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INTERNATIONAL

EXPRESS VIEW ON FRANCE MAKING ABORTION A CONSTITUTIONAL RIGHT: DECISION IS HERS

In her auto-fiction Happening, first published in an English translation in 2021, Nobel laureate Annie Ernaux writes of the ignominy of getting an abortion in France in 1963. She was 23 at the time, a working-class student. In her narrative, Ernaux refuses to name her pregnancy, referring to it as "that thing" or "it" — a reminder of the threat that hangs over her in a state where abortion is illegal and seeking it can lead to imprisonment or death. Ernaux survived the ordeal but others were less fortunate. Ahead of France's historic 780-72 vote that led to women's right to abortion being enshrined in the French constitution, Prime Minister Gabriel Attal invoked the suffering and struggle of these women: "Today, the present must respond to history. To enshrine this right in our constitution is to close the door on the tragedy of the past and its trail of suffering and pain... We're sending a message to all women: Your body belongs to you and no one can decide for you."

The amendment, France's first since 2008, is historic not merely because the right to abortion has had a stormy history in the country — it was only legalised in 1975 — but because, across the world, there has been a dangerous backsliding on hard-won freedoms relating to a woman's autonomy over her body. The French amendment is an explicit response to the trend seen in countries like Hungary, which, in 2022, placed significant bureaucratic hurdles before women seeking an abortion, and Poland, where a near total ban was imposed in 2021. The 2022 overturning of the US Supreme Court's ruling in Roe v Wade (1973) set alarm bells ringing.

While the global movement of abortion rights has largely been towards greater liberalisation — Ireland in 2018 and Mexico in 2023 — these developments underline the continued vulnerability of women's right to bodily autonomy in a society that remains stubbornly patriarchal. In India, where the legal framework on reproductive rights has incrementally moved in favour of women's autonomy, the test of "foetal viability" is a new factor that could potentially set back progress made over the years. In 2023, this was seen in the case of a woman seeking medical termination of her 26-week pregnancy, citing physical and mental incapacity. The SC denied her the abortion in the interest of the rights of the unborn child. Such decisions also point to the moral value ascribed to what is, in essence, a deeply personal matter. France's amendment, therefore, sets a welcome precedent, in which neither patriarchy nor morality gets to have a say in what is, essentially, a woman's decision.

SWEDEN JOINS NATO AS WAR IN UKRAINE PROMPTS SECURITY RETHINK

Sweden joined NATO in Washington on Thursday, two years after Russia's invasion of Ukraine forced it to rethink its national security policy and conclude that support for the alliance was the Scandinavian nation's best guarantee of safety.

Swedish Prime Minister Ulf Kristersson handed over the final documentation to the U.S. government on Thursday, the last step in a drawn-out process to secure the backing of all members to join the military alliance.

For NATO, the accessions of Sweden and Finland – which shares a 1,340 km border with Russia – are the most significant additions in decades. It is also a blow for Russian President Vladimir Putin who has sought prevent any further strengthening of the alliance.

Sweden will benefit from the alliance's common defence guarantee under which an attack on one member is regarded as an attack on all.

The Nordic country would add cutting-edge submarines and a sizable fleet of domestically produced Gripen fighter jets to NATO forces and be a crucial link between the Atlantic and Baltic.

Russia has threatened to take unspecified "political and military-technical counter-measures" in response to Sweden's move.

While Stockholm has been drawing ever closer to NATO over the last two decades, membership marks a clear break with the past, when for more than 200 years, Sweden avoided military alliances and adopted a neutral stance in times of war.

After World War Two, it built an international reputation as a champion of human rights, and since the Soviet Union collapsed in 1991, successive governments have pared back military spending.

As recently as 2021, its defence minister had rejected NATO membership, only for the then-Social Democrat government to apply, alongside neighbour Finland, just a few months later.

While Finland joined the alliance last year, Sweden was kept waiting as Turkey and Hungary, which both have cordial relations with Russia, delayed ratifying Sweden's accession.

Turkey approved Sweden's application in January.

Hungary delayed its decision on Sweden's accession until Kristersson made a goodwill visit to Budapest on Feb. 23, where the two countries agreed a fighter jet deal.

EXPRESS VIEW ON EUROPE AND UKRAINE: MACRON VS PUTIN

French President Emmanuel Macron's suggestion that NATO should consider sending troops to Ukraine to bolster Kyiv's defences against Russian occupation forces generated a chorus of protests within the alliance, including from Europe's most influential nation, Germany. But it was the Russian President, Vladimir Putin, unsurprisingly, who came out all guns blazing against the idea. He issued a dire warning: Any NATO troop deployment in Ukraine would not only lead to massive military escalation but also to Russian use of nuclear weapons.

The European controversy over Macron's remarks reflects the deepening dilemmas of NATO in addressing the current stalemate in the Ukraine war that entered its third year last month. A year ago, Europe was betting on a successful military counter-offensive by Kyiv to push Russian troops out of Ukraine. Those hopes have dissipated as Russia got its defences together and is now taking offensive actions. Without enough weapons and ammunition, Ukraine has had one arm tied behind its back.

Meanwhile, the pressure from the Republican Party across the Atlantic insists Europe must take responsibility for the Ukraine war. Caught between an aggressive Russia and an isolationist America, Europe's moment of reckoning has come. France's Macron, who leads the only serious military power in Western Europe, was responding to that challenge when he said NATO should not rule out the possibility of sending troops to defend Ukraine. Much of Europe is paralysed by the fear of escalation and is not prepared to confront the geopolitical consequences of a Russian victory, whichever way you define it, in Ukraine.

The debate initiated by Macron is unlikely to subside, for Europe and NATO have to find a way of preventing further losses for Ukraine. The Russian invasion of Ukraine has mercilessly exposed European illusions about a post-conflict continent and revealed its unpreparedness to defend its territory.

European measures to ramp up the production of weapons and munitions, like the Russian mobilisation of its industry for a war economy, will not only take time but is also deeply unpopular in a continent reared in the lap of a generous welfare state.

Meanwhile, NATO has to come to terms with Putin's nuclear threats that have succeeded in deterring the West from deploying the full range of military means to counter Russian aggression. Even as he threatens nuclear escalation, Putin is inviting NATO for talks on nuclear arms control. He is also calling for negotiations to end the war and setting the terms for peace that demand a pro-Russian regime in Kyiv and a neutralised Ukraine. By simultaneous military and political moves, Putin hopes to deepen European political divisions. Can Europe hang together? As Macron reminded the Europeans, "This is a war on our soil and our continent".

