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THREE'S NOT A CROWD

The U.S.' two-party system has a third challenger — the Green Party's presidential candidate Jill Stein. Although the Green Party is unlikely to win the election, the support of Republican candidate Donald Trump and Democratic candidate Kamala Harris for Israel's war on Gaza has given Ms. Stein's campaign some unexpected momentum in the race to the White House.

This is Ms. Stein's third attempt in a U.S. presidential race — she previously contested the elections in 2012 and 2016, where she polled 0.36% and 1.07% of popular votes, respectively.

Ecology is one of the four pillars of the Green Party's core politics, and Ms. Stein has had a long association with environmental conservation and health. As a Harvard-graduated physician, Ms. Stein first focused on environmental degradation and its impact on human health in the 1990s. She led the agitation to clean up the 'Filthy Five' coal plants in Massachusetts — Salem Harbor, Brayton Point, Mount Tom, Canal Station, and Mystic Generating Station — which were emitting more pollution than the levels permitted under the Clean Air Act, 1990.

Israel's war on Gaza has emerged as an important issue in the presidential race, and Ms. Stein has openly advocated putting an end to her country's supply of arms to Israel. Her anti-war stance opposes that of the Democratic candidate Ms. Harris, who is currently the Vice President of the administration that continues to supply arms to Israel, and former President Trump, who has called himself 'a protector of Israel'.

Ms. Stein has publicly referred to Israel's war on Gaza as a "genocide", and recently said the pager attack in Lebanon was an act of "terrorism". In a statement issued alongside her running mate Butch Ware, Ms. Stein included U.S. leaders Joe Biden, Kamala Harris, Donald Trump, Barack Obama, Hillary Clinton, George W. Bush, and Dick Cheney in a list of "war criminals".

"We condemn Benjamin Netanyahu in the strongest terms for his ongoing atrocities in Gaza, which amount to genocide and war crimes," the statement said.

Ms. Stein's campaign also promises to abolish all student debt, provide lifelong free public education, increase public school funding, increase estate tax, increase minimum wage, codify Roe v. Wade, work towards a democratically controlled healthcare by replacing private hospitals, private medical practice, and private medical insurance, and more.

Green New Deal

The Green Party's Real Green New Deal is an important part of Ms. Stein's presidential campaign to fulfil its goals of combating climate change. A 'Green New Deal' has gained popularity in the last decade, but it is non-binding and does not call for a ban on fracking. The updated version promotes ecological sustainability with clean energy, zero greenhouse gas emissions, and economic security for all.

The Green New Deal was also an important part of Democratic Congresswoman Alexandria Ocasio-Cortez's campaign, who recently entered a publicised altercation with Ms. Stein. Ms. Ocasio-Cortez blamed the Green Party candidate for not being "serious" and called her "predatory". "Clearly, AOC is the attack dog du jour and the Democrats are running scared. And

they should be, because who wants to support a genocide? Who wants to vote for a genocide?" Ms. Stein said in response.

Although the 2024 presidential election, like most elections in the country, is largely a contest between the Republicans and Democrats, Ms. Stein's anti-war stance appears to be making a dent in Ms. Harris's vote share in some States. The results of a nationwide poll of American Muslim voter preferences, conducted by the Council on American-Islamic Relations, showed that 29.4% of American Muslims plan to vote for Ms. Harris, 29.1% for Ms. Stein, and 11.2% for Mr. Trump.

Ms. Stein is also leading Harris among Muslim voters in swing States Arizona (35%) Michigan (40%) and Wisconsin (44%). These States are expected to play a key role in deciding the next U.S. President.

U.S. FILES $100-MN CLAIM OVER BALTIMORE BRIDGE COLLAPSE

The U.S. Department of Justice has filed a response in a Maryland court demanding more than $100 million in damages from Grace Ocean Pvt Ltd. and Synergy Marine Pvt Ltd., the owner and the manager of containership Dali that crashed into a bridge off Baltimore on March 26. This led to six deaths and injuries to two persons, besides requiring a salvage operation and shutdown of the Baltimore port for many months.

The response filed was to a limited liability claim made by the owner and the manager soon after the accident.

The Justice Department has called the tragedy "entire avoidable" and put the responsibility for the accident on the owner and the manager, alleging improper maintenance, violation of international safety and other norms, as well as an improperly trained crew.

Dali's crew was almost entirely Indian. Synergy Marine, registered in Singapore, has Indians in key leadership positions with an operational base in Chennai and Mumbai, besides employing thousands of Indian seafarers on ships it manages.

Any merchant ship has a propeller run by an engine that moves it forward and back. A rudder controlled by a steering gear turns the ship left and right. Dali also had a bow thruster that can move it sideways. With these, Dali's movements can be controlled.

As the ship was manoeuvring out of the port into the Chesapeake Bay, there was a blackout onboard. The Justice Department response says the ship had a history of heavy vibrations that were not addressed. The vibrations likely led to some power supply cables coming loose, leading to the switching off of a transformer and, hence, a blackout.

As per global norms, the emergency generator should have started after the blackout and provided power within 45 seconds. But that did not happen. The standby transformer was switched on after a delay and power was restored.

The response notes that Dali's running generators were being supplied fuel by a "flushing" pump against norms that mandate the use of two large dedicated pumps. This was done to cut costs, the response alleged.

The flushing pump was not switched on after the blackout. So, starved of fuel, the generators offloaded, leading to a second blackout. Without power, the engine could not be operated to stop the ship. There was no steering either. But the ship was moving forward under its own momentum

and veering dangerously to the right towards the bridge pier. At this time, the pilots ordered that the left side anchor should be dropped against the rightward drift but the ship staff were unable to drop the anchor quickly, according to the response. The pilots were told the bow thruster could not be operated either.

THE RUSSIANS ARE COMING

The Russians turned to Pokrovsk, the eastern Ukrainian city with a pre-war population of about 70,000, after they captured Avdiivka in February this year. Pokrovsk is part of Donetsk, one of the four Ukrainian oblasts which Russian President Vladimir Putin annexed in 2022 (Luhansk, Kherson and Zaporizhzhia are the others). Since February, Russian troops have slowly advanced towards Pokrovsk, building pressure on Ukraine's defensive lines. Now, with the Russians a few kilometres away, Ukrainian President Volodymyr Zelenskyy says the situation is "difficult".

The city is home to a key railway station, built in the 19th century, and is located at the intersection of several vital roads that connect central Ukraine with the east. Pokrovsk grew around the railway station and emerged as a producer of coking coal, a lifeline of Ukraine's pre-war economy, and a vital logistical hub.

During the Second World war, the city saw some of the fiercest battles. The Germans, who took the city in October 1941, forcibly moved many residents to Nazi labour camps elsewhere in Europe. Pokrovsk also witnessed the massacre of local Jewish people by the Nazis. The city was liberated in September 1943 by the Soviet Red Army.

In 2014, after Russia-backed rebels in Ukraine's east captured parts of Donetsk, including Donetsk city, the administrative capital of the province, Pokrovsk's profile grew in the Ukraine-controlled parts of the province. After the Russians took Bakhmut last year and Avdiivka earlier this year, their focus shifted towards two strategically important cities in Donetsk — Pokrovsk and Chasiv Yar, a hilltop town.

The Russians took parts of Chasiv Yar in July after months of complex and costly operations, and they kept pounding the city and disrupting Ukraine's supplies using drones and artillery. But the axis where they made swift advances in recent weeks was towards Pokrovsk.

In the first week of August, however, Ukraine did something unexpected. Its troops carried out a daunting cross-border attack, capturing territories in Russia's Kursk region. The incursion was a setback to Mr. Putin as it was the first major cross-border attack into mainland Russia since the Second World War. Ukraine had a more pressing objective — to divert Russian troops from their campaign for Pokrovsk. The tactical thinking behind the Kursk incursion was that if the Russians are forced to relocate their troops from the Pokrovsk axis to Kursk, Russia's advance in the east would be slowed down. But what happened was exactly the opposite.

Territorial gains

Russia did actually reinforce its Kursk defence, which seemed to have halted Ukraine's advance in the region. But instead of pulling troops from the Pokrovsk axis, Russia doubled down on the offensive. On the other side, Ukraine's decision to move some of its well-trained forces to Kursk seemed to have weakened the already crumbling defences in the east. As a result, Russia made lightning advances towards Pokrovsk in August. This forced Ukraine to redeploy some of its troops back to the defence of Pokrovsk. But Russian troops are moving from the north and south, which some military analysts say is an attempt to envelop the city.

If the Russians take Pokrovsk, that would seriously affect Ukraine's resupply lines in the east. The defence of other strategic towns, including Chasiv Yar, will further be in peril. This would mean that Russia would be a step closer towards meeting one of Mr. Putin's military objectives — taking full control of the Donbas region. It will also bring the Russians close to Ukraine's deep rear.

But Ukrainians say they are ready to dig in and hurt the Russians as much as possible before they take the city. Ukraine is also hitting deep inside Russia using drones. And they are seeking permission from the U.S. to hit Russia using western long-range missiles. Outnumbered, outgunned and faced with back-to-back setbacks on the battlefield, Ukraine seeks to keep up the pressure on the Russians through long-range attacks with NATO's help.

WHAT IS THE CONTROVERSY REGARDING VENEZUELA ELECTIONS?

The story so far:

On July 28, Venezuela went to polls with the current President Nicolas Maduro facing off against opposition candidate Edmundo Gonzalez. Four hours after the polls closed, the country's National Electoral Council (CNE) declared Mr. Maduro the winner, citing his tally of 51.21% votes compared to Mr. Gonzalez's 44.2%. However, the opposition was quick to refute these results, saying their count showed Mr. Gonzalez polling 67% of the votes and Mr. Maduro just 30%. They asked the government to publish the vote tally from each polling station, which Mr. Maduro refused. This led to massive protests and a government crackdown wherein 24 people died and over 2,000 were arrested. The winner is scheduled to take oath on January 10, 2025.

What was status quo before polls?

Mr. Maduro took over from long-time leader Hugo Chavez following his death in 2013. A country replete with oil reserves, Venezuela's economy has witnessed spurts of booms and lulls since oil reserves were first discovered there in the 1920s, lending it the tag of a petrostate.

Petrostates are marked by governments whose sole focus lies on oil exports, weak political institutions, and power concentrated in the hands of a few politically elite groups. Such nations' economies are fragile and are susceptible to the slightest fluctuations in global fuel prices. They are also vulnerable to a condition called 'Dutch disease'. Governments of afflicted countries have almost completely forgone local oil production, and the major mode of revenue are the taxes paid by foreign drilling companies. An accompanying fallout is the damage borne by labour-intensive industries such as agriculture and manufacturing.

Venezuela met with a similar fate in the early 2010s when global oil prices plummeted. Inflation rose throughout the country and shortage of essential goods became widespread. People protested and Mr. Maduro and his United Socialist Party responded by consolidating power through further crackdowns, inviting the wrath of global powers such as the U.S., which imposed sanctions.

How were the elections held?

One of the fallouts from the Ukraine war has been the rising oil prices. To mitigate the crisis, the U.S. eased some of the sanctions on Venezuela in November 2022. The Maduro regime reciprocated by promising free and fair elections this year. This proved to be hollow from the start as the opposition's original candidate Maria Corina Machado and its subsequent choice Corina Yoris were barred from running. Mr. Gonazlez ultimately emerged as the consensus candidate.

To ensure transparency, the electoral system in Venezuela comprises an electronic voting machine which produces a paper receipt after each voter registers their choice at the polling booth. These receipts are then deposited in a ballot box at the booth. At the end of the polls, the voting machines at the booths produce a tally sheet showing the names of every candidate and the number of votes they polled. The electoral authority, long sympathetic to Mr. Maduro, denied the opposition access to the tally sheet.

Foreseeing such adversities, a Guardian report states that members of the 10-party opposition coalition called the Democratic Unitary Platform drew up a nine-month-long plan to circumvent the rigged election process. Their strategy, involving more than one million people trained in 5,000 workshops, made sure that the opposition could access 83% of the tally sheets from 30,026 polling stations within 48 hours, revealing that Mr. Gonzalez polled 67% votes.

What has been the aftermath?

While China, Cuba, Iran and Russia congratulated Venezuela, a joint statement from 50 countries at the UN called for publishing the vote tally sheets. Media houses such as the Associated Press and The Washington Post have verified the opposition's results and certified them. However, Mr. Maduro has withheld the release of the vote tally sheets citing a cyberattack but without providing evidence. Crying foul, citizens took to the streets and were met with resistance from the state. The deaths and arrests prompted the United Nations Human Rights Council to call it the most acute human rights crisis in recent history.

WHY WAS HEZBOLLAH ATTACKED THROUGH PAGERS?

The story so far:

On September 17, at least nine persons were killed and several thousands injured, including Iran's envoy to Beirut, when pagers used by the armed group Hezbollah detonated simultaneously across Lebanon. The Lebanese Information Minister Ziad Makary condemned the attack as an "Israeli aggression". A day after the pager blasts, walkie-talkies used by the Hezbollah also blew up, killing nearly two dozen and injuring over 450 people.

Why are tensions high in the region?

The low-tech gadget attacks have come at a time when tensions between Israel and Iran-backed Hezbollah are escalating. The duo have been exchanging fire across the Israel-Lebanon border since the start of the Gaza war in October. This operation could very well start a new phase in the prolonged regional conflict.

CCTV footage and Instagram posts of blasts in multiple parts of Lebanon surprised Hezbollah as two of its fighters and an 8-year-old girl were killed. The militant group vowed to retaliate against Israel for the blasts. The simultaneous explosions occurred largely in southern Lebanon, a Hezbollah stronghold. Israel's military has declined to comment. But the biggest surprise lies in the weapon used by the perpetrator. The devices behind the serial blasts were low-tech gadgets — pagers.

What are pagers and how do they work?

Pagers, often called beepers, are communication devices that emerged in the mid-20th century. Their presence was eclipsed by cellular phones that grew in popularity in the 1990s and 2000s.

Subsequently, the dawn of smartphones pushed pagers into the shadows. But the humble, palm-sized device has its strengths.

Pagers operate using radio signals, which are transmitted by towers and received by the device. They function as either one-way or two-way systems. One-way pagers receive messages from a central transmitter but cannot send replies. That means a user can receive numeric or alphanumeric messages, which the device alerts them through a beep or vibration. In a two-way system, the pagers are capable of handling communication in both directions. Users can receive and respond to messages, which make them slightly more advanced, but these are still limited in functionality compared to modern smartphones.

Pagers rely on a network of radio towers that broadcast signals over a wide area. In many cases, they are more reliable than mobile phones in certain conditions because their communication system operates over simple, robust radio waves, often penetrating areas where cell coverage might be weak. Despite their technological obsolescence in mainstream use, pagers are still valued in healthcare, emergency services, and remote locations where cellular networks are unreliable. Their simplicity ensures they are more energy-efficient and less prone to network outages.

How are they useful in covert operations?

Pagers are relatively unsophisticated compared to smartphones or other modern gadgets, which make them less susceptible to high-tech surveillance techniques. They don't have GPS or internet connectivity, reducing the risk of location tracking and hacking. Intelligence agencies rely heavily on digital footprints, but pagers are harder to monitor remotely.

Secondly, pagers use radio frequencies, which make it harder for interception compared to cellular or internet-based communication devices. This feature makes them ideal for sending short, encrypted, or coded messages in sensitive situations. With one-way pagers, the risk of being detected is lower since the device does not transmit a response, making it difficult for intelligence agencies or adversaries to trace the origin or location of the message.

Thirdly, their simplicity plays a key role on how they can be manipulated, which could be a likely reason why it was used in the Hezbollah attack. Pagers can be modified to include circuits that trigger a signal when a specific message is received. These modifications are used in covert operations to activate explosives or send alerts without raising immediate suspicion. "The belief among Hezbollah was that their phone systems, cell phones, were compromised by the Israelis," Bruce Schneier, Adjunct Lecturer of Public Policy at Harvard Kennedy School, said in The Interface podcast interview. "To maintain security, they used older technology like pagers, thinking they weren't as vulnerable."

"The Israelis preyed on that belief and manipulated the pagers. They could have just eavesdropped, but they used them for destructive purposes instead," he told The Hindu. Speaking about low-tech gadgets, Mr. Schneier said: "It's not the vintage tech that matters — it just happened to be vintage because Hezbollah wanted it. The tampering could have been done with any technology."

Will pagers be a new tool in armed conflict?

Their small size and outdated look make pagers an ideal device to send short, encrypted texts that can't be picked up by intelligence agencies. While Israel has declined to comment on both the pager and the walkie-talkie blasts, it is clear who could have pulled off such an operation.

A Reuters report revealed that the pagers in the explosion bore Gold Apollo's branding. While the Taiwan-based company has denied making the pagers used in the blasts in Lebanon, the company's founder, Hsu Ching-Kuang, clarified that the devices were manufactured by a European firm licensed to use their brand. Gold Apollo insists it was not responsible for the product and expressed embarrassment over the incident. Hezbollah reportedly ordered thousands of pagers, which they believed could help evade Israeli tracking systems.

Experts are hypothesising myriad ways by which this attack could have been planned and executed. But there is nothing conclusive yet. It is unclear whether the devices were bugged at the manufacturing level or at the supply chain level. Mr. Schneier noted that "the Israelis were able to set up a front company, selling pagers to Hezbollah, and those pagers were created in Taiwan and modified by the Israelis to have explosives in them."

How could the attack have been pulled off?

Mr. Schneier pointed out that these pagers may have been intercepted and modified by Israeli engineers. The modification could have involved adding explosives, specifically PETN (a chemical explosive), to the pagers. Since reports suggest that the Israelis controlled the sale through their front company, they would have had full access to tamper with the devices in a lab before delivering them to Hezbollah. In addition to pagers, it's believed that Israel used a similar method with walkie-talkies, intercepting them and configuring them for remote detonation.

The entire operation was a sophisticated supply chain manipulation, leveraging Israel's control over the sale and distribution of the devices to Hezbollah.

ISRAEL AND HEZBOLLAH: A SHORT HISTORY OF LONG CONFLICT IN LEBANON

Prime Minister Benjamin Netanyahu said on Thursday that Israeli forces would continue to strike Lebanon with "full force" until the Shiite militant group Hezbollah stops firing rockets at Israel.

— Israeli attacks on Lebanon have killed 700 people in the last week alone, and the exchange of fire between Israel and Hezbollah, which began soon after the October 7, 2023 attacks by Hamas in southern Israel, has led to the displacement of thousands.

— The Israel-Hezbollah conflict has deep roots in the history of southern Lebanon.

— The establishment of the state of Israel in 1948 was accompanied by the violent displacement of more than 750,000 Palestinian Arabs in the event known as the Nakba, or catastrophe. Many of those who were displaced settled in south Lebanon.

— n the 1960s and 70s, militants affiliated with the Palestine Liberation Organisation (PLO) also began to build a base in south Lebanon, which they used as a launchpad for attacks on northern Israeli towns during this period.

— In March 1978, in response to a massacre of Israelis near Tel Aviv by Palestinian militants based in Lebanon, Israel invaded south Lebanon. In a short war that followed, Israeli forces pushed the PLO back from south Lebanon, creating a buffer north of Israel.

— By 1985, Israel had withdrawn from most of Lebanon but maintained a 15-20-km wide security zone in south Lebanon to prevent cross-border attacks. This area was patrolled by the South Lebanon Army (SLA), a Christian militia allied with Israel.

— Hezbollah, the "Party of God", was formed in the early 1980s in response to the Israeli occupation of Lebanon. The group was founded with support from Ayatollah Khomeini's regime in Iran.

— In 1996, a 17-day campaign by the IDF codenamed Operation Grapes of Wrath became a key moment in the Israel-Hezbollah war. Israel advanced militarily, but the campaign resulted in major civilian casualties.

— Researcher Daniel Byman noted that Hezbollah's use of civilian areas for military operations made it difficult for Israel to retaliate without collateral damage.

— The long Israel-Hezbollah conflict has shaped the Middle East in multiple ways. Hezbollah, the crown jewel of Iran's overseas military operations, has developed significant military capability, and has become, in the words of Norton, "the spearhead of resistance against Israel"

— But all this might be about to change, as Netanyahu's government moves the focus of the war away from Gaza, and IDF tanks line up in northern Israel, seemingly in preparation for another ground invasion of south Lebanon.

For Your Information:

— Hezbollah originated during the Lebanese Civil War (1975-1990), which was a result of "long-simmering discontent over the large, armed Palestinian presence in the country", according to the Council on Foreign Relations (CFR).

— Lebanon borders Israel to its north. Amid its internal ethnic and religious divisions, the arrival of Palestinian refugees from 1948 onwards — after the creation of Israel as a state for Jewish people that year — led to added tensions. Israeli forces invaded southern Lebanon in 1978 and again in 1982 to expel Palestinian guerrilla fighters.

— Hezbollah was formed around this time, inspired by the formation of a theocratic Islamic government in Iran in 1979. Iran and its Islamic Revolutionary Guard Corps (IRGC) also provided funding to the group.

