reserve had the right conditions for a gharial breeding programme.

If the reintroduction proposal is approved, the reptiles are likely to be brought from the Kukrail gharial breeding centre near Lucknow.

GOVT APPROVES RS 56 CRORE FOR NEXT PHASE OF CONSERVATION PLAN FOR GREAT INDIAN BUSTARD

The Ministry of Environment, Forest and Climate Change (MoEFCC) has approved Rs 56 crore for the next phase of the conservation of Great Indian Bustard (GIB) and Lesser Florican.

— The plan includes habitat development, in-situ conservation, completion of the conservation breeding centre, releasing captive-bred birds and habitat development among other things.



— The conservation programme has been running since 2016 for long-term recovery of critically endangered GIB and Lesser Florican. As of now, around 140 GIBs and fewer than 1,000 Lesser Floricans are surviving in the wild.

— The first component comprises targets such as completion of the conservation breeding centre (CBC) in Jaisalmer's Ramdevra, development of the Sorsan Lesser Florican facility, preparatory work for releasing captive-bred birds, release of GIBs in Rajasthan and other range states, post-release monitoring and artificial insemination.

— The second component comprises in-situ conservation of GIBs in other range states such as Gujarat, Maharashtra, Karnataka, Andhra Pradesh and Madhya Pradesh. This component will be implemented by WII along with state governments.

— The two species have faced severe decline over the years due to hunting, habitat loss and depredation of eggs by other predators. Additionally, the overhead power lines have also emerged as a key threat to GIB with a 2017-18 study estimating deaths of 88,000 birds of different species annually.

For Your Information:

— GIBs are the largest among the four bustard species found in India, the other three being MacQueen's bustard, lesser florican and the Bengal florican.

— Plans to recover the species first started in 2013 under the National Bustard Recovery Plan, which later gave way to the Bustard Recovery Project in 2016. Later, in July 2018, a tripartite agreement was signed between MoEFCC, Rajasthan forest department and WII.

— The Supreme Court is also monitoring the GIB and Lesser Florican conservation programme and a petition seeking protection of the two species is pending before it.

SANCTUARY ON FIRE

— "The fires in Uttarakhand's Binsar forest have brought into focus the avoidable, indeed tragic, costs of a siloed governance structure."

— "Forest fires are perennial. The forest department has reported that between January and June this year, there have been 1,309 forest fires in Uttarakhand — up from 241 over the same period last year and 733 for the entirety of 2023. Binsar has had its share of fires. But last month was unprecedented and, at one point, only a pathway separated the flames from the core of the sanctuary.

— "Many reasons are adduced for this surge in the frequency, ferocity and duration of these fires — nature, accident, deliberate setting of fires and/or arson."

— "Clearly, all of the above factors contribute to this phenomenon. A holistic and integrated action plan is, therefore, required to prevent, mitigate or manage future forest fires."

For Your Information:

— The Forest Survey of India (FSI) website states that nearly 36 per cent of India's forests are prone to frequent fires.



— The FSI website adds: “Severe fires occur in many forest types particularly dry deciduous forest, while evergreen, semi-evergreen and montane temperate forests are comparatively less prone (India State of Forest Report 2015)... Nearly 4% of the country’s forest cover is extremely prone to fire, whereas 6% of forest cover is found to be very highly fire prone (ISFR 2019).”

GOVT BRINGS OUT CHECKLIST OF 1.04 LAKH ANIMAL SPECIES

The central government on Sunday released the first comprehensive fauna checklist covering 1,04,561 lakh species of animals. The list was released by Union Minister for Environment, Forest and Climate Bhupender Yadav during the 109th foundation day of Zoological Survey of India in Kolkata.

— A portal for the comprehensive checklist was also launched during the occasion. India is home to over 28,000 endemic species.

— The faunal checklist comprises 121 checklists of all known taxa covering 36 phyla. Endemic, threatened, and scheduled species have also been included in the list.

— Yadav also released a ZSI publication, ‘Animal Discoveries– 2023’ comprising 641 new animal species and new records from India and ‘Plant Discoveries- 2023’ of BSI comprising 339 new plant species and new records published by scientists and researchers.

KERALA VILLAGE COMPILES IN-DEPTH BIODIVERSITY REGISTER

The Indian black turtle (Indian pond terrapin) was once a common species in Thazhakara grama panchayat in Kerala’s Alappuzha district. However, its numbers have dwindled due to “poaching for meat.” Similarly, the populations of Indian garden lizards, barn owls, Indian flying foxes, and plants such as henna and palash have also decreased. Meanwhile, the numbers of rock pigeons, rufous treepies, and other species have increased. The grama panchayat boasts 38 sacred groves, 10 paddy polders, and 35 ponds.

These details are part of the extensive information available in the second volume of the People’s Biodiversity Register (PBR) prepared by the local body. The first volume of PBR was published 10 years ago and lacked vital information.

Thazhakara has become the first panchayat in Alappuzha and one of the first in Kerala to update and publish a comprehensive PBR with the involvement of local communities. It recently submitted the 261-page document detailing the region’s biodiversity, including the identification of resources, discoveries, traditional knowledge, ongoing changes, and the impact of climate change, among other details, to the Kerala State Biodiversity Board (KSBB).

Based on the register, the local body is in the process of preparing various projects in agriculture, drinking water, and waste management, among others, with a focus on biodiversity conservation and equitable sharing of benefits. Grama panchayats, municipalities, and corporations across Kerala are updating PBR.

‘First State’

“Kerala was the first State in the country to publish the first volume of PBR across all local bodies. This document is dynamic, requiring periodic updates on ecosystem details, landscapes, species, and traditional knowledge,” says V. Balakrishnan, member secretary, KSBB.



The KSBB hopes to complete the updation of PBR in 50% of local bodies in the State before 2024.

WHAT IS THE SIGNIFICANCE OF 'ABHAYA MUDRA', INVOKED BY RAHUL GANDHI IN PARLIAMENT

In his first speech as Leader of Opposition in Lok Sabha, Rahul Gandhi on Monday invoked the abhaya mudra, the gesture of the raised open palm that is commonly understood as conveying reassurance and a freedom from fear.

He portrayed the government as a regime based on fear, and stressed that the culture of fear is alien to the Hindu religion and Indian civilisation.

“The first idea in this image that we defend is the idea of confronting our fear and never being scared,” Rahul said. The abhaya mudra, he said, was a common thread in the depictions of Lord Shiva, Guru Nanak, and Jesus Christ, and also figured in Islam, Buddhism, and Jainism.

Historically and philosophically, what is the abhaya mudra? Where does it originate from, and what does it symbolise?

Mudras in Buddhism

In Sanskrit, the term mudra could mean a seal, mark, sign, or currency, but in the Buddhist context, it refers to “hand and arm gestures made during the course of ritual practice or depicted in images of buddhas, bodhisattvas, tantric deities, and other Buddhist images” (Buswell and Lopez, *The Princeton Dictionary of Buddhism*, 2013).

Mudras are most commonly associated with visual depictions of the Buddha (or Buddharupa), with different gestures conveying different moods and meanings, signifying the subtle manifestations of the Buddha’s states of realisation.

For about 500 years after the Buddha, who lived in the 6th or 5th Century BCE, the person of the great teacher was not depicted in the form of an image or sculpture. At Sanchi, for instance, the Buddha is symbolised by a vacant throne or a footprint.

The earliest depictions of the Buddha in physical form date to roughly around the turn of the first millennium. Depictions started appearing in the Gandhara art from the northwestern edge of the Indian subcontinent (present day Pakistan and Afghanistan), which drew on Hellenistic influences, and later in the art of the Gupta period, in the Gangetic plains.

In the earliest depictions of Buddharupa, four mudras can be found: the abhaya mudra, or “gesture of fearlessness”; the bhumisparsha mudra, or “Earth-touching gesture”; the dharmachakra mudra, or “gesture of the wheel of dharma”; and the dhyana mudra, or “gesture of meditation”.

With the evolution of Mahayana (Greater Vehicle) and Vajrayana (Thunderbolt Vehicle) Buddhism, and the proliferation of Buddhist artwork outside India, hundreds of mudras entered Buddhist iconography. In tantric Buddhist traditions, the mudras came to be associated with dynamic ritual hand movements, where they “symbolised material offerings, enacted forms of worship, or signified relationships with visualised deities” (Buswell and Lopez).

Gesture of fearlessness



The abhaya mudra is described by Buswell and Lopez as one “typically formed with the palm of the right hand facing outward at shoulder height and the fingers pointing up... Occasionally, the index, second, or third finger touches the thumb, with the remaining fingers extended upward”. In some cases, both hands may simultaneously be raised in this posture in a “double abhayamudra”.

In Buddhist tradition, the abhaya mudra is associated with the Buddha immediately after he obtained Enlightenment, “portraying a sense of the security, serenity, and compassion that derive from enlightenment” (Buswell and Lopez).

The “gesture of fearlessness [also] identifies the moment when Shakyamuni (the Buddha) tamed the mad elephant...illustrating the Buddha’s ability to grant fearlessness to his followers” (Buswell, Encyclopaedia of Buddhism, 2004).

According to Buddhist legend, Devadatta, a cousin and a disciple of the Buddha, upon not being granted the special treatment he expected, plotted to harm the Enlightened One. He fed a wild elephant intoxicants and drove her on the Buddha’s path. As the disciples scattered before the charging animal, the Buddha raised his hand in the abhaya mudra of love and kindness. The elephant is said to have calmed down immediately, gone down on her knees, and bowed her head to the Buddha.

This is why the abhaya mudra is also seen as a “gesture of protection” or “gesture of granting refuge”.

Abhaya mudra in Hindu religion

Over time, the abhaya mudra appeared in depictions of Hindu deities, and the Buddha himself was absorbed into the Hindu pantheon as the ninth avatar of the Puranic god Vishnu.

“Hindus came to regard the Buddha as an avatar of Vishnu between AD 450 and the sixth century,” the Indologist Wendy Doniger wrote in her classic *The Hindus: An Alternative History*. The first mention of the Buddha avatar came in the Vishnu Purana (400-500 CE).

As multiple traditions, practices, and cultural influences mingled in the great melting pot of the Hindu religion, manifestations were seen in art and visual depiction of gods. The abhaya mudra was seen in the depictions, most commonly of Lord Shiva, Lord Vishnu, and Lord Ganesha.

HOW CINEMA IS CAPTURED AND PRESENTED THROUGH THE IMAX FORMAT

Cinema has always been a home to spectacle. Most theatrically released cinematic works, especially till the development of digital photography, employed the use of 35 mm film stock to capture the stunning vistas and cinematic protagonists. For the bulk of its history, almost all movies were shot using this 35mm film. Most modern cinematic productions have since replaced the 35mm film stock with a digital sensor. But film purists argue that film stock provides for superior resolution.

Standard film stock is a photochemical emulsion with a total width of 35mm, which records images passing vertically through a camera. Some of that frame width needs to be used to accommodate sprocket holes, which are called perforations (or perfs, if you will), that pass the film through the camera. A standard 35mm film stock has four perforations. As must be self-evident, a larger surface area on a piece of film would allow for more photographic information to



be captured. This was made possible through the use of 70mm film stock. The expansive imagery of the American West in Raoul Walsh's 1930 film *The Big Trail* was brought to light through the use of 70mm film. But it wasn't until television started stealing viewers away from Hollywood in the 1950s that the industry recognised the benefit of making 70mm a major event.

This period led to the release of epics such as *Lawrence of Arabia* and *The Sound of Music* in the 1960s. The numbers bore out the impact that the 70mm format had with its visual resolution and superior sound quality.

It was in this period that Graeme Ferguson, Roman Kroitor, Robert Kerr, and William C. Shaw came together to develop what would become IMAX.

What is IMAX?

IMAX is a motion picture film format. It consists of a production pipeline of high-resolution cameras, film formats, projectors, and theatres. Developed in Canada in the 1970s, IMAX seeks to give the viewer an immersive movie-watching experience with its large screens. IMAX theatre screens have a tall aspect ratio of 1.43:1, meaning that the width of the screen is 1.9 times the height of the screen. The screens can be 18 by 24 metres in size, with the largest screen in Leonberg, Germany, measuring 38.8 metres by 21 metres.

The IMAX negative frame has a size of 70x48mm, nearly eight times the size of what a traditional cinema film stock can capture. The IMAX format uses 70 mm film run horizontally through the projector. In normal film projection theatres, a 35 mm or a 70 mm film is run vertically. Because of this horizontal orientation, the IMAX format produces images that can be screened at 8.3 times the size as a regular 35 mm film or 3.4 times as large as the regular 70 mm film. The larger the surface area of a piece of film, the more photographic information it will contain. This means that an IMAX image yields more detail in the image.

IMAX cameras are notably larger and bulkier compared to standard cinema cameras. This size is primarily due to the large film format they use. This larger film size allows for higher resolution and clarity. Digital IMAX cameras, while smaller than their film counterparts, are still larger than most standard digital cinema cameras due to their advanced sensors and technology. The IMAX film format provides an extremely high resolution vis-à-vis its 35mm counterpart. In fact, theoreticians estimate that a standard 35mm film would have a digital resolution of around 4k, whereas a standard 70mm film would resolve at around 8k. In comparison, the IMAX format is estimated at having an equivalent digital resolution of 18k.

As a capture and storage medium, film can last indefinitely. This means that future generations could witness even more detail lurking within an IMAX frame when digital projection technology catches up.

EXPRESS VIEW ON T20 WORLD CUP: INDIA'S VICTORY IS A JUST REWARD FOR THE HARD WORK OF THE LAST TWO YEARS

When Virat Kohli and Rohit Sharma cradled Rahul Dravid in their arms and enlisted their teammates to joyously flip him in the air, on the Barbados pitch where their contrasting journeys culminated in an epic climax, the circle of joy felt complete. Dravid, whose greatest blight as an India captain happened in the Caribbean in 2007, was seeking redemption in his last game as India coach on the same shores. Sharma, whose international career took its own sweet time to warm up, needed this T20 triumph to join the pantheons of great leaders that includes Kapil Dev and MS

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



Dhoni. This was his last T20 international and it's unlikely he will be fit and around for the 2027 ODI World Cup. Kohli, who had had a disappointing T20 World Cup — his last too — puffed out his chest in the final. The match will stay in the minds of all three for years to come.

Seldom has an acutely self-conscious Dravid let himself go as he would do at the end. Rarely has Kohli and Sharma celebrated the way they did, wrapping each other with an Indian flag and holding the trophy together. It isn't just a reward for the last month in the US-Caribbean region but for the hard work and heartaches that have gone on in the last couple of years, at least. They came close to a whisker of doing this last November but were denied by Australia in the ODI World Cup. The stars had seemingly aligned then but combusted, leaving a lingering sign of whether they would ever overcome the final hurdle in an ICC tournament. The victory at the T20 World Cup has to be seen in the context of this achievement: Three men eager to hand over the baton to the next generation, but with their job accomplished and not wanting to pass on the burden of an unfulfilled past. Fittingly, Sharma showed the younger generation the aggressive template, taking it upon himself to do the hard yards as an opener while Kohli showed how to own big-game pressure. And, it was Dravid, who deflected attention from himself and ensured no panic calls were taken.