BLOODY THURSDAY

In the early hours of February 29, Palestinians gathered in Gaza City on hearing that trucks carrying food deliveries were arriving. When they rushed towards the trucks, Israeli troops opened fire as they thought the hungry Palestinians "posed a threat". Gaza's health authorities say at least 112 Palestinians were killed and over 700 injured in the subsequent stampede, which triggered global outrage and calls for an international probe. This incident is a testimony to everything that went wrong with Israel's brutal, indiscriminate attack on the defenceless Palestinians. The war, which started with Hamas's October 7 attack in Israel, has already turned much of the Gaza Strip into a pile of rubble. Over 30,000 people, most of them women and children, have been killed and 70,000 wounded by Israeli troops. More than 90% of Gaza's population of 2.4 million have been displaced. According to the UN World Food Programme, Gaza is suffering from the worst level of child malnutrition in the world and is headed towards famine. Most of the enclave's population are crammed into the refugee camps of southern Gaza with hardly any essentials. The hospital system is on the verge of collapse. And the powerful nations are just watching as one of the deadliest man-made calamities of the 21st century is unfolding.

Israel has successfully turned Gaza into a bombed-out enclave of death, misery and hunger. But it is still far from meeting any of its objectives, which includes the "dismantling" of Hamas and the release of hostages. If international public opinion was largely in favour of Israel on October 7, today, there is a groundswell of anger against its conduct of the war. South Africa took Israel to the International Court of Justice accusing it of apartheid against Palestinians. Luiz Inácio Lula da Silva, Brazil's President, says Israel is carrying out genocide. Several western cities have seen massive protests, though their governments remain spectators. Despite global anger, Prime Minister Benjamin Netanyahu and his Cabinet colleagues — some have made outrageous comments about expelling Palestinians from their territories — manage to continue the war without facing any real consequences mainly because of the support from the United States and the West. The Biden administration has repeatedly vetoed UN Security Council Resolutions that called for a ceasefire in Gaza and continues to supply weapons to Israel. President Joe Biden, a Democrat who once said his foreign policy would be centred around human rights, should give up this moral ambivalence and be ready to use real pressure on his closest ally. This war should be brought to end immediately and aid allowed into Gaza without any ifs and buts.

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KERALA MAN KILLED ON ISRAEL FARM: WHAT ARE INDIANS DOING THERE?

An Indian national was killed and two injured after an anti-tank missile allegedly fired by Hezbollah from Lebanon struck an orchard in northern Israel on Monday (March 4).

The Israeli Embassy in New Delhi wrote on X that Hezbollah had launched a "cowardly terror attack" on "peaceful agriculture workers who were cultivating an orchard at the northern village of Margaliot".

We are deeply shocked and saddened by the death of one Indian national and the injury of two others due to a cowardly terror attack launched by Shia Terror organization Hezbollah, on peaceful agriculture workers who were cultivating an orchard at the northern village of Margaliot...

Israel's Hezbollah problem

Israel's northern border with Lebanon has not been peaceful for many years. On October 8, 2023, the day after the Hamas raid in southern Israel, Hezbollah, the Lebanese Shiite political party and militant group, launched a barrage of rockets at Israel in solidarity with the Palestinian militants.

Since then, Israel has launched air and artillery attacks along much of the 120-km border, killing more than 240 people, including at least 22 civilians, Al Jazeera reported. According to the UN body International Organization for Migration, more than 87,000 people have been displaced from southern Lebanon since October 8.

Experts say Israel is determined to create a "buffer space" between its border and the Lebanese population — an effort to insulate itself from continuing Hezbollah attacks, such as the one which killed and injured Indian nationals on Monday.

Founded during the Lebanese Civil War (1975-90), Iran-backed Hezbollah is driven by its opposition to Israel and resistance to Western influence in West Asia. It boasts an extensive security apparatus, political organisation, and social services network in Lebanon, and many of its overt goals are similar to Sunni hardline Hamas.

Indian workers in Israel

Israel, with its relatively small population, has historically struggled to meet its demand for labour, especially for blue-collar, manual work. Prior to the October 7 attacks, Palestinians and Arab migrants made up the majority of this work force, with some 80,000 Palestinians working in the Israeli construction industry alone.

However, after the attacks, Israel suspended the work permits of thousands of Palestinians, while many other foreign workers simply left the country amid security concerns. This triggered a massive labour shortage — which Indians are now filling.

Israel started to offer visas for employment in the construction and agriculture sectors in November 2023. About 800 Indians moved to the country by December, upon the issuance of the first round of visas, to work in the country's agri sector, according to unofficial estimates by sources tracking developments.

An agri visa typically costs around Rs 4 lakh, including the fees that agents and recruitment agencies etc. charge, some workers from Kerala who are now in Israel told The Indian Express.

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Most of those who travelled to Israel are from Kerala, Tamil Nadu, Telangana, and Uttar Pradesh. The deceased, 31-year-old Pat Nibin Maxwell, as well as the two other injured Indians nationals, all hail from Kerala, and made their way to Israel to work in plantations. Recruitment in the sector, however, has now been paused due to the lean agricultural season in Israel.

But recruitment for other jobs is still ongoing, and thousands of Indians are thronging to get employed.

Indian care workers in Israel

The presence of Indian workers in Israel is not new. Roughly 18,000 Indians were working in the country last October — with around 14,000 being caregivers for elderly Israelis.

In ageing countries such as Israel, nursing has long offered well-paying career opportunities for Indians. Although caregiver visas are usually more expensive than, say, agri visas, costing up to Rs 10 lakh, care workers also earn very well (well over Rs 1 lakh per month) and get a lot of benefits, including free food and accommodation, healthcare, and overtime.

During the ongoing conflict, care work is also much safer as workers are largely inside residences in highly-protected Israeli cities. On the other hand, agriculture workers often work right at the Lebanon border, and are thus under constant threat from cross-border attacks.

THE ITALIAN TOP COURT'S RULING ON SEA MIGRANTS FROM LIBYA

The story so far:

Libya is not a safe harbour, and it is "unlawful" to force migrants rescued from the sea to return to a territory where their fundamental rights are at risk, Italy's highest court held in a ruling in February.

What was the case?