CENTRAL GOVT. ADVISES INDIAN NATIONALS TO LEAVE LEBANON, CONSIDERS NAVAL EVACUATION

India has "strongly advised" its nationals to leave Lebanon. An advisory issued by the Embassy of India in Beirut has advised Indian citizens not to travel to Lebanon, which has been targeted by Israeli bombing raids over the past three days.

Official sources have said the Union government is contemplating naval evacuation of Indian nationals from Lebanon in view of the deteriorating security situation there.

Lebanon hosts around 3,000 Indians at present, sources said.

"All Indian nationals in Lebanon are strongly advised to leave Lebanon. Those who remain for any reason are advised to exercise extreme caution, restrict their movements and remain in contact with Embassy of India in Beirut through our email ID: cons.beirut@mea.gov.in or the emergency phone number +96176860128," the Embassy of India said in a public notification.

In view of this, discussions are currently under way in the South Block about carrying out a naval evacuation of Indians through the port of Beirut. A similar naval evacuation of Indian nationals was carried out in 2006 when Israel bombed Lebanon. At that time, four ships were deployed under Operation Sukoon to evacuate around 12,000 nationals from Lebanon. Operation Sukoon also rescued nationals from other countries such as Sri Lanka.

A similar naval and air evacuation was also carried out from Libya in February 2011.

The Embassy of India issued a similar advisory on 1 August when the conflict between Hezbollah and Israel had been heating up in the backdrop of the Israeli military campaign in the Gaza Strip.

STORMS BREWING IN EAST, SOUTH CHINA SEAS

The story so far:

In the last few years, maritime East Asia has become an arena for intensified power politics. The East China Sea borders China, Taiwan, Japan, and South Korea. China asserts that the Senkaku/ Diaoyu islands, located in the East China Sea and under Japanese control, belong to Beijing. There have been multiple crises over these islands in the past. The South China Sea lies between China, Taiwan and five Southeast Asian countries — Vietnam, Malaysia, Brunei, the Philippines, and Indonesia — and has emerged as one of the most important flashpoints in the Indo-Pacific. China has been aggressively pushing its claims in the South China Sea.

Why are the seas important to China?

China views the East and South China Seas through the prism of sovereignty, territorial integrity, and national security. China's Defence White paper, issued in 2019, declares, "South China Sea islands and Diaoyu Islands are inalienable parts of the Chinese territory." In responding to the criticism regarding China's activities, it asserts that "China exercises its national sovereignty to build infrastructure and deploy necessary defensive capabilities on the islands and reefs in the South China Sea, and to conduct patrols in the waters of Diaoyu Islands in the East China Sea." What China perceives as its defensive actions are considered offensive and provocative by the regional countries surrounding theEast and South China Seas.

What is the significance of the seas?

The key maritime trade routes in East Asia pass through these two seas. Taiwan Strait is a critical maritime choke point. The region is home to undersea cables that are important for the global digital economy. As per the U.S. Energy Information Administration, in 2023, 10 billion barrels of petroleum and petroleum products and 6.7 trillion cubic feet of liquefied natural gas passed through the South China Sea. It is also home to vast reserves of untapped oil and natural gas.

What is China doing in the region?

China has been aggressively pushing its territorial claims in both seas in two ways: by building defence-related infrastructure such as ports, military installations, airstrips, and artificial islands and by pushing back against the claims of regional countries. In the East China Sea, China vehemently contested Japanese claims and, both countries found themselves embroiled in multiple crises, the most notable being the arrest of a Chinese captain of a fishing boat in 2010 and Japan's nationalisation of the Senkaku islands in 2012. These crises saw both countries taking maximalist positions. China had imposed a ban on the export of rare earth minerals to Japan. In

the last few years, there has been a slight easing of tensions over the issue regarding the Senkaku/Diaoyu islands. As per the Japan Coast Guard data, 2023 saw the highest level of activity by the Chinese Coast Guard in the contiguous zone of the Senkakus. Owing to China's assertive foreign policy, its relationship with South Korea, Taiwan and Japan has deteriorated rapidly.

Meanwhile, the South China Sea has become a major theatre of Chinese belligerence. The power asymmetry between China and the South China Seaclaimant countries is large and is growing continuously. China's navy is also the largest naval force in the world by numbers. Therefore, the South China Sea is seeing the ever-growing projection of Chinese power. For asserting its claims, China has deployed a Coast Guard and maritime militia. The tactics include dangerous and aggressive manoeuvres at sea, harassing resupply missions, ramming vessels, collisions, and using water cannons and military-grade lasers, etc. These tactics are known as 'grey zone' operations, which fall short of war but are designed to alter the status quo.

China has been actively pushing its claims in the Exclusive Economic Zone (EEZ) of the Philippines. Since 2022, tensions between China and the Philippines have been rising due to a significant increase in the frequency of such incidents. In June-July 2024, multiple incidents of clashes occurred. The Second Thomas Shoal and Sabina Shoal have been the focus of China's recent assertiveness. The Philippines' resupply missions to the grounded ship,BRP Sierra Madre, have been repeatedly disrupted by China and have become a point of contention. China aims to drive a wedge between the U.S. and its treaty partners in East Asia. Chinese Coast Guard ships are considerably heavier and larger in terms of tonnage compared with Coast Guard vessels of other countries. For example, the Chinese vessel CCG 5901 (541 feet long and displaces 12,000 tons) is three times larger than the main ships of the U.S. Coast Guard. Hence, China's frequent ramming of the Philippines' vessels is dangerous and risky. There is a chance of miscalculation.

In July, China conducted naval exercises with Russia in the South China Seato demonstrate the support that it enjoys over it while projecting its claims. China's claims in the South China Sea lack a legal basis, according to a permanent court of arbitration ruling in 2016. However, China has rejected that ruling.

What has been the response from regional countries?

The regional countries have responded in three ways: First, they are building their defence capabilities. Defence spending has increased across the Indo-Pacific with regional countries trying to catch up with China. For example, by 2027, Japan wants to double its defence expenditure. The Philippines too is ramping up its defence capabilities and, among others, has acquired the anti-ship, BrahMos missiles from India.

Second, regional countries are responding to China's activities at sea. From 2016 to 2022, Under President Rodrigo Duterte, the Philippines sought to minimise the friction between Manila and Beijing. Since 2022, the Philippines has been pushing back and publicising these incidents. The change in policy was crafted by the new President Ferdinand Marcos Jr. As a result, the frequency of incidents has gone up. Regional countries are engaged in a battle of narratives as well. They are deploying tools such as public diplomacy. The Philippines has been filming the behaviour of Chinese vessels and is releasing it through social media. The Philippines has also taken international journalists along with its resupply missions in the West Philippine Sea. The shaping of perceptions has become a key battleground.

Third, the Philippines, Japan and South Korea are treaty allies of the U.S. and are strengthening their defence relationship with it. The U.S. and the Philippines have enhanced their cooperation

in the South China Seato "historic levels" and expanded cooperation in domains such as base access, training and joint exercises. They are working with Australia and Japan in "a complex multilateral maritime cooperative activity." It is dubbed as the 'Squad'. According to U.S. Secretary of Defence Lloyd Austin, the U.S.' commitment to the security of Japan is "ironclad" and includes the Senkaku islands as well. The U.S., Japan, and South Korea are deepening their trilateral cooperation. For the first time in history, the Defence Ministers of the three countries met in Japan in July 2024. In view of aggressive Chinese maritime activities, the press statement noted that these three countries "strongly oppose any unilateral attempts to change the status quo in the waters of the Indo-Pacific." They also "stressed the importance of fully respecting international law including the freedom of navigation and overflight."

Despite the efforts at bolstering the U.S.' alliances in the Indo-Pacific, concerns remain about American credibility and the impact of the U.S.' domestic politics on its external security commitments. There is also a debate about whether the U.S. engagement in East Asia balances the Chinese power or fuels conflict.

Note:

Japan's Self-Defense Force sailed through the Taiwan Strait on Wednesday for the first time in a historic move that angered Beijing and marked the latest tussle between the neighbours accusing each other of escalating tensions in the region.

SRI LANKA'S VERDICT

The people of Sri Lanka have voted for change in the ninth presidential election with their nod to Anura Kumara Dissanayake of the National People's Power (NPP). Even though Mr. Dissanayake, also the chief of the Janatha Vimukthi Peramuna (JVP), had to go through a second round of counting — a first since the introduction of the system of executive presidency in 1978 — the spirit of the mandate is for a change and a perceptible shift away from the established, traditional parties and groups that dominated the political landscape. It is remarkable that the JVP, a party with Marxist origins, that is leading the NPP, has been able to get about 42% of the vote share, unlike its poor showing in 2019 and 2020. And though lower than in 2015 and 2019, voter turnout was about 79.5%. Given their constraints, all the contestants conducted themselves in a way that reflected their faith in the democratic system. It is also no surprise that the purpose for which the popular uprising Aragalaya ('struggle' in Sinhala) took place, found resonance in the campaign and verdict.

As economic woes had triggered the uprising, all the contenders had focused on the economic factor. Mr. Dissanayake told The Hindu recently that fixing the battered economy would be among his priorities. Despite being a Leftist, the JVP leader appears receptive to welcoming private and foreign investments. His election manifesto talks of renegotiating, rather than scrapping, with the IMF the $2.9 billion bailout agreement. What Mr. Dissanayake should not overlook is that he has to adopt a consensual path while implementing his economic policies and programmes. It is also going to be challenging when it comes to the other facets of governance and how he will be able to ensure a "system change" as he has repeatedly attacked the present "corrupt political culture". The promise to hold elections to provincial councils — a tier of government that the JVP had once opposed — must be reassuring to Tamils. In the area of foreign relations, Mr. Dissanayake, dubbed by his critics a "pro-China" leader, is expected to extend his pragmatism — he did visit India early this year. His manifesto also mentions that Sri Lanka's territory would not be allowed "to threaten or risk the national security of any country in the region including India". But it remains to be seen

how the new President will translate into action his electoral promise of abolishing the current system of executive presidency, a matter that has refused to die down in the political discourse of the country for over 30 years. Mr. Dissanayake, who will be assuming charge under not so comfortable conditions, requires understanding and cooperation from every section of Sri Lankan society.

WHY PAKISTAN NEEDED ANOTHER BAILOUT FROM IMF, WHAT THIS WILL ENTAIL

The International Monetary Fund (IMF) on Wednesday officially approved a $7 billion Extended Fund Facility (EFF) for Pakistan, two months after the agency had reached a staff-level agreement for the same with Islamabad.

— In July 2023, Pakistan secured a nine-month $3 billion Stand-By Arrangement (SBA) from the IMF. The country's interim government worked to ensure the IMF's conditions of "fiscal discipline, structural reforms and a return to market-determined exchange rate" were met.

— As of September 2024, Pakistan's inflation rate stands at around 7.5%, its lowest in five years.

— But Pakistan still has an external debt of around $130 billion, of which it will need to pay $ 90 billion over the next three years.

— An EFF is a financial assistance package offered by the IMF to countries facing severe balance of payments issues due to structural weaknesses that cannot be resolved in the short term.

— In theory, it is meant to help the borrowing country implement medium-term structural reforms. In Pakistan's case, these include bolstering monetary and fiscal policies including tax reforms, strengthening competition, and rebuilding the forex reserves.

— Notably, the package does not include plans to restructure the country's external and internal debt, which according to Dawn, equalled around 81% of the previous fiscal year's tax revenues.

For Your Information:

— The IMF lends money to the economies in peril in the form of Special Drawing Rights (SDRs), which is a basket of five currencies — US dollar, Euro, Chinese Yuan, Japanese Yen and British Pound. It can be executed in the form of loans, cash, bonds, or stock purchases.

— Among the conditions laid down for a country seeking financial assistance from the IMF could be certain structural reforms, such as fiscal transparency, tax reforms and reforms in state-owned enterprises. Critics say these reforms can be tough on the public and may be driven by geopolitical influence, since they are often decided by officials of various countries.

NATION

INDIA AND CHINA MAKE 'PROGRESS' ON PENDING LAC ISSUES IN EASTERN LADAKH

India and China are learnt to have made "significant progress" in narrowing their gap on pending issues along the Line of Actual Control (LAC) in eastern Ladakh. This includes exploring the contours of a possible solution that factors in their respective pre-April 2020 positions while agreeing to address existing issues in Arunachal Pradesh, The Indian Express has learnt.

— Sources said this might imply that Indian troops, whose access to certain patrolling points along the LAC were blocked either by Chinese troops or due to the implementation of the buffer zones created in the backdrop of disengagement at specific friction points, might be close to accessing them again.

— Top officials have confirmed that the development took place during the latest diplomatic and political level talks between both sides. The delegation for the 31st Working Mechanism for Consultation & Coordination on India-China Border Affairs (WMCC) talks held on August 29 in Beijing, also had representatives from the Indian military.

— The 22nd round of military talks between India and China at the Corps Commanders' level is now expected to be held shortly to chalk out the modalities — including the time frame — of the deployment of troops from either side based on the mutual agreement reached.

— On September 12, External Affairs Minister S Jaishankar had said that about 75 per cent of the "disengagement problems" with China have been "sorted out" but the "bigger issue" has been the increasing militarisation of the border. Subsequently, the Chinese Foreign ministry said that the troops have disengaged at four places in Eastern Ladakh, including Galwan Valley and the situation along the borders is stable.

— A statement issued by the MEA stated that Doval-Wang meeting gave the two sides an opportunity to review the recent efforts towards finding an "early resolution" of the remaining issues along the LAC, which will create conditions to stabilize and rebuild bilateral relations.

— The last formal disengagement along the LAC took place in September 2022, when both sides pulled back troops to disengage from Patrolling Point-15 in the Gogra-Hot Springs area of Eastern Ladakh.

For Your Information:

— The LAC is the demarcation that separates Indian-controlled territory from Chinese-controlled territory. India considers the LAC to be 3,488 km long, while the Chinese consider it to be only around 2,000 km. It is divided into three sectors: the eastern sector which spans Arunachal Pradesh and Sikkim, the middle sector in Uttarakhand and Himachal Pradesh, and the western sector in Ladakh.

— Friction points such as Galwan Valley, north and south banks of Pangong Tso and the Gogra-Hot Springs area have seen some amount of resolution in the last four years with the creation of buffer zones along the LAC.

— While legacy issues of Depsang Plains and Demchok—pre-dating the current ongoing military standoff remained—troops deployed at the Depsang Plains were blocked from accessing their patrol points in an area called the Y junction.

— China has been constructing over 600 Xiaokang or "well-off villages" along India's borders with the Tibet Autonomous Region for over five years now.

INDIA SIGNS IPEF'S CLEAN, FAIR ECONOMY AGREEMENTS

India on Sunday signed the US-led 14-member Indo-Pacific Economic Framework for Prosperity (IPEF) bloc's agreements on a clean and fair economy.

— The agreements signed during Prime Minister Narendra Modi's visit to the US are aimed at facilitating the development, access, and deployment of clean energy and climate-friendly technologies. They also aim to strengthen anti-corruption measures and promote tax transparency within member countries.

— The Commerce and Industry Ministry said that the agreement on clean economy intends to accelerate efforts of IPEF partners towards energy security, GHG (greenhouse gas) emissions mitigation, developing innovative ways of reducing dependence on fossil fuel energy and promoting technical cooperation.

— The agreement on a fair economy intends to create a more transparent and predictable business environment, which can spur greater trade and investment in the markets of member countries, the ministry said, adding that the agreements focus on enhancing information sharing among partners, facilitating asset recovery, and strengthening cross-border investigations and prosecutions.

For Your Information:

— The IPEF, a strategic partnership involving 14 member countries, focuses on building economic cooperation through its four key pillars — trade, supply chain resilience, clean economy, and fair economy (focusing on tax and anti-corruption).

— India's engagement in IPEF, alongside the US, Japan, Australia, and other Indo-Pacific nations, highlights its commitment to a regional partnership that represents 40 per cent of the global economy and 28 per cent of world trade.

BIDEN AND INDIA-US TIES

On the sidelines of the Quad leaders' summit, Prime Minister Narendra Modi held a meeting with United States President Joe Biden on September 21. This might well have been the final tête-à-tête between the two world leaders before Biden leaves the White House in January 2025.

— President Biden inherited a strong India-US relationship from his predecessor Donald Trump. The former president had, for the very first time, framed China as a strategic rival and adversary to the US, and thus aligned Washington and New Delhi's positions. In this regard, Biden carried Trump's legacy forward.

— Trump revived the Quad grouping comprising India, the US, Australia, and Japan in 2017. In 2021, Biden elevated the Quad to the leaders' level, the highest in international diplomacy.

— On January 31, 2023, the two National Security Advisers launched the Initiative for Critical and Emerging Technology (iCET) in Washington to facilitate strategic technology collaborations in critical and emerging technologies…

— PM Modi's recent visit saw him sign an agreement for setting up a semiconductor fabrication plant in India, which would make chips for use in "national security, next generation telecommunications and green energy applications".

— The fab will be enabled by support from the India Semiconductor Mission as well as a strategic technology partnership between Bharat Semi, 3rdiTech, and the US Space Force, the joint statement said.

— Beyond the fab, India and the US are working on a broad range technology partnerships, from joint research conducted by NASA and ISRO on the International Space Station, to a pact for critical minerals supply chains and emerging digital technologies in Asia and Africa.

— That said, the headwinds in India-US ties cannot be ignored. Most notably, in recent months, the alleged assassination plot against US-based pro-Khalistan separatist Gurpatwant Singh Pannun has been a thorny issue.

— India has to address this issue to remove any misgivings in Washington about New Delhi's democratic credentials. But South Block believes that in the larger scheme of things, the two countries' strategic alignment vis-à-vis China means that such challenges are only minor wrinkles to be ironed out.

For Your Information:

— When Prime Minister Narendra Modi and United States President Joe Biden announced establishing a semiconductor fabrication plant in India focused on meeting defence and national security needs, two names stood out: Bharat Semi and 3rdiTech.

— From being incubated at the Indian Institute of Technology in Delhi to securing a place at a prestigious accelerator at the University of California in Berkeley just four years ago, Bharat Semi, and its holding entity 3rdiTech, is an Indian start-up focused on designing chips, especially for military and defence purposes.

PACT FOR THE FUTURE

It is a landmark declaration reaffirming the commitment of UN Member States to sustainable development, peace, and stronger global governance.

The Pact's five broad focus areas include

- Sustainable development: It includes a pledge to move faster towards achieving the UN's Sustainable Development Goals (SDGs) and the Paris Agreement commitments on climate change.
- International peace and security: Redouble efforts to build and sustain peaceful, inclusive and just societies and address the root causes of conflicts and protect all civilians in armed conflict

- Science and technology and digital revolution: Science, technology and innovation have the potential to accelerate the realization of the aspirations of the United Nations across all three pillars of its work.
- Youth and future generations: Listen to young people and include them in decision-making, at the national and global levels
- Transforming global governance: Build stronger partnerships with civil society, the private sector, local and regional authorities.

VISIT WRAP-UP

Prime Minister Narendra Modi's three-day visit to the U.S was marked by high-level meetings that had a three-part focus. He spent one day at the Quad and in bilateral meetings with U.S. President Joseph Biden, a day in New York with business leaders and the diaspora, and another day at the UN and in bilateral meetings. The Quad Summit, delayed due to political cycles in the four member countries, was more substantive than expected for a farewell meeting (Mr. Biden and Japan's Fumio Kishida will soon demit office). The joint statement was noted for its sharp language on Chinese aggression in the South China Sea, as well as on Russia's invasion of Ukraine, where the leaders upheld the UN charter on sovereignty and territorial integrity. The announcement of initiatives aimed at countering Chinese actions will no doubt raise Beijing's ire: a "Quad-at-Sea Ship Observer Mission" for 2025, a Maritime Initiative for Training in the Indo-Pacific (MAITRI) and a "maritime legal dialogue" to support the "rules-based order". However, India's hesitation in joining other Quad militaries in contested waters in the Pacific Ocean remains, and India's presidency of the Quad next year will show whether those are overcome. Quad countries also committed to a "Cancer Moonshot" to fight cancer, an initiative that can draw lessons from the troubled Quad vaccine initiative. India and the U.S. were able to announce progress on many strategic fronts including a military partnership for semiconductor fabrication and India acquiring predator drones. However, the ties faced unspoken tensions over the lingering effect of the Pannun case, including summons issued for NSA Ajit Doval in a civil suit and a White House meeting with Sikh activists who have campaigned against India — all before Mr. Modi's arrival. The message from Washington appears to be that the Pannun case cannot be overlooked.

Mr. Modi's message at the UN as well as in bilateral meetings with leaders including Ukrainian President Volodymyr Zelenskyy was watched closely given recent moves hinting at India's involvement in a peace process. While Mr. Modi gave no further indication of such a plan, his discussions with Mr. Zelenskyy centred around a possible second peace summit. At a diaspora event, Mr. Modi said that India is now a "strong voice" of the Global South, and was taking up the concerns of the developing world on the conflict with the global leadership. At the UN "Summit of the Future", he added that the success of humanity would depend on its "collective strength, not in the battlefield". The next few months will see New Delhi tested not only on those lofty ideals and ambition for peace but also on actualising the many announcements made during the visit.