Nothing came easy on Saturday. India was wobbling when Axar Patel, promoted up the order, came up with a memorable World Cup final cameo. Kohli kept guiding the team along, holding his end. Though the spinners didn't have a great day, the troika of Hardik Pandya, Jasprit Bumrah, and Arshdeep Singh pulled off a heist in the dying minutes with more than a little bit of magic from Suryakumar Yadav. He was on the edge of the ropes, as was India at that moment, but managed to stay on the legal side to pull off a great win that will stand the test of time.



DreamIAS

**BUSINESS & ECONOMICS****OVERLORDS OF THE DEVELOPING WORLD**

Kenya is roiled by protests against a new finance Bill introduced by the government of President William Ruto. As demonstrations spread across the country's 47 counties, protesters in the capital Nairobi attempted to storm Parliament. The government clamped down, with 30 people killed in police firing and over 200 injured. Mr. Ruto eventually bowed to public pressure and announced he would not sign the controversial Bill, which sought to raise taxes on essentials such as bread, cooking oil, sugar and diapers.

Despite Mr. Ruto backing down, the protesters have called for his resignation. They see him as more loyal to the International Monetary Fund (IMF) than to the people of Kenya. A sign from the protests seemed to reflect the public mood: 'Kenya is not IMF's lab rat,' it read.

In 2021, Kenya signed a four-year loan agreement with the IMF for \$2.34 billion, and with another deal signed in May 2023, its loan volume rose to \$3.6 billion. But IMF money for developing countries comes in tranches, and with conditions.

As part of the 2021 loan deal, the IMF forced a COVID-battered Kenya to agree to austerity measures that would raise its revenue collection to 25% of GDP. The lender's demands included a combination of tax hikes and budget cuts, including elimination of subsidies on fuel and electricity and cuts in spending on education and health.

Mr. Ruto, when he came to power in September 2022, went about diligently following the IMF diktat. He cut subsidies on maize and fuel, with the latter sparking a surge in inflation. Massive protests ensued in March and July 2023, in which 30 people were killed by the police. Nonetheless, Mr. Ruto stayed the course on other fiscal consolidation measures, and earlier this month, his government reached a staff level agreement with the IMF. It was expected to open the tap on another \$976 million, provided the finance Bill — projected to raise revenues of \$2.68 billion — went through. But with Mr. Ruto forced to abandon it, the future flow of IMF funds is in doubt.

None of this, however, is new. Kenya has been through this before, as have much of Africa, whose governments often find themselves caught between the interests of their people and that of private investors and Western commercial banks, fronted by the IMF. The IMF describes itself as "being governed by and accountable to its member countries". But its history and management structure tell a different story — of an organisation that has served as a tool of American foreign policy, and works to further the interests of Western financial elites.

In 1944, when the IMF was created at a conference of 44 nations in Bretton Woods, New Hampshire, the U.S., the global supremacy of American economic might was already a reality, with the rest of the world either devastated by the Second World War or by colonial plunder, or both. This power dynamic got encoded into both the Bretton Woods twins — the IMF and the World Bank. For instance, the World Bank president is always an American, while the IMF head is always from a European ally of the U.S.

Unwritten mandate

In theory, their function is to aid economic development and promote monetary cooperation and stability. But in practice, they have followed an unwritten mandate to foster the integration of



newly independent former colonies into a global economic order on terms designed to serve the interests of American capital.

Against this background, it shouldn't be surprising that voting rights at the IMF don't follow the democratic logic of one-member country-one vote but are quota-driven, based on dollar contributions. The U.S. alone has a voting share of 16.5%, while the wealthy G-7 countries together command more than 40% of the voting power. This is more than that enjoyed by all the nations in Africa and Latin America put together, and populations most affected by decisions taken by IMF bureaucrats live precisely in these countries.

As of March 2024, among Africa's 54 countries, 31 had outstanding loans with the IMF. But they have nothing remotely resembling a 'say' in how the IMF is run.

The UN Secretary-General Antonio Guterres flagged the bias in the IMF framework last year when he said the Bretton Woods system reflected "the power relations of 1945".

This unfairness, and the unequal relationship with the IMF, is partly why so many developing countries, from Kenya to Ghana, Zambia and Pakistan, have witnessed protests against the IMF and IMF-imposed economic policies — the infamous 'Structural Adjustment Programs' (SAPs).

SAPs, adopted by the IMF from 1986 onwards, typically require governments to cut public spending, privatise state enterprises, reduce import duties and tariffs, and implement other measures so that the country pursues export-led growth. The predictable outcome of these policies, documented in the IMF's own internal research, is extreme inequality.

Impact of SAPs

A 2002 World Bank-funded study by the Structural Adjustment Participatory Review International Network tracked the impact of the IMF's SAPs in nine countries across four continents.

Its report highlighted four ways in which they furthered "impoverishment and marginalisation of local populations": one, by causing the demise of domestic manufacturing sectors and loss of employment for small producers; two, agricultural, trade and mining reforms decimated small farms and poor rural communities; three, they triggered job losses; and four, the reduced role of state in providing guaranteed access to essential services led to increase in poverty. Yet, the IMF, as the international lender of last resort, continues to impose SAP-like requirements.

Faced with a backlash in dozens of countries, the IMF did introduce 'social spending floors' to protect public spending on education, health and social protection from being cut as part of its loan conditionalities. But an Oxfam analysis of 27 loan programmes negotiated with low- and middle-income countries found that "for every \$1 the IMF encouraged governments to spend on public services, it has told them to cut six times more than that through austerity measures."

In 1994, the New York Times described the IMF and the World Bank as the "overlords of Africa". In the 30 years since, as Kenyans can testify, little seems to have changed. The overlords continue to influence economic policies in low and middle-income nations, with the fates of millions determined not in their own Parliaments but in the boardrooms of the IMF headquarters in Washington.



TARIFF HIKES ON CHINESE GOODS AND RED SEA CRISIS ARE FUELLING CONTAINER SHORTAGES, IMPACTING EXPORTERS

At a review meeting in the Commerce Ministry last month, exporters brought up concerns of a sudden shortage of containers, pointing at structural weakness that has been hurting Indian goods exports since the COVID-19 pandemic.

As European Union's 37.6 per cent tariffs on imports of Chinese Electric Vehicles (EVs) kick in from Friday, barely a month before US tariffs are slated to come into effect, India exporters as well as traders globally are hit by unprecedented container shortages.

At a review meeting in the Commerce Ministry last month, exporters brought up concerns of a sudden shortage of containers, pointing at structural weakness that has been hurting Indian goods exports since the COVID-19 pandemic.

Shortages have also resurfaced as voyage time of ships has increased amid the ongoing Red Sea crisis and fresh trade tensions between the US and China. The Indian Express explains why Indian exporters are facing repeated shortages of basic infrastructure for trade.

The trigger for the container crunch

Indian exporters are finding fewer containers for exports amid an increased demand for the steel boxes. This is primarily on account of the demand from Chinese exporters in the backdrop of fresh US and EU tariffs on products from China. In order to beat the steep US and EU tariffs, which in case of the US go up to as high as 100 per cent on Electric Vehicles (EVs) and 50 per cent on semiconductors that are set to come into effect on August 1, exporters are scrambling to ship as many items as possible. Due to the scale of trade between the US and China, container demand has gone up leaving Indian exporters with fewer containers for exports. This has added to the already short supply due to the Red Sea crisis.

Contribution of the Red Sea crisis

The Red Sea shipping route is still under blockade amid near-daily attacks targeting commercial vessels by Yemen's Houthi rebels that has slashed traffic through the route by 90 per cent compared to December last year as per US Defence Intelligence Agency report. Last month, a bulk carrier reportedly sank indicating escalation of tensions in the crucial maritime route. This has resulted in more ships taking the longer route via the Cape of Good Hope route and spending more time on the sea blocking a higher number of containers for reuse. The Red Sea crisis has also increased port congestion. Reuters reported that global port congestion has reached an 18-month high, with 60 per cent of ships waiting at anchor located in Asia.

Unprecedented shortages

Tariffs hikes have been a part and parcel of trade between the US and China for several years, especially beginning in the Donald Trump administration but shipping routes and containers did not have the impact as they are seen this time. One reason is that the US under Joe Biden not only kept the Trump era tariffs unchanged, he has targeted EV, the fastest growing traded item as per World Trade Organization (WTO). This urgency is displayed by Chinese traders also in the backdrop of significant over capacity of EV items in China. But China is set to lose out on two major markets: the US and the European Union. To make matters worse, Canada is also mulling higher



duty on Chinese EVs. Indonesia has also announced an import tariff of up to 200 percent on a range of Chinese goods.

Dependence on China for containers

While the reasons for the ongoing container crunch may be different this time around, the root cause of such repeated concerns is India's limited capacity for container manufacturing and complete dependence on China for the steel boxes crucial for global goods trade. China is the largest exporter of containers and makes up for 95 per cent of the large steel boxes production globally. Much of the container manufacturing in China is done by a handful of highly subsidized state owned enterprises that has sparked security concerns in the US, EU as well as in India. Realizing high dependence on China for crucial port operation calls for domestic manufacturing of containers began after COVID-19. The US has initiated plans to de-risk its ports from over reliance on Chinese containers and cranes. India also began production after 2021.

Container production in India

The Indian Express had reported in 2021 that state-owned wagon manufacturer Braithwaite, and engineering major Bharat Heavy Electricals Limited had received an order from Container Corporation of India (CONCOR) to develop and produce 1000 containers each.

However, the production did not go as expected. Railway Minister Ashwini Vaishnaw told Parliament last year that CONCOR was facing problems in supply and procurement of domestic containers. Vaishnaw told Parliament in April that CONCOR had placed orders for 19,000 containers on seven indigenous container manufacturers located in Andhra Pradesh, West Bengal, Chhattisgarh, Punjab, Maharashtra, and Gujarat but till 31 March 2023, about 500 containers had been delivered to CONCOR.

THE CHIP SUPERSTARDOM: TAIWAN'S TRIUMPHS AND THE PERILS THAT COME WITH IT

The silicon semiconductor chip, which sits at the heart of every new technology, is a device that Taiwan has an absolute mastery over. Its biggest manufacturer, the Taiwan Semiconductor Manufacturing Company (TSMC), is the ninth-most valuable business in the world and has a virtual stranglehold over the fabrication of high-end chips that even major American tech majors such as Intel, Nvidia or Apple depend on.

— It is precisely this aspect of Taiwan's chip superstardom that makes the country almost irreplaceable – and, thereby, particularly vulnerable. China, which is already being cut off progressively from the most advanced chips, is threatening to take control of the island, triggering concerns over yet another flashpoint in a world where two wars are already raging.

— There is a paradox here too. While the semiconductor industry has been called Taiwan's "silicon shield", giving the world a big reason to defend the island if China were to invade, parts of the shield are now moving abroad.

— To meet the pressure to be physically closer to its customers, TSMC is now building new fabs in the US, Japan and Germany.

— The chip giant's move to diversify its production beyond Taiwan has triggered fresh concern among a section of the locals, who worry that the move could eventually diminish the island's importance as a global semiconductor powerhouse.



For Your Information:

— As the Union Cabinet approved a slew of semiconductor-related projects totalling investments of about Rs 1.26 lakh crore, the real breakthrough was the Tata Group's semiconductor fabrication plant in partnership with Taiwan's PSMC due to its strategic importance.

— While still a blueprint, this marks a big leap for India's semiconductor ambitions — an area where successive governments have tried, and failed, to get global companies to set up shop in the country. This could also be significant given that about 70% of the current global manufacturing capacity is confined to South Korea, Taiwan and China, with the US and Japan making up for much of the rest, according to data from California-based semiconductor lobby organisation SEMI.

HOW CAN STATE CAPACITY BE MEASURED?

State capacity refers to the ability of any state to successfully deliver what are generally considered to be public goods and services to its citizens. State capacity is considered by many public policy experts to be the major factor that explains why some countries are rich or developed while other countries remain underdeveloped.

The most common way in which the capacity of a state to deliver on its commitments is measured is by the way of its ability to collect a sufficient amount of tax revenues. This is because any state requires tax revenues to deliver public goods and services. By this measure, countries with a higher tax to GDP ratio, which typically turn out to be rich countries, may be considered to possess greater state capacity than other countries with lower ability to generate tax revenues. Many also urge developing countries like India to boost their tax to GDP ratio so as to build state capacity.

Power in numbers

Public policy experts may also look into other indicators such as the number of people employed by a certain state to measure its capacity. So, for example, the number of police officials per capita could be seen as an indicator of the capacity of the state to maintain law and order. States with a very low number of police officials per capita, it is believed, may be unable to establish monopoly of violence in their territory, leading to instability that adversely affects their economy. Similarly, the number of courts and judges per capita can be seen as an indicator of how well a state can deliver justice to citizens.

Some critics, however, caution against the definition of state capacity in terms of the ability of a certain state to collect tax revenues or the number of staff it can hire to deliver essential public goods and services to its citizens. This is because more efficient states may be able to deliver essential public goods with lower taxes and fewer staff than less efficient ones. Critics, therefore, argue that the number of people employed by a certain state and the amount of taxes collected by it only reflect its size and not the state's effectiveness in delivering essential public goods and services.

Critics such as U.S. economist Bryan Caplan also point out that state capacity, as defined by the size of the state, is claimed by public policy experts to be the reason behind the success of certain countries without establishing the necessary causal link between the two. In other words, they argue that the success of rich countries is tautologically attributed to strong state capacity the same way that the failure of poor countries is attributed to weak state capacity. They point out that it could well be that strong economic growth allowed developed countries to fund states that are large in size; in that case, the economic success of the developed world cannot really be



attributed to a larger state. A better way to measure state capacity, critics believe, is to gauge the ability of a certain state, regardless of its size as measured by its tax collections or headcount, to uphold the rule of law by delivering efficient justice to citizens.

HOW TO READ INDIA'S BALANCE OF PAYMENTS

Last week, data from the Reserve Bank of India (RBI) showed that India's current account registered a surplus during the fourth quarter (Jan-Mar) of the 2023-24 financial year. This was the first time in 11 quarters that India had witnessed a surplus.

Movements in the current account are closely monitored as they not only impact the exchange rate of the rupee and India's sovereign ratings, but also because they point to the overall health of the economy.

However, the country's current account cannot be understood in isolation. The larger picture is provided by the so-called 'Balance of Payments' table alongside.

What is Balance of Payments?

The Balance of Payments (BoP) is essentially a ledger of a country's transactions with the rest of the world. As Indians trade and transact with the rest of the world, money flows in and out of the country. The BoP shows how much money (shown here in billions of US dollars) went out of the country and how much money came in. All the money coming into the country is marked positive and all the money going out is marked negative. As such, in the BoP table, a minus sign points to a deficit.

The BoP matters because it captures the relative demand of the rupee vis-à-vis the demand for foreign currencies (represented in dollar terms). Hypothetically, if there were only two countries in the world, India and the US, every time an Indian wanted to buy an American good or service, or to invest in the US, they would have to hand over a certain number of rupees to first buy the dollars needed to complete that transaction. In the end, the exchange rate would be determined by the relative demand of the two currencies — if Indians demanded more dollars than Americans demanded rupees, the 'price' (or the exchange rate) of the dollar relative to the rupee would go up.

Balance of Payments

What are the constituents of the BoP?

The table shows the constituents of India's BoP. The BoP has two main 'accounts' — Current Account, and Capital Account.

CURRENT ACCOUNT: The current account, as the name suggests, records transactions that are of a 'current' nature. There are two subdivisions of the current account: the trade of goods, and the trade of services.