On July 30, 2018, the ship Asso 28, picked up 101 migrants, including five pregnant women and five minors, from a dinghy and returned them to the Libyan coastguard at the Tripoli port. A lower Italian court prosecuted the ship's captain in 2021, finding him guilty of violating international humanitarian and refugee laws. The principle of non-refoulement forbids the forced return of people to countries where their lives or rights are at risk. Per international law, Libya is currently not a port of safety. The Supreme Court of Cassation in the present verdict reiterated this stance. The court said that once picked up, the migrants were under the captain's charge, and in 'abandoning' them, the captain violated directives of the International Maritime Organization and the International Convention for the Safety of Life at Sea. The migrants faced a "high risk" of being subjected to "inhuman and degrading treatment in the detention centres... in Libyan territory, with the impossibility of seeing their fundamental rights protected."

What are legalites of sea rescues?

The expanse of the Mediterranean Sea between Libya and Italy is among the most dangerous albeit oft-used passage for migrants from sub-Saharan Africa fleeing ethnic conflict, war and famine. Human Rights Watch estimates at least 25,313 people have died in the Mediterranean Sea since 2014.

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Under Article 98 of the United Nations Convention on the Law of the Sea, every shipmaster is required "to render assistance to any person found at sea in danger of being lost." International maritime law also requires coastal states to conduct search and rescue services, and if needed, coordinate with other nations during these operations. Still, countries like Italy and Malta have delayed ships' arrivals or ignored requests for disembarking altogether. More than 24,000 people were intercepted and forced to go back to Libya in 2022, according to HRW.

What's happening in Libya?

A UN Human Rights Council fact-finding mission last year said there were "reasonable grounds to believe that crimes against humanity have been committed against Libyans and migrants throughout Libya," with crimes, including torture and sexual slavery, committed in detention centres under the control of authorities including Libyan coastguards.

War-torn Libya has been under militia rule since 2011. Humans rights groups notes that this has allowed the proliferation of human trafficking especially in detention centres, where commanders "could be running their own militias and profiteering from picking up migrants at sea, sending them to be detained, and then demanding more money from the detained migrants," as per a report. The same Libyan authorities have received funding, vessels, aerial surveillance and training from Italy and the European Union. Italy and Libya signed a memorandum in 2017 — renewed for a second time in 2023 — under which the Italian Government gifted commercial vessels to Libya, trained crew in conducting these operations and invested $10.8 million in Libya's maritime infrastructure.There was a "direct causal link between Italy's cooperation activities with the Libyan coastguard and the exposure of people intercepted at sea to serious human rights violations," said Dunja Mijatović, Council of Europe's Commissioner forHuman Rights.

Why is the ruling important?

UN agencies had acknowledged that Libya cannot be considered a "place of safety" for disembarking people rescued at sea due to proven human rights abuses at detention centres. Italy's Court of Cassation added weight to this warning with its ruling. However, rights groups note that Italy's far-right government led by Giorgia Meloni may double down on anti-immigration policies and obstruct the work of search and rescue NGOs. This would escalate the likelihood of death and detention for migrants.

ON THE JANATHA VIMUKTHI PERAMUNA

The story so far:

On February 5, an unlikely visitor landed in Delhi from Sri Lanka on an official invitation. Anura Kumara Dissanayake, the leader of the National People's Power (NPP) alliance, received a red carpet welcome, following which two top officials spent time with him in the capital. The main constituent of the NPP is the Janatha Vimukthi Peramuna (JVP), and Mr. Dissanayake is its leader. The Indian outreach to the JVP has set off much speculation in Sri Lanka. The country is to go through a presidential election this year followed by parliamentary elections this year or the next. A survey conducted by the Health Policy Institute showed that 50% of respondents favoured Mr. Dissanayake as the next President. Since its inception, the party has had a bad history with India. But Mr. Dissanayake's meetings with National Security Adviser A. K. Doval and External Affairs Minister S. Jaishankar have created new optics in the run-up to the election.

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Who are the JVP?

Over its five decade-existence, the JVP, which calls itself Marxist, but has been mostly a Sinhala nationalist party, has viewed India as an expansionist power seeking to colonise Sri Lanka.

The JVP was formed in 1965. Its founder Rohana Wijeweera, who came from a family of modest means in coastal southern Sri Lanka, already had exposure to leftist ideologies through the Communist Party of Sri Lanka, before he went as a student to Moscow's Patrice Lumumba International University, where he mingled with leftists from all over the world. On his return, he aligned himself with the Ceylon Communist Party (Maoist), before breaking away to form the JVP, with the intention of creating a revolution to turn Sri Lanka into a socialist state. Its members were mostly the youth who were unable to find jobs in the Sri Lankan economy, comprising British-era trading houses manned by Colombo's English-speaking elites.

The cadres of JVP imbibed the party ideology from lectures known as the Five Classes — on the crisis of the capitalist system in Sri Lanka; history of Sri Lanka's left movement; history of socialist revolutions; Indian expansionism; and the path of revolution in Sri Lanka. However, within no time, JVP found it more expedient to push class struggle to the back-burner, and became a vehicle for majoritarian Sinhala-Buddhist sentiments.

What happened in 1971?

In the 1970 election, the JVP campaigned for Sirima Bandaranaike's leftist United Front coalition comprising of the Sri Lanka Freedom Party (SLFP), the Lanka Sama Samaja Party and the Communist Party. But the JVP's support for Sri Lanka's 'bourgeois' left was short-lived. In April 1971, it carried out an armed insurrection. The plan was to take over police stations first. The government, despite receiving prior intelligence, was caught unprepared. A state of Emergency was declared and Wijeweera was jailed. But the Sri Lankan tri-services were a ceremonial force and the government had to appeal to foreign nations for help. The Indian Army, Navy and Air Force played a part in thwarting the rebellion. The insurrection was overcome after a few weeks and some 15,000 JVP cadres were arrested. The death toll was over a 1,000, including civilians, police personnel and Sri Lankan armed forces personnel.

In 1977, with the election of J. R. Jayewardene, who went on to politically dominate the country for a decade, the Sri Lankan economy changed full tilt from the Bandarnaike era of socialist nationalisation, to liberalisation and the entry of free market forces. Jayewardene also released all JVP prisoners including Wijeweera, who went on to contest the 1982 presidential election, polling 4% of the vote. Some make the case that Jayewardene used the JVP to weaken the SLFP and the "old left". Indeed, the JVP made SLFP's Sinhala Buddhist plank its own from about the time of the 1983 anti-Tamil riots and the flaring up of the Sinhala-Tamil ethnic conflict.

What was the context for the JVP's second insurrection?