QUAD GROUPING

— The Quadrilateral Security Dialogue or the Quad comprises of India, Japan, Australia, and the US. It was formed as an informal alliance after the Indian Ocean tsunami of December 2004. It was formalised in 2007 by the efforts of then PM of Japan, Shinzo Abe.

— The United States will host the 2025 Quad Foreign Ministers Meeting, and India will host the 2025 Quad Leaders Summit.

The fourth Quad Leaders' Summit

— US President Joseph R. Biden hosted the fourth Quad Leaders' Summit in Wilmington, Delaware on September 21.

— **QUAD Cancer Moonshot:** The QUAD has launched it as a collective effort to leverage public and private resources to reduce the number of lives lost to cancer in the Indo-Pacific, with an initial focus on cervical cancer. India has pledged a grant of $7.5 million for testing, screening, and diagnosis of the disease in the Indo-Pacific region.

— **Maritime Initiative for Training in the Indo-Pacific (MAITRI):** To maximise the tools provided by the Indo-Pacific Partnership for Maritime Domain Awareness (IPMDA), which was launched in the 2022 Quad Leaders' Summit in Tokyo, the QUAD launched MAITRI. The purpose is to monitor and secure Indo-Pacific waters, enforce their laws, and deter unlawful behaviour. The inaugural MAITRI workshop will be hosted by India in 2025.

— It also launched the Quad maritime legal dialogue to support efforts to uphold the rules-based maritime order in the Indo-Pacific.

— **Indo-Pacific Logistics Network**: It is launched as a pilot project to pursue shared airlift capacity among the four nations and leverage collective logistics strengths, to support civilian response to natural disasters more rapidly and efficiently across the Indo-Pacific region.

— **Quad Ports of the Future Partnership:** It will harness the Quad's expertise to support sustainable and resilient port infrastructure development across the Indo-Pacific, in collaboration with regional partners. The inaugural Regional Ports and Transportation Conference will be hosted by India in Mumbai in 2025.

— **Quad-at-Sea Ship Observer Mission:** QUAD countries have planned to launch a first-ever Quad-at-Sea Ship Observer Mission in 2025 in the Indo-Pacific to improve interoperability.

SOON, FOREIGN FRIENDS OF DIASPORA MEMBERS TO GET FREE VISAS

In a first-of-its-kind initiative to bring more foreign tourists to India, the government will allow "friends" of diaspora members to get free visas. Up to five foreign nationals nominated by OCI (Overseas Citizen of India) cardholders on a special website will be eligible for the gratis e-visa, The Indian Express has learnt.

— The initiative, to be launched in a few weeks as part of a "Chalo India" campaign, involves four key ministries: External Affairs, Home Affairs, Finance and Tourism. Mooted by the Tourism Ministry, it has now got the approval of the Finance Ministry, officials told The Indian Express.

— They said the initiative is in response to Prime Minister Narendra Modi's appeal for members of the Indian diaspora to invite five non-Indian friends to visit India. The PM during his interactions with the Indian community over the last year, has made appeals to them to get at least five of their friends to visit their homeland.

— The 'Chalo India Global Diaspora Campaign' was announced by PM Modi from Srinagar in March this year, which was simultaneously launched in all Indian embassies and high

commissions abroad. However, this is the first time a financial incentive has been associated with the campaign, which has now been granted the approval of the Finance Ministry.

— As per the Ministry of Tourism, the Chalo India programme aims to empower diaspora members to serve as ambassadors for Incredible India, playing a crucial role in boosting tourism and enhancing cultural awareness. They can invite as many friends as possible and will also earn rewards for each foreign visitor they successfully attract to India.

For Your Information:

— At the event at Bakshi Stadium (March, 2024), Modi launched multiple projects related to the tourism sector worth over Rs 1,400 crore under the Swadesh Darshan and Pilgrimage Rejuvenation and Spiritual, Heritage Augmentation Drive schemes, including the project for the Integrated Development of Hazratbal Shrine in the city.

— He also launched the Dekho Apna Desh People's Choice Tourist Destination Poll and announced tourist destinations selected under the Challenge-Based Destination Development (CBDD) scheme.

JUDGE AND PREJUDICE

The Supreme Court of India has rapped judges over the knuckles, asking them to refrain from making "casual observations" that reveal their communal bias or misogyny. Judicial proceedings are live-streamed in some courts across the country, with a wide reach beyond the four walls of a courtroom, and the top court was firm that judges, and everyone in the judicial fraternity, must be aware of the responsibility and act accordingly. The "heart and soul of judging is to be fair", it observed, and noted that judges must strictly adhere to the values laid down by the Constitution, and not be guided by prejudice. Taking suo motu cognisance of video clips featuring Karnataka High Court Judge V. Srishananda and his sexist comments to a woman lawyer on two separate judicial proceedings, a five-judge Special Bench headed by Chief Justice of India (CJI) D.Y. Chandrachud observed in its order on Wednesday that off-the-cuff remarks by judges would show them in a negative light and impact the entire judicial institution adversely. On a previous occasion, the Karnataka High Court judge had referred to a Muslim-dominated locality in west Bengaluru as 'Pakistan'. The Bench took a stern note of that remark as well, contending, "you cannot call any part of the territory of India 'Pakistan'... This is fundamentally wrong under the Constitution".

The judge apologised after the suo motu notice, and calling it a "contrite apology", the top court said it was concluding the proceedings, but not before making several observations in open court. In fact, Attorney General R. Venkataramani and Solicitor General Tushar Mehta had advised the Court to hold the procedure in-house so that its remarks are not misrepresented on social media later. To this, the CJI quipped, "The answer to sunlight is more sunlight. The answer is not to close our doors and shut out everything." Last month too, the Court had cautioned a judge of the Punjab and Haryana High Court to stop making "random, unwarranted" remarks during proceedings. In 2023, the Court released a handbook to combat gender stereotyping within the judiciary. Aiming to assist the legal community in "identifying, understanding and combating stereotypes about women", it came out with a glossary of gender-unjust terms, suggesting alternative words or phrases to be used while drafting pleadings as well as orders and judgments. It is imperative for court officials to be gender-sensitised. The judicial ecosystem must run without any bias towards

any community. Stereotyping any person on the lines of gender or religion will perpetuate harmful inequalities, and carriers of justice should be mindful of this at all times.

SC CONSIDERS PLEAS ON SUB-QUOTA CLASSIFICATION

A seven-judge Bench of the Supreme Court examined a series of petitions seeking a review of its August 1 majority judgment declaring that States have the right to sub-classify Scheduled Castes notified in the Presidential List in order to provide them more preferential treatment in public employment and education.

The review exercise was scheduled in the chambers of the seven judges on the Bench headed by Chief Justice of India D.Y. Chandrachud.

The lead opinion of the Chief Justice and Justice Manoj Misra that it was constitutionally permissible for States to sub-classify groups among Scheduled Castes was backed by four other judges.

Justice B.R. Gavai had observed that it was the duty of a State to give preferential treatment to the backward class of citizens who were not adequately represented.

Justice Bela Trivedi had remained the lone dissenter on the Bench, saying States did not have the power to tinker with the Presidential List of Scheduled Castes.

The review petitions filed later on in August supported the conclusions of Justice Trivedi. They had argued that the President had the exclusive powers to identify the Scheduled Castes and Scheduled Tribes.

"If any community has advanced or ceased to be a part of Scheduled Castes or Tribes, Parliament has got the exclusive power to include in or exclude from such community from the 1950 Order. The concurrent exercise is not contemplated by the States," it said.

"The power to deal with the 1950 Scheduled Castes and Scheduled Tribes Order is not available to anyone, the Union government or the State (including State Legislature) except Parliament. The Indra Sawhney judgment did not deal with the sub-division or sub-classification of SC/ST and it remains limited to the Other Backward Classes," the review petitioners argued.

The review petitioners also did not agree with the opinions of four judges on the Bench to introduce the creamy layer principle in reservations for Scheduled Castes and Scheduled Tribes.

DELAY AND BAIL

Bail is no boon. It is a routine relief for anyone arrested and kept in custody to give the investigating agency enough time to gather evidence about an offence without the risk of interference by the suspect. In fraught times when agencies are seen as political weapons of the ruling dispensation, the release of a political functionary such as former Tamil Nadu Minister V. Senthilbalaji on conditional bail becomes a cause for celebration among his party colleagues. The allegations against him are quite serious, and a spell of imprisonment once a serious investigation was taken up was not surprising. However, his prolonged incarceration on the charge of money laundering gave the criminal proceedings against him a political colour. After over 15 months, he has obtained bail from the Supreme Court of India. While courts have been reluctant to grant bail in money laundering cases, it was only a matter of time before the courts began reiterating that

bail is the norm, and jail the exception. It is a welcome sign that the Court feels no more constrained by the bail-denying features of the Prevention of Money Laundering Act (PMLA) and similar laws. Its concern has now rightly shifted to the possible violation of the remand prisoners' constitutional rights in the form of protracted delay in commencing and conducting the trial. Therefore, long imprisonment without hope of an early trial has become a justified ground for grant of bail.

In Mr. Senthilbalaji's case, the PMLA charge arose from the allegation that when he was Transport Minister in the erstwhile AIADMK regime, he had collected bribes through his associates from job aspirants in his department, but ultimately those who had paid for jobs did not get any appointment. The police case regarding this has resulted in six charge sheets. The Court has noted that the final decision in his PMLA case can come only after the trial in respect of these cases. The former Minister, a defector from the AIADMK to the DMK, enjoys unwavering support from his present party, to the extent that Chief Minister and DMK President M.K. Stalin has extolled his "sacrifice" and "resolve". However, this demonstration of support from one side and loyalty from the other should not mean that the gravity of the offence involved should be forgotten. After all, Mr. Stalin himself had, while he was in the Opposition and Mr. Senthilbalaji a Minister, highlighted the allegations and demanded action. Mr. Senthilbalaji's entry into the DMK may have changed the political equations between them. However, the cause of justice for the victims of the job scandal and a fair trial for the accused would be served well if Mr. Stalin avoids inducting Mr. Senthilbalaji again in his Cabinet until he is cleared of the charges.

SC DISMISSES PETITION TO REVIEW ADVERSE REMARKS AGAINST GUJARAT GOVT. IN BILKIS BANO JUDGMENT

The Supreme Court on Thursday found no "error apparent on the face of the record" or merit in a petition filed by the Gujarat government to review adverse remarks made against it by the court in a January 8 judgment. The order had quashed the premature release of 11 men sentenced to life imprisonment for the gang rape of Bilkis Bano and the murder of her family during the 2002 riots in the State.

The review was decided by a Bench of Justices B.V. Nagarathna and Ujjal Bhuyan. The State of Gujarat had remitted the life sentence of the 11 convicts and released them from jail in August 2022.

The court's verdict had passed scathing remarks about the alacrity shown by the Gujarat government to "usurp" Maharashtra's authority in deciding on the remission. The trial in the case was held in Maharashtra, which was the competent authority to decide the remission applications of the 11 convicts.

The Gujarat government had found some of the observations in the judgment "extreme", including that the State had "acted in tandem and was complicit with [one of the] accused".

'Highly unwarranted'

It had argued in the review plea that such remarks in the judgment were not only highly unwarranted but also caused serious prejudice to the State.

"...We are satisfied that there is no error apparent on the face of the record or any merit in the review petitions," the court said.

In the judgment in the Bilkis Bano case, Justice Nagarathna, who authored the verdict, had said the grant of remission to the men by Gujarat was an "abuse of discretion".

HARD TO BELIEVE POLICE NARRATIVE IN DEATH OF BADLAPUR CASE ACCUSED: HC

The Bombay High Court on Wednesday questioned the Maharashtra police over the custodial death of Akshay Shinde, the accused in the Badlapur sexual assault case, who was allegedly shot dead in an encounter by the Thane police on Monday.

A day later, on Tuesday, his father, Anna Shinde, approached the High Court through advocate Amit Katarnaware and sought an urgent hearing.

The petitioner alleged that his son was killed in a fake encounter and if the matter is not heard urgently, evidence in the case will be destroyed. The petitioner sought a probe by a Special Investigation Team.

Advocate Katarnaware on Wednesday, addressing a Division Bench of Justices Revati Mohite Dere and Prithviraj Chavan, said, "This is a fake encounter case. My prayers are to order a probe into the murder, registration of an FIR against erring police officers, and preservation of the CCTV footage of Taloja Central Jail and footage covering the incident spot."

Mr. Katarnaware said the deceased was not in a state to attempt an escape and did not have the physical capacity to snatch a pistol from an officer. "My client believes that his son was killed in view of the forthcoming elections."

Representing the State of Maharashtra, Chief Public Prosecutor Hiten Venegavkar submitted to the Bench that the matter is being probed by the State Criminal Investigation Department and two FIRs have been registered.

'Cannot be trusted'

The Bench asked Mr. Venegavkar to narrate the timeline of the crime, and specify details of the crime scene, CCTV footage, and post-mortem report.

"This is hard to believe. Prima facie, this cannot be trusted. A layman cannot fire a pistol unlike a revolver. A physically weak man cannot load a pistol as it requires strength. Why were the police so negligent and casual when they were escorting a man accused of serious offences? We cannot believe that four police officers present inside the van failed to overpower a weak man and did not know how to react," it said.

'Want to know the truth'

The Bench added that there are "numerous gaps" in the case and sought an impartial probe even if police officers are involved. "We want to know the truth. That's it," it said.

The matter has been adjourned till October 3.

WHY THE 'FACT-CHECKING' UNIT WAS INVALIDATED

The story so far:

On September 20, the Bombay High Court struck down as "unconstitutional" and "vague" the amended Information Technology (IT) Rules, 2021, which empowered the Centre to establish a "Fact Check Unit" (FCU) to identify "fake or false or misleading" online content about the government and its establishments. Justice Atul Sharachchandra Chandurkar delivered the verdict as the "tie-breaker" judge after a division Bench comprising Justices G.S. Patel and Neela Gokhale pronounced a split verdict in January, 2024.

What was the law under challenge?

The Ministry of Electronics and IT (MEiTY) introduced the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Amendment Rules, 2023 (2023 Rules), amending the 2021 IT Rules.

This amendment vested the Union government with the authority to establish a fact-checking body empowered to classify any information "pertaining to the business of the Central government" as "fake, false, or misleading".

The amended Rule 3(1)(b)(v) specifically required social media intermediaries to make "reasonable efforts" to prevent users from uploading or transmitting any content flagged by the Centre's FCU as misinformation. Such flagged content would have to be taken down within 36 hours if the intermediaries wanted to retain their "safe harbour" protection — a form of legal immunity against any third-party content hosted by them. Within a week of their notification, the constitutional validity of the 2023 Rules was challenged before the High Court by Kunal Kamra, a political satirist and standup artist, the Editors Guild of India, and the Association of Indian Magazines.

What did the split verdict stipulate?

Justice Patel opined that the amended rules promoted censorship and did not fall within the ambit of reasonable restrictions permitted under Article 19(2) of the Constitution. He underscored that the absence of procedural safeguards or guidelines effectively made the Union government a "judge in its own cause". In contrast, Justice Gokhale reasoned that the government is best positioned to provide accurate information about itself and that the rules were intended solely to combat misinformation, without restricting legitimate criticism or political satire. She also dismissed allegations of bias by asserting that the mere fact that the FCU members were appointed by the government did not undermine their independence.

Did the Supreme Court intervene?

Following the split verdict, the Chief Justice of the High Court appointed Justice Chandurkar to hear the matter afresh and deliver a tie-breaking ruling, in accordance with the High Court rules. Subsequently, the petitioners filed applications seeking an interim stay on the notification of the FCU until the matter was finally adjudicated. However, Justice Chandurkar dismissed these applications on the ground that no prima facie case was made out to stall the establishment of the body.

On March 20, 2024, the Centre notified the FCU under the Press Information Bureau (PIB). However, the very next day, the Supreme Court stayed the operation of the notification until Justice Chandurkar took a final call on the validity of the amended rules. It reasoned that the challenge raised "serious constitutional questions" relating to the fundamental right to freedom of speech and expression.

What did Justice Chandurkar rule?

Endorsing Justice Patel's view, Justice Chandurkar observed that the amended rules suffer from manifest arbitrariness and sought to impose restrictions on freedom of speech and expression beyond those defined under Article 19(2) of the Constitution. He noted that the expressions "fake, false or misleading" within the rules are "vague and overbroad", leaving ample room for potential misuse.

Highlighting that there was no clarity on how the FCU would identify any information to be patently false or misleading, the judge asserted that the "exercise would result in an unilateral determination by the executive itself". He also refused to accept the Centre's claim that the Rules would exclude political comments and satire by reasoning that "any assurance from one Government even if carried out faithfully would not bind a succeeding Government."

Notably, Justice Chandurkar observed that the mere ability of an aggrieved person to challenge FCU decisions in a constitutional court could not be regarded as an adequate safeguard. He accordingly concluded that the amended rules were liable to be struck down, as they created a "chilling effect" on intermediaries by jeopardising their safe harbour protection.

What happens next?

The Union government is likely to appeal the decision before the Supreme Court especially since the 2021 IT Rules are currently under challenge before the Delhi High Court and the Madras High Court. The ruling will also impact the legitimacy of similar fact-checking units established in Tamil Nadu and Karnataka.

CLAUSE 6 OF ASSAM ACCORD

After a meeting with representatives of the All Assam Students' Union (AASU) on Wednesday, Chief Minister Himanta Biswa Sarma set the ball rolling for the implementation of 52 recommendations of the Justice Biplab Sarma Committee regarding Clause 6 of the Assam Accord, as announced by the Assam government earlier this month.

— The historic Assam Accord was a Memorandum of Settlement between the Rajiv Gandhi-led Union government and the leadership of the Assam Movement, primarily the All Assam Students' Union (AASU), which was signed in 1985. The accord ended the six-year-long agitation in Assam against the entry of Bangladeshi migrants into the state.

— Clause 6 of the accord states that "Constitutional, legislative and administrative safeguards, as may be appropriate, shall be provided to protect, preserve and promote the cultural, social, linguistic identity and heritage of the Assamese people."

— In July 2019, the Union Home Ministry constituted a 14-member committee chaired by retired Assam High Court Justice Biplab Kumar Sarma, and comprising judges, retired bureaucrats, writers, AASU leaders and journalists, to suggest ways to implement the clause. Among the key

questions before the committee was a definition of "the Assamese people" eligible for the "safeguards" under Clause 6.

— Among the key recommendations made by the committee was that the definition of "Assamese people", for the purpose of implementing Clause 6, should include "Indigenous Tribals", "Other Indigenous Communities of Assam", "Indian citizens residing in the territory of Assam on or before January 1, 1951" and their descendants, and "Indigenous Assamese" people. Based on this, the committee made several recommendations for reservations for "Assamese people", including in Parliament, the state Assembly, local bodies, and jobs.

For Your Information:

— Chief Minister Sarma said that the state government has accepted 1951 as the "cut-off date" for the specific recommendations of the report. He said, however, that this definition of "Assamese people" is confined to only the context of the report's recommendations.

— The 67 broad recommendations made by the report can be divided into three broad categories: 40 which come under the exclusive domain of the state government, 12 which will require the concurrence of the Centre, and 15 which are in the exclusive domain of the Centre.

— The 52 recommendations in the first two categories will be implemented by April 2025, for which the state government will submit a roadmap to AASU by October 25 this year. These 52 recommendations largely deal with safeguards on language, land, and cultural heritage.

— Some of the most sensitive recommendations by the committee, however, do not find mention in the 52 points listed by the state government. Among them are the introduction of an Inner Line Permit for entry into Assam as is in place in Nagaland, Arunachal Pradesh, Manipur and Mizoram, as well as numerous reservations for "Assamese people".

EMBATTLED CM

Politico-legal cases have a momentum of their own, depending on who is being prosecuted and who facilitates forward movement on their procedural aspects. A Special Court in Bengaluru has acted swiftly to direct the State's Lokayukta police to investigate a complaint of corruption against Chief Minister Siddaramaiah. The step comes in the wake of the Karnataka High Court lifting the bar on the Special Court dealing with private complaints on the issue, while upholding Governor Thaawarchand Gehlot's grant of permission to initiate an investigation into allegations against the CM. The charges arise from benefits worth ₹56 crore that his family allegedly derived from the allotment of 14 compensatory sites by the Mysuru Urban Development Authority (MUDA) to his wife, Ms. Parvathi, who was one of those whose land had been acquired and developed for a residential layout. The High Court rejected Mr. Siddaramaiah's stand that Mr. Gehlot had acted in undue haste in issuing a show-cause notice on the very day the complaint was received and had shown non-application of mind while approving the beginning of a probe. It further rejected the argument that the Governor should follow the advice of the Council of Ministers in this. Also rejected was the contention that the prior approval requirement under Section 17A of the Prevention of Corruption Act for opening a probe can only pertain to a police officer and not any private complainant.