The trade or merchandise account refers to the export and import of physical goods (cars or wheat or gadgets, etc), which determines the 'balance of trade'. If India imports more goods than it exports, it is running a trade deficit, which is shown by a negative sign.



The second part of the current account is made up by the 'invisibles' trade, so called because it refers to trade in services and other transactions that are typically 'not visible' in the same way as, say, the trade in cars or chairs or phones is.

'Invisible' transactions include services (e.g., banking, insurance IT, tourism, transport, etc.); transfers (e.g., Indians working in foreign countries sending back money to families back home); and incomes (such as the income earned from investments).

The net of these two kinds of trades is the current account. As can be seen from the table, in Q4, India registered a surplus on the current account. There was a surplus on the invisibles, but there was a deficit on the trade account.

CAPITAL ACCOUNT: The capital account captures transactions that are less about current consumption and more about investments, such as Foreign Direct Investment (FDI) and Foreign Institutional Investments (FII). The table for Q4 shows a net surplus of \$25 billion on the capital account.

Lastly, the BoP table always balances through the change in the foreign exchange reserves column. When there is a BoP surplus — net of current and capital account — implying billions of dollars coming into the country, the RBI sucks up these dollars and adds to its foreign exchange reserves.

If the RBI did not do this, the rupee's exchange rate would appreciate — and undermine the competitiveness of India's exports.

How should the data in the table be read?

Contrary to the images they evoke in the lay person's mind, the words 'deficit' and 'surplus' do not always correlate to 'bad' and 'good' respectively. So, a current account deficit may not always be bad for an economy, nor is a current account surplus necessarily a good development.

The first thing to note is the difference between the Q4 data and the full year (FY2023-24) data.

The current account balance, which is surplus in Q4, is in deficit for the full year. Typically, for a country such as India, a current account deficit happens because a developing economy needs to import lots of capital goods (read machinery) to build up its capacity to produce more exports. A trade deficit also suggests that India's underlying economy has a strong demand impulse.

Look at the data from FY2020-21, which shows a surplus on the current account. But this was the year when Covid-induced lockdowns brought the shutters down on economic activity. The current account surplus in FY21 was not a desirable one.

According to N R Bhanumurthy of the National Institute of Public Finance and Policy (NIPFP), an autonomous research institute under the Finance Ministry, it is broadly agreed that a current account deficit of 1.5%-2% of GDP is consistent with a GDP growth rate of 7%-8%.

GOVT TO RELEASE FUNDS TILL SEPT 30; 26 CITIES YET TO GET FULL CENTRAL SHARE

Having extended the Smart Cities Mission deadline for a third time, till March 31, 2025, the Centre last week told the states and UTs that it will disburse the remaining funds till September 30 on a "first come first serve basis", The Indian Express has learnt.



— Of the 100 cities under the Mission, 26 are yet to receive 100% share of the central funding as work on projects is still ongoing, according to Union Housing and Urban Affairs Ministry.

— The Mission was to end on June 30, but on June 29 the Ministry of Housing and Urban Affairs (MoHUA) wrote to all states and UTs informing them that the Mission will extend till March 31, 2025 without any additional cost.

— The states and UTs were told the remaining central funds would be released till September 30, or earlier, on a first come first serve basis, and were asked to expedite their proposals for fund release.

For Your Information:

— The Smart Cities Mission was launched on June 25, 2015. Key focus areas of the scheme include the construction of walkways, pedestrian crossings, cycling tracks, efficient waste-management systems, and integrated traffic management and assessment.

THE PROBLEM WITH MODINOMICS

Modinomics understands return, but is cavalier about risk. On the face of it, Modinomics is a strategy specifically designed to encourage investment, indeed to convince the whole world to “Make in India”. Yet, global investors have been reluctant to beat a path to India’s doorstep and even domestic firms have been investment-shy, especially in manufacturing.

— “In Narendra Modi’s first term, measures were taken to address such investment risk. There was a concerted effort to restore macro stability by introducing an inflation targeting regime and cutting the fiscal deficit. The government also tried to reduce risks for banks by providing them with legal recourse via the IBC in case the loans went wrong.”

— “But during the second term, the idea of risk mitigation eluded Modinomics. Some of the measures taken increased investor risk... From an investor’s perspective, risks emanate from three types of state action that favour competitors, are directly coercive, or jeopardise the supply chain.”

— “The first is what could be termed “national champions risk”. On numerous occasions, the government has abruptly changed the policy framework when it saw the opportunity to promote a national champion (Adani and Ambani)... But this strategy has a drawback — it deters all the other domestic firms from entering the same manufacturing space or even a different space, out of fear that once their irreversible investment is made, the policy framework will be changed to their disadvantage.”

— “The second risk stems from direct and coercive state action, such as aggressive tax collection. Admittedly, such policies can benefit the government, with reportedly around 40 per cent of income tax (corporate and individual) revenue accruing from additional tax demands. But if ED or tax authorities raid selectively, while regulatory agencies render arbitrary verdicts, or actions verge on extortion as in the electoral bonds saga, risk perception deteriorates sharply.”

— “Finally, there is supply chain risk. Today, virtually no manufacturing product is made solely from domestic materials. For India to become internationally competitive — and convince the world to “Make in India” — manufacturing firms need to be assured that they will have access to raw materials and inputs from anywhere in the world.”



WHAT IS ON THE AGENDA FOR THE 16TH FINANCE COMMISSION?

The story so far:

The 16th Finance Commission (FC) has begun its work, established under Article 280 of the Indian Constitution, primarily focusing on the devolution of the consolidated fund. Since the 73rd and 74th constitutional amendments, local bodies have gained significant recognition within the federal system. These amendments introduced sub-clauses 280 (3) (bb) and (c), which mandate the FC to recommend measures to augment State consolidated funds for supporting panchayats and municipalities.

What about cities?

The National Commission on Urbanisation in the mid-80s described cities as “engines of growth.” Although this view is somewhat narrow, the reality is that cities contribute around 66% of India’s GDP and about 90% of total government revenues. Cities, thus, are an important spatial zone for the overall development of the country. However, our economic scale is insufficient to meet rising needs. The World Bank estimates that \$840 billion is needed for basic urban infrastructure in the next decade.

Despite the efforts of five commissions since the 11th Finance Commission, financial devolution to cities remain inadequate. The fiscal health of municipalities is poor, affecting both city productivity and quality of life. Rapid urbanisation without appropriate fiscal action has adverse effects on development. Intergovernmental transfers (IGTs) to Urban Local Bodies (ULBs) in India are about 0.5% of GDP, much lower than the 2-5% typical of other developing nations. For instance, South Africa allocates 2.6%, Mexico 1.6%, the Philippines 2.5%, and Brazil 5.1% of their GDPs to their cities. Although IGTs make up about 40% of ULBs’ total revenue, issues persist regarding their predictability, earmarking for vulnerable groups, and horizontal equity. IGTs are crucial for ULBs, given their financial state and the need for stable support until their own revenues improve.

What about the taxation system?

The introduction of the Goods and Service Tax (GST) has reduced ULBs’ tax revenue (excluding property tax) from about 23% in 2012-13 to around 9% in 2017-18. IGTs from States to ULBs are very low, with State Finance Commissions recommending only about 7% of States’ own revenue in 2018-19. Increasing the quantum of IGTs as a percentage of GDP is necessary. Despite the 74th constitutional amendment’s aim to financially strengthen ULBs, progress over three decades has fallen short.

The 13th Finance Commission observed that “parallel agencies and bodies are emasculating local governments both financially and operationally.” Local governments require support from Union and State governments through funds, functionaries, and technical aid. However, the growth of parallel agencies has distorted local governments’ roles. Programs like the Member of Parliament Local Area Development Scheme and the Member of Legislative Assembly Local Area Development Scheme exacerbate this issue, distorting the federal structure.

How important is the Census?

In the absence of the 2021 Census, reliance on 2011 data is inadequate for evidence-based fiscal devolution. India has approximately 4,000 statutory towns and an equal number of Census towns,



with an estimated 23,000 villages, all of which are effectively urban. These figures must be captured by the 16th FC, including the significant migration to Tier-2 and 3 cities.

Thus, the 15th FC's nine guiding principles require a revisit. Not all of them but reference to enhancement in property tax collection in tandem to the State's GST; maintenance of accounts; resource allocation for mitigating pollution; focus on primary health care, solid waste management, drinking water, etc., deserve attention. The 16th FC must consider India's urbanisation dynamism and ensure IGTs to urban areas are at least doubled. A McKinsey Global Institute report warns that if India continues investing in urban infrastructure at current rates, urban infrastructure will fall short, leading to water supply issues and untreated sewage.

GOVERNMENT SHOULD BE TRANSPARENT ABOUT GST FIGURES

On July 1, the Ministry of Finance marked seven years of the shift to the Goods and Services Tax regime. About the same time, the government reportedly decided to discontinue the practice of publishing detailed GST data on a regular basis. This is an unwelcome departure from the past. The monthly GST data, which contains information on gross tax collections, revenue from levy of the compensation cess as well as the state-wise tax collected, serves several purposes. As data on many other economic indicators tends to be released with a considerable lag, the GST data works as a timely barometer to gauge the state of the economy. For instance, the quarterly GDP data comes with a delay of two months — data for the first quarter of the ongoing year (April-June) will only be released at the end of August. Similarly, data on industrial production is also published with a lag — data for April was published on June 12. The GST data also provides an indication of whether the government (it includes both Centre and state collections) is on track to meet its budgeted revenue projections, and as a consequence its fiscal deficit target. This has implications for its market borrowings.

This is not the first time there has been controversy around the release of official data. For instance, the 2017-18 consumption expenditure survey was not released by the government due to "quality issues". There was a sharp debate over the employment and unemployment survey of 2017-18. However, over the years, the government has taken steps to address the concerns raised over the growing gaps in data, and strengthened the statistical system. The employment surveys have been carried out and released at regular intervals. The fact sheet on the latest round of the household consumption expenditure survey was put in the public domain before the general elections. And recently, the government has released a fact sheet on the two rounds of the annual survey of unincorporated sector enterprises that provides information on how the informal sector has fared during 2021-22 and 2022-23.

The government should strive to maintain data transparency, it should resume the practice of releasing granular GST data at regular intervals. Alongside, it must move quickly for conduct of the much delayed census. While in the initial years of the decade, the delay on account of the pandemic was understandable, three years later, it is difficult to justify the continued stalling. This is more so since several official surveys have been carried out and released during this period. Considering that data, whether on household consumption expenditure, employment or tax, provides an understanding of various facets of the economy, the absence of data has critical implications for policy.



RBI REPORT ON BANKING SYSTEM: SIGNS OF GOOD HEALTH

The Indian banking system has continued to register a robust performance across various metrics. As per the Reserve Bank of India's latest financial stability report, not only have banks seen a sustained improvement in their asset quality, but their profitability has remained high, and their capital position also remains healthy. This improvement is being observed across both public and private sector banks. This has, in turn, improved their attractiveness — the Nifty Bank index is up more than 16 per cent over the past year, with PSU banks registering handsome gains.

According to the report, the gross non-performing loans of the Indian banking system have declined to a 12-year low of 2.8 per cent in March, with declines observed across public, private and foreign banks. Sector wise data shows that bad loans have fallen across agriculture, industry, services and the personal loans category, though within industry, they remain high in gems and jewellery and construction segments, and within personal loans in the credit card segment. This broad decline in bad loans has been driven by a combination of write-offs and fall in fresh bad loans — the half-yearly slippages have fallen across all bank groups. Alongside, banks have improved their provision coverage ratios, their net interest income has risen, and their capital position remains healthy. The stress tests conducted to gauge the strength of bank balance sheets do indicate that they are well placed to absorb macroeconomic shocks. And even in the severe stress case scenario, their capital position would remain above the minimum requirements. Further, banks may well see bad loans fall further to 2.5 per cent by March 2025 under usual business conditions.

However, there are some areas that require a closer look. Even as the asset quality of retail loans has improved — bad loans have fallen from 2.1 per cent in June 2022 to 1.2 per cent in March 2024 — in the case of private sector banks, slippages from retail loans accounted for 40 per cent of fresh addition to bad loans. In consumer credit, in the case of personal loans below Rs 50,000, the delinquency levels are high. And, a sizable section of borrowers has multiple loans. While the central bank has been cognisant of the risks in this segment, this requires continuous supervision.

WHAT IS PROJECT NEXUS THAT RBI HAS SIGNED UP FOR?

The Reserve Bank of India (RBI) has joined Project Nexus, a multilateral international initiative to enable instant cross-border retail payments by interlinking domestic Fast Payments Systems (FPSs). India's Unified Payments Interface (UPI) and FPSs of Malaysia, the Philippines, Singapore and Thailand will be interlinked through Nexus. Going ahead, the platform can be extended to more countries.

What is Project Nexus?

Project Nexus is conceptualised by the Innovation Hub of the Bank for International Settlements (BIS). It seeks to enhance cross-border payments by connecting multiple domestic instant payment systems (IPS) globally. It is the first BIS Innovation Hub project in the payments area to move towards live implementation.

The Reserve Bank of India has been collaborating bilaterally with various countries to link India's Fast Payments System (FPS) – UPI, with their respective FPSs for cross-border Person to Person (P2P) and Person to Merchant (P2M) payments. While India and its partner countries can continue to benefit through such bilateral connectivity of FPS, a multilateral approach will provide



further impetus to the RBI's efforts in expanding the international reach of Indian payment systems.

In over 70 countries today domestic payments reach their destination in seconds at near-zero cost to the sender or recipient. This is thanks to the growing availability of instant payment systems. Connecting these IPS to each other can enable cross-border payments from sender to recipient within 60 seconds (in most cases), according to the BIS.

What are the benefits of the platform?

Project Nexus is designed to standardise the way IPS connect to each other. Rather than a payment system operator building custom connections for every new country that it connects to, the operator can make one connection to the Nexus platform. This single connection allows a fast payments system to reach all other countries on the network. Nexus could significantly accelerate the growth of instant cross-border payments.

Which countries have joined the platform?

Project Nexus aims to connect the FPSs of four Association of Southeast Asian Nations (ASEAN) — Malaysia, Philippines, Singapore, and Thailand; and India, who would be the founding members and first mover countries of this platform.

An agreement on this was signed by the BIS and the central banks of the founding countries i.e., Bank Negara Malaysia (BNM), Bank of Thailand (BOT), Bangko Sentral ng Pilipinas (BSP), Monetary Authority of Singapore (MAS), and Reserve Bank of India on June 30, 2024, in Basel, Switzerland. Indonesia will also join the platform in future.

WHY HAS SEBI ACCUSED HINDENBURG OF BREAKING INDIAN LAW, AND WHY HAS HINDENBURG SAID THAT'S 'NONSENSE'?

US-based short-seller Hindenburg Research announced on Monday (July 1) that it had received a show cause notice from India's capital markets regulator Securities and Exchange Board of India (SEBI) for short selling of Adani Enterprises Ltd (AEL) stock immediately before and after the release of its report last year accusing Adani of stock manipulation and accounting fraud.

Hindenburg rejected SEBI's notice as "nonsense", and an attempt to silence and intimidate those who expose corruption and malpractices. SEBI has not responded to requests seeking a comment.

Here's what to know about the controversy.

What is the Hindenburg Report on Adani?

On January 24, 2023 (January 25 in India) the New York-based investor research firm Hindenburg Research released a 106-page report accusing the Adani Group led by Gautam Adani of "brazen stock manipulation and accounting fraud scheme over the course of decades".