Delhi's growing involvement in the conflict led to anti-India sentiment among the Sinhalese majority. In June 1987, the Indian Air Force carried out Operation Poomalai to airdrop food to the north of Sri Lanka, which was Tamil-dominated, at a time when Sri Lankan forces had laid siege to the province, believing that they had cornered the Liberation Tigers of Tamil Eelam (LTTE) and its leader Velupillai Prabhakaran. The next month came the India-Sri Lanka Accord under which Sri Lanka introduced an amendment in its Constitution to devolve political power to the Tamil north and east. However, the LTTE rejected the Accord, and the soldiers that India sent under the banner of the Indian Peace Keeping Force to disarm the LTTE, soon found themselves in a war

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against the group. JVP launched protests against the presence of Indian troops on Sri Lankan soil. Among the Sinhalese, the protests found widespread support. The Indian Prime Minister Rajiv Gandhi narrowly escaped an assassination attempt when he was attacked by a sailor at a guard of honour at the airport after the signing of the Accord in Colombo. Even SLFP workers joined hands with the JVP on the ground. However, the JVP did not take on the Indian Army or even the Tamils, directing its violence on fellow Sinhalese in southern Sri Lanka. Government officials, police personnel, teachers, students of rival unions and political activists — with its lists of "traitors", the JVP went after all of them. Lampost hangings, tyre pyres and bodies on roads were a common sight. Chandrika Bandaranaike Kumaratunga's husband, Vijaya Kumaratunga, a charismatic film star-turned-politician, was shot dead. The government's brutality in putting down the insurgency was no less. The bloodbath lasted until 1989. The number of people killed is cited as 60,000. Wijeweera was also among the dead.

What happened to the JVP after that?

In the 1990s, the JVP tried to put its past behind and entered the political mainstream under a new leadership. It won one seat in the parliamentary elections of 1994. It even contested elections for provincial councils, which it had opposed as an Indian imposition under the 13th Amendment.

In the 2001 parliamentary election, the JVP won 16 seats, indicating that it had gained the trust of sections of voters. Its high point came when it contested in coalition with the SLFP-led People's Alliance in 2004. The election was fought on an anti-ceasefire plank. The previous United National Party (UNP) government had entered into a Norway-brokered truce with the LTTE in 2002, on terms that were seen as favouring the LTTE. In 2004, President Kumaratunga called for fresh elections, naming Mahinda Rajapaksa as the prime ministerial face of the People's Alliance-JVP coalition, called the United People's Freedom Alliance (UPFA). Of the 105 seats UPFA won in the 225-seat parliament, the JVP's share was 39, its highest ever tally. Months later it pulled out of the cabinet over the mechanics of sharing tsunami relief aid with the LTTE. It continued to support the government from the outside, and also supported Rajapaksa's campaign in the 2005 presidential election.

However, in the post-war period, JVP's fortunes waned. Not only did President Mahinda Rajapaksa dominate the political landscape as the architect of the May 2009 military victory over the LTTE, a host of Buddhist nationalist parties that had come up by then were competing for the same space as JVP. In 2008, the JVP also suffered a vertical split.

In 2015, Mr. Dissanayake formed a coalition with 25 other organisations, including civil society groups, women's organisations and others called the NPP. The JVP now contests elections under the banner of the NPP, seen by some as a "rebranding" exercise to shake off its violent past that continues to haunt it. Mr. Dissanayake has described the NPP as a national liberation movement.

How does the NPP function now?

When the mass uprising against the Gotabaya Rajapaksa regime began in March 2022 over worsening economic circumstances, the protests were at first neighbourhood candle light vigils that grew to large gatherings in the city's Galle Face sea front. Later, opposition parties including the NPP and JVP, breakaway organisations like the Frontline Socialist Party and Inter University Students' Federation also converged at Galle Face. The involvement of these organisations, and some incidents of violence became the justification for a crackdown on the protests by the government under the new leadership of President Ranil Wickremesinghe.

Subsequently, the JVP/NPP position against the International Monetary Fund deal, whose conditions included sale of public sector enterprises, higher utility bills, higher taxes and other "anti-people" measures, earned it praise and a huge following. It has also taken popular positions against the "sale of national assets" to foreigners. In 2020-21, it had been steadfast in its opposition to the plan to offer 49% stake in the East Container Terminal at Colombo Port to the Adani group, which led the Gotabaya Rajapaksa government to cancel a tripartite agreement with India and Japan to develop the terminal. It also questioned the wind farm deal with Adani, and the deal with India to develop the oil tank farm in Trincomalee. It has been an opponent of the Indian Oil Corporation's presence and expansion in Sri Lanka since 2002, when IOC first began operations in Sri Lanka. In 2017, despite its reported proximity to China, it had also protested the sale of the Hambantota Port to China.

However, of late, the JVP is of the view that the reality of India as Sri Lanka's closest neighbour and "major political and economic centre" cannot be ignored. While India and JVP have had some contact previously, this is the first time that its leaders were invited to Delhi as an opposition party. In politically charged Sri Lanka, various signals are being read from this new friendship. But perhaps India is learning from its experience in the Maldives, where a new President that India failed to get to know better before his election, has junked his predecessor's "India First" foreign policy, and given a distinct pro-China tilt to his foreign policy.

FORMER PRESIDENT OF SRI LANKA GOTABAYA RAJAPAKSA TURNS AUTHOR, DEFENDS REGIME

Two years after his dramatic ouster from office by a popular people's movement, Sri Lanka's former President Gotabaya Rajapaksa has sought to defend his regime, by launching a book that attributes his political downfall to a "conspiracy" involving foreign and local parties.

Announcing his book 'The Conspiracy to oust me from the Presidency' on Wednesday, Mr. Gotabaya said in a statement: "From the time I was elected President in November 2019, certain foreign and local parties were intent on removing me from power."

During Mr. Gotabaya's Presidency from November 2019 to July 2022, Sri Lanka experienced its worst economic crisis since Independence in 1948, as the country ran out of dollars for essential imports, following a host of fiscal decisions taken by his government. Citizens spent days in long queues, struggling to access basic food items, cooking gas, and medicines, while grappling with prolonged power cuts in their homes. Holding his government responsible for their suffering, people from diverse backgrounds took to the streets in a historic protest across the island nation.

They relentlessly agitated with the demand "Gota go home", eventually forcing the besieged leader to flee the country and subsequently resign in July 2022, less than three years since he was elected President.

Sri Lanka crisis

In a significant judgment last year, Sri Lanka's Supreme Court reiterated the position held by the citizens' movement, ruling that the Rajapaksa brothers — Mr. Gotabaya, Mahinda Rajapaksa, Basil Rajapaksa — along with top officials in their government, "demonstrably contributed" to the 2022 economic crisis and "violated public trust". However, taking no responsibility for the country's financial collapse, Mr. Gotabaya squarely blamed "conspiratorial forces" for his removal from office.