The High Court verdict narrates the facts behind the way in which Ms. Parvathi came to possess the land through a gift-deed from her brother, who had purchased the land from a person long after its acquisition had been notified and the compensation amount deposited in court. It justifies

the Governor acting on his own discretion on the ground that the Council of Ministers was biased towards the CM and its advice to the Governor to reject the request for sanction was rightly ignored. Its ruling on Section 17A is rooted in an earlier Karnataka High Court decision that a private complainant has to produce the sanctioning authority's approval for the jurisdiction court to take cognisance of his complaint of corruption against a public servant. This aspect may be taken up on appeal, as also the court's rejection of Mr. Siddaramaiah's key contention that he had made no decision or recommendation in this MUDA matter to justify the court allowing an investigation against him. The question whether the Governor was free from bias is also likely to arise. Beyond fact and law, the central question in this case is whether this is a genuine anti-corruption move or an instance of a Governor using the statutory power to allow investigation or prosecution to undermine a regime.

KARNATAKA GOVT. WITHDRAWS GENERAL CONSENT FOR CBI, SAYS AGENCY 'BIASED'

Accusing the Central Bureau of Investigation (CBI) of being "biased and prejudiced" in its investigation into various cases, the Karnataka government on Thursday withdrew its earlier notification granting unrestricted permission to the agency to conduct probe in the State.

The Cabinet decision came amid calls for a CBI investigation against Chief Minister Siddaramaiah over the alleged irregularities in the allotment of 14 MUDA (Mysore Urban Development Authority) sites to his wife, after a Bengaluru court ordered a Lokayukta probe into it.

Law Minister H.K. Patil, however, said the withdrawal of consent was not linked to the MUDA probe.

Speaking on the decisions taken at a meeting presided over by Mr. Siddaramaiah, Mr. Patil said, "In the case of the Chief Minister, the Special Court has directed a Lokayukta inquiry. The question of withdrawal of open consent to the CBI is not linked to it."

'Case-by-case basis'

He said, "The blanket permission was given earlier. We did not stop it. But when we found that Raj Bhavan is misused, institutions are misused, we felt that we should be cautious... The CBI and the Centre have not been using their instrumentalities in a judicious manner. As a consequence, we have decided to grant consent to the CBI on a case-by-case basis after examination."

Under the Delhi Special Police Establishment Act, 1946, the government had earlier granted the CBI permission to freely carry out criminal investigation in the State, Mr. Patil said.

With this, Karnataka joins many non-BJP-ruled States in withdrawing general consent for the CBI in recent years.

Alleging that the CBI was being "misused", he said that in some cases, when the agency was involved, no chargesheets were filed. "The outcome of an investigation depends on the chargesheet, and in many instances, the CBI has declined to file," Mr. Patil said. The Minister alleged that for the past 18 months, the CBI had been operating in a biased manner. "Only office-bearers from one political party are being probed, which demonstrates a prejudiced approach. This is one of the reasons for our decision... We have taken this decision to prevent them [CBI] from going down the wrong path," Mr. Patil said.

In November 2023, the Congress government decided to withdraw the consent given by the previous BJP government in September 2019, allowing the CBI to investigate corruption charges against Deputy Chief Minister D.K. Shivakumar.

DIS/AGREE

The death of a 26-year-old in Pune, allegedly due to work stress, has sparked controversy. A teacher and a corporate executive write to the young on how to navigate today's work place.

For Your Information:

— At a time when countries like the UK and Germany are piloting the four-day workweek, we are still working some of the longest hours in the world.

— According to ILO data, Indians work an average of 48-50 hours a week, compared to the global average of 34-36 hours. (And if you're a woman in India, you have another six hours of unpaid labour to look forward to on top of this, compared to men's one hour.)

— Only last month, an amendment was proposed to the Karnataka Shops and Commercial Establishment Act that increased the maximum length of the workday from the previously mandated 10 to 14 hours — a dystopian length that's currently being protested by exhausted IT workers in Bengaluru.

— We are burnt out — India ranks among the highest globally for mental burnout at 59 per cent, compared to the global average of 20 per cent, according to a McKinsey Health Institute report.

JHARKHAND SETS UP PANEL TO PROBE 'IRREGULARITIES' IN RECRUITMENT EXAM

The Jharkhand Staff Selection Commission (JSSC) on Friday set up a three-member committee to probe allegations of malpractices in the recruitment exam it conducted last week for appointments in the State government, JSSC Secretary Sudhir Kumar Gupta said.

The committee headed by Mr. Gupta will submit its report in a week. "In light of a letter from the secretariat of the Governor and complaints of candidates, we have decided to set up the committee. It will investigate the allegations made by students and submit its report," he said.

The JSSC conducted the Jharkhand General Graduate Level Combined Competitive Examination (JGGLCCE) across 823 centres on September 21 and 22. Mobile Internet services were suspended during the period of the examination on both days to prevent any malpractice.

However, a large number of candidates protested on Thursday near the JSSC office in Ranchi, alleging malpractices in the exam. Taking cognisance of the complaints, Governor Santosh Gangwar had asked the commission to look into the matter.

Welcoming the JSSC's decision, Leader of the Opposition Amar Bauri said, "I hope that the committee will stand by the truth and submit a report in the interest of the students."

On the allegation of the malpractices, Chief Minister Hemant Soren said attempts were being made to "malign" his government. However, Mr. Soren said he has written to the Centre seeking assistance for a detailed investigation into the death of 15 aspirants during physical tests as part of a recruitment drive to appoint excise personnel. The BJP has been attacking the government over the deaths, alleging they were victims of the administration's "mismanagement".

"Concerned over the deaths of the candidates, I have written a letter to the Union Health Minister (J.P. Nadda) and sought help from him for a detailed investigation into the matter to ascertain the exact cause of the deaths. I do not think Jharkhand youth would be so weak that they cannot run or walk 10 km," the Chief Minister said.

Mr. Soren said it is going to be a "big challenge". "If we go for more recruitment drives where physical tests are required, more youth might lose their lives. So, we have decided to go forward with a detailed investigation in view of the safety of the youth."

Mr. Soren was speaking at a function where he handed appointment letters to 523 personnel recruited by the government.

Governor's letter

On Thursday, the Jharkhand Governor had written to Mr. Soren and the JSSC, seeking a probe into allegations of irregularities in the JGGLCCE. The Governor also sent a copy of the memorandum submitted by candidates who met him at Raj Bhavan on Wednesday. They had said 16 out of 20 questions in Mathematics and Reasoning subjects had been asked in the exams conducted in 2018 and 2022.

JSSC on Friday released the provisional answer key for the JGGLCCE. It said that candidates dissatisfied with the answer key can raise objections by September 30 through the official website: jssc.nic.in.

RSS AFFILIATE HOLDS EVENT FOR TRIBAL COMMUNITIES

As part of its ongoing annual meet, the Akhil Bharatiya Vanvasi Kalyan Ashram, the tribal wing of the Rashtriya Swayamsevak Sangh, on Saturday organised an event at Samalkha in Haryana to showcase various rituals performed by tribal communities.

RSS chief Mohan Bhagwat attended the event, which was organised with an aim to strengthen the organisation's connect with the tribal population. It also comes ahead of the Assembly election in Jharkhand, which has a large tribal population.

The Akhil Bharatiya Vanvasi Kalyan Ashram, which works for the uplift of tribal population, announced plans to hold year-long celebrations to mark the 500th birth anniversary of Rani Durgawati, a Rajput princess who married a Gond and also fought the Mughals.

Grand fete

The organisation will also hold grand celebrations for the 150th birth anniversary of Birsa Munda on November 15, which is also celebrated as Janjatiya Gaurav Divas, Atul Jog, all-India organising secretary of Akhil Bharatiya Vanvasi Kalyan Ashram, said.

Speaking about Saturday's event, the Akhil Bharatiya Vanvasi Kalyan Ashram, in a statement, said that nearly 80 tribes from across the country and Nepal performed their distinct rituals in separate pandals at the camp in Samalakha, 70 km from Delhi. These rituals range from the worship of deities in visible forms (Saakar) to the veneration of the formless (Niraakar).

The event comes at a time the BJP is also expanding its tribal outreach through various programmes. The Union government earlier this week announced a package under which ₹5 lakh

would be provided to tribal households and villages to turn homes into tourist homestays or to build new ones under the Tourism Ministry's Swadesh Darshan scheme.

'Not linked to polls'

A senior Rashtriya Swayamsevak Sangh functionary said the Akhil Bharatiya Vanvasi Kalyan Ashram was working for the tribal community for decades and its events and programmes should not be linked to elections.

"We have been remembering the tribal icons from a time when people didn't use to recognise them. Whatever events are happening in Samalkha or across the country by Akhil Bharatiya Vanvasi Kalyan Ashram has nothing to do with elections but an ongoing process to bring the tribals, who are more prone to religious conversions, to Hindu fold and ensure that those who already identify themselves as Sanatani to remain with us," the functionary said.

The event also saw the launch of 14 books on freedom fighters from tribal communities.

SEEN CRAWLING TO PANCHAYAT OFFICE, 74-YEAR-OLD WOMAN GETS PENSION DELIVERED AT DOORSTEP

Officials of the Keonjhar district administration in Odisha have taken old-age pension money to the doorstep of a 74-year old woman, who was seen in a viral video crawling to the panchayat office to collect the money.

The woman, Pathuri Dehury, a native of Raisuan gram panchayat under Telkoi block in Keonjhar district, received the pension amount on September 18. The block office also provided her with a wheelchair, officials said.

According to officials, the woman was going to the panchayat office to collect the pension on September 15, when someone recorded the video that went viral a week later.

While the old-age pension was initially being sent to Dehury's bank account, after she became ill and expressed her inability to visit the bank, the local administration started disbursing the pension by hand, the BDO said. Since then, Dehury and two others from her family, who have disabilities and use wheelchairs, were collecting the pension from the panchayat office, located 500 metres away from their home.

However, recently, Dehury's condition worsened and she became unable to walk properly, leading to her having to crawl to the panchayat office in the hope of collecting this month's pension. But pensions were not disbursed on September 15 at the village. On September 18, officials brought the pension money to her home.

The district administration has also directed local officials to deliver the monthly ration, under National Food Security Act, at her doorsteps, officials said.

DELHI HC ASKS SOCIAL MEDIA INFLUENCER TO TAKE DOWN VIDEOS AGAINST NUTRITIONAL DRINK

The Delhi High Court has ordered the removal of a video "disparaging" the nutritional drink Complan, noting that social media influencers cannot irresponsibly comment on subjects outside their expertise.

Justice Saurabh Banerjee observed that Prashant Desai, who has about one million followers on Instagram and over 60,000 followers on Facebook, spoke on the "chemistry" behind Complan despite being "neither a doctor nor a nutritionist nor a dietician" nor anyone connected with the health industry.

"Interestingly, as per the Advertising Standards Council of India guidelines, for the posts related to health and nutrition, a social media influencer must have relevant qualifications such as a medical degree, or be a certified nurse, nutritionist, dietician, physiotherapist, psychologist, etc.," the court noted adding that Mr. Desai doesn't possess anything of that kind.

The court, in its September 26 judgment, also restrained the content creator from publishing any matter which denigrates the product and asked him to remove the existing video.

In the video, Mr. Desai claimed that Complan, as well as certain other similar products, contain sugar in excess of the daily requirement in children.

Zydus Wellness Products Ltd, in its lawsuit, argued that the video made false, unsubstantiated claims and, therefore, sought directions to restrain Mr. Desai from infringing upon its trademark.

WHY ISRO'S PLANNED MISSION TO VENUS IS IMPORTANT

The Union Cabinet last week approved India's first mission to Venus that ISRO aims to launch in March 2028. This is the country's second interplanetary mission after the Mars Orbiter Mission launched in 2013.

— The Venus mission is meant to study the planet from an orbit around it. The mission will carry scientific instruments from India and abroad to examine the surface and sub-surface of Venus, its atmosphere, its ionosphere, and its interaction with the Sun.

— Venus is often called Earth's twin because it is similar in mass, density, and size. Therefore, studying Venus may offer scientists clues about the evolution of Earth. Notably, Venus is thought to have had water at some point in its history but has now become a dry and dusty planet.

— The planet, however, differs from Earth in very significant ways. First, it has an extremely high surface temperature of around 462 degree Celsius, even hotter than Mercury — the planet that is closest to the Sun. Scientists think this is because of a runaway greenhouse effect.

— Second, the atmospheric pressure on Venus is much higher than on Earth. It is almost similar to the pressure felt underneath the oceans on Earth.

— Third, 96.5% of the atmosphere of Venus is made up of carbon dioxide and there are sulphuric acid clouds on the planet.

— Fourth, Venus rotates very slowly on its axis as compared to Earth. One rotation of Venus lasts around 243 Earth days.

For Your Information:

— The mission will carry scientific payloads weighing around 100 kg… Once the satellite exits the Earth orbit, it will take around 140 days to reach Venus.

— The mission will also see India perform aero-braking for the first time.

— The Indian payloads include an L and S band Synthetic Aperture Radar that can help in imaging the surface of the planet.

— There will also be a thermal camera, an experiment to study the flow of interplanetary dust particles, and an experiment to study the high-energy particles entering the Venusian atmosphere leading to its ionisation….

— There have been several missions to Venus in the past by the United States, the erstwhile USSR, Japan, and a collaborative mission of the European Space Agency (ESA) with Japan.

— The US has planned at least two more missions to Venus in the future — DaVinci in 2029 and Veritas in 2031 — and the ESA has planned the EnVision mission for 2030.

PM MODI DEDICATES THREE NEW SUPERCOMPUTERS TO NATION

Three new supercomputers, installed at premier scientific institutions in Delhi, Pune and Kolkata, to boost research in the fields of astronomy, medicine and high-energy physics, were on Thursday dedicated to the nation by Prime Minister Narendra Modi.

— In addition, the computing power available for weather and climate research has been significantly upgraded by the setting up of High-Power Computing (HPC) systems the two atmospheric sciences institutes, one in Pune and the other in Noida, which already have a supercomputer each.

— The two HPC systems dedicated for climate sciences are worth `850 crore. Together, they have elevated the computing capacity available with the Ministry of Earth Sciences from 6.8 Peta Flop five years ago to a total of 22 Peta Flops, the highest ever by far.

— The three new supercomputers are all indigenously-built PARAM Rudra computers, developed under the National Supercomputing Mission, at a combined cost of about Rs 130 crores.

— One of them has been installed at Giant Metrewave Radio Telescope (GMRT) near Pune, which is one of the world's largest and most powerful radio telescopes in the meter-wave range. — The other two have been set up in Delhi-based Inter-University Accelerator Centre (IUAC), and the S N Bose National Centre for Basic Sciences in Kolkata. Both these institutions engage in high-energy physics research.

For Your Information:

— The National Supercomputing Mission intends to indigenise developing and manufacturing powerful computers.

— Petaflops is a measure of computing capability of adding at least a quadrillion (1,000 trillion) real numbers in a second. That computer speed is equivalent to 5,000-6,000 high-end laptops working together.

— Japan is preparing to construct a groundbreaking supercomputer, projected to be 1,000 times faster than today's most advanced machines.

— Expected to cost more than $750 million and set to go live by 2030, this "zeta-class" supercomputer will mark a new era in computing power. Development of the machine, known as

"Fugaku Next," will begin in 2025, led by Japanese firms RIKEN and Fujitsu, according to Live Science.

ROBOTIC MULES 'JOIN' ARMY; DRONES, HIGH-ALTITUDE TENTS UNDER EVALUATION

The Army has procured and inducted 100 robotic mules in forward areas, while logistics drones are undergoing trials which will significantly streamline support and movement to forward areas, especially in high altitude. A new tent for high-altitude areas is under evaluation for deployment at temperatures up to minus-40 degrees Celsius.

All of these were on display last week at the Himtech symposium organised at Leh, specifically showcasing high-altitude technologies. "The Army has procured and has inducted 100 robotic mules under the fourth tranche of emergency procurements (EP)," a defence source said.

The fourth round of EPs was undertaken in the year to September 2023.

Contracts up to ₹300 crore can be placed under EP, and deliveries have to be concluded within one year. Since the 2020 stand-off with China in Eastern Ladakh, the Army has been looking for a series of technological innovations especially for high altitudes for a range of functions.

The robotic mule is a high-endurance, agile and durable all-weather ground robot for use in a broad range of unstructured urban and natural environments for defence applications.

"He is able to walk up to three years. He is able to counter all kinds of obstacles... He can go inside water and cross rivers... He has the ability to recognise objects around as there are electro-optics, infrared..," Arjun Aggarwal, managing director and CEO of AeroArc, said while speaking at Himtech. The mule can climb stairs, steep hills and other hurdles and can operate in extreme temperatures, ranging from minus-40 to a hot 55 degrees Celsius and carry 15 kg of payload.

Extreme high-altitude clothing and habitat is a critical requirement for the Indian Army which is deployed in the world's highest battlefield of Siachen and also other super high-altitude locations. At Himtech, DTECH 360 Innovations announced the field launch of its Peak Pods, a high-altitude habitat (tent) designed for sub-zero temperature regions.

The product has been under evaluation at three high altitude locations: Leh (11,500 feet), Daulat Beg Oldie (16,700 feet) and Durbuk (12,500 feet).

BRAHMOS AEROSPACE TO HAVE JOB RESERVATION FOR AGNIVEERS

BrahMos Aerospace Pvt Limited (BAPL) — a joint venture between Defence Research and Development Organisation (DRDO) and Russia's NPO Mashinostroyeniya — has announced employment reservations for Agniveers, making it the first major company to have declared this officially.

— In an order issued Thursday, it said that there will be recruitment of Agniveers for at least 15 per cent of technical and general administration vacancies in various work centers of BrahMos Aerospace and for at least 50 per cent of vacancies for security and administrative functions at its centers, where it has outsourced such tasks.

— While the CAPFs had announced a 10 per cent employment reservation for Agniveers, this is the first major company to have announced this move. A few state police forces have also said they will recruit Agniveers when they leave the Armed Forces.

— It added that the soldiers coming out of Agnipath scheme, well trained, qualified, disciplined and motivated through rigorous selection and training process, therefore, if recruited in BAPL, in their respective fields will be assets to the organisation.

For Your Information:

— Agnipath was aimed at recruiting personnel below officer ranks — soldiers, airmen, and sailors who are not commissioned officers — to the Indian Armed Forces for a period of four years.

— At the end of this tenure, upto 25% of these recruits, the so called 'Agniveers', can join the services on a permanent commission (another 15 years), subject to merit and organisational requirements.

— The biggest difference between a soldier employed on regular service and one recruited under the Agnipath scheme is that the former will draw pensions post-retirement, while Agniveers are not entitled to any pensionary benefits barring the 25 per cent of Agniveers, who would eventually get absorbed into the defence forces after four years.

TACKLING AIR POLLUTION

On Wednesday, air quality in Delhi slipped into the 'poor' category (AQI 200-300) for the first time since mid-June, signalling the imminent arrival of North India's bad air season.

The Delhi government announced a 21-point Winter Action Plan, including using drones to monitor pollution hotspots, deploying anti-smog guns, and exploring the possibility of creating artificial rain.

— The Commission for Air Quality Management (CAQM), which issues orders to combat air pollution in NCR under the Graded Response Action Plan (GRAP), said it was watching the situation.

— The post-monsoon months will bring stagnant air and a weather pattern called temperature inversion — which occurs when a layer of warm air traps cooler air near the ground.

— This prevents pollutants from rising and dispersing, causing levels of fine particulate matter (PM 2.5) and other air pollutants to reach extremely hazardous levels.

— A deepening economic inequality worsens this crisis. While wealthier citizens can afford air purifiers and even move to cleaner places (perhaps by the sea), poorer communities remain exposed to the full brunt of toxic air.

— India's air pollution crisis stems from multiple, overlapping sources. Year-round contributors such as biomass burning for cooking, trash-burning, vehicular emissions, and industrial activity combine with episodic events such as farm stubble burning and festival firecrackers.

— Meteorological conditions such as temperature inversion and low wind speeds during the post-monsoon and winter months result in pollutants getting trapped close to the surface, exacerbating the problem, particularly in the Indo-Gangetic plain.

— Among the superficial solutions such as smog towers, water guns, and odd-even road sharing, cloud seeding has emerged as the latest "silver bullet".

— But cloud seeding is more about appearing to do something spectacular than about getting to the root of the problem.

— Besides its limited impact, cloud seeding raises serious environmental and ethical concerns. The water vapour used in the process would have naturally precipitated elsewhere, and it potentially deprives other regions of rainfall.

— In a country like India, where water resources are already strained, aggravating regional disparities is a dangerous gamble. Additionally, the chemicals used — such as silver iodide — pose potential long-term risks.

— Smog towers, which are supposed to act as giant air purifiers that would clean the surrounding air, is another flawed solution being pursued.

— Both cloud seeding and smog towers distract from the real, science-based solutions that are needed to tackle air pollution at its source. These are some of the things that we should be doing instead.