The report was released ahead of the Rs 20,000-crore follow-on Public Offer (FPO) of Adani Enterprises Ltd, the flagship entity of the ports-to-energy conglomerate. Shares of Adani companies tanked (most have now recovered) after the release of the report, and the FPO, which was fully subscribed, was later called off by the Group.



Adani denied all allegations, and accused Hindenburg of leading a “calculated attack on India, the independence, integrity and quality of Indian institutions, and the growth story and ambition of India”.

What is SEBI’s show cause notice about?

Hindenburg said on July 1 that it had received, “on the morning of June 27”, a “bizarre email ostensibly from SEBI” that had initially appeared to be a “possible targeted phishing attempt”.

It said that it subsequently received another email, a 46-page show cause notice, which outlined suspected violations of Indian regulations. SEBI’s notice stated that Hindenburg appeared to have colluded with certain entities to use advance knowledge of non-public information to build short positions in AEL shares and book profits.

The notice, which Hindenburg posted on X, named Hindenburg Research, its founder Nathan Anderson, partner-investor Mark Kingdon, and three entities owned or controlled by Kingdon: Kingdon Capital Management LLC, M Kingdon Offshore Master Fund LP, and K India Opportunities Fund (KIOF) – Class F.

SEBI has alleged that on November 30, 2022, the short seller shared a draft of its report on the Adani Group, which was substantially the same as the subsequently published Hindenburg Report, exclusively with its client, Kingdon Capital Management.

According to the show cause notice, Mark Kingdon held 99% stakeholding in Kingdon Capital, and was the ultimate beneficiary owner (UBO) of the M Kingdon Offshore Master Fund LP, which, on December 28, 2022, started the process of subscribing to 100 per cent Participating Redeemable (PR) shares of KIOF Class F, the Foreign Portfolio Investor (FPI).

The FPI then took short positions in the futures of AEL before the publication of the Hindenburg Report. It then squared off its entire short position after the report was published, making a profit of Rs 183.24 crore.

“Hindenburg colluded with Mark E Kingdon along with its three Kingdon entities, in a scheme devised to use advance knowledge of non-public information (NPI) regarding the existence, timing, and overall nature of the (Hindenburg) Report, to enable KIOF – Class F to build short positions in the futures of AEL and share profits accrued from squaring-off the positions at prices deflated due to publication of the Hindenburg Report in a manner designed to lower scrip prices to the maximum extent possible,” the show cause notice said.

How has Hindenburg responded to the show cause notice?

Hindenburg said the charges had been “concocted to serve a pre-ordained purpose: an attempt to silence and intimidate those who expose corruption and fraud perpetrated by the most powerful individuals in India”.

It said: “Much of the show cause notice seemed designed to imply that our legal and disclosed investment stance was something secret or insidious, or to advance novel legal arguments claiming jurisdiction over us. Note that we are a US-based research firm with zero Indian entities, employees, consultants or operations.”

SEBI, Hindenburg said, claimed that the disclaimers in its report were misleading because we were “indirectly participating in the Indian securities market,” and, therefore, were short [on]



Adani. “This wasn’t a mystery,” Hindenburg said — “virtually everyone on earth knew we were short Adani because we prominently and repeatedly disclosed it”.

Hindenburg said that instead of “meaningfully pursuing the parties that ran a secret offshore shell empire engaging in billions of dollars of undisclosed related party transactions through public companies” the regulator “seems more interested in pursuing those who expose such practices”. It alleged that SEBI may have “pressured brokers behind-the-scenes to close short positions in Adani under the threat of expensive, perpetual investigations, effectively creating buying pressure and setting a ‘floor’ for Adani’s stocks at a critical time”.

Where does Kotak come into this picture?

In its statement, Hindenburg said that SEBI’s notice had “conspicuously failed to name...Kotak Bank, one of India’s largest banks and brokerage firms..., which created and oversaw the offshore fund structure used by our investor partner [Kingdon] to bet against Adani. Instead, it simply named the K-India Opportunities fund and masked the ‘Kotak’ name with the acronym ‘KMIL’”.

“We suspect SEBI’s lack of mention of [Uday] Kotak or any other Kotak board member may be meant to protect yet another powerful Indian businessman from the prospect of scrutiny, a role SEBI seems to embrace,” it said.

In response, Kotak Mahindra Bank said that KIOF is a SEBI-registered FPI that was established in 2013, and which follows due KYC procedures with regard to clients.

“Kotak Mahindra International Limited (KMIL) and KIOF unequivocally state that Hindenburg has never been a client of the firm nor has it ever been an investor in the Fund. The Fund was never aware that Hindenburg was a partner of any of its investors. KMIL has also received a confirmation and declaration from the Fund’s investor that its investments were made as a principal and not on behalf of any other person,” a Kotak Mahindra spokesperson said.

As per corporate shareholdings filed for June 30, 2024 (available on Trendlyne.com), KIOF publicly held six stocks with a net worth of more than Rs 361.6 crore. By contrast, the assets under management (AUM) of Kotak Mahindra Mutual Fund as of March 2024 was Rs 3.81 lakh crore. The market capitalisation of Kotak Mahindra Bank as on July 1, 2024 stood at Rs 3.59 lakh crore, and the bank announced a net profit of Rs 10,939 crore for the year ended March 2024.

How much profit did Hindenburg earn by short selling Adani stocks?

Hindenburg said: “We made ~ \$4.1 million in gross revenue through gains related to Adani shorts from that investor relationship. We made just US ~ \$31,000 through our own short of Adani US bonds held into the report. (It was a tiny position.)”

Net of legal and research expenses (including time, salaries/compensation, and costs for a two-year global investigation) “we may come out ahead of break even on our Adani short,” it said.

“There was never a point where the Adani thesis was financially justifiable for us. It was even less justifiable from a personal risk and safety perspective,” it said.

ON IMPROVING RURAL MOBILE CONNECTIVITY

Mobile devices have become an integral part of our lives. We use them to communicate with our friends and family, conduct financial transactions through UPI, connect to the Internet, etc. The



connectivity for these devices is enabled via a cellular (mobile) wireless network. A cellular network, such as a 5G network, includes a set of network equipment connected by communication links. They work together to move data between different devices and to other networks such as the Internet. A cellular network can be divided into two sub-networks: the Access Network (AN) and the Core Network (CN).

What are access and core networks?

The AN consists of base stations that provide wireless connectivity to mobile devices in a limited geographical area, called the coverage area. A network operator usually installs base stations across the length and breadth of the region to be covered. These stations can be seen in the form of towers with boxes with antennae on top.

The CN of a cellular network has equipment that provides connectivity to other networks, such as the Internet. Unlike AN base stations, the CN operates in a central location, and possibly far from any of the base stations. The CN is linked to a base station by an optical fibre link called the backhaul. Data from a user's device must pass through both a base station and the CN to reach its desired destination, such as the Internet or another user's device. Even if two users are nearby and are connected to the same or adjacent base stations, the data must pass through the central CN. The CN is essential to support user mobility, a key feature offered by cellular networks.

What impedes rural connectivity?

Even though cellular networks seem omnipresent, their deployment and use vary significantly between urban and rural areas. This is especially true in developing countries like India. According to the latest Telecom Subscription Data from the Telecom Regulatory Authority of India, urban tele-density in the country is 127% while rural tele-density is 58%. Put another way, on average, an urban user has one or more mobile connections (1.27) whereas only one out of two rural users (0.58) is connected. This data suggests an urban-rural digital divide. The situation in most other developing countries is similar or worse.

An important factor impeding the deployment and/or use of cellular networks in rural areas is the relatively lower income of the people here. A big chunk of the rural population finds mobile services unaffordable. Other relevant characteristics of rural areas are lower population density, populations distributed in clusters (villages) often separated by vast empty spaces, and remoteness. Taking fibre infrastructure to a far-off village, say, in the Himalayas, to connect the base station there may neither be cost-effective nor easy.

These features of the rural landscape require a communication system that can efficiently cover a large geographical area — yet there has been limited research focus on these factors.

Most existing cellular networks cater to urban populations in economically developed countries, for example, the 5G network focuses on providing 10 Gbps data rate and 1 ms latency. Rural connectivity lags far behind.

What is the IEEE 2061-2024 standard?

Our research group at IIT Bombay, led by Professor Abhay Karandikar, has been working on affordable rural connectivity for many years and some of the solutions developed in our lab form the basis of the 2061-2024 standard. The standard defines a wireless network architecture for affordable broadband access in rural areas. It was approved on June 6 by the Institute of Electrical and Electronics Engineers (IEEE).

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



The IEEE-2061 network also includes a CN and AN similar to cellular networks. However, the IEEE-2061 AN is heterogenous wherein different types of base stations coexist: it includes base stations covering large coverage areas — called macro-BS — supplemented by small coverage area Wi-Fi. It is different from the 5G network, where the AN is homogeneous comprising base stations of the same type and typically smaller coverage area.

The macro-BS in IEEE-2061 can be built with any cellular technology that can support a large coverage area. While the macro-BS provides large-area coverage but possibly lower data rate, Wi-Fi is deployed within villages to provide high-speed connectivity. A key capability of the system is that it allows a device to move from a Wi-Fi based connectivity to a macro-BS connectivity without any service disruption. This is enabled by an integrated AN control functionality in the IEEE-2061 network. As wireless systems evolve, both legacy and new technologies — including 4G, 5G, 6G, Wi-Fi and networks — will coexist and complement each other. In such a heterogenous network, an integrated AN control functionality like the one included in the IEEE-2061 standard will help avoid issues like call drops.

What is a middle-mile network?

Further, the IEEE-2061 standard proposes the use of a multi-hop wireless middle-mile network to extend connectivity to areas where optical-fibre links are not available. A multi-hop wireless middle-mile provides cost-effective connectivity over long distances, eliminating the need for costly and difficult-to-deploy optical fibres. An IEEE-2061 network can flexibly use one or more technologies like satellites, or long-range Wi-Fi for the middle-mile.

The IEEE-2061 AN also has a direct and alternate path to the Internet, unlike the (4G/5G) network, where Internet connectivity is possible only via the CN. As mentioned earlier, the CN in cellular networks is required to support user mobility. But many mobile network users today are stationary, this is all the more characteristic of rural areas. Therefore, a direct connection to the Internet from an AN, avoiding the centralised CN, would be a more optimal solution for such users. Unlike the 4G/5G networks, an IEEE-2061 network can also avoid the CN for communication between nearby users, which can be directly routed within AN instead. This is like going directly from Belagavi to Hubballi (AN to AN) instead of going to Bengaluru first and then to Hubballi (AN-CN-AN).

In sum, the IEEE 2061-2024 is the second IEEE standard to come out of the research efforts of Prof. Karandikar's lab at IIT Bombay. It follows on the heels of IEEE 1930.1-2022, a standard on "beyond 5G networks", which also incorporated some of our research ideas as its key elements.

If adopted, IEEE 2061 can help provide affordable connectivity to rural populations. Its novel concepts, including the CN bypass, and integrated AN control may also pave the way towards a scalable mobile network in the future.

IN KOO'S DEMISE, A STARK REMINDER: A GLOBAL SOCIAL NETWORK NEEDS MORE THAN JUST TECH

Before it could really fly, the yellow bird was dead. Government officials gave it initial flight, and while it did gain some early traction in 2021, Koo – India's answer to X (formerly Twitter) – has shut down, highlighting the existential challenges a company has to overcome in building a successful social networking platform.



For a country that prides itself for being, in many ways, the software capital of the world, a successful global social networking platform has somehow eluded India forever. Koo had first hoped it could change that, but it faced some fundamental issues.

The lobby game

It takes a lot of capital to build a social media platform in a world which is already dominated by such offerings by deep-pocketed big tech platforms from the US. Hiring the right talent, maintaining online systems, and putting together a team of content moderators are some of the obvious cost centres for a social networking platform. Then there are costs of following regulations in various jurisdictions, which again requires a team of lawyers, and policy professionals who could work with various lobby groups to influence regulations. For a small company, that is often a cost they simply can not afford in the building stage, and it is fair to believe that VCs wouldn't want to bankroll these operations either.

Those who closely follow tech regulations in India would vouch for the intricate web of lobbying that goes behind the scenes to ensure that companies and governments agree to trade-offs that they are both okay with. India is no different. So called industry bodies, which more often than not are nothing more than big-tech mouthpieces, require consistent engagement from companies, apart from membership money. If one can't afford that, it is likely that their viewpoint may never reach the government. Beyond the big lobby groups, a number of boutique consultancy firms have also mushroomed in India – that world works by publishing reports which further a narrative which is sympathetic to big tech companies, because more often than not they are the ones funding such research work. If they haven't funded it, it is likely that a consultancy firm wants to get their attention, and funding by aligning the research work they put out.

It is easy to get lost in this world, which is largely dominated by the likes of Meta and Google who splurge millions of dollars in lobbying. This is a big factor of having adequate money.

In their announcement about Koo shutting down, the app's co-founders alluded to the issue of this capital problem.

"We were just months away from beating Twitter in India in 2022 and could have doubled down on that short term goal with capital behind us," they said. "A prolonged funding winter which hit us at our peak hurt our plans at the time and we had to tone down on our growth trajectory. We needed 5 to 6 years of aggressive, long term and patient capital to make this dream a reality."

A conservative mosh pit

It is also ostensibly argued that making a social media platform is not much of a tech challenge anymore, as it might have been a decade ago. There are enough platforms to take inspiration from – as Koo liberally did from Twitter. The real challenge is to offer users an alternative that may fulfil a need which isn't already being met by another, more thriving platform.

"We explored partnerships with multiple larger internet companies, conglomerates and media houses but these talks didn't yield the outcome we wanted. Most of them didn't want to deal with user generated content and the wild nature of a social media company," the co-founders said in their post.

For Koo, it thought that its focus on local language content could be that differentiator. "We saw a big gap between the languages the world speaks and the fact that most social products, especially



X/Twitter in India are English dominant. In a world where 80% of the population speaks a language other than English, this is a strong need,” the co-founders said.

At the height of its sour relationship with X, several government officials tried propping up Koo as an alternative. There was some initial traction too. “Koo used to have a 10% like ratio, almost 7-10x the ratio Twitter had – making Koo a more favourable platform for creators. At our peak we were at about 2.1 million daily active users and ~10 million monthly active users, 9000+ VIPs, that included some of the most eminent personalities from various fields,” co-founders said.

But, that was not sustainable. Social media is a game of scale. They’re not just competing with other apps, but also with essential bodily needs like sleep. They will only work if users actively choose to log in, and engage with – and outrage over – content that is served to them. In fact, for a large portion of X users, it became a point that because Koo was promoted by those from the ruling party, they would never use it – in that sense, the government endorsement may have actually backfired.

The endorsement itself was a half-baked attempt. At no point did any government official ever commit to Koo exclusively. Take Truth Social as an example – even as it becomes a mosh pit of questionable conservative commentators, its main pull is that it is the major gateway into the mind of former US president Donald Trump, who no longer posts on platforms like X or Facebook. For those who follow him religiously and buy into the ideology that comes with that, Truth Social is a must have app.

In Koo’s case, it did not have the benefit of such exclusivity. X remains a polarising platform, with prominent voices from across political ideologies. There was little incentive to post or engage with content on Koo, because the same can be done on X, and would fetch much greater engagement and outrage.