In a reference to the time he took the decision to resign while in Singapore, Mr. Gotabaya writes that he had, by then, decided Mr. Wickremesinghe would be his successor, "because I saw him as the only person capable of restoring law and order in the country." On July 20, 2022, Ranil Wickremesinghe was elected President through an urgent parliamentary vote, in which the Rajapaksas' party, the Sri Lanka Podujana Peramuna (SLPP or People's Front) backed him. Mr. Gotabaya returned to Sri Lanka in September 2022. He lives in a state bungalow in Colombo with special security accorded to him by the Wickremesinghe administration.

Meanwhile, Sri Lankan newspaper Daily Mirror reported that Mr. Basil, the SLPP's strategist, is scheduled to meet with President Wickremesinghe and former President Mr. Mahinda on Thursday evening to discuss a possible alliance for the presidential polls and general elections scheduled later this year.

CHINESE 'NUCLEAR' CARGO HEADING TO PAKISTAN SEIZED

In the latest discovery of the possible transfer of dual-use items from China that could be used in Pakistan's nuclear weapons programme, two advanced Computer Numerical Control (CNC) machines manufactured by GKD, Italy and bound for the port of Karachi were seized by Indian customs at Mumbai Port in January. They continue to remain in Indian custody, according to sources in the security establishment.

The consignment was shipped on January 9 on a merchant vessel CMA CGM Attila, a Malta-flagged vessel from Shekou Port in China, and was heading to Karachi Port with Cosmos Engineering being the consignee, a source said. "The vessel reached Nhava Sheva Port (JNPT) Mumbai on January 22, 2024 and the consignment was seized by Indian customs officials based on intelligence inputs on possible proliferation concerns by Pakistan and China," the source said. The equipment could be used in manufacturing critical parts for Pakistan's missile development programme, said another source.

The consignment has been inspected by a team of experts from the Defence Research and Development Organisation, it is learnt.

On the condition of anonymity, Customs officials confirmed that Cosmos Engineering had been on their watchlist since March 2022, when Pakistan was trying to procure 'thermo-electric instruments' from an Italian firm, with Cosmos Engineering being the consignee. The same was intercepted at Nhava Sheva Port on March 12, 2022, under the policy to prevent proliferation activities through Indian ports.

Earlier, in February 2020, China was attempting to supply an autoclave to Pakistan under the cover of an 'industrial dryer', which was seized from a Hong Kong-flagged Chinese ship named Dai Cui Yun which left Jiangyin port on the Yangtze river in China's Jiangsu province, and was headed to Pakistan's Port Qasim. "The seizure of the autoclave, which could be used in Pakistan's missile programme, strengthened apprehensions that Pakistan is continuing the illegal trade of missiles and violating the Missile Technology Control Regime (MTCR)," the first source stated.

ENSURE PAK. DOES NOT DIVERT LOANS TO FOOT DEFENCE BILLS: INDIA TO IMF

Taking a tough stance, India has batted for "stringent monitoring" of any emergency funds provided by the International Monetary Fund (IMF) to its financially beleaguered neighbour

Pakistan, stressing that such funds must not be redeployed towards defence bills or repayment of loans from other countries.

India's position was put across to the IMF's executive board by its nominee, executive director Krishnamurthy Subramanian, during a recent review of an ongoing $3 billion short term Stand-By Arrangement (SBA) granted to Pakistan by the Fund last July. India has usually abstained from voting on loans sought by Pakistan, and did the same last July when the SBA was approved.

In mid-January this year, when the board reviewed the loan, India's representative abstained from voting again, following which the multilateral lender released a $700 million tranche to Pakistan.

However, this time, the Indian government requested Mr. Subramanian to convey to the IMF board the need to put in place "checks and balances and ensure a stringent monitoring" of Pakistan's utilisation of IMF money.

"Such monitoring is imperative to ensure that funds received to meet development imperatives are not diverted towards defence spending and repayment of external debt owed to third countries," India is learnt to have stressed to the IMF's executive board. The IMF and Mr. Subramanian did not respond to queries from The Hindu till the time of going to press.

'Pakistan should not use loans for defence bills'

The development assumes significance as Pakistan's newly formed government, led by Prime Minister Shehbaz Sharif, is pursuing "immediate talks" with the IMF to seek additional funding support, including the $1.2 billion residual balance under the SBA which expires next month, and beyond.

The IMF's support had helped cash-strapped Pakistan stave off an imminent external payments crisis that it faced last June when forex reserves had dwindled to just $3.5 billion, barely enough to pay a month's import bill.

Pakistan's economy — hit by severe floods in 2022, external shocks, and sharp inflation — had contracted in 2022-23.

The country's financial year runs from July to June.

ASEAN

On 8 August 1967, five leaders – the Foreign Ministers of Indonesia, Malaysia, the Philippines, Singapore and Thailand – came together in Bangkok, according to the website of ASEAN. Thailand was brokering some disputes among Malaysia, Indonesia and the Philippines, and it eventually led to the signing of a document. "The five Foreign Ministers who signed it – Adam Malik of Indonesia, Narciso R. Ramos of the Philippines, Tun Abdul Razak of Malaysia, S. Rajaratnam of Singapore, and Thanat Khoman of Thailand – would subsequently be hailed as the Founding Fathers of probably the most successful inter-governmental organisation in the developing world today. And the document that they signed would be known as the ASEAN Declaration," the website added.

Over the next few decades, five other countries joined them – Brunei Darussalam, Lao PDR, Cambodia, Myanmar and Vietnam. They have an anthem, a flag and biannual summits (twice a year) with a rotating chairmanship. An example of the focus on unity, its official motto is "One Vision, One Identity, One Community".

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The ASEAN Declaration signed by the five leaders conveyed the aspiration to further regional cooperation. These were about cooperation in the economic, social, cultural, technical, educational and other fields, and in the promotion of regional peace and stability and adherence to the principles of the United Nations Charter. It stipulated that the Association would be open for participation by all States in the Southeast Asian region subscribing to its aims, principles and purposes.

Its major pillars that help lay out a blueprint for cooperation are Political-Security Community (APSC), Economic Community (AEC) and Socio-Cultural Community (ASCC).

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

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

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

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NATION

WHAT IS GREY ZONE WARFARE, MENTIONED BY INDIA'S CHIEF OF DEFENCE STAFF RECENTLY?