(a) **Coordination among various agencies:** Air pollution is a complex, multi-sectoral problem that requires coordinated action across government bodies. Effective collaboration between agencies responsible for transport, industry, agriculture, and urban planning is crucial to ensure that policies are aligned, and efforts are not duplicated.

(b) **Capacity building and critical thinking:** A key requirement is to build capacity and foster critical thinking among all stakeholders. This includes researchers, policymakers, regulators, industry leaders, and diverse citizen groups, who must work together to ensure that decisions are truly in the public interest.

(c) **Beyond techno-centric solutions:** The fight for clean air is not just a technical challenge; it is a deeply political one. Chasing quick fixes risks perpetuating these inequalities instead of addressing the structural issues at the heart of the crisis.

— To confront its air pollution problem, India must move beyond the illusion of short-term solutions. What is needed is a multi-decadal, multi-sectoral effort grounded in scientific thinking and committed to sustained, collaborative action.

NEARLY HALF OF ALL POSTS IN POLLUTION BOARDS VACANT, SOME FOR DECADES

Nearly half the sanctioned posts in the State Pollution Control Boards (SPCBs) and Pollution Control Committees in Union Territories (PCCs) across the country are lying vacant. While 11 states have over 60% vacancies, Sikkim tops the list with all posts yet to be filled.

— The Central Pollution Control Board (CPCB) submitted these details in an affidavit to the NGT on September 6.

— According to the affidavit, of the total 11,562 sanctioned posts in all SPCBs and PCCs, 5,671 (49.04%) posts have been left unfilled. Only two states — Nagaland and Arunachal Pradesh — have no vacancies, with all 17 and 27 sanctioned posts respectively being filled.

— The states with the most vacancies are Sikkim (100%), Jharkhand (73.06%), Andhra Pradesh (70.10%), Madhya Pradesh (63.76%) and Manipur (63.02%).

— Setting a deadline, the NGT, on September 11, directed all states and UTs to fill the vacancies by April 30 next year. This, however, does not include Punjab, Delhi and the states with areas in the National Capital Region (NCR) — Haryana, Uttar Pradesh and Rajasthan.

— Vacancies in SPCBs in these states and PCC in Delhi are already the subject of an ongoing case in the Supreme Court.

— Over the past year, both the Supreme Court and the NGT have been monitoring states' efforts to fill these vacancies. The NGT began monitoring SPCB vacancies in November last year, after taking suo motu cognizance of a media report. In a subsequent report submitted to the NGT on November 22 last year, the CPCB said over half of all sanctioned posts were vacant (50.8%).

For Your Information:

— The CPCB and SPCBs were established under the Water (Prevention and Control of Pollution) Act, 1974. Under this Act, the responsibilities of SPCBs included conducting investigations and research regarding water pollution, advising the state government on matters concerning water pollution, and monitoring compliance with the law. Besides administrative staff, the boards include posts for technical members like scientists and engineers.

— In the decades since, the responsibilities of the CPCB and SPCBs have been expanded with more legislation on environmental issues. These boards are now tasked with taking on similar duties regarding air pollution, environmental protection, waste management (including hazardous, biomedical and solid waste) and noise pollution among other issues.

A LIFE IN REVOLUTION: BHAGAT SINGH, A RADICAL THINKER AND IDEOLOGUE

In our age and clime, a radical worldview is often simplified. As if an entire ideology could be reduced to a haiku, and the worth of a man reduced to mere sloganeering. Whether it is Gandhi, Ambedkar, Bose, Savarkar, or Nehru, all are victims of this malaise; as if those who existed in the past serve merely the political interests of the present. One such figure in history is Bhagat Singh. On his birth anniversary, we take a look back at some of the works of the thinker and ideologue.

Literary references

Bhagat Singh was able to communicate in Urdu, Punjabi, Hindi, and English, and was familiar with the fundaments of Sanskrit.

In one of his earliest pieces in 1923, The Problem of Punjab's Language and Script, a 16-year-old Singh lucidly explains the distinction between the Gurmukhi script and the Punjabi language, and how a language is suffused with influences far beyond man-made borders.

Singh's jail notebook and letters also reflect the eclecticism of his literary diet.

In Vishwa Prem (Universal Love), published in November 1924, Singh declares "Visvabandhuta (Universal Brotherhood)! For me the greatest meaning of this word is equality and nothing else. None will need to cry for bread when hungry... There would be peace without penal codes."

Singh extols Rana Pratap, Mazzini, Gandhiji, Lenin, Washington, Savarkar, Tilak, and MacSwiney as models for the youth, and harkens to Brutus in Roman history, and Krishna in the Mahabharata in the article.

By 1928, the stark realities of the Indian situation were more apparent to the young Singh.

In the article Communal Riots and their Solution, Singh comes down hard on the journalists of his day, writing, "These people arouse public sentiment by writing bold headlines in the newspapers against one or the other and compel people to start fighting with one another... riots started in many locations just because of the fact that local newspapers had written articles that stoked passions."

"The actual duty of newspapers is to educate, to liberate people from narrow-mindedness, eradicate fundamentalism, to help in creating a sense of fraternity among people, and build a common nationalism in India, but these papers behaved in a manner entirely antithetical to their duties," he says.

Students and politics

"We are hearing a wide clamouring that students should not take part in political work," Singh writes in a July 1928 article, Students and Politics, explaining how the then Punjab government required aspiring collegiates to "sign off on an undertaking that they will not take part in political activities." Singh says that an education which will "only equip them for clerical jobs" would be "worthless". "They should study, but at the same time they should acquire the knowledge of politics too, and when the need arises they should jump into the fray and sacrifice their lives for the nation," Singh states.

In his June 1928 article, The Problem of Untouchability, Singh exhorts the "so-called untouchables, the real sustainers of life" to remember that they "were the backbone of Guru Gobind Singh's army. Shivaji was able to achieve all he did with your participation and it made him forever shine in history." Singh urges them to "unite to stand on your own feet and challenge the existing order of society."

Declaring the idea that "since someone is born in a poor sweeper's family, he shall continue cleaning toilets all his life" as "utter nonsense", Singh stokes the depressed classes to "start a revolution from a social agitation." Singh reminds the untouchables that they "are the pillars of the nation and its core strength. Awake, O sleeping lions! Rebel, raise the banner of revolt."

In a December 1929 article, What is Revolution?, Singh explains, "The spirit of revolution should always permeate the soul of humanity so that reactionary forces may not accumulate to check its eternal onward march. Old order should change, always and ever, yielding place to new, so that one 'good' order may not corrupt the world. It is in this sense that we raise the shout 'Long Live Revolution'."

In a three-part piece titled, What is Anarchism?, published in 1928, Singh reflects, "Anarchists are against God and religion to begin with because they feel this is the root of mental slavery. And then they are against the State because it is the root of physical slavery. They say that motivating people with the temptation of heaven, fear of hell, or with the iron hand of law is the wrong approach and it is also an insult to a superior being like a human."

In his 1931 Letter to Young Political Workers, Singh writes, "According to our definition of the term, revolution means the complete overthrow of the existing social order and its replacement

with the socialist order... the state, the government machinery is just a weapon in the hands of the ruling class to further and safeguard its interest. We want to snatch it, and handle it, to utilise it for the consummation of our ideal, i.e., social reconstruction on a new, i.e., Marxist, basis."

Challenging faith

As an atheist and a materialist, Singh had thought organised religion to be an impediment to the freedom struggle in particular and to social progress in general. "We can see the mountain of religion standing in our path," Singh writes in an April 1928 article, Religion and our Freedom Struggle. "... a clash between people could be instigated with the loud recitation of Koranic verses and Vedic mantras. The question is then, why should we not do away with all this once and for all?" he asks.

In Why I am an Atheist, Singh declares, "Any man who stands for progress has to criticise, disbelieve and challenge every item of the old faith. Item by item, he has to reason out every nook and corner of the prevailing faith... An individual who claims to be a realist has to challenge all of ancient faith."

In an April 1929 letter to his compatriot Sukhdev, Singh writes about how the emotion of "love" can elevate a human life. Writing of Mazzini in the aftermath of the failed rebellion, Singh says, "He could have either gone mad or committed suicide, but with a letter from his beloved, he became not only as strong as the others, but stronger than everybody else... The character of a person is always elevated by love; it never shows one in a bad light provided that the love is true love. True love can never be created. It wells up by itself when no one can predict."

Bhagat Singh wrote and worked extensively in his short and tumultuous life. His writings must be read widely — this perhaps would be a better tribute to Singh's life as a revolutionary than propagandism or empty political posturing.

A COLLECTIVE FOR YOUNG ARTISTS TO LEARN NUANCES OF DIFFERENT KOODIYATTOM STYLES

Cholliyattom, a collective of young Koodiyattom artists in Kerala, which was launched on a modest note during the COVID-19 pandemic, has now evolved into a platform where artistes following different styles come together to preserve the art form and also to impart knowledge about techniques followed by different Koodiyattom schools in the State.

The collective recently conducted the second edition of Natya Yauvanam-2024, a Koodiyattom festival, at Ammannur Gurukulam in Irinjalakuda in association with Dr. K.N .Pisharody Smaraka Kathakali Club.

Speaking to The Hindu, Ammannur Madhav Chakyar, president of the collective, says Cholliyattom is an attempt to bring younger generation of artists trained in different styles on a common platform so as to give them a hands-on experience on different styles and nuances of the art form.

It is also an attempt to ensure that various Koodiyattom traditions are passed on to future generations, he says.

There are different styles or traditions in Koodiyattom, chiefly Kalamandalam or Painkulam style, Ammannur style, and Mani Gurukulam style. The audience may find it difficult to grasp the art form if not familiar with the art's intricacies, including its vocabulary, says Nepathya Sreehari

Chakyar, an artist and member of Cholliyattom. Though there is no big difference in costumes, there are slight changes in sign languages and deviations in acting styles in some Koodiyattom traditions, he says.

The art form was earlier confined to the temple precincts in Kerala. As part of an outreach programme among the younger generation of Koodiyattom artistes, the collective helps artists from different social backgrounds to come together and strive for a common cause.

'COMMERCIALISATION OF HEALTH SERVICES CAN BE A RECIPE FOR DISASTER'

A few days ago, Sujatha Rao, former Union Secretary of the Health Ministry, quit the Lancet Citizens' Commission on Reimagining India's Health System. In 2020, the Union government intensified its efforts to privatise health care in India when NITI Aayog proposed and Finance Minister Nirmala Sitharaman announced in her budget speech that district hospitals will be attached with private medical colleges in a public-private partnership (PPP) mode. This came a year after the Health Ministry issued guidelines for setting up private medical colleges in a PPP mode.

In an email, Ms. Rao shares her views on the perils of increased privatisation of health care in the country.

In July 2024, Madhya Pradesh government issued a notification to privatise 10 district hospitals with 25% of beds reserved for paying patients. Can privatisation of district hospitals in PPP mode "improve health infrastructure" while making healthcare freely accessible to poor people?

For Madhya Pradesh, this is the fourth attempt to hand over public facilities to private parties. I am told that each hospital is proposed to be "leased" out for 30 years against a down payment of about ₹260 crores. This is being executed by the Finance department under the 2019 Central government scheme that consists of providing 60% of the total project cost as viability gap funding, land, and other assets and allowing 100% operational cost recovery in lieu of keeping 75% of the beds for free treatment. The private sector cannot provide free care unless it establishes a medical college charging hefty capitation to cross subsidise. Even then it is difficult. With weak capacity to enforce conditions, this too will go down as the old scheme of giving land and custom duty exemptions in lieu of 10% free beds and 50% free outpatient (OP).

What challenges can arise when district hospitals are attached to private medical colleges in PPP mode?

This hybrid model is unworkable as can be seen in Chittoor in Andhra Pradesh and elsewhere where the private party was allowed to establish a medical college by attaching the 300-bed district hospital. The private party has its own staff and uses the hospital for its own requirements, while the hospital is run by the government staff, creating dual control, confusion, and much bitterness. Instead, the private party could have had an MOU with the government and paid fees for using the hospital for training purposes. The government hospital would have earned revenues and improved the infrastructure while being in command of the hospital's functioning. Since it will be impossible for our weak/soft State to dislodge the private party that has access to prime property and assets worth several crores free, over time, the government will withdraw and the poor in that district will lose access to good care. If contract management is weak, PPPs can end up with public assets going into private hands, and the government abdicating its responsibility to provide cost effective affordable/free care to its citizens.

Can the U.S. model of Managed Care be appropriate for India, considering the large population of poor people?

While all health systems try to follow the principles of Managed Care—keeping people healthy, preventing illness, reducing hospital services, and ensuring a continuum of care in case of chronic disease—the U.S. model of managed care is based on an insurance model where a person becomes a member of the network based on his ability to pay the premium. Such systems are seen to have a selection bias, deny critical and timely care, create several such barriers, and do not help contain the cost of care. Instead, they exacerbate inequality. Given that India's primary care is chaotic with different systems of medicine, varied levels of competencies of providers, and so on, a U.S. style of managed care model can not only further exacerbate the existing inequalities but also make health care costly, more so as we lack the regulatory capacity to manage contradictions and redress grievances.

In the absence of any social security, will privatisation of health care in India be a recipe for disaster?

India's health system is the most privatised but it is unregulated and makes access to good quality care a privilege. In neglecting health by allocating measly budgets, refusing to put a strong regulatory system to reduce the adverse effects of market failures, allowing brazen profiteering as seen during the COVID-19 pandemic, and virtually abdicating the obligatory duty of providing universal access to comprehensive primary healthcare services free at point of service, by taking the easy and lazy route of expanding insurance or selling public hospitals to investors, the Indian State has become unfair and unjust as a fifth of its citizens are unable to avail medical care due to their inability to pay. Nearly 60 million people are driven to penury paying medical bills. So yes, unregulated for-profit commercialisation of health services can be a recipe for disaster.

ICGA FOUNDATION LAUNCHES COUNTRY'S FIRST COMPREHENSIVE CANCER GENOMICS REPOSITORY

In a step towards improving the understanding of genetic variations of cancer in the Indian population, the Indian Cancer Genome Atlas (ICGA) Foundation has launched a portal that expects to be a repository of information on multiple aspects of cancer.

"The portal will be the first in India to offer data that includes DNA, RNA, and protein profiles of breast cancer patients, integrated with clinical outcomes," Suveera Dhup, Chief Operating Officer, ICGA Foundation, said.

"Historically, cancer treatments in India have been based on Western data sets. However, cancers in Indian patients can differ significantly at the molecular level," Shekhar Mande, former Director-General of the Council of Scientific and Industrial Research (CSIR) and associated with the initiative, said. "Creating a repository of this sort and openly sharing this data, we are empowering researchers, clinicians, and innovators to collaborate, explore new frontiers, and drive transformative breakthroughs in cancer treatment."

Currently, the platform consists of data from 50 breast cancer patients, with plans to expand to over 500 patients in the coming year, Dr. Dhup said. The data was freely accessible to the global research community, which promotes "ethical sharing and collaboration" in cancer research. In the months ahead, the ICGA expects publications and analysis by independent researchers who use this data, which will provide insights into unique India-centric insight into breast cancer.

Inspiration from TCGA

"This repository aims to have institutions break out of the approach of hoarding data. The inspiration for this is the U.S.-based Cancer Genome Atlas (TCGA)," Dr. Dhup said.

Launched in 2006, the TCGA is a major cancer-genomics programme that has molecularly characterised over 20,000 primary cancers. It is funded by the U.S.-based National Cancer Institute and the National Human Genome Research Institute, and brings together researchers from diverse disciplines and multiple institutions. "The TCGA has a been a remarkable repository of the genomics of cancer and of global importance. However for a similar Indian initiative to succeed, you not only have a to create a system of incentives for institutions to share their data but also have an eco-system of diagnostic companies, hospitals, drug companies that are invested in asking specific research questions to use the available data," a senior genomics researcher familiar with the inception of the ICGA told The Hindu.

Breast cancer, in 2020, surpassed lung cancer as the leading cause of global cancer incidence.

WHAT IS THE NIPAH PROTOCOL IN KERALA?

The story so far:

On September 14, a fresh Nipah scare erupted in Malappuram, the largest populated district of Kerala, when a 24-year-old man who died at MES Medical College Hospital, Perinthalmanna, on September 9 was found positive for the deadly virus. The health authorities in the State remained silent on that day as they waited for the final test results from the National Institute of Virology (NIV), Pune. But they were almost certain about the final results after the State virology laboratory at the Government Medical College, Kozhikode, flagged the test positive.

What followed the positive test?

The health department adopted the Nipah protocol by forming 16 committees as specified in the standard operating procedure for Nipah and started identifying the people who had come in close contact with the victim after he started showing symptoms about 10 days ago. On September 15, Kerala's Minister for Health Veena George, based on the test result from NIV, Pune, declared that the man, who was a student in Bengaluru, had died of Nipah, a deadly zoonotic virus that causes a range of serious illnesses from respiratory infection to fatal encephalitis. With official confirmation, restrictions on social movement were imposed and face masks were made mandatory in public places in Malappuram district.

This is the second Nipah death in the Malappuram district in less than two months. On July 21, a 14-year-old boy from Chemrassery died of Nipah at the Government Medical College Hospital, Kozhikode. Although it had triggered alarm and government-imposed restrictions, the focus shifted when the neighbouring Wayanad district witnessed Kerala's worst landslide on July 30. The Nipah cases of July 21 and September 9 were hardly 10 km apart in a highly populated district. While the schoolboy was presumed to have contracted the virus after he ate a hog plum, it is not clear how the Bengaluru student was infected.

What is the case history of Nipah in the State?

This was the sixth Nipah virus spillover in Kerala since 2018, when the State reported its first case. As many as 22 people in Kerala have died of Nipah so far. While the first outbreak claimed 17 lives

in Kozhikode and Malappuram, the second incident at Pazhur in Kozhikode claimed only one life in 2021. Another outbreak that took place in Kozhikode in August 2023 claimed two lives. The latest Nipah incidents within two months in Malappuram have sent an ominous message that Nipah could be here to stay.

Why was there a delay to identify the virus?

The 24-year-old man had reached home from Bengaluru in the last week of August. He visited several clinics after he developed a fever and had difficulty walking on September 5. He was admitted to MES Medical College on September 8 with symptoms of meningitis or encephalitis, where he died on the morning of September 9. A doubt that arose in the doctor who examined the 24-year-old man at this private medical college led him to contact the District Medical Officer and send the body fluid sample for an examination to the Kozhikode virology lab.

How did the government respond?

The government, particularly the health department and the district administration, was quick to respond by declaring five civic wards in the adjoining grama panchayats of Tiruvali and Mampad as containment zones. Schools, madrasas, coaching and tuition centres, and anganwadis in the region were closed. Cinema halls too were shut. Shops were allowed to open from 10 a.m. to 7 p.m. only. Social gatherings were banned. Masks were made mandatory in the district, especially for students and teachers on campuses. The health department prepared a route map of the Nipah victim, traced 267 persons who had come in contact with him, and put them in quarantine. Several of them, particularly his parents, close friends and the doctors and nurses who took care of him at the hospital, were closely monitored. Their serum was collected and tested at the virology lab. So far all results have been negative. As many as 30 of the victim's classmates in Bengaluru too were advised to self-quarantine.

The government also opened a Nipah control room at Malappuram and started closely monitoring the developments. Senior health officers led by health department director K.J. Reena have been camping at Malappuram. Health workers in 66 teams have undertaken a field survey within a three kilometre radius from the victim's house in Tiruvali panchayat and reached out to 7,953 houses within four days. As many as 175 cases of fever were reported during the survey, and they were put under surveillance. The health department also reached out to nearly 300 persons with psychological support.

Where did Nipah come from?

Bats are considered to be the carriers of the Nipah virus. The primary pathways of transmission from bats to people are through contamination of fruits eaten by bats with subsequent consumption by humans. The virus can also be transmitted through contaminated food or directly from human-to-human through close contact with people's secretions and excretions. Healthcare workers, friends and family members of an infected person are at high risk of contracting the virus.

It is unclear where the 24-year-old Nipah victim contracted the virus. Experts have been divided on attributing the virus exclusively to bats. Following the outbreak of 2018, there was a drive to destroy bat colonies, but in vain. The definitive connection between Nipah and bats is yet to be ascertained in Kerala.

WHY DENGUE CASES HAVE SURGED THIS YEAR

As cities across India report a surge in dengue cases, a record number of cases have been reported around the world this year with Brazil and other South American countries worst affected. Data from the World Health Organization (WHO) show that the number of dengue cases have been increasing year-on-year.

— Dengue is a viral infection which is transmitted by the Aedes aegypti mosquitoe. Most people with the infection report mild symptoms, but the disease is known to cause fever, severe headache, muscle and joint pains, nausea and vomiting, pain behind the eyes, and rashes.

— More than 12 million cases and 6,991 deaths have been recorded globally till August this year, according to data from the WHO's global dengue surveillance. This is more than double the 5.27 million cases recorded in all of last year, which itself was a record.