Koo’s focus on creating a platform catering to local languages was commendable, and could perhaps work at some point in the future. Not just yet, though.

CRITICAL MINERAL RECYCLING: GOVT PLANS PLI SCHEME TO BOOST CIRCULAR ECONOMY

The Ministry of Mines is in the initial stages of designing a Production Linked Incentive (PLI) scheme to boost the recycling of critical minerals in India, The Indian Express has learnt. This move aims to foster a circular economy and bolster domestic supply chains, following a lacklustre response to recent auctions of critical mineral blocks.

— The proposed PLI scheme aligns with policy recommendations from NITI Aayog, the government’s apex think tank, and complements the Battery Waste Management Rules (BWMR), 2022, which mandate phased recycling of used electric vehicle (EV) lithium-ion batteries from 2026 onwards.

— The PLI scheme, while yet to be finalised, will target e-waste recycling– often referred to as “urban mining”– to recover critical minerals such as lithium, copper, cobalt, graphite, chromium, and silicon. These minerals are crucial for clean energy technologies like solar PV modules, wind turbines, energy storage systems, and EVs, as well as consumer electronics.

— Some recyclers argue the scheme should benefit only those extracting high-purity critical minerals suitable for reuse as primary inputs. Others advocate for a wider scope that includes the production of black mass, which is shredded and processed e-waste rich in minerals including



lithium, manganese, cobalt, and nickel, since most Indian recyclers currently lack capacities to extract battery-grade minerals from black mass.

— India's e-waste generation is poised to surge, driven by rapid growth in solar and wind energy infrastructure and EV adoption. Industry estimates project solar PV module waste to jump from 100 kilotonnes (kt) in FY23 to 340 kt by 2030. Additionally, 500 kt of EV batteries are expected to reach recycling units in the coming years. Research indicates that recycling critical minerals can significantly reduce the need for virgin ores and new mines.

— The need to incentivise the growth of critical mineral recycling has become all the more urgent after most critical mineral blocks offered by the Mines Ministry failed to pass the technical bids stage, which requires at least three eligible bidders. This indicates a lack of investor interest in domestic mining of critical minerals.

For Your Information:

— The new incentives will also build on the Battery Waste Management Rules (BWMR) notified in 2022 by the Central Pollution Control Board. These rules mandate that producers of batteries containing lithium, nickel, cobalt, and lead ensure environmentally sound management of waste batteries through Extended Producer Responsibility (EPR) compliance. EPR compliance, based on the polluter pays principle, holds producers accountable for managing the waste generated by their products. Producers can meet compliance by trading credits with recyclers.

NHRC SEEKS REPORTS FROM CENTRE, TN OVER FOXCONN'S JOBS BAR ON MARRIED WOMEN

Taking into account media reports that Foxconn India, a major manufacturer of Apple products, is excluding married women from jobs at its iPhone assembly plant in Sriperumbudur, Tamil Nadu, the National Human Rights Commission (NHRC) on Monday issued notices to the Centre and the state government. The company has denied all allegations of discrimination in employment based on marital status, gender, religion or any other form.

— The NHRC said the state must ensure that all companies follow norms, regulations and related labour laws, including the right(s) to health, dignity and equality. It added that besides the Constitution, several international covenants and treaties like the International Covenant Civil and Political Rights (ICCPR), and the International Covenant of Economic, Social and Cultural Rights (ICESCR) provide for non-discrimination on the basis of gender in all forms of employment.

For Your Information:

— The NHRC of India was established on October 12, 1993, under the Protection of Human Rights Act (PHRA), 1993, which was later amended by the Protection of Human Rights (Amendment) Act, 2006.

WILL THE HOSUR AIRPORT BECOME A REALITY?

The story so far:

Tamil Nadu Chief Minister M.K. Stalin announced in the legislative assembly plans for setting up an international airport on 2,000 acres of land, with the capacity to handle three crore passengers annually, in the industrial town of Hosur, which is 40 kms away from Bengaluru. While the airport



has been a long standing demand of the industrialists in the area, one of the hurdles is that the concession agreement signed between the Centre and the Bangalore International Airport Ltd (BIAL), the operator of Kempegowda International Airport Bengaluru, does not allow for new or existing airports (except for Mysore and Hassan airports) within an aerial distance of 150 kms before 2033.

What is the significance of Hosur?

Hosur in Krishnagiri district is located on the border of Tamil Nadu and Karnataka. Hosur is situated at 3,000 metres above sea level and according to a report by online publisher Visual Capitalist in 2021, it was ranked 13 in the world among the list of cities with the fastest population growth with an annual growth rate of 5.38%. Hosur has emerged as a flourishing industrial town with prominent companies such as Tata Electronics, TVS, Ashok Leyland, Titan, and Rolls-Royce (IAMPL) establishing significant operations in the area. It has emerged as a nucleus for auto and electric vehicle manufacturing, advanced manufacturing, logistics and electronics. The industrial town is also strong in traditional sectors like floriculture and horticulture. Estimates suggest that around 3,000 MSMEs are present in the region, engaged in engineering fabrication, tooling, and polishing, among others.

According to Tamil Nadu Industries Minister T.R.B Rajaa, the airport project in Hosur will enhance connectivity and stimulate economic growth, benefiting not only Hosur but also neighbouring districts such as Dharmapuri and Salem. He has also pointed out that the new airport will foster a twin-city ecosystem with Bengaluru, propelling growth in both Tamil Nadu and Karnataka.

What about the previous plan?

Hosur airport is owned by Taneja Aerospace and Aviation Limited. In 2023, replying to a question by Dravida Munnetra Kazhagam (DMK) Rajya Sabha MP P. Wilson, the then Union Minister of State for Civil Aviation General (retired) V.K. Singh said in the first round of bidding under the Regional Connectivity Scheme (RCS)- Ude Desh Ka Aam Nagrik (UDAN), a bid was received for the routes Chennai-Hosur-Chennai and due to the concession agreement with BIAL the route was not awarded and Hosur airport was deleted from UDAN document for future round of bidding.

What does the Union Civil Aviation Ministry's guidelines state?

As per the present guidelines of the Civil Aviation Ministry, the regulator Directorate General of Civil Aviation (DGCA) while granting licence to operate a greenfield airport should take into account that no greenfield airport would be allowed within an aerial distance of 150 kms of an existing civilian airport. In case a greenfield airport is proposed to be set up within 150 kms of an existing civilian airport, the impact on the existing airport would be examined and such cases would be decided by the government on a case to case basis. Such an application shall be first considered by the Steering Committee, headed by the Secretary of Civil Aviation. After considering the application, the Steering Committee shall make a suitable recommendation to the Ministry of Civil Aviation. The Ministry shall place the matter before the Union Cabinet for its consideration and the DGCA would grant a licence only after their approval.

In 2017, the Centre granted in-principle approval for a greenfield airport at Jewar in Greater Noida based on the recommendations of the Steering Committee on Greenfield Airports. The Noida International Airport is located 72 kms from the Indira Gandhi International (IGI) Airport, Delhi and 65 kms from the Hindon Air Force station Ghaziabad. The Centre said the airport in Delhi NCR



region will help decongest the IGI Airport and will serve the people of Delhi, Noida, Ghaziabad, Aligarh, Agra, and Faridabad.

What next?

Airport projects have a long gestation period to come on stream. Given that the DMK government is part of the Opposition alliance, it has to negotiate hard with the Centre to get the necessary relaxation in norms for setting up the airport, besides other regulatory and environmental clearances. Setting up the necessary supporting infrastructure for the airport is another challenge which needs to be overcome.

HOW SURPLUS MILK POWDER IS DAIRY INDUSTRY'S NEW PROBLEM

With many states enacting stringent anti-slaughter laws, Indian dairy farmers have been facing challenges in disposing of unproductive cattle — the ones that do not give enough milk or happen to be male.

Now, they have been hit by a new “surplus” problem — of skimmed milk powder (SMP). Cooperative and private dairies are holding an estimated 3-3.25 lakh tonnes (lt) of SMP stocks at the start of the production year that runs from July to June.

What is SMP?

Cow milk contains 3.5% fat and 8.5% solids-not-fat (SNF) on an average, with the same at 6.5% and 9% for buffalo milk. Being perishable, milk cannot be stocked. Only its solids (i.e. fat and SNF) are storable after separation of the cream and drying of the skimmed milk.

During the “flush” season, when cattle and buffaloes produce more, dairies convert the surplus milk they receive into butter, ghee and SMP — the first two from cream/fat, and the last from SNF. These solids are recombined along with water into liquid milk during the “lean” season, when production by animals falls and may not suffice to meet demand.

The flush season in the South and Maharashtra (states with predominantly cow populations) generally extends from July, post the southwest monsoon rains, till December. In the North and Gujarat, it extends from September to March (coinciding with the calvings of buffaloes, which outnumber cows in this belt).

From every 100 litres (or 103 kg) of cow milk, a dairy can make about 8.75 kg of SMP (at 8.5% SNF), and 3.6 kg of ghee (at 3.5% fat).

So, what's this problem of surplus in SMP?

The problem arises when dairies procure excess milk — beyond the normal surplus during flush — and the SMP and butter/ghee produced do not have many takers.

Dairies in India produce 5.5-6 lt of SMP annually. A big chunk of that, roughly 4 lt, is used for recombining during the lean season. The balance 1.5-2 lt gets consumed by makers of ice cream, biscuits, chocolate, sweetmeats, baby formula, and other food and industrial products.

2023-24 was a year of abundant and continuous milk supplies with hardly any lean period. It was in marked contrast to 2022-23 that saw unprecedented shortages. Dairies in Maharashtra realised record prices of Rs 430-435 per kg for yellow (cow) butter, and Rs 315-320 for SMP during



February-March 2023. They also paid farmers Rs 37-38 a litre for cow milk with 3.5% fat and 8.5% SNF, encouraging them to ramp up production, through better feeding and induction of new animals.

The resultant augmented milk availability, including in the peak lean summer months of April-June, meant that hardly 2.5 lt of SMP was consumed for reconstitution purposes. Instead of the normal July-opening stocks of 1.5-1.75 lt, dairies are now saddled with 3-3.25 lt of SMP. With the new flush season taking off — and expected to peak after September, when more milk would flow from the udders of buffaloes too — the problem of surplus may worsen.

What's been the impact of the surplus so far?

Cow SMP realisations for dairies have crashed to Rs 200-210 per kg, and to Rs 335-340 for yellow butter. The latter corresponds to a ghee price of Rs 408-415 per kg (ghee has close to 100% fat, as against 82% for butter).

The surplus problem is, however, less in milk fat, as its annual production by dairies is only 3-3.5 lt. Fat, unlike SMP, also has a good market in India, both among households and industrial consumers. This is more so during the grand festival months from August to November, when consumption of mithais goes up. The base ingredients — ghee, khoa, chenna and paneer — in most indigenous sweets come from high-fat milk. There's a higher chance, then, of fat prices recovering than that of SMP.

At current per-kg realisations, the gross revenue for a dairy producing 8.75 kg of SMP and 3.6 kg of fat/ghee from 100 litres of cow milk would be Rs 3,224-3,333. Deducting Rs 350 post-procurement expenses (on chilling, aggregator/collection agent commission and transport to the plant), and Rs 350 processing and packing costs, the dairy can, at most, pay farmers Rs 2,524-2,633, or Rs 25.24-26.33 per litre. And that's more or less what they are paying.

Politically, this could be a disaster — particularly ahead of the Maharashtra state assembly elections due in October. The National Democratic Alliance government there, on June 28, announced a Rs 5/litre subsidy payable to farmers on the milk they supply to dairies. The scheme's fine print though — eligibility criteria and coverage of farmers as well as dairies — is still awaited. Even if implemented well in time for the polls, it wouldn't address the underlying problem of SMP stock pile-up.

Is there a better solution?

Ganesan Palaniappan, a dairy ingredients trader in Chennai, believes that the only way to get rid of the excess SMP stocks is exporting it out, whether commercially or as commodity assistance to neighbouring countries.

But the drop in global prices — SMP rates at the New Zealand-based Global Dairy Trade fortnightly online auction platform are ruling at \$2,586 per tonne, down from the recent high of \$4,599 in April 2022 — makes commercial exports unviable. India's SMP shipments have, moreover, been on the decline, from 1.3 lt in 2013-14 to 4,800 tonnes in 2023-24.

Too much milk powder

R S Sodhi, president of the Indian Dairy Association, suggested that the Centre create a 50,000-100,000 tonne buffer stock of SMP: "If farmers don't get remunerative prices, they will not feed their animals properly, and you would have milk inflation next year. A buffer stock (the



government buying powder from dairies and also paying for its storage) will support prices for producers now and protect consumers from future inflation”.

Over the medium term, the dairy industry would have to develop a market for SMP or its constituents — proteins (casein and whey), carbohydrate (lactose), and minerals (mainly calcium, potassium and phosphorous).

The reasons are two-fold. First, there is growing demand for milk fat in India. But for every 1 kg of fat, dairies also end up making over 2.4 kg SMP. Secondly, farmers prefer rearing cows, as they — notwithstanding issues relating to disposal of unproductive cattle — yield more milk and start calving earlier than buffaloes. At the same time, 1 kg of fat from buffalo milk results in production of less than 1.4 kg of SMP.

As an increasing share of India’s milk comes from cows, the challenge of finding a market for surplus SMP may also grow.



DreamIAS

**LIFE & SCIENCE****SPIRAL GALAXIES EVOLVED 4 BILLION YEARS SOONER THAN EXPECTED**

A new study has revealed more spiral galaxies in the universe's youth than astronomers had expected.

The universe is about 13.8 billion years old and is home to different kinds of galaxies, from spiral to elliptical and those with or without bulges. Astronomers previously believed spiral galaxies formed about 6 billion years ago, but a new study by a group of astronomers from the University of Missouri in the U.S. has called this belief into question. It was published on June 11 in the *Astrophysical Journal Letters*.

While the universe's younger galaxies have tended to be spiral, the older ones have a variety of shapes. Astronomers study them to understand how they formed and evolved. But studying the older galaxies is more difficult because the light from them is fainter.

Not just hot air

An important idea in astronomy is that as the universe cooled down from a dense plasma state, it contained more and more hot gas. They formed clumps of matter that eventually gravitated to become galaxies. These early galaxies had irregular shapes and lacked disks. But as they cooled as well, they formed hot, thick disks that later became thinner and finally spiral 'arms' — a process that took billions of years.

This theory is now suspect. "Our work shows that this cooling down and spiral formation occur around the same cosmic time," said Vicki Kuhn, a graduate student at the University of Missouri and a member of the study.

Astronomers routinely see stars forming in real-time but since all the galaxies have already formed, they use a sort of astronomical archaeology to study them. "We don't see proto-galaxies," said Girish Kulkarni of the Tata Institute of Fundamental Research, Mumbai, who was not involved in the study. "What we do then is study how the galaxies evolve. The spiral galaxy fraction is one way to do this biography."

Seeing further into the past

The first step is to use light of the infrared and optical wavelengths to detect galaxies in the early universe. Since older galaxies are harder to detect, we need powerful telescopes. Ideally, astronomers would like to observe light emitted when the universe was around 500 million years old, when the galaxies were thought to be forming.

NASA's James Webb Space Telescope, launched in 2021, has helped astronomers gaze much deeper into the universe's past than before. The University of Missouri team used the telescope to study a cohort of 873 galaxies individually and identified at least 216 spiral galaxies. Some of them dated to 1.5 billion years after the universe's birth.