On the last day of the 2024 Raisina Dialogue (February 24), India's Chief of Defence Staff General Anil Chauhan said that "grey zone warfare" is the latest in informal warfare.

During a discussion titled 'The New Wars: Policies, Practices, and Preparation', he gave an example of the situation in the South China Sea. Occasionally, confrontational incidents involving small boats have been reported in the region, over the fact that several countries have extended competing territorial claims here.

In commentaries on China and Taiwan too, the term crops up in descriptions of Chinese actions around the island that it claims as its own.

What does grey zone warfare mean?

Grey zone warfare generally means a middle, unclear space that exists between direct conflict and peace in international relations. A blog from the thinktank Atlantic Council quoted Clementine G Starling, a resident fellow in the Transatlantic Security Initiative, as saying, "A multitude of activities fall into this murky in-between — from nefarious economic activities, influence operations, and cyberattacks to mercenary operations, assassinations, and disinformation campaigns." Other experts include economic actions too, such as debt traps and economic sanctions.

Experts also told the thinktank that such methods are often employed by parties who have not had access to massive resources or power, traditionally. Therefore, such tactics can help gain an advantage over a more technically well-equipped adversary that is more used to conventional warfare.

What grey zone warfare looks like

Experts from the US and Europe have characterised certain Russian and Chinese actions of late as examples of grey zone warfare. It includes the Chinese military's presence in the South China Sea.

The Philippines is one of the countries which has challenged China's claims, extending over around 80 per cent of the region. In December 2023, it termed the presence of more than 135 Chinese maritime militia vessels near a disputed reef as "illegal". It accused China of firing water cannons at its boats and ramming into others, while the Chinese coast guard blamed the Philippines for hitting Chinese boats.

The Phillippines' president Bongbong Marcos took to X to directly address "The aggression and provocations perpetrated by the China Coast Guard and their Chinese Maritime Militia", saying it "further steeled our determination to defend and protect our nation's sovereignty, sovereign rights, and jurisdiction…"

Another example can be found in a recent Reuters report, which said, "Taiwan has complained for four years of stepped-up Chinese military action, such as fighters regularly flying over the strait as part of a 'grey zone' strategy to wear down Taiwan with activities that stop short of a full-blown conflict."

In a paper from the foreign policy research institute Pacific Forum, titled 'The Gray Zone Issue: Implications for US-China Relations', a researcher argued that the US has also engaged in similar tactics. These include its economic sanctions against China and imposition of duties on Chinese imports to the US, along with maritime reconnaissance.

THE RESOLUTIONS AGAINST CENTRE'S BORDER PLAN

At an official event in Guwahati on January 20, Home Minister Amit Shah said the Centre has decided to fence the India-Myanmar border and scrap the FMR implemented in 2018 as part of India's Act East policy for cultural, business, and terrestrial connectivity to Southeast Asia and beyond. The Centre decided to suspend the FMR ostensibly to thwart illegal migration of people, the smuggling of drugs, arms and ammunition, and the cross-border movement of extremists. The decision was influenced by the Manipur government's push — after the ethnic violence between the Meiteis and the Kuki-Zo people began on May 3, 2023 — for fencing the border to stop Myanmar nationals from settling in the State illegally. Arunachal Pradesh and Manipur welcomed the Centre's decision but Mizoram and Nagaland, the other two States bordering Myanmar, opposed it because of the ethnic composition along the border "imposed by the British rulers" and their age-old social, cultural, and trade links.

Why is the India-Myanmar border in focus?

India has had an on-off diplomatic relationship with Myanmar since 1948 when the latter attained independence from the British. India's border districts absorbed waves of refugees following military coups and pro-democracy movements in Myanmar in the 1960s, 1980s, and after February 2021. The growing Chinese influence in Myanmar made New Delhi establish warmer relationships with Yangon (Nyapyidaw later), but certain issues remained. The areas of Myanmar bordering India are controlled by ethnic militias and extremist groups such as the Arakan Army, Chin National Front, and the National Socialist Council of Nagaland (Khaplang), some of which have sheltered northeast-based outfits such as the United Liberation Front of Asom. These outfits have carried out hit-and-run operations in India. Although the Myanmar border is guarded by the paramilitary Assam Rifles, the terrain and lack of fencing are said to have made it difficult to check the movement of extremists and the trafficking of drugs, arms, and other contraband items.

What do the resolutions say?

Much of India's present-day northeast was temporarily under Burmese occupation until the British pushed them out in the 1800s. The victors and the vanquished signed the Treaty of Yandaboo in 1826, leading to the current alignment of the boundary between India and Burma, later renamed Myanmar. The border divided people of the same ethnicity and culture — specifically the Nagas of Nagaland and Manipur and the Kuki-Chin-Mizo communities of Manipur and Mizoram — without their consent. Asserting the right of the Mizo-Chin people to live together, Mizoram's Home Minister K. Sapdanga, moving the resolution, said a fence would divide their ancestral land and alienate people with blood ties. Nagaland's Deputy Chief Minister, Y. Patton, said while moving the resolution in the State Assembly that the Centre's move would disrupt the age-old ties of the Naga people living on both sides of the international border. Mr. Sapdanga belongs to the Zoram People's Movement, a party said to have been backed by the BJP. Mr. Patton is a key leader of the BJP, a minor partner in the coalition headed by the Nationalist Democratic Progressive Party.

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What impact will the resolutions have?

In March 2021, the Supreme Court said there was no harm in State Legislative Assemblies adopting resolutions against central laws like the Citizenship (Amendment) Act. It said that such resolutions are merely "opinions" of the majority members of an Assembly and do not have the force of law. Some of the northeast States have adopted several resolutions over the decades but these have had little impact apart from reflecting the sentiments of the people, although a section of Mizos in "dry" Mizoram are not averse to fencing the India-Myanmar border primarily because of the inflow of drugs. Mizoram Chief Minister Lalduhoma had said earlier that his government does not have the authority to stop the Centre from fencing the border and scrapping the FMR. But security experts say a hostile terrain, issues of logistics and connectivity, and affinities among the people will make it difficult to fence the border.

Mizoram and Nagaland feel a fence on the border would divide their ancestral land and alienate people with blood ties; the Centre says fencing will check cross-border movement of extremists and drugs.