— India is also witnessing an increase in the geography of the infection. The disease spread from only eight states and Union Territories in 2001 to every single state and UT in 2022, with Ladakh reporting the first two cases that year.

— The Lancet editorial identifies "the triad of urbanisation, climate change, and the movement of people and goods" as facilitating the spread of dengue, and its mosquito vector.

— **URBANISATION:** The disease can spread more quickly in urban areas with a dense population. This is because urban spaces provide ample breeding grounds to the Aedes aegypti mosquito which breeds in clean, stagnant water.

— **CLIMATE CHANGE:** An increase in temperatures allows mosquitoes to breed in places where they previously could not — in higher altitudes for instance.

— **MOVEMENT OF PEOPLE:** The global movement of people and goods has, in general, led to a greater spread of infections that these people carry with them…

— Apart from dengue, other infections such as chikungunya and zika, which are also transmitted by the same vector, have also been on the rise. Zika was first reported in India in 2016 but there have been several outbreaks since then.d

For Your Information:

— How can dengue be prevented?-First, individuals have to ensure that mosquitoes do not breed at their homes, or in their neighbourhoods.

— Second, people need to protect themselves against mosquito bites. The Aedes aegypti mosquitoes bite during the day — wearing clothes which cover the entire body, especially during the monsoons, can prevent bites.

— Third, public health systems have to focus on surveillance, and prediction of outbreaks.

— Vaccination against dengue: The WHO recommends two vaccines: Sanofi's Dengvaxia and Takeda's QDenga. However, these have not received approval in India.

IN BENGAL'S SUNDARBANS, MOTHERS ARE ARMING TODDLERS AGAINST ACCIDENTAL DROWNING

A 2019 household survey conducted by The George Institute for Global Health (TGIGH) and non-profit Child in Need Institute (CINI) shows that three children, aged between 1 and 9, drown every day in the Sundarbans. The survey is being repeated this year, but Sujoy Roy, CINI's national advocacy officer, says so far the data have not shown an improvement.

Dedicated resources

To tackle this, Kavach (protector) centres were launched in September 2023, a community-run initiative where 'mothers' look after children between 4 months and 5 years. Every Kavach 'mother' has just two children to take care of, so no child remains unattended, unlike the local anganwadi centres that lack basic amenities with fewer staff members.

Kavach centres are a pilot project in Kultali block, serving two villages: Baikuntapur and Bhubaneswari, in South 24 Parganas district. The project is funded and given technical support by India's Ministry of Health and Family Welfare, the World Health Organization, TGIGH, and CINI.

A part of this project is a two-month-old initiative of pond-based swimming pools. Here, swimmers from the area train children above 5 so they can save themselves and call for help when needed. Launched on July 25 — World Drowning Prevention Day — it takes forward the theme 'Anyone can drown, no one should'.

Dr. Tej Prakash Sinha, additional professor at the Emergency Medicine Department, Jai Prakash Narayan Apex Trauma Center, AIIMS Delhi, and co-director of the WHO Collaborating Centre for Emergency and Trauma Care, Delhi, says the Sundarbans has unique problems: "The father cannot stay home, the mother cannot get additional house help; she has to do all the household chores." Burdened with livelihood struggles, children slip through this poverty crack.

An area of vulnerability

Many fathers in the Sundarbans leave West Bengal to work as labourers in other States. The men who still live in the area set out early in the day to work in their fields. The women do all the household chores and look after the children.

Most houses have natural ponds or small creeks in their kitchen yards; some homes have water on two sides. The silt-heavy black soil on the pond banks is slippery; and one misstep can land a child in the water.

The young children of the house stay with their mothers when they are working in the kitchen, but may wander into their backyards briefly. According to the 2019 study's data, 53% of the children drowned between 10 a.m. and 2 p.m. This is when the women are busy and the fathers are away. Up to 90% of them drowned within 50 metres of their home.

The toddlers at Kavach centres sing a jingle in Bengali, as the Kavach Maas clap along and encourage them. "We will not go near the water alone; we will scream in case of problems; we will call for help; we will go swimming, but never alone," it goes.

The 'mothers' also do community plays at other villages to raise awareness about drowning. They were given cardiopulmonary resuscitation (CPR) and first response training for over two weeks as a part of the project.

People in the Sundarbans worship Sasthi Buri, who is believed to be the guardian of newborn children. The long-held belief is that if barriers are put up around ponds to prevent children from slipping in, it would anger the deity and make drowning incidents even more frequent. The NGOs working on the Kavach project came together and conducted awareness programmes and door-to-door campaigns to dispel the belief, but community mothers believe there is a long way to go.

At Kultali, children hold on to the swimming coach and jump into the water. Added to the natural fear of taking the plunge are stories they have heard of drowning. A group of four or five cough as they gulp water, but lash out arms and legs with strokes learnt, and press on. Their trainers shout out encouraging cheers.

Awareness and training

Deep inside this ecologically sensitive area in the Sundarbans, a group of children conduct a street play to raise awareness about drowning. More than 100 people from the villages crowd on the narrow kutcha roads between ponds. "Do not crowd near the pond; do not push the bamboo fence, it can break. Stay safe," a representative from the programme team announces.

One of the 20 mothers who leaves her child at the Kavach centre, Sonamoni Halder, points to her 3-year-old and says, "He doesn't listen. He's always running to the ponds alone. He loves to play with mud and water." She says the Kavach mothers are a blessing. "They look after him in the morning, teach him, play with him so I can take care of my daily tasks."

The Block Development Officer (BDO) in Kultali, Suchandan Baidya, says there is no fund allocation for drowning prevention. "Nor do we have the workforce to do door-to-door awareness programmes. We have to take support from NGOs who specialise in these subjects."

Meanwhile, the government does not acknowledge the problem that the people of the area face. "There is no huge child drowning issue here," Sundarban Affairs Minister Bankim Chandra Hazra says, and adds, "We do not have this kind of data."

SHORT NEWS

16TH ASSEMBLY OF ASIAN ORGANIZATION OF SUPREME AUDIT INSTITUTIONS (ASOSAI)

— President Droupadi Murmu addressed the opening ceremony of the 16th assembly of the Asian Organization of Supreme Audit Institutions (ASOSAI). It is being organised by the Comptroller and Auditor General (CAG) of India, in New Delhi from 21st-27th September 2024.

— Shri Girish Chandra Murmu is the current CAG of India.

— The Supreme Audit Institution (SAI) of India assumed the Chairmanship of ASOSAI for the period 2024 to 2027.

— The inaugural session of the ASOSAI Assembly took place in New Delhi, India, in 1979, followed by subsequent gatherings in various locations.

JOINT COMMANDERS' CONFERENCE (JCC)

— Shri Rajnath Singh presided over the first Joint Commanders' Conference (JCC) held in Lucknow from 04-05 September 2024.

— The theme of the inaugural conference is '*Sashakt aur Surakshit Bharat: Transforming the Armed Forces*'. He launched a publication on 'Colonial Practices and the Armed Forces – A Review' during JCC.

— The Defence Minister chairs the JCC and will complement the Combined Commanders' Conference (CCC) that is presided over by the Prime Minister.

— JCC brings together all the top commanders of the Indian military for extended deliberations on matters about national security.

ANTYODAYA DIWAS

— Antyodaya Diwas (since 2014) is an annual occasion in India commemorating the birth anniversary of Indian leader Pandit Deendayal Upadhyaya.

— He was the co-founder of the Bharatiya Jana Sangh (BJS), the forerunner of the Bharatiya Janata Party (BJP). He was also one of the thinkers of the Rashtriya Swayamsevak Sangh (RSS).

— The term "Antyodaya" translates to "upliftment of the last person," epitomising Upadhyaya's mission to address the needs of the most disadvantaged individuals in society.

— He also propounded the idea of Integral Humanism which talks about unity and harmony among the various components that make up a human individual, and among individuals and society as a whole.

WORLD PHARMACISTS DAY

— World Pharmacists Day, organized by the International Pharmaceutical Federation (FIP), a WHO partner, is observed on September 25.

— This year's theme is Pharmacists: Meeting global health needs.

WORLD RHINO DAY

— World Rhino Day is observed on September 22 every year. The day commemorates the global effort to protect rhinos and raise awareness to curb poaching.

— The Indian rhinoceros (Rhinoceros unicornis) is found only in the Brahmaputra valley, parts of North Bengal, and parts of southern Nepal.

— The Indian rhino is listed as vulnerable (better than endangered, worse than near threatened) in the IUCN Red List.

— The three species of rhino—black, Javan, and Sumatran—are critically endangered in the IUCN Red List.

WORLD TOURISM DAY

— September 27 is observed as World Tourism Day to commemorate the adoption of United Nations World Tourism Organization (UNWTO) statutes in 1975.

—The theme for World Tourism Day 2024 is "*Tourism and Peace*," which will highlight the association between tourism and world peace.

KAZIRANGA NATIONAL PARK

— On the occasion of World Rhino Day, PM Modi shared photos from his visit to Assam's Kaziranga National Park.

— The park is located on the edge of the Eastern Himalayan biodiversity hotspots – Golaghat and Nagaon district.

— In the year 1985, the park was declared as a World Heritage Site by UNESCO.

— The forest region of Kaziranga Park is home to the world's largest population of Indian Rhinoceros.

HILSA (ILISH) FISH

— Bangladesh's interim government said it would export 3,000 tonnes of hilsa fish to India, coinciding with the upcoming Durga Puja.

— There are two varieties of hilsa in the Bay of Bengal – Tenualosa ilisha and Tenualosa toli ilish.

— It is the national fish of Bangladesh and it is the world's largest hilsa producer.

— Tenualosa ilisha is the state fish of West Bengal.

DHANAURI WETLAND

— The National Green Tribunal (NGT) has ordered the Uttar Pradesh government to clear water hyacinth from the Dhanauri wetlands and sought to know why the state authorities have not yet sent a proposal to notify the wetland as a Ramsar site.

— Dhanauri Wetlands is located in Greater Noida, Uttar Pradesh. It is a Sarus crane hotspot and supports 23 species of birds that are endangered, critically endangered and threatened.

HOOLOCK GIBBONS:

The forests of Northeast India are home to the country's only apes: the western hoolock gibbon (Hoolock hoolock) and the eastern hoolock gibbon (Hoolock leuconedys). The western hoolock gibbon is found in all the states of the northeast, restricted between the south of the Brahmaputra River and east of the Dibang River. It is listed as Endangered in the IUCN Redlist and Schedule 1 of the Indian (Wildlife) Protection Act 1972.

CLEARANCES FOR THE NICOBAR PROJECT ADHERE TO GREEN LAWS, GOVT TELLS NGT

The Union Environment Ministry in its counter affidavit to the NGT's eastern zone bench stated that the clearances granted for the Great Nicobar infrastructure project have not violated the Island Coastal Regulation Zone (ICRZ) notification, 2019 and NGT orders to revisit the project's green clearances have been complied with.

INDIA, BRAZIL, SOUTH AFRICA CALL FOR ACTION AGAINST TERROR GROUPS, PROXIES

Condemning terrorism in all its forms and manifestations, India, Brazil and South Africa Thursday called for "concerted action" against all UN-listed terrorists and terrorist entities including Al-Qaeda, ISIS, Lashkar-e-Tayyiba (LeT), Jaish-e-Mohammad (JeM), and other proxy groups and their facilitators.

MINERALS SECURITY FINANCE NETWORK (MSFN)

— India is now formally a part of the Minerals Security Finance Network (MSFN), a US-led initiative aiming to strengthen cooperation among members to secure supply chains for critical minerals.

— It has stemmed from the Minerals Security Partnership (MSP) which was established by the US in 2022. India was inducted into the MSP in June 2023.

— The MSP is a collaboration of 14 countries and the EU to catalyse public and private investment in responsible critical minerals supply chains globally.

NGT TO GOVERNMENT: CAN STAR RATING BE IMPLEMENTED FOR PASSENGER VEHICLES?

The National Green Tribunal's (NGT) principal bench has sought responses from the union government on a plea seeking implementation of a star rating system for all passenger vehicles based on their fuel efficiency and carbon dioxide emissions.

VENU VASUDEVAN

— Venu Vasudevan has been appointed chairperson of the Board of Trustees of Kochi Biennale Foundation (KBF). He was former Chief Secretary to the Government of Kerala and former Director General of the National Museum in Delhi

— KBF was established in 2010 by artists for artists as a non-profit, charitable trust set up in Kerala, South India to promote art, culture, heritage and education.

— KBF hosts the Kochi-Muziris Biennale (KMB), India's largest contemporary art festival that is presented biennially in the historic port city of Kochi, on the Malabar coast of India.

— India's first biennale of international contemporary art had its inaugural edition in December 2012.

AMAR PREET SINGH

— The government has announced that it has appointed Air Marshal Amar Preet Singh as the next Chief of the Air Staff.

— He will take charge from the present Chief of the Air Staff Air Chief Marshal Vivek Ram Chaudhari on September 30.

MARY POONEN LUKOSE

— Mary Poonen Lukose was the first woman member of a legislative council by becoming a member of the erstwhile Travancore Legislative Council on September 23, 1924.

— In 1938, she became the first woman surgeon general of Travancore and she served as the royal physician of the Travancore kings till 1942.

HARINI AMARASURIYA

— Sri Lankan President, Anura Kumar Dissanayake has appointed Dr Harini Amarasuriya as the Prime Minister of Sri Lanka on September 24.

— She became the first woman in 24 years to serve the post, since Sirimavo Bandaranaike in 2000, and the third woman Prime Minister overall.

— She completed her B A (Honours) in Sociology from Hindu College, Delhi University in 1994.

SHIGERU ISHIBA

— Shigeru Ishiba is set to become the next Prime Minister of Japan after winning the leadership of the Liberal Democratic Party (LDP) which has ruled the country for the past seven decades.

— The current prime minister, Fumio Kishida, has been dogged by party corruption scandals.

TUVALU

— Tuvalu, whose mean elevation is just 2 m (6.56 ft), has experienced a sea-level rise of 15 cm (5.91 inches) over the past three decades, one-and-a-half times the global average.

— It is a tiny Pacific island nation located halfway between Hawaii and Australia.

NEOM

— The Wall Street Journal has published a highly critical report on Neom, the ambitious Saudi megacity project.

— Neom was visualised as part of Saudi Arabia's ambitious Vision 2030 project, which sought to diversify the country's economy and thus reduce its dependence on oil.

— It is situated in Saudi Arabia's western Tabuk province. It is a fusion of the Greek word "neo" meaning "new", and the Arabic word "mustaqbal" meaning "future".

KEFFIYEH:

Recently, Pulitzer Prize-winning author Jhumpa Lahiri declined to accept an award from New York City's Noguchi Museum Wednesday after it sacked three employees for wearing 'keffiyeh'. It is a headdress that has become heavily associated with Palestinian solidarity.

BUSINESS & ECONOMICS

A LEGAL VOID

The debate on Chinese foreign direct investment (FDI) into India oscillates between economic benefits and security risks. But, a key fundamental question beyond that remains unanswered. Does India have a comprehensive legislative framework to deal with FDI and international trade on grounds of national security? The answer is negative.

— It is important to recall that in April 2020, India adopted a new FDI regulation called Press Note 3 (PN3).

— PN3 is enforced through the Foreign Exchange Management Act (FEMA) — a law that provides the architecture for the orderly development and maintenance of the foreign exchange market in India.

— PN3 subjects inward investments from land-bordering countries to prior approval of the central government (the so-called government route). While many countries share land borders with India, this regulation aimed to curb Chinese FDI into India.

— FEMA does not contain explicit provisions to deal with FDI on national security grounds. This is not surprising because national security in the military sense is not directly linked to managing foreign exchange.

— The legal vacuum in India on this point is not restricted to foreign investment. It extends to international trade. Immediately after the Pulwama terror attack in February 2019, India denounced its most favoured nation obligation under the World Trade Organisation towards Pakistan and increased customs duties on all Pakistani imports to 200 per cent.

— Like FEMA, the Customs Tariff Act doubled up as a national security instrument in this case. The absence of a specified domestic law to deal with FDI and international trade on security grounds makes New Delhi vulnerable if India's measures are challenged at international courts and tribunals.

For Your Information:

— India regulates foreign investments primarily through FEMA. The preamble to FEMA clearly provides two specific macro-prudential objectives — facilitating external trade and payments; and promoting orderly development and maintenance of foreign exchange markets in India.

— Accordingly, it empowers the central government and the RBI, acting in consultation with each other, to regulate capital account transactions. These regulations determine who can invest through the FDI route, in which sector and how much.

IS THE SPIKE IN INDIA'S TRADE DEFICIT A WORRY?

The story so far:

After a positive start to goods exports in the first quarter of 2024-25, there has been a blip in momentum. Outbound shipment values shrank 1.5% in July to an eight-month low, and the contraction deepened to 9.3% in August. This has coincided with a record import bill which hit

$64.4 billion in August, and translated into a merchandise trade deficit of $29.7 billion, the second highest after the record $29.9 billion gap in October 2023

What has triggered the wider trade deficit?

While exports have shrank in the past two months, imports have not — they grew 7.5% over last July and 3.3% in August. This lifted the deficit to a nine-month peak of $23.5 billion in July and that gap widened by around $6.2 billion last month. On the exports front, 18 of India's top 30 segments recorded growth in July and 19 in August, but the big-ticket sectors like petroleum, and gems and jewellery, have tanked significantly. Oil exports were down 22.2% in July and 37.6% in August, while jewellery exports have dropped well over 20% in both months. In August, growth also slowed significantly in sectors like drugs and pharmaceuticals, and the emerging export growth engine of recent times, electronic goods. With the Chinese economy slowing, some segments like stone, plaster, cement, and iron ore, also retreated. Interestingly, as oil prices declined about $6 a barrel in August, India's oil import bill dropped by almost a third to $11 billion, bringing the petroleum deficit to a three-year low, QuantEco Research economists pointed out in a note.

"The widening of the merchandise trade deficit was predominantly led by gems and jewellery, along with a minor impact from miscellaneous products and electronic items," they said. While gems and jewellery exports slipped below $2 billion, India's gold imports more than doubled in August to an all-time high of $10.1 billion. This is in sharp contrast to a 10.7% drop in gold imports in July and the range of $3 billion-3.4 billion seen since April. Top trade officials attributed this surge to the reduction in gold import duty from 15% to 6% announced in the Budget, the recent rise in gold prices, and domestic jewellery players stocking up for the festive season. Economists believe the full impact of the duty cuts announced on gold and other items will continue to play out, weighing on the import bill in coming months.

Could wider trade deficits pose a risk?

There is no significant risk to the economy at this point. As Commerce Secretary Sunil Barthwal has emphasised, India is growing faster than the world, so its demand for global products is bound to outpace the world's demand for its exports. "The deficit should not be a matter of concern for a developing economy with high growth and to the extent there are no foreign exchange issues, it should not matter," he asserted this week. Foreign capital inflows have stayed positive in recent months, and India's foreign exchange reserves had reached a record high of $675 billion as of August 2, which the Finance Ministry reckoned last month to be sufficient to cover 11.6 months of imports. That cover may be a tad lower if imports continue to hover over $60 billion in coming months, but services exports, reckoned to have risen over 10% between April and August, provide some comfort.

What about foreign trade in goods?

Global trade is expected to grow faster in 2024 than 2023, but for now, demand remains tepid in most developed markets. The festering geopolitical risks and conflicts aside, the upcoming election in the U.S. and its tariff hikes on Chinese goods even as Beijing grapples with a faltering domestic economy, presents a double-edged sword for players like India. While China's demand for imports slip, it has more reason to dump its products in non-U.S. markets at throwaway prices. Moreover, this interplay of downward pressures is expected to keep oil prices low, hurting India's oil export hopes, even as concerns about overall global demand impulses have increased. Beyond the short term, the road ahead for India's trade — the government aims to scale up services and

goods exports to a trillion dollars each by 2030 — is not likely to be smooth. There are challenges to boosting the export growth engine, Chief Economic Adviser V. Anantha Nageswaran said, with the global economy slowing down, tariffs and non-tariff barriers proliferating with countries adopting "active industrial policies" since the pandemic, and new trade walls such as the European Union's Carbon Border Adjustment Mechanism and Deforestation Rules coming into play. There could be a year or two that offer the chance to ramp up exports, but all in all, it's going to be a hard time, he concluded.

ON THE PITFALLS OF ESTIMATING GDP

Gross Domestic Product, or GDP, is the most significant measure of a country's economic size. It is also a universal denominator for comparing indicators across countries and regions or for sizing up tax burdens or welfare expenditures. GDP is usually more meaningful at "constant" prices or in "real" terms — netting out the effect of price changes. The real GDP is estimated for the "base year", requiring a variety of datasets on output, prices, and employment. Every 5-10 years, the GDP base year is revised to account for changes in relative prices and output composition. The National Statistical Office (NSO) is tasked with " revising" the GDP series, usually drawing upon expertise from many fields.