UFO DAY REKINDLES THE CONSPIRACY THEORY THAT REFUSES TO DIE

A former U.S. Air Force intelligence officer said last summer the country's government had a programme to retrieve and reverse-engineer unidentified flying objects (UFOs). The Mexican Congress held an unprecedented session in September during which supposed mummies were presented as "nonhuman beings that are not part of our terrestrial evolution." And NASA now has a director of research for "unidentified anomalous phenomena".

The Pentagon denied the former officer's claims. Mexican researchers said the mummies "made no sense". And a NASA study found no evidence of extra terrestrials. Yet there's never been a better time to mark World UFO Day.

The day has its roots in the so-called Roswell Incident on July 2, 1947. On that date, something crashed at a ranch in New Mexico. There were reports the U.S. military had recovered a "flying disc". But officials later said the debris was merely the remnants of a high-altitude weather balloon.

The material found near Roswell consisted of foil-wrapped fabric, wooden sticks, rubber pieces, and small I-beams with strange markings on them.

The Air Force investigated the incident in 1994 and concluded the supposed alien spacecraft was likely a secret military balloon designed to monitor Soviet nuclear testing.

A 2021 U.S. government report reviewed 144 sightings of aircraft or other devices apparently flying at mysterious speeds or trajectories. It found no extraterrestrial links but drew few other conclusions and called for better data collection. Lawmakers from both U.S. political parties have said UFOs are a national security concern. But the sightings are usually fleeting. Some appear for no more than an instant on camera — and then sometimes end up distorted by the camera lens.

Ronald Moultrie, the undersecretary of defence for intelligence, said during a 2022 hearing the Pentagon was trying to destigmatise the issue and encourage pilots and other military personnel to report anything unusual they see.

Then things got a little strange last year.

During a congressional hearing in late July, retired Air Force Maj. David Grusch testified that the U.S. is concealing a longstanding programme that retrieves and reverse engineers unidentified flying objects.

The Pentagon denied Grusch's claims of a cover-up and denied the existence of any such programme. It also released a study in March that had examined the many UFO sightings over nearly the past century and found no evidence of aliens or extraterrestrial intelligence.

The Pentagon's report arrived about six months after NASA released a report on UFOs, which reached the same conclusions.

NASA Administrator Bill Nelson did acknowledge another earth-like planet could exist within the billions of galaxies in the universe. When pressed by reporters on whether the U.S. or other governments are hiding aliens or otherworldly spaceships, he said: "Show me the evidence."



MARSQUAKES

Can meteorite strikes cause quakes on Mars?

Using seismic data, researchers have derived the first estimate of global meteorite impacts on Mars. Their findings indicate that 280 to 360 meteorites strike the planet each year, forming impact craters greater than 26 feet across. Using data from the seismometer deployed during the NASA InSight Mission to Mars, researchers found that six seismic events recorded near the station had been previously identified as meteoric impacts. Now, researchers have found that these six seismic events belong to a much larger group of marsquakes, so called very high frequency events. The source process of these quakes occurs much faster than for a tectonic marsquake of similar size. Where a normal magnitude 3-quake on Mars takes several seconds, an impact-generated event of the same size takes only 0.2 seconds or less, due to the hypervelocity of the collision. By analysing marsquake spectra, a further 80 marsquakes were identified that are now thought to be caused by meteoroid strikes.

WHAT IS AN APHELION?

Earth reaches aphelion every July. That Earth has an aphelion is a result of its orbit being elliptical, rather than circular.

Earth reaches aphelion every July. This year it did so on Friday.

That Earth has an aphelion is a result of its orbit being elliptical, rather than circular. According to Kirby Runyon, a geologist at the Planetary Science Institute, all planets in the solar system travel in elongated circles around the Sun, rather than perfect ones. This is most likely true for worlds around other stars, too.

At aphelion, Earth's distance from the Sun is about 152.1 million km.

Behind elliptical orbits lies gravity. "All the planets tend to jostle each other around," pulling their orbits from perfect circles, Runyon said. "It's literally this chaotic tug of war between small amounts of gravitational influence that the planets have on each other."

Jupiter exerts the most influence because it is the most massive planet in our solar system, he added.

How much an orbit deviates from a perfect circle is measured by its eccentricity. The higher the eccentricity, the more elliptical the orbit. For some bodies in the solar system, eccentricity is quite pronounced: Mars has an eccentricity of 0.094. Pluto is even more eccentric at 0.244. On the other hand, Earth's eccentricity is 0.017.

How far is the Earth from the Sun at aphelion?

At aphelion, Earth's distance from the Sun is about 152.1 million km.

Six months later, in early January, Earth reaches perihelion — the point at which it is closest to the Sun. At perihelion, the distance between Earth and the Sun is roughly 147.1 million km.



Does aphelion affect temperatures on Earth?

A common misconception is that Earth's varying distance from the Sun is what gives rise to the seasons.

We get 7% less sunlight at aphelion compared to what we are exposed to at perihelion, leading to slightly milder summers and winters in the Northern Hemisphere. But this effect is offset by Earth's tilt on its axis — at different points along its orbit the hemispheres slant either toward or away from the Sun.

What would happen if there were no aphelion?

If our planetary orbit were a perfect circle, the seasons' lengths would be exactly the same — right now, spring and summer are a few days longer than fall and winter in the Northern Hemisphere. But not much else would change.

"If, somehow, we snapped our magic fingers and Earth's orbit became more circular, it'd probably be fine," according to Runyon. But if something made Earth's orbit grow more eccentric, the consequences could be catastrophic. Seasons in the Southern Hemisphere would become too extreme — summers would be unbearably hot, and winters would be intolerably cold. This could lead to crop failures and freezes.

"If it got really bad," Dr Runyon said, "advanced civilisation would not be possible." For now, be thankful our planet is in a sweet spot.

IN 'INTEGRATED PARTNERSHIP' OF GLOBAL AI GROUP WITH OECD, SOME TRADE-OFFS FOR INDIA

During the sixth ministerial council meeting of the Global Partnership on Artificial Intelligence (GPAI), representatives of the grouping announced an "integrated partnership" with the Organisation for Economic Co-operation and Development (OECD) to bring "OECD members and GPAI countries on equal footing, under the GPAI brand" – but to arrive at this consensus, some trade-offs had to be made behind the scenes, The Indian Express has learnt.

— There were also concerns that because India, and a large part of the developing world, is not a member of the OECD, if the GPAI was to go under the AIGO, it would reduce the space for them to raise issues relevant to the AI-related discourse in their respective nations.

— There have been trade-offs, especially on where the secretariat of the GPAI would be hosted. It is understood that since India took over the presidency of the GPAI, it had been pushing for an independent secretariat, to essentially take the grouping outside of the OECD's purview. This has not come to fruition, as the GPAI's secretariat is expected to continue with the OECD.

— Launched in June 2020 with 15 members, GPAI is the fruition of an idea developed within the G7. Today, GPAI's 29 members are Argentina, Australia, Belgium, Brazil, Canada, Czech Republic, Denmark, France, Germany, India, Ireland, Israel, Italy, Japan, Mexico, the Netherlands, New Zealand, Poland, the Republic of Korea, Senegal, Serbia, Singapore, Slovenia, Spain, Sweden, Turkey, the United Kingdom, the United States, and the European Union.

**For Your Information:**

— India is a founding member of GPAI, having joined the multi-stakeholder initiative in June 2020. The initiative aims “to bridge the gap between theory and practice on AI by supporting cutting-edge research and applied activities on AI-related priorities.”

— It also brings together people involved in the fields of science, industry, and civil society, along with governments, international organisations and academia for greater international cooperation. The first three GPAI summits were held in Montreal, Paris and Tokyo, respectively.

RADIATIONBIODOSIMETRY: THE ABCS OF RESPONDING TO A RADIOLOGICAL EVENT

After a large-scale radiological event, such as an Improvised Nuclear Device or reactor accident, it is important to identify those individuals who have received a significant dose of radiation and would benefit from one of the drugs that have been recently approved to treat radiation sickness. These drugs are most effective when administered within a few days of exposure. It is also critical to reassure those individuals who have not received a significant dose but are extremely concerned, preventing them from overwhelming hospitals. Thus, there will be a pressing need to assess, within a few days, the radiation doses received by tens or hundreds of thousands of individuals.

What is biodosimetry?

Biodosimetry allows one to determine the amount of radiation to which an individual was exposed based on changes in blood, urine, or hair. It would be particularly useful in a radiological event where the exposed individuals do not carry any personal radiation monitoring devices.

The gold standard biodosimetry assay is measurement of chromosome aberrations, in white blood cells. When irradiated, DNA in the blood cells gets broken and is repaired within a few hours. In some cases, there is an incorrect repair, joining fragments from different chromosomes, forming a ‘Dicentric Chromosome (DC)’ – a chromosome with two centromeres. Because a DC can only be formed by radiation, measuring these chromosomes is a specific and sensitive indicator of past radiation exposure. In order to measure DC, lymphocyte from the exposed individuals is cultured to begin division and then the chromosomes are spread on a slide and stained. The DC are then counted either while looking down a microscope directly or in images captured at high magnification. Due to the need for culturing the cells followed by the analysis of few hundred metaphases, the overall time taken to produce a result is about 2-3 days. Over the past decades, the Dicentric Chromosome Assay (DCA) has been successfully employed in many radiation accidents, where the number of exposed people is small. However, as implemented in a clinical cytogenetic lab, the DCA is too labour intensive to be practically applied in a larger event, with a throughput of a few tens of samples per day.

A second, slightly simpler, assay is the Cytokinesis Block Micronucleus Assay (CBMN), where the white blood cells are made to divide, but arrested before division is complete. This forms a cell with two nuclei. Following radiation exposure some DNA will be ejected during division forming a “micronucleus”. This assay is slightly simpler to perform and score but overall time to answer is longer (~3 days), as it requires longer culturing of the cells.

Measurement on the phosphorylated form of specific histone protein, an inherent component of chromosomes known as the “gamma-H2AX’ assay, has the potential to segregate the exposed from that of unexposed and those exposed to low dose versus high dose without culturing cells, within



6-8 hours of time. This assay needs to be performed within 24 hours owing to the kinetics of histone phosphorylation.

Increasing throughput

The traditional approach to increasing the throughput of bio dosimetry assays is to implement a lab network, where samples are shared between a dozen or more labs around the world, however this does not provide a sufficient increase in throughput to cope with a large radiological event.

Over the last 20 years the Centre for Radiological Research at Columbia University has developed automatable versions of the major bio dosimetry assays, performed in 96-well plates. The use of 96-well plates allows a significant increase in throughput as 96 samples are processed simultaneously.

The first iteration of the Rapid Automated Bio dosimetry Tool (RABiT) used custom robotics to perform the CBMN assay with a target throughput of 6000 samples per day per machine. More recently we have implemented both the CBMN and DCA assays on several commercial High Throughput Screening (HTS) platforms, dubbed “RABiT-II”. HTS systems use robotics, liquid handling devices and automated microscopes to quickly conduct millions of chemical, genetic, or pharmacological tests. In the pharmaceutical industry, these systems leverage automation to quickly assay the biochemical activity of many drug-like compounds. In academia, the same systems are increasingly used to arrive at fundamental biological insights rather than drug candidates.

In conclusion, high throughput automated biodosimetry offers the opportunity to perform dose assessment on a large number of people in the event of a large-scale radiological or nuclear incident.

It fits well with the current operation concept, as a 2nd-tier triage separating exposed individuals into treatment categories and later for long-term epidemiological follow-up.

EXPLAINED: THE CONTINUING RELEVANCE OF FRANZ KAFKA, 100 YEARS AFTER HIS DEATH

Born in 1883 in Prague, then part of the Austro-Hungarian Empire, Kafka started out working in an insurance company, but spent his nights and weekends writing — his stories reflected what he saw glimpsed in the offices and overheard in the corridors.

The outcome was ‘Kafkaesque’, a nightmarish world of labyrinthine bureaucracy, full of forms, permits, signatures, and contracts, that existed only to protect the procedure, not to serve the people.

Wednesday marked a century of Kafka’s death. But Kafka lives on, through the modest body of his own work that has survived, and in the works of the writers he inspired in various ways — such as Paul Auster, Ismael Kadare, Gabriel Garcia Marquez, Salman Rushdie, Zadie Smith, Margaret Atwood.

Among Kafka’s short stories and novellas were *The Castle* (1926), and *In the Penal Colony* (1919). Kafka destroyed a lot of his work during his lifetime, and some were published by his friend Max Brod after his death, in defiance of Kafka’s wishes. These works, as Brod wrote in a postscript to *The Trial*’s first edition, were among Kafka’s best, of the highest “literary and ethical value”.



AT THE END OF PRIDE MONTH, ASSESSING THE LGBTQIA+ COMMUNITIES' RIGHTS

Every year, June is observed as Pride Month the world over. The contributions of members of the LGBTQIA+ communities are commemorated, and love, diversity, and acceptance are celebrated. This year, too, pride marches were held across India, not only in metropolises, but also in smaller towns.

The rights and status of the LGBTQIA+ communities vary across the world. At present, as many as 59 countries penalise any expression of queerness. In countries such as Ghana and Indonesia, those engaging in homosexual activities are punished with imprisonment or worse, death.

While 79 countries have banned same-sex marriage, 37 have fully legalised it.

A few countries have also left the communities unrecognised, rendering their status ambiguous. India falls under this category. Some have allowed same-sex couples to opt for civil unions. While the Supreme Court of India decriminalised homosexuality in 2018 by partially striking down Section 377 of the Indian Penal Code, the Indian queer communities' plea to the Court to legalise same-sex unions was rejected in October 2023. Indian courts have acknowledged same-sex couples' right to cohabitation.

Although being queer is not a crime in India any more, people who identify as queer still face discrimination, harassment, and exclusion. They are not afforded the legal aid necessary to protect themselves from discrimination.

Transgender and intersex employees in India can seek legal recourse in the face of discrimination on the basis of gender in hiring, promotion, termination, or harassment. The Transgender Persons (Protection of Rights) Act, 2019, prohibits unfair treatment with regard to employment, education, healthcare, public facilities, residence, and more.

India is one of the four countries in the world that provides employee legal aid only on the basis of gender identity, including transgender persons. However, employees are not guaranteed any legal aid when discriminated against on the basis of sexual orientation. There is no means of legally registering or identifying one's sexuality. Legal aid is available on the basis of sexual orientation in 27 countries.

In 90 countries around the world, there are no legal protections available to queer employees.

In India, members of the LGBTQIA+ communities cannot be recognised as co-parents to an adopted child. However, as per the Juvenile Justice (Care and Protection of Children) Act, 2015, a prospective adoptive parent is allowed to adopt a child irrespective of marital status.

Currently, 39 countries around the world allow same-sex parents to adopt children, and 45 countries have banned the same. However, 100 countries have arrangements similar to India, wherein single parents are allowed to adopt children, with certain conditions.

The decriminalisation of Section 377 was undoubtedly a huge victory for the LGBTQIA+ communities in India.

However, queer people still struggle to fight for their constitutional rights, for acceptance in their families, for recognition and growth in their jobs, for equality and justice in their everyday lives and interactions, and overall inclusion.



HOW TO RESIST TOTALITARIANISM: THE WORDS OF ISMAIL KADARE

Ismail Kadare's disenchantment with communism happened not when Enver Hoxha took over Albania in 1944 when Kadare was eight. It came later, when he went to Moscow to the Gorky Institute for World Literature to become, as he put it in an interview with *The Paris Review*, "an official writer of the regime".