EXPRESS VIEW ON CALCUTTA HC JUDGE JOINING BJP: AN IMPROPER MOVE

On January 24, Abhijit Gangopadhyay — then a justice of the Calcutta High Court — accused a brother judge of "working for a political party". That moment marked a low for the judiciary, and for the relationship between the government and the Court in West Bengal. Over the last week, though, it may have been surpassed — on Tuesday, less than a week after he resigned from the bench, Gangopadhyay announced he was joining the BJP. The judge's decision to join politics — and the manner and context in which it was taken — raises questions of judicial propriety, and impartiality.

To be fair, Gangopadhyay is not the first judge of a constitutional court to resign and join politics. In 1967, former Chief Justice of India Koka Subba Rao resigned three months before he was to retire to contest the presidential election as the Opposition candidate. Supreme Court Justice Baharul Islam resigned six weeks before retirement in 1983 to contest the Lok Sabha polls. Post retirement, judges have become governors and Rajya Sabha members. Gangopadhyay's case, however, stands out for at least two reasons: For one, his record in the court has been full of controversy. Second, for the better part of two years, these controversies showcased an unseemly spectacle of a sitting judge at loggerheads with an elected government, in a manner that invited questions of partisanship. Take the jobs scam case from September 2022. While hearing the matter, Justice Gangopadhyay all but accused TMC leader Abhishek Banerjee of "amassing wealth" in an interview to a TV channel — this lack of "judicial propriety" led the Supreme Court to order the Chief Justice of the Calcutta High Court to assign the case to a different bench. In January, he overruled a larger bench in a case regarding admissions to state medical colleges, and made an irresponsible remark against a colleague (mentioned above).

Judge Gangopadhyay's foray into politics now casts a shadow over the decisions he made on the bench. His justification for his political turn — the insults and barbs of TMC spokespersons and leaders, he says, led him to the BJP — holds little water. Politicians play politics, and the TMC has often accused Gangopadhyay of being a "political worker" in Court. A justice of a constitutional court, however, should not rise to the bait. By doing so, and by his decision now, he has given the accusations against him an air of retrospective credibility.

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CITIZENS HAVE RIGHT TO CRITICISE REVOCATION OF ARTICLE 370, SAYS SC

The Supreme Court on Thursday quashed an FIR accusing a college professor in Maharashtra of spreading enmity and disharmony by terming the day of revocation of special status of Jammu and Kashmir under Article 370 a "black day" and wishing "happy independence" to the people of Pakistan on a WhatsApp group of faculty and parents.

"Describing the day the abrogation happened as a 'Black Day' is an expression of protest and anguish. The right to dissent in a lawful manner must be treated as a part of the right to lead a dignified and meaningful life guaranteed by Article 21," Justice A.S. Oka, heading a Division Bench, observed in the judgment.

Justice Oka said a "simple protest" registered by Professor Javed Ahmed Hajam against the decision to revoke Article 370 cannot be used by the police to lodge a case under Section 153A (promoting enmity among different classes of people) of the Indian Penal Code.

To invoke Section 153A, he said, there should have been an intention to promote feelings of enmity or hatred among different classes of people. The provision should not be used to silence dissent, it noted.

"The Constitution guarantees freedom of speech and expression. Every citizen has the right to offer criticism of the action of abrogation of Article 370 or, for that matter, every decision of the state. He has the right to say he is unhappy with any decision of the state," he asserted.

MAHARASHTRA'S LATEST MARATHA QUOTA LAW

The story so far:

On February 20, the Maharashtra Assembly unanimously passed a Bill granting 10% reservation in education and government jobs to the Maratha community. However, activists have claimed that the new legislation is a "betrayal" of the community and instead seek a Maratha quota carved out from the existing reservation for the Other Backward Classes (OBCs) category.

What does the new Bill entail?

The Bill does not disturb the existing OBC quota and is distinct from the Maharashtra government's earlier notification on the issuance of Kunbi caste certificates to eligible Marathas for inclusion within the OBC category. Thus, non-Kunbi Marathas will continue to be covered under the new law, making the Maratha community eligible for reservations under two separate categories for the first time. However, those who fall within the "creamy layer" bracket will not be entitled to the benefit.

The law has been formulated based on a report by the Justice (retired) Sunil B Shukre-led Maharashtra State Backward Class Commission that claims to have surveyed 1,58,20,264 families across the State. It opined that "exceptional circumstances and extraordinary situations" justify granting reservation to the community beyond the Supreme Court-approved 50% limit. While concluding that the Marathas constitute 28% of the State's population, with 84% of them qualifying as not advanced, it pointed out that such a large backward class cannot be added to the existing reserved categories. The Commission also attributed extreme poverty, decline in agricultural income, and partitions in land holdings as reasons for the declining status of the Marathas.

Maharashtra already has 52% reservations, split into Scheduled Castes (13%), Scheduled Tribes (7%), OBC (19%), Vimukta Jati (3%), Nomadic Tribe B (2.5%), Nomadic Tribe C (3.5%), Nomadic Tribe D (2%), and Special Backward Classes (2%). The 10% Economically Weaker Sections (EWS) reservation is also applicable to the State — making the total reservation pool 72% with the inclusion of the new quota.

When was the demand first raised?

The first-ever bid for implementing a law to extend reservation to the Marathas was in 2014 when a non-statutory committee headed by veteran leader Narayan Rane submitted a report to the then Prithviraj Chavan-led Congress-NCP Democratic Front government, stipulating that the Marathas constitute 32% of the population in the State and needed economic upliftment in the form of a special quota. Accordingly, the government passed an ordinance reserving 16% of government jobs and seats in educational institutions for Marathas and 5% for Muslims. However, the Bombay High Court passed an interim order staying the ordinance, pointing out that findings of previous committees such as that of the National Commission for Backward Classes have shown that the Marathas cannot be regarded as a backward class. Referring to the apex court's landmark verdict in Indra Sawhney versus Union of India (1992), the Court underscored that the 50% cap for reservations cannot be breached except "in extraordinary situations and for extraordinary reasons."

What has the Supreme Court said?

Following its failed attempt, the government constituted an 11-member statutory commission — the Maharashtra State Backward Class Commission headed by Justice (retired) N.G. Gaikwad to conduct a survey. In its report submitted on November 15, 2018, the Commission recommended granting Marathas 12% reservation in higher education and 13% reservation in public employment. Based on this, the government on November 30, 2018, implemented the Maharashtra State Reservation for Socially and Educationally Backward Classes (SEBC) Act, 2018, which provided the Marathas 16% quota overall in education and government jobs.