The ongoing GDP series with the base year 2011-12 is due for revision. 2020-21 is the proposed new base year. All required major datasets are said to be available except for Census data. The NSO is considering using the goods and services tax (GST) data to estimate value addition, replacing the currently used Ministry of Corporate Affairs' MCA-21 database for the Private Corporate Sector (PCS), which accounts for about 38% of GDP.

Why the change?

After all, the MCA-21 database was brought in only in the last revision, with 2011-12 as the base year. Previous to that, the Annual Survey of Industries (ASI) was the long-standing workhorse for estimating factory manufacturing value-added. The Reserve Bank of India's (RBI) small sample of large companies, with the majority paid-up capital of PCS, was used to estimate the non-financial corporate sector output. The statistical agency changed it to the MCA-21 database as the ASI claimed to miss out on value addition outside of factory premises in a corporate entity. Likewise, reportedly, the RBI sample was inadequate to account for the rapidly growing PCS. Moreover, the availability of the extensive and up-to-date MCA-21 data, obtained from the mandatory filing of corporate annual returns and quarterly corporate results — it was contended — would enable fuller capturing of the corporate output.

The 2011-12 base year GDP (replacing the 2004-05 base year series) showed a marginally smaller absolute GDP size and a faster growth rate. But for the manufacturing sector in 2013-14 at constant prices, the annual growth rate was (+) 5.4% in the new series, compared to (-) 1.90% in the earlier series. Such a sharp divergence in the rate and direction of industrial growth by the two GDP series was a surprise. Moreover, the upward revision of the industrial growth rate didn't square with related macro aggregates, such as bank credit growth or industrial capacity utilisation, leading to widespread scepticism of the new GDP estimates. Statistical investigations zeroed in on an untested or inadequately vetted MCA database as the source of the overestimation problem.

The official agency, however, defended its new estimates, claiming they capture value addition more completely, using a much more extensive database, improved estimation methods, and

following the latest template of international best practices. Critics, however, wondered if a bigger dataset is necessarily a better data set. And if the new estimates were better or overestimates. The statistical dispute remained unresolved as the government refused to make the MCA data available for independent scrutiny or reveal its estimation methodology for verification.

Systematic overestimation

With time, however, it has been possible to compare estimates of Gross Value Added (GVA) in the manufacturing sector as per GDP series (in the National Accounts Statistics) and by the ASI — based on production accounts of registered factories — for a reasonably long period. We compared (i) GVA and (ii) Gross Fixed Capital Formation (GFCF) (fixed investment) at constant prices for 2012-13 to 2019-20 as reported by the NAS and ASI. The results were startling. The average annual growth rate of GVA in NAS was 6.2%, while it was only 3.2% in ASI. The difference was much sharper in GFCF: 4.5% by NAS and 0.3% by ASI, respectively. These comparisons show a systematic overestimation in NAS estimates (based on the MCA-21 database) compared to the ASI-based estimates, vindicating the doubts raised about the integrity of the GDP estimates.

The evidence presented here is a cautionary tale for the proposed use of GST data for GDP estimation. It's a stark reminder of the need for the official agency to guard against the hasty application of unverified datasets and shaky methodologies without adequate testing and validations for GDP estimation. NSO must initiate pilot studies to verify the GST dataset's suitability for value addition estimation of specific industries, sectors, and States. Such validation is crucial to ensure the estimation's truthfulness and instil confidence in the integrity of the GST data. Alternatively, NSO could explore reverting to ASI to estimate GDP manufacturing, as the database is now available with a shorter time lag.

GST data can be a game-changer for GDP estimation in the proposed revision. It is a large and up-to-date database, however, its details are in a black box, as it has not been open for policy research. Without systematic analyses and cross-validation disaggregated by production and institutional sectors and regions by independent agencies, the validity of GDP estimates on GST data will be hard to establish.

WORKING WOMEN'S DOUBLE SHIFT

The Data Point published on Monday showed how professional Indian women work the most number of hours globally. Young Indian women in professional jobs such as auditing, Information Technology, and media work more than 55 hours a week, which translates to 9-11 hours of work every day depending on whether it was a six-day or five-day work week.

The Data Point was published after the death of Anna Sebastian Perayil, a Chartered Accountant. According to her mother, Anna, 26, lost her life because of "work stress" at Ernst & Young. The letter addressed to the company's India chairman went viral, leading to discussions on the increasing workload of professionals in India.

Indian women are working in newer and demanding jobs these days. According to data, despite women undergoing more stress in office, they do not enjoy a commensurate reduction in the amount of household work they do. While families have become more accepting of women working over time, they still do not share the women's workload and care responsibilities at home.

During a day in 2019, women who are not in the labour force (neither employed nor seeking employment, mostly housewives) spent the most time on unpaid domestic/care work, averaging 457 minutes or 7.5 hours a day. But employed women were not far behind, spending 348 minutes or 5.8 hours a day.

Professional women spend 9-11 hours at work a day. Employed women spend about 5-6 hours doing unpaid household work — we see a worrying trend. This means that every day, working women are left with only about 7-10 hours to wind down and rest. While this may not be the case in every household and outliers do exist, the data correspond to an average Indian household.

The data show that unemployed men spend less time doing household chores than employed women — only 3.5 hours per day compared to employed women's 5.8 hours. Employed men spend 2.7 hours a day on such chores, which is about three hours less than what employed women spend.

One of the biggest factors for such a skew is marriage. Married women — employed or otherwise — spend eight hours in unpaid work every day, about two times more than women who never married. In contrast, married men spend 2.8 hours in unpaid house work, fewer than men who never married (3.1 hours). So, as we can see, post-marriage, household work reduces for men and doubles for women.

There are no regional variations either. In all the States, close to 85% or more women were engaged in such chores, while in a majority of the States, the share was below 50% for men. In Haryana, Rajasthan, Himachal Pradesh, and Gujarat, the share of men doing household work was less than 20%.

LIFE & SCIENCE

WHAT IS CALIFORNIA'S NEW ANTI-DEEPFAKE BILL AND CAN IT STOP MANIPULATED POLITICAL ADS?

The story so far:

California's governor Gavin Newsom promised to take action on deepfake AI-generated content in late July after X owner and billionaire Elon Musk re-posted a deepfake video of U.S. Vice President Kamala Harris, in which she refers to herself as a "diversity hire". In response to the governor's criticism, Mr. Musk made an obscene remark, claiming parody was legal in the country. On September 18, Mr. Newsom re-upped his X post criticising Musk and said he had made such content illegal in California by signing a bill. He signed three pieces of legislation to take action against deepfakes or digitally altered content in election campaigns that could be "deceptive". "You can no longer knowingly distribute an ad or other election communications that contain materially deceptive content — including deepfakes," Mr. Newsom said.

What are the new bills about?

According to Mr. Newsom, users can no longer distribute ads or election communications with "materially deceptive content," including deepfakes.

Mr. Newsom signed three bills in total: AB 2655 that will make large online platforms remove or label election-related deepfakes during "specific periods"; AB 2839 to expand the interval during which posters cannot distribute election ads or material with "deceptive" AI-generated or manipulated content; and AB 2355 that requires electoral ads with AI or altered content to disclose the same.

The three bills also give regulators and law enforcement bodies the power to handle such media through legal means or have them taken down.

"Safeguarding the integrity of elections is essential to democracy, and it's critical that we ensure AI is not deployed to undermine the public's trust through disinformation — especially in today's fraught political climate. These measures will help to combat the harmful use of deepfakes in political ads and other content, one of several areas in which the state is being proactive to foster transparent and trustworthy AI," said Mr. Newsom in an official press note on September 17.

How watertight are the bills?

The bills largely apply to California and expand already existing laws regarding election-related conduct that prevent highly altered media from being circulated for a stipulated number of days before or after elections in the state.

While Mr. Musk claimed that the governor's actions are in violation of the Constitution of the United States, a number of compliant AI companies have already established filters and content restrictions that stop users from making deepfakes of election candidates, officials, heads of state, celebrities, etc.

AB-2655 stated: "This bill, to be known as the Defending Democracy from Deepfake Deception Act of 2024, would require a large online platform, as defined, to block the posting of materially deceptive content related to elections in California, during specified periods before and after an

election. The bill would require a large online platform to label certain additional content inauthentic, fake, or false during specified periods before and after an election in California." These are largely standard requirements across most jurisdictions, and major search engine platforms have also committed to identifying or watermarking AI-generated images in order to prevent user confusion and the dissemination of false news.

Mr. Musk has used parody as an excuse to defend the deepfake campaign ad showing Ms. Harris in a negative light. In fact, AB 2655 stated the bill "would also exempt content that is satire or parody."

While the original deepfake video's poster stated that it was a parody, one version that Mr. Musk shared on X on July 27 did not have any Community Notes or platform-based disclosures that made it clear the media was fake.

What will happen if someone violates the regulations?

Though the newly signed bills and the existing laws have laid out measures for violations, it is not yet clear how this will play out in reality if someone violates the new regulations. The bills were signed almost fifty days before the U.S. election is set to take place, so it will be difficult to assess how effective or rigorous they are in such a short time span.

Adding to this, the bills may not severely penalise non-compliant individuals or entities.

While AB 2355 states that the following disclosure — "Ad generated or substantially altered using artificial intelligence" — should be added to applicable media content, the bill noted that violating the disclosure requirements "does not constitute a misdemeanour."

Though powerful stakeholders such as Mr. Musk are not likely to be curtailed by the new bills, the legislation may be used to shine a light on the rising volume of AI-generated misinformation spreading across X. A significant portion of this is enabled by the Grok AI chatbot, which has fewer content restrictions than its counterparts from more compliant AI companies. Ultimately, repeated violations of California's laws could land X in legal hot water over time, and affect its already shaky standing with more risk-averse advertisers.

In response to Mr. Newsom's news of the bills being signed, Mr. Musk again amplified the parody campaign ad featuring Ms. Harris that prompted criticism from the governor in the first place. Mr. Musk shared the deepfake video with his more than 180 million followers, saying it "would be a shame if it went viral." However, the version he shared this time clearly identified the video as a parody.

BUTTERFLY EFFECT: ROLL THE DICE

WHAT IS IT?

You're likely to have heard about the butterfly effect and just as likely to have heard the example of a butterfly flapping its wings in one place and causing a tornado thousands of kilometres away. The discovery of the effect has its origins in the work of the American mathematician Edward Lorenz, who pioneered the use of computers and mathematical models to predict the weather.

Before him, the mathematicians Henri Poincare and Norbert Wiener noticed that the earth's atmosphere was never entirely stable and that the weather could be affected by very small

changes, sometimes far away. Lorenz used computers to create mathematical models of this deterministic chaos and with them tried to predict the weather.

The butterfly effect is a statement about the property of this chaotic system: its final outcome is highly sensitive to its starting conditions. If one of these conditions changes just a little, the final outcome could be very different — like a hot, dry day rather than a bleak, damp one. Lorenz wrote that in one forecast model he was running in 1961, changing the value of some input variable from 0.506127 to 0.506 resulted in a drastically different prediction for the weather two months later.

Scientists have observed the butterfly effect in a variety of fields. A new branch of study called quantum chaos is in fact concerned with understanding "classical" chaos using quantum theory.

RUGGED FALKLANDS LANDSCAPE WAS ONCE A LUSH RAINFOREST

Researchers have found evidence that the treeless, rugged, grassland landscape of the Falkland Islands was home to a lush, diverse rainforest up to 30 million years ago. The study reveals that the South Atlantic archipelago was once covered in cool, wet woodland—similar to the present-day rainforests found in Tierra del Fuego, off the tip of South America.

The scientists conducted the research after clues to the whereabouts of buried remains of the ancient forest reached them via word-of-mouth in the tight knit community of Port Stanley, the Falklands' capital. Chance conversations led them to find perfectly preserved prehistoric tree remains and pollen at a building site in early 2020.

Samples of the peat layers and deposits were removed from the site at Tussac House near Stanley Harbour. These were carefully transported to Australia for laboratory testing at the University of New South Wales, where the sediment was meticulously sampled and the wood analysed with specialised scanning electron microscopes. The tree remains proved too old to obtain conclusive results from radiocarbon dating, so pollen spores were used instead. The scientists analysed a variety of spores compacted and sealed in the same layers of peat as the wood. Pollen records led them to conclude the tree trunks and branches date to between 15 and 30 million years old. Detailed findings of the research are newly published in the journalAntarctic Science.

Tens of millions of years ago the climate in the South Atlantic was much warmer and wetter than today and capable of supporting a rainforest environment. This would have been cooler than tropical rainforests we might typically think of—such as the Amazon rainforest—but still able to support a rich, diverse ecosystem of plant and animal life.

Many of the tree species growing on the Falklands are now extinct but would have seeded on the islands by being carried on the prevailing westerly winds from rainforests that covered much of the southern hemisphere.

MASSIVE GREENLAND LANDSLIDE SENT SEISMIC WAVES AROUND EARTH FOR 9 DAYS

On September 16, 2023, several seismic stations worldwide detected a bizarre signal. Earthquakes are not rare. In 2023 alone, 1,712 earthquakes of magnitude 5 or more were registered worldwide. But these seismic waves were puzzling; the signatures clearly indicated that earthquakes had not caused them, and the reverberations lasted for a staggering nine days.

A mysterious ringing

"We saw it on sensors everywhere, from the Arctic to Antarctica," Stephen Hicks, a computational seismology research fellow at University College London, and Kristian Svennevig, senior researcher at the Geological Survey of Denmark and Greenland, wrote in a recent article. They are coauthors of the study reporting their findings, published in Science on September 12.

When you play the violin, you yank multiple strings together, which emit sounds at a mix of frequencies. Seismic waves from earthquakes behave the same way. However, the hum the seismologists recorded had only one frequency — like only one string of the violin had been plucked. That is not characteristic of tremors.

At first, the seismologists classified this wave as a "USO", an unidentified seismic object. "Even more puzzling was that the signal kept going for nine days," Hicks and Svennevig wrote. Earthquake vibrations also produce aftershocks. But in this case, the reverberations faded more slowly than one might anticipate from an earthquake.

A global effort

What set off the tremble? Only powerful events like volcano eruptions or clandestine nuclear weapons tests could unleash this much energy. Seismologists were intrigued.

To resolve the enigma, more than 68 researchers from 40 universities in 15 countries teamed up across disciplines. After piecing together numerous datasets and using computer simulations, the team realised the waves were caused by a massive landslide on the banks of the Dickson Fjord in Greenland.

According to Hicks and Svennevig, "solving this mystery required putting many diverse pieces of evidence together, from a treasure trove of seismic data to satellite imagery, in-fjord water level monitors, and detailed simulations" of how the water reacted.

The team even had to obtain a classified army bathymetric map of the fjord from the Danish Navy. It took about a year to assemble the jigsaw pieces and get the complete picture.

Rocks in the water

A fjord is a geological structure created when glaciers erode a valley below sea level and the sea water floods it. They frequently feature U-shaped channels that stretch well inland, surrounded by high cliffs or hills.

A series of events, starting with the collapse of Hvide Støvhorn peak, located approximately 1.2 km from the fjord, culminated in a mega-tsunami. The rockslide rolling down gained momentum and shattered the glacier, resulting in a rock-ice avalanche. According to the authors, the avalanche triggered a submarine landslide. Roughly 25 million cubic metres of ice and rock, enough to fill 10,000 Olympic-sized swimming pools, splashed into the fjord, displacing the water enough to give rise to a 200-metre-high mega-tsunami, nearly three times the height of the iconic Srirangam Temple in Tamil Nadu.

Sloshing waves

The mega-tsunami did not kill anyone but it damaged an unstaffed research facility on the island of Ella, some 72 km away, as well as monuments of cultural and archaeological importance in the area.

A tsunami's waves in an ocean would have spread and dispersed. But in the 540-metre-deep and 2.7-km-wide fjord, the waves were reflected back and forth by the opposing banks. The rebounding waves reached a height of almost 110 metres.

This back-and-forth sloshing in the fjord is called a seiche. About five minutes after the material plunged into the water, the waves settled slowly into a seiche with a maximum amplitude of 7.4 m and a dominant frequency of 11.45 MHz, oscillating every 90 seconds.

For more than nine days, the waves in the Dickson Fjord kept up their dance, moving from side to side around 10,000 times. These oscillations matched the strange waves the seismic stations had recorded.

The alarm bell

The ice-rock avalanche and the waves' motions rang the earth's surface like a gong, and the reverberations spread across the globe, causing the entire earth to ring like a bell.

Researchers also examined the cause of the enormous landslide. Before the collapse, the ice at the glacier's foot had supported the rocky slopes. Satellite pictures and other data revealed the foot had been shrinking rapidly the last few decades thanks to global warming. As the ice thawed, it could not support the weight at the top. The rock breached it and slid violently downslope, concluding with the mega-tsunami.

"It is a stark reminder that we are navigating uncharted waters," Hicks and Svennevig wrote. "Just a year ago, the idea that a seiche could persist for nine days would have been dismissed as absurd. Similarly, a century ago, the notion that warming could destabilise slopes in the Arctic, leading to massive landslides and tsunamis happening almost yearly, would have been considered far-fetched. Yet these once-unthinkable events are now becoming our new reality."

Nature's earthshakers

A melting glacier led to a planet-wide tremor, and it may not be the last.

Arctic and subarctic regions are warming at a pace two- to three-times that of the rest of the planet. As the ice cover melts, the darker rock surfaces are exposed. They absorb more light, leading to faster melting of the ice cover in the Arctic. And we can expect glacial melting will only increase the rate of ice-related landslides.

"This certainly won't be the last such landslide mega-tsunami," Hicks and Svennevig cautioned. "As permafrost on steep slopes continues to warm and glaciers continue to thin we can expect these events to happen more often and on an even bigger scale across the world's polar and mountainous regions."

NUMBER OF RHINOS SLIGHTLY INCREASES, BUT SO DOES THREAT OF POACHING

The number of white rhinos increased from 15,942 in 2022 to 17,464 in 2023, but the black and greater one-horned rhino stayed the same, according to the report published by the International Rhino Foundation ahead of World Rhino Day on September 22.

Another subspecies, the northern white rhino, is technically extinct with only two females being kept in a secure private conservancy in Kenya. A trial is ongoing to develop embryos in the lab from an egg and sperm previously collected from white rhinos and transferring it into a surrogate female black rhino.

A total of 586 rhinos were killed in Africa in 2023, most of them in South Africa, which has the highest population of rhinos at an estimated 16,056. The killings increased from 551 reported in 2022, according to the International Union for Conservation of Nature.

With all five subspecies combined, there are just under 28,000 rhinos left in the world, from 5,00,000 at the beginning of the 20th century.

Rhinos face various environmental threats like habitat loss due to development and climate change. But poaching, based on the belief that their horns have medicinal uses, remains the top threat.

Philip Muruthi, the vice president for species conservation at the Africa Wildlife Foundation, said protection has played a big role in increasing rhino population. In Kenya, their numbers rose from 380 in 1986 to 1,000 last year, he said. "Why has that happened? Because the rhinos were brought into sanctuaries and were protected."

Muruthi advocates for a campaign that will end the demand for rhino horn and adopt new technologies to track and monitor rhinos for their protection while also educating communities on the benefits of rhinos to the ecosystem and the economy.

Known as mega herbivores that mow the parks and create inroads for other herbivores, rhinos are also good for establishing forests by ingesting seeds and spreading them across the parks in their dung. Muruthi lamented that the northern white rhino should have never gotten so close to the brink of extinction.

The body of the last male northern white rhino, named Sudan, that died in 2018 has been preserved and displayed at the Museums of Kenya in Nairobi.

A research scientist and curator of mammals at the museum, Bernard Agwanda, said preserving Sudan will tell the story of how the species lived among humans and why conservation is important.

DROUGHT, DEFORESTATION, CLIMATE CHANGE: WHY SOUTH AMERICA IS BURNING

South America is witnessing its worst forest fire season in nearly two decades, breaking a previous record for the number of blazes seen in a year (till September 11).

— Since the beginning of this year, fires have ravaged the Amazon rainforest, engulfing parts of Brazil, Peru, Bolivia, Colombia, and others. Millions of acres of forest are currently burning across South America.

— The worst hit is Brazil, the largest country in the continent and home to 60% of all the currently burning fires in the region.

— Three of the six vast ecosystems — the Amazon, the Cerrado (the world's most biodiverse savanna), and the Pantanal wetlands — have been severely affected, according to a report by Grist magazine.

— Every year, South America witnesses a high number of blazes between August and October, which is the continent's wildfire season. During this time, farmers intentionally burn their lands to cultivate them and most often, fires escape into the forests.

— This year's season has been particularly bad due to several reasons: The continent is currently experiencing one of its worst droughts on record with Brazil, Peru, and Bolivia being worst affected… These extreme dry conditions fueled by the El Niño event (it ended earlier this year) have propelled fires to spread across the region.

— High levels of deforestation, especially in the Amazon, have also played a role in exacerbating wildfires — clearing the land creates more opportunities for blazes to spread.

— The crisis has been made worse by global warming.

— Notably, the ongoing intense wildfires in the continent are not a surprise to climate scientists, who say this is exactly what climate models have been predicting for 20 years or more.