The indoctrination failed to move him: It reminded him of the Soviet books back home that spoke of "hope", "hard work" and "sunshine" in the same breath, capturing nothing of all that was fast vanishing around them. For nearly four decades, Albania would be under the repressive communist dictatorship of Hoxha.

But in Moscow, Kadare would realise that he wasn't a believer. When he began writing, it would be to bear witness to the many shades of oppression that held his people prisoner. One of Albania's finest writers, Kadare, 88, died on July 1.

Beginning with *The General of the Dead Army* (1970) that he wrote at the age of 26 about an Italian general who returns to Albania after World War II to repatriate bodies of dead Italian soldiers, to *The Palace of Dreams* (1981) about a shadowy state department in a totalitarian Ottoman empire that maps the dreams of subjects to get an inkling about the regime's future, Kadare's fiction and poetry relied on myth-making and allusions to lend them distance and its writer immunity from state reprisal. There was also a bit of self-serving manipulation, too — in 1977, he wrote *The Great Winter*, a hagiographic portrait of Hoxha. His defence in later years was practical: Between persecution and flattery, he chose the latter.

Kadare never won the Nobel Prize in Literature, even though he was considered to be in contention for years. But the 2005 Booker International Prize winner did something more powerful. His books gave shelter to a lost Balkan way of life — the only act of resistance that transcends regimes and offers a chance to "overcome the impossible".

A NEW LAW IN GREECE WANTS PEOPLE TO WORK FOR SIX DAYS OUT OF SEVEN. BUT TO WHAT END?

Back in 1930, when John Maynard Keynes predicted that within a hundred years, most people would be working for 15 hours a week, did the economist imagine how wildly wrong he would be? Not that there haven't been stalwart efforts by certain European countries, like Spain, Belgium, Germany and Iceland, to experiment with encouraging workers to have a life outside work and find meaning in other avenues and pursuits. But even as these places institute the four-hour work week, the pull in the opposite direction — of overwork and constant hustle in pursuit of the corporate profits at the end of the rainbow — remains strong as ever.

The most recent illustration of this is Greece's new six-day work week legislation which, Prime Minister Kyriakos Mitsotakis hopes, will help boost the national economy's productivity. That he has described the initiative as "growth-friendly" (a phrase about as meaningful as other business jargon like "personal development" and "self actualisation") should be enough to set alarm bells ringing — as indeed they are, with Greek workers wondering what will happen to their hard-won legal protections in a country that already has the longest working hours in Europe.

The larger question confronting Greece, and the rest of the world, is this: Productivity, yes, but to what end? With the proliferation of "bullshit jobs" — characterised by anthropologist David



Graeber as those which could disappear and leave the global economy utterly unaffected — it has become harder and harder to tell what work matters and what doesn't. Should workers really have to give up more of their shrinking leisure time to fill up reimbursement forms and sit in meetings that could have been emails? For Greece — as indeed for others — it might be useful to go back to what Aristotle once said, that “the end of labour is to gain leisure”. A six-day work week puts paid to any hope of the latter.

INSTEM'S FABRIC OFFERS PROTECTION FROM PESTICIDES

Researchers at the Institute for Stem Cell Science and Regenerative Medicine (inStem), in Bengaluru have developed an anti-insecticide fabric that effectively neutralises organophosphate-based pesticides. In an earlier work published about six years ago, the team had developed a gel for topical dermal application to deactivate the pesticides. But considering that compliance might be poor, the researchers looked at another alternative that is as effective in deactivating the insecticide but at the same time does not reduce compliance.

When esters present in organophosphate-based pesticides enter the body they bind and inhibit an enzyme (acetylcholinesterase or AChE) critical for neuromuscular function from working. Therefore, inhibition of this important enzyme is implicated in learning deficits, suffocation, paralysis, muscle weakness among others.

In a paper published recently in Nature Communications, the team led by Dr. Praveen Kumar Vemula from inStem coated the cotton fabric with small molecules, rendering the final product the ability to deactivate the insecticide. “The small molecules are covalently bonded with the cellulose of the fabric making the cloth not only breathable but also durable,” says Dr. Vemula. The small molecules that are covalently bonded with the fabric are nucleophile in nature, and can detoxify the pesticides upon contact through nucleophile-mediated hydrolysis, says Dr. Vemula. “The fabric attacks the pesticide molecule and breaks it into non-toxic products. The pesticide is deactivated even before it reaches the skin surface,” he says. The fabric with covalently-bonded small molecules was developed in collaboration with Sepio Health Pvt Ltd, a spin-off company from inStem.

“The fabric retains the anti-insecticide property even after washing 150 times.” Though the reusability after 50 cycles was reported in the paper, the researchers continued the reusability testing and found the effectiveness to last up to 150 cycles of washing. “Unlike the gel, the reusability will make the fabric an affordable solution to prevent insecticide-induced toxicity to farmers. It will also increase compliance,” he says.

According to Dr, Vemula, the small molecule-coated fabric does not act as a physical barrier to organophosphate-based insecticide. Instead, the fabric hydrolytically deactivates the insecticides, causing the prevention of insecticide-induced AChE inhibition.

To investigate the efficiency of the fabric containing the small molecules, the active AChE in the blood before and three days after exposure to the insecticide was measured in rats. While direct exposure or when normal cloth did little to halt the drop in active AChE in blood, no reduction in blood active AChE level was observed in the presence of the fabric coated with small molecules. Several organs from the exposed and unexposed rats were studied and compared, and the researchers found that the active AChE levels in the organs did not drop in the case of rats that were exposed to the insecticide in the presence of the fabric coated with small molecules. Also, while rats that were repeatedly and directly exposed to ethyl paraoxon (an activated



organophosphate insecticide) or through the normal fabric died within four days, none of the rats exposed to the insecticide in the presence of the special fabric died.

Farmers get repeatedly exposed to the insecticide due to frequent usage, and this can cause chronic toxicity and severe adverse health effects. The animal study results show promise that the fabric containing the small molecules can prevent chronic toxicity in farmers, he says.

“The design of one nucleophile that can deactivate a wide range of organophosphates and carbamates was challenging. Subsequently, optimising the industry-friendly chemistry to covalently attach on the fabric was the key in developing anti-pesticide fabric,” says Dr. Ketan Thorat, a former research student at inStem and coauthor of the paper.

PERPETUAL MOTION: CHEATING NATURE’S LAWS

WHAT IS IT?

Nothing lasts forever. This is good life advice, and it also happens to be an important feature of our physical universe.

Natural philosophers considered and discarded the idea of “perpetual motion” a long time ago. The basic premise of perpetual motion is that it should be possible to operate a system without supplying power to it. We know from daily experience that this can’t be true: for example, your phone’s battery will drop to zero if you use it without charging.

In physicists’ parlance, perpetual motion violates the law of conservation of energy. The first and second laws of thermodynamics also stipulate that anything that offers power must also liberate heat. If there was an infinite power supply, there would also have to be an infinite heat liberator. There isn’t.

But this simple explanation hasn’t stopped some people from wondering whether perpetual motion machines might exist.

A simple example is the dunking bird toy. It uses a temperature differential between the bird’s top and bottom to move back and forth. Very simply speaking, when it moves forth, its beak dips into a glass of water that flows to the bird’s bottom, and the weight causes the bird to move back.

The dunking bird toy can work like this for a long time, but it can’t move perpetually: it will stop when the temperature differential between the bird’s top and bottom vanishes.

LUCY AT 50: THE BURDENS OF THE MOTHER OF HUMANITY

In 1974, the discovery of the skeletal remains of a female hominin in Ethiopia, changed the way early human evolution was conceived. Named Lucy, she became the embodiment of the “mother of humanity”.

Biologically speaking, human beings — and now extinct related species, like Neanderthals — are defined by three features: Large brains, tool use and walking upright. Darwin thought that all three developed at the same time. Lucy, at just four feet tall as an adult, could walk — but her brain was not commensurately large. Her bones led to a revolution in human paleontology, with many other hominins — some even largely arboreal — becoming part of the complicated origins of the species that built skyscrapers and artificial intelligence.



HOW WE GROW TALLER AT NIGHT

Q: Are we measurably taller in the morning than when we go to bed?

A1: We are all indeed taller in the morning. There are two components to this. In a growing child, the growth hormone is secreted in pulses overnight. This acts through several intermediary steps to cause lengthening of the bones at the end-plates (epiphyses). Accurate measurements of the forearm or lower leg using specialised apparatus or X-rays can record this night-time growth.

A2: Another factor concerns the inherent curvatures of the spinal column. This has a convexity backwards in the thoracic or chest region, called a kyphosis, and a concavity in the lumbar region or base of the back called a lordosis. These curves vary with body weight and position. As a result, the spinal column tends to press downwards when in an upright position, altering these curvatures, and hence shortening the spinal length. When lying down, the reverse happens and the column lengthens again.

The combination of disc and curvature factors causes height change and is about 16 mm during the course of the day in the average adult.

STUDY FINDS GENE MUTATION THAT TURNS FAMILIAR FACES INTO STRANGERS

A simple joy, often taken for granted, is to unexpectedly run into a friend or a relative at a train station or market. Recognising a familiar face in an unfamiliar context or crowded place gives most of us unalloyed pleasure.

We should give thanks to our MCTP2 gene for this ability. According to research published in this month's issue of the journal *Genetics*, by researchers led by Ye Rao of Capital Medical University, Beijing, when this gene is mutated the ability to recognise faces is severely impaired.

Individuals with the misfortune of carrying the mutant gene took much longer than is socially acceptable to recognise people with whom they were expected to be familiar — such as spouses, siblings, and children — while they confused strangers with familiar people.

This disorder is called prosopagnosia, or face blindness. Its prevalence worldwide is estimated to be 1.8-2.9% in the general population. Prosopagnosia is one form of visual agnosia, or inability to identify everyday items just by looking at them.

The MCTP2 gene is thus the first found to be required for a higher form of visual social cognition in humans.

Examining the genome of the affected family members revealed they had all inherited the same genome segment in one copy of their chromosome no. 15. Recall that we inherit two copies of each chromosome, one from each parent, and in this way each one of us possesses 23 pairs of chromosomes.

By sequencing the genomic DNA, the researchers found that the MCTP2 gene, located in this segment, had been altered by a mutation. As a result, one amino acid in the protein encoded by the MCTP2 gene had been replaced by another. The researchers didn't find this mutation in any of the hundreds of thousands of human genome sequences stored on different databases.

These findings implicated the MCTP2 gene in face recognition.



In the brain, the right middle fusiform gyrus, a.k.a. the fusiform face area (rFFA), is activated during facial recognition. When the researchers used functional magnetic resonance imaging to study individuals carrying the different MCTP2 mutations, they found abnormal responses in the rFFA.

When a glove becomes a puzzle

It is perplexing for most of us to imagine what it is to live with a visual agnosia. In his bestselling 1985 book *The Man Who Mistook His Wife for a Hat*, the gifted neurologist and writer Oliver Sacks (1933-2015) recounted case histories of some of his patients. Dr P. was a distinguished musician and teacher, and had a visual agnosia caused by a tumour in the brain.

When Dr P. was offered a glove and asked what it was, he described it as “a continuous surface infolded on itself, (with) five outpouchings...” He imagined it to be a change purse for coins. When asked to put on his shoe, he was unable to tell his foot from his shoe. He mistook water hydrants and parking metres on the street for children and patted them on the head. And he mistook his wife for a hat.

Baffled, Dr. Sacks wondered how a man such as this could function as a teacher at the Music School. Yet Dr. P. taught music until the last days of his life.

With the discovery of MCTP2’s role, our helpless bewilderment regarding visual agnosia should give way to our first molecular glimpse of what actually might be happening in the troubled brain. Both Dr. Sacks and Dr. P. would have been pleased with this progress.

HOW THE WORLD’S FIRST BRAIN IMPLANT TO CONTROL EPILEPTIC SEIZURES WORKS

A UK-based teenager, Oran Knowlson, has become the first person in the world to be fitted with a brain implant to help bring his epileptic seizures under control. The deep brain stimulation (DBS) device, which sends electrical signals deep into the brain, has reduced Knowlson’s daytime seizures by 80%.

What is epilepsy?

Epilepsy, a condition that leads to recurring seizures, sees a person experience jerking of arms and legs, temporary confusion, staring spells, or stiff muscles. It is caused by abnormal electrical activity in the brain.

The disease has no identifiable cause in nearly 50% of the cases. However, head trauma, tumours in the brain, some infections like meningitis, or even genetics can lead to epilepsy. It can increase the risk of accidents, drownings, and falling.

In India, between 3 and 11.9 per 1,000 people suffer from epilepsy, according to a comment in a 2022 Lancet study. Although several anti-seizure medicines are available in the market, 30% of the patients remain resistant to treatment.

How does the device work?

The neurostimulator delivers constant electrical impulses to the brain to disrupt or block abnormal seizure-causing signals.



A 3.5 cm square, 0.6 cm in thickness, the device was surgically implanted in Knowlson's skull and anchored using screws, The Guardian reported. The doctor then inserted two electrodes deep into his brain until they reached the thalamus — a relay station for all the motor and sensory information. The ends of the electrodes were connected to the neurostimulator.

The device was switched on after Knowlson recovered from his surgery. It can be recharged by a wireless headphone.

How the world's first brain implant to control epileptic seizures works How the world's first brain implant to control epileptic seizures works.

What is DBS?

The device uses DBS, which is also utilised for movement disorders associated with Parkinson's, and other neurological conditions. Although DBS has been tried before for childhood epilepsy, until now neurostimulators were placed in the chest (instead of the brain), with wires running up to the brain where the leads were placed on the affected region, according to the BBC.

"Use of deep brain stimulation for the treatment of epilepsy is not new. We have been doing it for nearly a decade. There are new devices entering the market, but it is important to understand that it is not a miracle cure," Dr Manjari Tripathi, head of the neurology department at AIIMS, New Delhi, said.

It is not the first line of treatment for epilepsy. Doctors first use anti-seizure medicines and a ketogenic diet, which is high in fats and low in carbohydrates. Although the reasons are not well understood, a ketogenic diet is known to reduce seizures, even in children with treatment-resistant epilepsy. If that does not work, doctors can carry out brain surgery to remove a portion of the brain where the seizures originate.

Another surgery called corpus callosotomy may be suggested in some children. In this, doctors remove a part that connects both halves of the brain, which does not allow abnormal electrical signals to travel from one half of the brain to another.

"Surgery is still preferable to implanting a DBS device. Currently, the DBS devices available in the market reduce seizures by around 40%. In comparison, seizures drop by nearly 90% if the patient undergoes surgery," Dr Tripathi said.

How expensive is DBS?

"Neurostimulators cost about Rs 12 lakh. There are additional surgical costs that one has to pay in private hospitals, increasing the cost to about Rs 17 lakh," Dr Tripathi said. In comparison, a brain surgery costs between Rs 20,000 and Rs 30,000, she added.

Keeping this in mind, Dr Tripathi said that such devices should be suggested only for those who have epilepsy which originates from different parts of the brain (instead of one focal point), making operations less viable. DBS can also be an option when drugs and diet have failed to control seizures.

Among the thousands of epilepsy patients that AIIMS is currently treating, only seven have undergone DBS therapy — around one per year, Dr Tripathi said.