— Extreme weather events such as drought, wildfires, and floods are expected to get much worse in the following years as global temperatures continue to rise.

For Your Information:

— The forest fire season in India lasts between November to June. Factors like temperatures, precipitation, vegetation, and moisture contribute to the scale and frequency of these fires.

— According to experts, three factors cause the spread of forest fires — fuel load, oxygen and temperature. Dry leaves are fuel for forest fires. The Forest Survey of India (FSI) website states that nearly 36 per cent of India's forests are prone to frequent fires.

— Higher fire incidents are reported in March, April and May due to ample availability of dry biomass following the end of winter and amid the prevailing summer season.

THE FREEZING UPPER DECK

Q: Why is it colder at higher altitudes?-

A: Measurements reveal that, as we go up into the atmosphere, the air temperature decreases with height from the ground up to about 15-20 km in the troposphere. Beyond this, it increases in the stratosphere up to a height of 50 km. Again, it decreases in the mesosphere up to 80 km and finally increases in the ionosphere.

Solar radiation heats the earth's surface far more than the air through which it travels. The heat at the surface is transported by convective expansion into the atmosphere. An atmosphere conditioned by convective expansion will have relatively cooler temperatures at higher levels. This holds good in a hydrostatically stable atmosphere, under adiabatic conditions (i.e., when entropy is constant), which is true of planetary or stellar atmospheres.

But the real atmosphere is not static. It is dynamic with constant motion. The thermodynamic processes are not adiabatic as radiation from outside the atmosphere enters, and the atmosphere also radiates away the heat into outer space. Still, the departures from hydrostatic and adiabatic conditions are small, and the temperature decreases with height.

COOLING OFF

Can heat-related illnesses be prevented in dogs?

A study has found that voluntary dunking of heads in water maintained at 22 degree C by dogs with limited water ingestionis the most effective method for rapid cooling after exercise. It reduces core body temperature within five minutes. Currently, the recommended cooling strategy after exertional hyperthermia involves full or partial immersion in cool water or using a fan to increase air circulation and evaporation after wetting the skin thoroughly. Voluntary head dunking also prevented dangerous post-exercise temperature spikes. Cooling the head enables rapid cooling of the whole body with limited amounts of water. Heat-related illness is a serious risk for dogs, especially during warm weather.The research emphasises the critical rule of "cool first, transport second," which encourages owners to begin cooling dogs immediately if they show signs of heat stress. Allowing the dog to drink controlled amounts of cool water and pouring water on the dog's head may provide some benefit but it warrants further study.

CONGO FINALLY BEGINS MPOX VACCINATIONS

Congolese authorities Saturday began vaccinations against mpox, nearly two months after the disease outbreak that spread from Congo to several African countries and beyond was declared a global emergency by the World Health Organization.

— The 265,000 doses donated to Congo by the European Union and the U.S. were rolled out in the eastern city of Goma in North Kivu province, where hospitals and health workers have been overstretched, struggling to contain the new and possibly more infectious strain of mpox.

— Congo, with about 30,000 suspected mpox cases and 859 deaths, accounts for more than 80% of all the cases and 99% of all the deaths reported in Africa this year. All of the Central African nation's 26 provinces have recorded mpox cases.

For Your Information:

— Mpox, previously known as monkeypox, is a self-limiting viral infection caused by mpox virus (MPXV). The most common symptoms of mpox include fever, headache, muscle aches, back pain, low energy, and swollen lymph nodes, along with pox-like rashes that last for two to three weeks. It is a self-limiting disease but can lead to death, especially among children and those with weak immune systems.

— According to WHO, there are two broad clades of the Mpox virus: clade I and II. Clade I leads to more severe disease and death than clade II in the populations where it is endemic. Clade II was behind the global mpox outbreak that began in 2022. At least 99,176 cases and 208 deaths due to monkeypox have been reported from 116 countries since 2022, according to WHO data.

— A new offshoot of clade I virus, called clade Ib, was first reported in the Democratic Republic of the Congo in 2023, and has been spreading through sex and other types of close contact.

'TYPHOID, PNEUMONIA, UTIS SHOW RESISTANCE TO CERTAIN ANTIBIOTICS'

Drug-resistant and difficult-to-treat urinary tract infections (UTI), blood stream infections, pneumonia, and typhoid are among the diseases showing resistance to commonly used antibiotics, says a report published recently by the Indian Council of Medical Research (ICMR) Antimicrobial Resistance Surveillance Network (AMRSN).

The data collected by the network provide trends and patterns of antimicrobial resistance (AMR) in six key pathogenic groups in the country, along with insights on key mechanisms of resistance prevalent in different pathogenic groups using genomics and whole genome sequencing. This is the seventh detailed report from the ICMR-AMRSN and presents data from January 1 to December 31, 2023.

Gram-negative bacilli, which can cause infections anywhere in the body, remain the most isolated pathogens from the most clinically relevant samples, including blood, urine, and respiratory tract samples. In the Outpatient Department, Escherichia coli bacillus was most isolated (30.74%), followed by Klebsiella pneumoniae (13.63%), Staphylococcus aureus (12.15%), Pseudomonas aeruginosa (12.06%), and Enterococcus faecalis (4.41%).

Among in-patients or in the ward, again Escherichia coli bacillus was the most isolated (22.75%), followed by Klebsiella pneumoniae (16.21%) and A. baumannii (11.87%). In the intensive care unit, A. baumannii bacillus was most isolated (23.74%), followed by Klebsiella pneumoniae (20.88%) and E. coli (13.11%).

Twenty-one regional centres from various parts of the country, in both the public and private sectors, participated in the surveillance.

ARE ANTIBIOTICS RESPONSIBLE FOR BOWEL DISEASES?

Besides causing antimicrobial resistant bacteria, irrational use of antibiotics can also act directly on host cells. A recents tudy published in the journal Science Advances has found that even a short-course treatment of mice with antibiotics twice a day for three days was sufficient to damage the integrity of the mucus barrier, which separates the immune system from microbes present in the intestine. When the thin layer of mucus is damaged, it allows the microbes to come in close contact with host tissues, triggering an immune response and predisposing the mice to intestinal inflammation. The breakdown of the mucus barrier, which separates the intestinal epithelium from the microbiota, is a hallmark of inflammatory bowel diseases (IBDs).

Mice were orally treated with four different antibiotics belonging to different classes of antibiotics—ampicillin, metronidazole, neomycin, and vancomycin. The study found that all four antibiotics were capable of breaking down the mucus barrier leading to encroachment of bacteria upon the colonic epithelium. The study found that vancomycin could impede mucus secretion of goblet cells in the colon, in a microbiota-independent manner.

'Deleterious effect'

Mice treated with vancomycin lacked a clear mucus in most areas of the colonic epithelium. Of particular concern was the ability of vancomycin to affect mucus secretion by the goblet cells a few minutes following vancomycin infusion. The study suggests that certain antibiotics induce

endoplasmic reticulum (ER) stress in colonic cells, thus diminishing mucus production. Based on this observation, the researchers conclude that antibiotics have a deleterious effect on the mucus barrier by acting directly on the host cells.

VANCOMYCIN MAY NOT BE ABLE TO TREAT MRSA INFECTIONS FOR LONG

"Vancomycin has been reliable for treating MRSA for decades as it is very rare that S. aureus becomes resistant to vancomycin," Eric Wright, a researcher at the University of Pittsburgh and co-author of a new study, said. "Our study shows that we may not be able to treat MRSA with vancomycin forever"

Antimicrobial resistance is one of the great crises of the 21st century, and Staphylococcus aureus is an important bacteria species leading this charge.

In 2019, for example, methicillin-resistant Staphylococcus aureus (MRSA) — a strain that can resist several antibiotics — was responsible for more than 100,000 deaths. Fortunately it is still significantly vulnerable to vancomycin, which has been doctors' first-line treatment against MRSA infections for 40 years.

Nothing is forever

MRSA rarely resists vancomycin. Only 16 such cases have been reported in India so far. This is because when S. aureus acquires vancomycin resistance (to become VRSA), it also grows slower and is less fit.

Now, researchers have found S. aureus can adapt to vancomycin while overcoming this fitness cost. The study, published in the journal PLoS Pathogens on August 29, reported results threatening the long-term use of vancomycin in the clinic.

WORLD RABIES DAY: TRACING THE JOURNEY FROM MYTHS TO MODERN MEDICINE

In May 2024, a tragic incident in Alappuzha, Kerala, highlighted the ongoing threat of rabies in the 21st century. A nine-year-old boy died from rabies after being bitten by a stray dog. He was not vaccinated after the attack owing to the absence of major wounds. This preventable death prompted school assemblies that turned into science classes. A message was delivered to over 159,000 students across 740 schools, underscoring the critical need for immediate medical attention and vaccination after any animal bite to prevent rabies.

This incident serves as a stark reminder that, despite advancements in medical science and the availability of effective rabies vaccines, the disease remains a significant public health challenge. With a nearly 100% fatality rate once symptoms develop, rabies continues to be a formidable threat.

World Rabies Day, observed on September 28 to commemorate the death of Louis Pasteur, encourages reflection on both the historical misconceptions that once shaped the approach to this deadly disease and the ongoing efforts to develop vaccines and modern strategies for rabies control. By connecting the past and present, we are reminded of the continuous need for awareness, education, and vaccination to eradicate rabies.

Weird theories

Historically, rabies has been surrounded by superstitions and misguided theories. One ancient remedy was consuming dog hair to cure rabies. Another 19th-century idea from Italian Monsignor Storti was to set up brothels for dogs—to counteract what he believed was canine sexual frustration. Such theories did nothing to stop the disease's spread. Rabies, known for over 4,000 years, was first noted in ancient Mesopotamia and India, where early texts like the Susruta Samhita described its symptoms. However, understanding and treatment remained limited for centuries, with many misconceptions persisting. Despite this ancient awareness, progress in understanding and treating rabies stagnated for centuries.

Advent of vaccination

The 19th century marked a turning point in the battle against rabies with the advent of germ theory, which fundamentally shifted medical science's approach to infectious diseases. Pasteur turned his attention to rabies in the 1880s. At the time, the understanding of immunology was rudimentary, and the concept of viruses as distinct infectious agents was non-existent. Pasteur himself referred to the rabies pathogen as a "virus," but this term merely signified an unknown infectious agent smaller than bacteria. Despite the lack of a clear understanding, Pasteur hypothesised that a weakened, or "attenuated," version of the rabies virus could stimulate the immune system to fight off a real infection.

After years of painstaking work, which included drying infected rabbit spinal cords to weaken the virus, Pasteur developed a vaccine that could be administered after exposure but before the onset of symptoms, providing a critical window to save lives. This work was groundbreaking, especially considering that the immune system's workings were poorly understood, and Pasteur's methods were developed largely through trial and error.

Pasteur's first major success came in 1885 when he treated a nine-year-old boy Joseph Meister, who had been severely bitten by a rabid dog. Given the high mortality rate associated with rabies, Meister's survival following Pasteur's vaccination regimen was hailed as a scientific triumph. However, it is important to note that modern ethical standards for clinical trials were not in place at the time.

Pasteur's decision to test the vaccine on human subjects, including Meister and other rabies victims, was driven by desperation and the absence of alternatives, rather than a fully informed understanding of the risks involved. After the smallpox vaccine was developed, there was an 89-year gap before Pasteur created the rabies vaccine, the second vaccine ever developed.

The success of the rabies vaccine had far-reaching consequences. Just months after Meister's treatment, four boys from Newark, New Jersey, who had been bitten by a rabid dog, were sent to Paris to receive the vaccine.

Their successful recovery brought international attention to Pasteur's work and solidified his reputation as a pioneer of modern medicine.

The publicity surrounding these cases spurred the global demand for the rabies vaccine and led to the establishment of the Pasteur Institute in the year 1888, a research facility that would become a cornerstone in the development of many future vaccines.

Epidemiology in India

Rabies in India, as of 2021, caused 59,000 deaths, representing 33% of the global total. Notably, 96% of these fatalities resulted from dog bites, highlighting the urgent need for improved rabies control and dog vaccination programs to prevent this preventable disease. The overall economic cost of dog-mediated rabies was estimated to be $8.6 billion.

Newer rabies immunoglobulin (Rabies Ig) and the rabies vaccine are essential for post-exposure prophylaxis (PEP) against rabies. Rabies Ig is specifically used for category 3 bites, which involve severe exposure such as transdermal bites or scratches, and provides immediate protection by supplying ready-made antibodies. It is administered once, ideally infiltrated around the wound, on day 0 with the first vaccine dose.

The newer rabies vaccine is used for both category 2 and 3 bites; category 2 involves minor bites or scratches without bleeding. The vaccine stimulates the immune system to produce long-term antibodies and is given in a series of four intra-dermal doses on days 0, 3, 7, and 28 (Modified Thairegimen) or 0,3,7,14 and 28 intramuscular doses (Essen regimen) for unvaccinated individuals. Previously vaccinated individuals receive two doses on days 0 and 3 without Rabies Ig.

One Health Approach

The "One Health" approach, recognises the interconnection between people, animals, plants, and their shared environment. This strategy emphasises collaboration among veterinary, medical, and environmental sectors to effectively manage rabies at the human-animal- environment interface. Local bodies play a vital role in animal control efforts, such as stray dog population management, vaccination drives, and public education campaigns, which are critical to preventing rabies outbreaks. To achieve the dream of zero rabies deaths by 2030, India needs to establish a robust surveillance mechanism, including GIS-enabled tracking, and ensure successful coordination among key institutions such as wildlife, urban and rural ministries, animal husbandry, the Ministry of Environment and Forests, the Ministry of Panchayat Raj, and the Health Ministry.

Effective collaboration among these stakeholders is crucial, as operating in isolation will lead to little to no success in eradicating this preventable disease.

HOW BMI IS BECOMING AN INADEQUATE MEASURE FOR HEALTH

Practically everyone who has gone to a doctor for a check-up has had their BMI or Body Mass Index measured. BMI calculators abound online and it has become a modern go-to quick check for one's health — financial services company Zerodha even announced, in 2022, an extra bonus for employees with a BMI of less than 25.

But how accurate is BMI in deciding how healthy you are now, or how healthy you will remain in the future? Increasingly, experts have arrived at the realisation that it is an imperfect calculation that has several limitations.

Therefore, the new buzz word is BRI or the Body Roundness Index. Devised by U.S. mathematician Diana Thomas, and first published in a 2013 paper, this index measures how round you are. "BMI is grounded by the assumption that bodies are like cylinders. But when I looked at myself in the mirror, I thought — 'I'm more of an egg than a cylinder.' And this is what led to devising the BRI" she says.

The mathematical formula for BRI is associated with body fat levels, and takes into account height and waist circumference. The scores usually range from 1 to 15, with those having very high scores or very low scores (of over 6.9 or under 3.41) considered at the most risk for illnesses.

How is BRI different from BMI?

BMI is your weight in kilograms divided by your height in metres squared. A BMI of 18 to 24.9 is considered normal; 25 to 29.9 is termed overweight and 30 and above is classified as obese.

The problem, says Jaichitra Suresh, chief medical officer, SIMS Hospital, Chennai, is that BMI does not help a doctor understand the composition of the weight: how much of it is fat, muscles or water for instance, and where the fat is distributed in the body. "Athletic people and those who do weight training may have high BMIs, as muscles are denser than fat, but will still be healthy. It cannot be assumed that a high BMI always means high fat," she points out.

BMI also has limitations with different ethnic groups — it was created using data from 19th century Europeans. For instance, Dr. Jaichitra says, an Indian and a Caucasian may have the exact same BMI, but in an Indian the fat percentage may be higher than that of the Caucasian.

How is BRI different? The BRI score takes the waist circumference into account, and calculates percent body fat: the calculator shows you an egg-like outline, with a green region, which is considered healthy. Scores outside this region are considered to be at risk. "The more round you are, the higher percent body fat you have, the higher your visceral adipose and therefore your risk of diabetes, cadiovascular problems etc. Metabolic illnesses can manifest without the body looking like it is obese. But even at the lower end, having a small body size for height, weight and gender, is a risk. The green zone shows you the sweet spot," says Dr. Thomas, who is a full professor in the Department of Mathematical Sciences at the United States Military Academy, West Point.

Where does the fat lie?

When BMI was first proposed to be used as an indicator for mortality risk, experts pointed out that its scores may not be applicable for the Asian population — and at this stage, in 2002, it was suggested that 23 be considered an action point for Asian populations, and not 25.

High levels of visceral fat (belly fat stored deep within the abdomen, around the internal organs) can contribute to developing type 2 diabetes, hypertension, cardiac diseases and other health conditions. Indians are genetically predisposed to putting on weight around the abdomen making them more susceptible to insulin resistance, and therefore, diabetes. The guidelines released this year by the National Institute of Nutrition reflect this: they state that BMIs ranging from 23 to 27.5 are to be considered overweight for Asians, since they tend to have a higher percentage of body fat compared to some other populations.

Alternatives were proposed then, says Dr. Kurpad, who is also senior advisor, Tata Trusts, including waist-height ratios. This is a simple index: if your waist circumference is less than half of your height, you are in good shape, but if it is more, then that indicates you are beginning to get spherical.

The problem of obesity is rising in India: according to the National Family Health Survey-5 (NFHS-5), the number of overweight/obese Indian men is now 22.9%, while the figure for women is 24%.

But Dr. Kurpad points to another issue as well: "BMI gives the impression that it is only physically overweight or obese people who are at risk of chronic diseases. But this is not true — thin people

are also at risk, as are children. In fact a national nutrition survey in children aged 5 to 19 found that one in two children studied had higher than normal blood glucose levels, high BP and higher than normal cholesterol," he says.

Even if adults or children are of normal weight, explains A.J. Hemamalini, professor and head of the department of clinical nutrition at the Sri Ramachandra Faculty of Allied Health Sciences, Chennai, often, their fat mass is high and their muscle mass is low, and this is why BMI is not always an accurate indicator. "We look at different components including biochemical profile, waist circumference, waist to height ratio and correlate this with dietary intake and physical activity, to arrive at an idea of their nutritional status," she says.

Many studies have now shown that BRI may be better at predicting health risks than BMI.

WHEN WOMEN'S BODIES REJECT SEX

A few months into her marriage, Anjana R., 31, realised that she was unable to have sex with her partner. "My body would not respond. All I could feel was pain. I researched the condition and realised that I may be suffering from vaginismus," says the Chennai resident. Vaginismus is one of the lesser-discussed conditions related to women's sexual health and wellness, where the pelvic floor and the vagina tighten up to avoid penetrative intercourse. It is an uncontrollable muscle spasm, a phobic response to penetration, which has harmful effects on women suffering from it.

In the next few weeks, she visited three gynaecologists. "They gave me fertility advice. I felt gaslit by them; they were not ready to address my core issue," says Anjana.

Taru Jindal, a Mumbai-based gynaecologist, who has helped over 450 women heal their vaginismus through a holistic approach, says that often when women approach gynaecologists complaining about "painful sex," they usually suggest surgery to remove the hymen or advise Botox treatment to paralyse the nerves of the vagina.

"They don't understand that vaginismus is not merely a physical block; it is the woman's mind saying no as it perceives sex as a threatening activity. It is often linked to trauma or sexual abuse in the past, watching the portrayal of violence against women in media, or preconceived notions of normalising sex as being painful," says Dr. Jindal, who suffered from vaginismus for nearly seven years.

High prevalence

While there is no nationwide prevalence study on vaginismus in India, multiple case reports and hospital-specific studies are cited to establish the prevalence of the condition. For instance, the Department of Obstetrics Gynaecology (OBG) Physiotherapy at the Karnataka-based Institute of Physiotherapy run KLE Academy of Higher Education and Research, conducted an observational study in 160 women from 20 to 35 who faced fertility issues and sought treatment. When they were screened for Vaginismus, 58% were found to be suffering from complaints linked to the condition: fear of penetration, painful sex, and tensing of the pelvic floor muscle.

While researching her condition, Anjana stumbled upon Dr. Jindal's work at a Bengaluru-based company called Proactive For Her. Their three-month online programme focusses on physical and emotional healing. "Traditionally, vaginismus is not taught in medical school. So, I referred to a lot of western material and designed a step-wise approach, which included psychological support,

pelvic floor relaxation exercises, dilation of the vagina, couples therapy, and introduced pleasure components," she says.

Anjana is middle-class. She enrolled for the three-month programme which cost her a steep ₹30,000. She said the programme was worth it, as it spanned eight weeks and included 24 sessions with multiple experts. Male partners were encouraged to join. "My partner financially supported my situation, so I was okay, but many women are unable to afford these costs. For some, the cost of the programme is equivalent to their monthly salary," she says.

Dr. Jindal said that currently she is running the 32nd batch of 60 women, and there are already 35 women on the waitlist.

"We now have the largest cohort of women living with vaginismus who have healed. We are in the process of publishing our research in an international journal, as historically there is hardly any or documentation of such cases from India," she said. Dr. Jindal said the programme cost has now been reduced from ₹ 30,000 to ₹20,000.