RESEARCH SHOWS ANTS CAN BE TRAINED TO DETECT CANCER AS ACCURATELY AND FASTER THAN DOGS

While using dogs to detect the presence of cancer in cells is a well-documented concept, researchers at Université Sorbonne Paris Nord and PSL Research University in France have found out that ants can do the same as accurately as dogs while taking far less time to be trained.

Cancer cells are different from normal cells and have particular abilities that cause them to produce volatile organic compounds (VOCs) that can act as biomarkers for cancer diagnosis when using gas chromatography or artificial olfactory systems.

But the results of gas chromatography analysis are extremely variable and 'E-noses' (artificial olfactory systems) are still yet to reach a viable prototype stage where a system that is cost-effective and accurate enough is on the horizon.

This is why the noses of animals like dogs are extremely well-suited for detecting the VOCs produced by cancerous cells and thereby, detecting cancer biomarkers. Dogs have evolved their olfactory senses over millions of years of evolution and have the ability to detect extremely faint odours as well as the brainpower to distinguish and determine between them.

But it takes months of training and conditioning before a dog can successfully distinguish between cancerous and non-cancerous cells and hundreds of time-consuming trials. For example, in one study, it took two dogs, 5 months of training and 1,531 conditioning trials to perform 31 tests with 90.3% accuracy.

Armed with earlier evidence that insects could also use odour to detect cancer cells, researchers combined the use of ants with a 'low-cost, easily transferable, behavioural analysis' to create a bio-detector tool for cancer VOCs.

According to the research paper published in iScience, researchers submitted 36 individual *F. fusca* ants to three training trials where they were put in a circular arena where the odour of a human cancer cell sample was associated with a reward of sugar solution.

During these tests, ants spent significantly more time near the conditioned odour (cancer cells) than near the culture medium alone.

Over the trials, the time that the ants needed to find the reward decreased, indicating that they have been trained to detect the presence of cells based on their emittance of VOCs. This was confirmed by ants performing two consecutive memory tests with no reward present.

During the research, not only was it found that ants can distinguish between cancerous and non-cancerous cells, but they could also distinguish between cells from two different cancerous lines.

The short training time and the fact that ants can reproduce easily makes their use as bio-detectors for cancerous cells' VOCs more viable than training and testing dogs or other larger animals with a great sense of smell.

'DENGUE MAY HAVE HELPED STEM COVID-19 WAVE SEVERITY'

Can the dengue virus beat the coronavirus and is it why the early wave of the pandemic in 2020 resulted in fewer COVID deaths or severe infections in India than in Europe or North America



where dengue is not endemic? Research from the CSIR-Indian Institute of Chemical Biology, Kolkata hints at these intriguing possibilities following an analysis of antibodies from people infected with dengue and testing them against a kind of coronavirus called murine hepatitis virus (mouse coronavirus). In research settings, this virus — being part of the same family of human coronaviruses — is considered a good surrogate to study the behaviour of the coronavirus strains that infected people during the pandemic.

Their results, published in the peer-reviewed Journal of Medical Virology this week, suggest that the antibodies following a dengue infection were able to ‘neutralise’ this coronavirus. For their analysis, the scientists relied on a combination of computer-modelling studies as well as cell-culture studies, the latter demonstrating how antibodies from dengue were able to engulf and bind the coronavirus proteins.

These latest studies build on the lab’s work from 2020 that blood tests specific to check for dengue sometimes led to a positive SARS-CoV-2 test.

“We experimentally demonstrated that serum samples from dengue patients have the potential to bind to and ‘mask’ the surface of several coronaviruses, including SARS-CoV-2. We performed ‘virus neutralisation’ tests in cell cultures and showed that such ‘masking’ by dengue antibodies can indeed, block coronavirus entry into susceptible cells,” Subhajit Biswas, Principal Scientist and the main author of the study, told The Hindu.

The dengue family of viruses are different from the coronavirus family and hence infection from one, in normal circumstances, is not expected to protect against the other. What is known about dengue is that there are four major serotypes, or strains, that cause dengue infections. Strains Denv-1 and Denv-2 are the most common in India. However, being infected with one does not protect against the other and, in fact, a re-infection involving a different strain can be more dangerous — a phenomenon called antibody-dependent enhancement (ADE) in dengue. Whether the prevalence of dengue in dengue-endemic countries of Southeast Asia may be triggering newer mutations in the coronavirus is a factor that needs to be investigated more extensively, the authors suggest.

That the early stages of the pandemic saw a decline in dengue in India has been independently reported. The National Vector Borne Disease Control Programme of India reported a sharp decline of 75% (39,419 versus 1,57,315) in dengue incidence during 2020 as compared with 2019.

“The possible reasons for this reduction could be lower transmission of the vector, less exposure due to lockdown, and, potentially, a disparity in the reported data possibly due to underdiagnosis or underreporting because of increased attention to the pandemic,” said a 2021 study in the American Journal of Tropical Medicine and Hygiene.

GRAVE CONCERN

The ambitious goal of eradicating wild-type poliovirus type-1 (WPV1) by 2026 appears to have become tougher. WPV1, which is endemic only in Pakistan and Afghanistan, is showing signs of a resurgence since 2023. With Afghanistan and Pakistan reporting six WPV1 cases each in 2023 — there were two cases in Afghanistan and 20 cases in Pakistan in 2022 — the total incidence of type-1 cases in both countries in 2023 might appear to have nearly halved. But with six cases in Afghanistan and five cases in Pakistan already this year, there appears to be an uptick. If this continues, the total cases being reported from the two countries might be close to or even surpass



the 2022 numbers. The concern about WPV1 is not limited to the number of cases in children. The circulation of the virus in the environment is seen to be rising, and, most importantly, after a gap of two years, positive environmental samples have been increasingly collected in Pakistan, in 2023 and till early June this year, from cities which have been historical reservoirs for the virus. Last year, 125 positive environmental samples were collected from 28 districts in Pakistan. Of these, 119 belonged to a genetic cluster (YB3A), which suggests that these were imported from Afghanistan. By June 1 this year, there have been 153 positive environmental samples from 39 districts. As of April 8, 2024, 34 positive environmental samples were collected from Afghanistan.

According to the World Health Organization, the presence of positive environmental samples in “epidemiologically critical areas and historical reservoirs” such as Karachi, Quetta and the Peshawar-Khyber blocks in Pakistan, and Kandahar in Afghanistan, represents a significant risk to the gains made in the past. Rising positive environmental samples are a reflection of polio campaigns not really achieving their desired coverage; fake finger marking sans vaccination is a persisting problem. Though children in Pakistan’s cities are largely immunised, there is a heightened risk of the virus striking any unvaccinated or not fully vaccinated children — in 2023, two of the six cases were from Karachi city. The situation in Pakistan appears worse than it is in Afghanistan with the actual spread of WPV1 seen “predominantly in Afghanistan in 2022 now being detected in Pakistan in 2023 and 2024”. There is also the grave risk of international spread from Pakistan, particularly to Afghanistan. With over 0.5 million Afghan refugees forced to leave Pakistan, and an estimated 0.8 million to be evicted soon, there is an increased risk of cross-border spread of the virus. There is a large pool of unvaccinated and under-immunised children in southern Afghanistan, increasing the risk that returning refugees can pose.

TWO VACCINES THAT BROUGHT US TO THE BRINK OF ERADICATING POLIO

In 1948, microbiologists John F. Enders, Thomas Weller, and Frederick Robbins were trying to find a method to grow different viruses in cell cultures. In a routine experiment involving human muscle and skin cells, they decided to test one more virus along with the ones they were already testing, since a vial containing that virus was in their freezer. To their surprise, the virus proliferated and grew well with their method. Their work eventually solved one of the most important scientific problems of the time.

They had just managed to find a way to grow the poliovirus in non-nerve cells.

A major roadblock

In the mid-20th century, researchers widely believed the poliovirus could only be grown in cultures of nerve cells. This misconception was propagated by their inability to infect rhesus macaques by the oral route, and only by directly injecting the virus into the nervous system. At the time, they didn’t know the problem was with the poliovirus strains they were using.

The poliovirus has only one natural host — humans — and many of the early strains of the virus were isolated from humans and wouldn’t infect non-human primates. Since scientists kept passing the virus through the brain tissues of macaques, it adapted to that mode of infection.

The inability to culture polio in non-nerve cells was a major roadblock to developing a polio vaccine. But thanks to Enders and his team, the poliovirus could now be mass-produced for vaccine research.



Eradication target missed

Polio eradication is one of the top priorities of the World Health Organisation (WHO). Since Africa was declared polio-free in August 2020, the wild poliovirus has been restricted to rural pockets of Afghanistan and Pakistan. But according to a recent report in Science, the virus is beginning to reappear in big cities in these two countries.

This reemergence is a result of vaccine hesitancy due to misinformation, conflict, poverty, and limited access to these isolated regions. The WHO's Global Polio Eradication Initiative is thus set to miss its deadline of eradicating polio by the end of 2024.

The initiative's failure in Afghanistan and Pakistan casts a long shadow on an otherwise remarkable achievement: polio having been eradicated everywhere else. This feat was driven by two vaccines, both invented within a year of each other. They are administered differently, provide distinct levels of protection, contain different components, and target different compartments of the immune system. Yet they both played equally invaluable roles in the global fight against polio.

The systemic and the mucosal

In late 1949, Enders received a letter requesting the starting material and the procedure his team had perfected to grow the poliovirus in culture. At the time, Enders & Co. were discussing their own future work. While his younger colleagues, Weller and Robbins, wanted to use the method to foray into vaccine research, Enders said such a job was ill-suited for basic science researchers like themselves. They handed over the sample and the procedure to the letter's author, the director of the Virus Research Laboratory at the University of Pittsburgh, Jonas Salk.

Salk made the first successful vaccine for polio. He grew the virus using the method Enders and his team had developed, inactivated it by treating it with formaldehyde, and injected it into his test subjects. The fragments of the inactivated virus were able to induce immunity in their bodies. Importantly, since the vaccine was introduced into the muscle, it generated systemic immunity.

The immune system has two main parts: the systemic and the mucosal. The systemic component includes the blood, the brain, and all other organ systems. The mucosal component includes the inner linings of the digestive and respiratory systems, the urogenital tract, and the eyes. These regions are lined with mucous membranes that provide an additional layer of protection, as they frequently come into contact with the external environment.

Striking at ground zero

Soon after Salk made his inactivated polio vaccine (IPV), Albert Sabin developed another vaccine that contained live polio strains weakened by growing them serially in macaque cells, making them unfit for human infection. Since Sabin's vaccine contained live virus particles, it had to rely on its natural mode of infection and was therefore administered orally. This was the oral polio vaccine (OPV).

Since the OPV went into the stomach, it induced a powerful protective mucosal immune response right where the virus would have to begin its infection.

The OPV had multiple advantages over the IPV. First, the vaccine induced a protective response at the viral entry site — the gut— allowing it to provide a much greater degree of protection relative



to the IPV. Second, the OPV was administered orally and didn't require syringes or trained personnel for its administration.

A one-two punch

But there was a catch. Occasionally, the weakened virus in the OPV would revert, and do the very job it was designed to prevent: cause polio. On the other hand, the IPV, while being a less potent vaccine, contained inactivated virus particles and carried no risk of causing vaccine-induced polio.

The world has used both vaccines in the fight against polio. While some countries, such as Norway, Sweden, Finland, and Iceland, relied exclusively on the IPV, most countries have used a combination of the two. The latter countries prefer the OPV for its superior protection and ease of administration. When the number of natural polio cases drops to zero, they switch to IPV for its enhanced safety.

Despite the many differences between the Salk and Sabin vaccines, they share one crucial feature that armed the WHO in its fight against polio: both Jonas Salk and Albert Sabin chose not to patent their vaccines. When asked who owned the patent on his vaccine, Salk famously replied: "Well, the people, I would say. There is no patent. Could you patent the sun?"

'MULTI-OMICS' IS TRANSFORMING HOW INDIA SPOTS AND TREATS TB, CANCERS

In the last decade, India's use of genomics has undergone a significant transformation, so much so that the diagnoses, management, and treatment of many diseases— including tuberculosis, cancers, and those caused by antimicrobial resistance — stand on the cusp of a revolution.

Most recently, in January 2024, the Department of Biotechnology said it had completed sequencing 10,000 genomes from 99 ethnic groups under its 'Genome India' project. This national initiative aims at developing a reference genome for Indian people, which will help design genome-wide and disease-specific 'genetic chips' for low-cost diagnostics and research.

Earlier, in October 2020, the Council for Scientific and Industrial Research (CSIR) had reportedly sequenced the entire genomes of 1,008 individuals in India representing diverse ethnic groups in six months. This effort was part of a mission called 'IndiGen' — to create a pilot dataset with which researchers could analyse the epidemiology of genetic diseases and help develop affordable screening approaches, optimise treatment, and minimise adverse events for them.

Other, more disease-specific consortia have also sprung up around the country and efforts are underway to create new datasets to address individual health problems, ranging from the age-old scourge of tuberculosis to cancers, rare genetic disorders in children, and even antimicrobial resistance. Researchers have also been able to extract more value from these using artificial intelligence and machine learning, and by combining their contents with other extensive datasets on proteins (proteomics), gene expression in cells (transcriptomics), and chemical changes that regulate gene expression (epigenomics) to develop a 'multi-omics' approach to tackle diseases.

HEALTHCARE PROVIDERS NEED TO PAY GREATER ATTENTION TO INFORMED CONSENT

Informed consent is considered the cornerstone of a doctor-patient relationship. It means that a patient needs to be given all the information regarding their condition, including treatment options, the steps of a procedure if one is suggested along with possible complications. This information allows the patient to make a balanced, well-informed decision on available options,

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



including whether they would like to undergo the procedure (or consent to a treatment option or procedure, so to speak).

Blank consent form which is presented does not serve its intended purpose. It flouts the principles of informed consent as laid down by a seminal judgement of the Supreme Court in 2008, in several ways. Firstly, consent is supposed to be taken by the doctor performing the procedures. However, in most places in India, this work is relegated to the nurses to save the doctors' time. The form also needs to contain information about the procedure and the possible complications in a language that the patient understands. The patient's signature has to be taken only after explaining all the information in the form clearly. However, in most hospitals across India, "Sign here" is often the only instruction patients receive before they are asked to consent to treatments and medical procedures.

A study published in 2015 in the Journal of Obstetrics and Gynaecology India revealed that while 75% per cent of women who underwent caesarean sections were told why they needed the surgery, only 25% were told the steps of the procedure and what complications could be expected.

"Most of the forms you see in hospitals are in English. This means that they cannot be read by people who don't know the language and they depend on doctors/nurses to tell them what's in the form. Some patients may not know how to sign and one will see an interesting juxtaposition of their fingerprints on a paper in English," adds Dr. Matiharan.

Before considering solutions, it is crucial to understand why it is important. Studies show that patients experience more satisfaction with their treatment if adequate information is provided and consent is taken. Studies also reveal that patients respond better to treatment when a good informed consent process is employed before initiating it. Informed consent also opens the door for shared decision-making — where a patient and the doctor work as a team to ensure the best possible outcome while keeping patient preferences in mind.

It is also important for hospitals to carry these forms in local languages. Other steps to increase understanding of information could be the use of image or video-based tools. Several studies demonstrate the success of video-based informed consent tools in helping patients decide what is best for them. The usage of videos can also overcome language barriers and reduce patient anxiety.

DreamIAS