However, in May 2021, a five-judge Constitution Bench of the Supreme Court in Jaishri Laxmanrao Patil versus Chief Minister, Maharashtra struck it down and held that there were no "exceptional circumstances" that merit the government breaching the 50% ceiling limit to bestow quota benefits on the Maratha community. Declining to revisit its Indira Sawhney verdict, the Court said that the 50% cap is now constitutionally recognised. Dismissing the findings of the Gaikwad Commission, the Court observed that the Marathas are a "dominant forward class and are in the mainstream of national life."

Will it pass judicial muster?

Asccording to Alok Prasanna Kumar, Co-Founder and Lead at the Vidhi Centre for Legal Policy, the legislation is unlikely to pass judicial scrutiny. "The Court refused to recognise the Marathas as a socially and educationally backward class. The criteria for granting such a reservation should be based on data which shows that the community suffers from social backwardness. For instance, were they denied access to education and social facilities?" he highlights.

"To breach the SC-ordained 50% reservation cap, exceptional circumstances need to be shown, which is absent in this case. Marathas are politically dominant, and have land holdings — by no metric can they be said to be socially and educationally oppressed," Mr. Kumar adds.

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SENA ROW: SC ASKS IF MAHARASHTRA SPEAKER CONTRADICTED VERDICT

A Constitution Bench had held that legislative majority must not be used as a criterion to declare CM Eknath Shinde's faction as the 'real' Shiv Sena

The Supreme Court on Thursday asked whether Maharashtra Speaker Rahul Narwekar "contradicted" a Constitution Bench judgment while banking on 'legislative majority' as a criterion to declare Chief Minister Eknath Shinde's faction as the "real" Shiv Sena.

"The Speaker says the 'real' political party is discernible from which faction held the legislative majority at the time of the emergence of the rival factions... Is this not contrary to what we had laid down on May 11?" Chief Justice of India D.Y. Chandrachud, heading a three-judge Bench, asked.

Deciding the disqualification petitions filed against Mr. Shinde, Mr. Narwekar had on January 10 declared the Chief Minister's camp as the true party based on a finding that he had commanded the legislative majority at the time Shiv Sena splintered in June 2022.

On May 11, 2023, a Constitution Bench headed by Chief Justice Chandrachud had made it clear that the Speaker should not be swayed by the factor of a legislative majority.

"The Speaker must not base his decision as to which group constitutes the political party on a blind appreciation of which group possesses a majority in the Legislative Assembly. This is not a game of numbers, but of something more. The structure of leadership outside the Legislative Assembly is a consideration which is relevant to the determination of this issue," Chief Justice Chandrachud had observed in the judgment.

The Constitution Bench had differentiated between the legislative wing, composed of the MLAs of the party, and the political wing of the party, made up of the cadre. It had held that the answer to which faction was the real party should be gleaned from the support from the political wing and not the numbers on the legislative side.

"A majority faction of the legislature party cannot be construed as the political party for the purposes of the Tenth Schedule," the May 11 judgment had noted.

Senior advocate Kapil Sibal, A.M. Singhvi and Devadutt Kamat said the Speaker had also stumbled by refusing to accept the 2018 Constitution of the Shiv Sena party, which appointed Mr. Thackeray as president.

"The 2018 Constitution was relied upon by the High Court and the Supreme Court. Nobody disputed it then. But the Speaker said he will not depend on this Constitution as it was not filed with the Election Commission of India. So, he went by a Constitution from 1999 when nobody had even talked about it," Mr. Sibal submitted.

Mr. Salve countered that the documents produced by the Thackeray camp before the Speaker had been "brazenly fabricated". He said that a similar case against the Speaker's decision of January 10 was pending in the Bombay High Court. He said the Thackeray camp could not file petitions in multiple courts at the same time over the same issue.

However, the Supreme Court decided to go ahead and list the case for further arguments in the week commencing April 8.

EXPLAINED: LADAKH, ARTICLE 371, AND THE SIXTH SCHEDULE OF THE CONSTITUTION

In a meeting with representatives from Ladakh, which has been witnessing protests recently, Union Home Minister Amit Shah offered to extend Article 371-like protections to the region. Shah is learnt to have told the Leh Apex Body (ABL) and the Kargil Democratic Alliance (KDA) that their concerns related to jobs, land, and culture would be taken care of, but the government would not go as far as to include Ladakh in the Sixth Schedule of the Constitution.

What is the Sixth Schedule of the Constitution?

Following the repeal of Article 370 in August 2019 and the subsequent enactment of the Jammu and Kashmir Reorganisation Act, 2019, Ladakh has been recognised as a separate Union Territory "without legislature". UTs like New Delhi and Pondicherry have their own Legislative Assemblies.

Ever since the separation, organisations like the ABL and the KDA have demanded that Ladakh be included under the Sixth Schedule. This Schedule contains provisions regarding the administration of tribal areas in the states of Assam, Meghalaya, Tripura and Mizoram.

Inclusion under this Schedule would allow Ladakh to create Autonomous District and Regional Councils (ADCs and ARCs) — elected bodies with the power to administrate tribal areas. This would include the power to make laws on subjects such as forest management, agriculture, administration of villages and towns, inheritance, marriage, divorce and social customs. A majority of the population in Ladakh belongs to Scheduled Tribes.

The ADCs and ARCs may also constitute village councils or courts to decide disputes between parties from Scheduled Tribes, and appoint officers to oversee the administration of the laws they enact. In cases where the offences are punishable with death or more than five years of imprisonment, the Governor of the state can confer upon the ADCs and ARCs the power to try them under the country's criminal and civil laws.

The Schedule also gives ARCs and ADCs the power to collect land revenue, impose taxes, regulate money lending and trading, collect royalties from licences or leases for the extraction of minerals in their areas, and establish public facilities such as schools, markets, and roads.

What protections are offered under Article 371?

Articles 371 and 371-A through J provide "special provisions" for specific states, often to give representation to certain religious and social groups and to allow these groups to exercise autonomy over their affairs without interference from the state and central governments.

Special provisions under Article 371 would allow protections to be extended to the local population of Ladakh, while stopping short of the widespread autonomy that is provided to ADCs and ARCs under the Sixth Schedule.

When the Constitution first came into force, Article 371 stood alone, requiring the creation of "development boards" in Maharashtra and Gujarat for certain regions in order to assess their overall development and the need for government expenditure. As new states were created, more special provisions were introduced.

Under Article 371-A, which contains provisions related to Nagaland, Parliament cannot enact laws that affect the social, religious, or customary legal practices of Nagas, or the transfer and

ownership of land without concurrence from the state Assembly. Similar protections have also been extended to Mizos from Mizoram under Article 371-G

Articles 371-B and C allow the creation of special committees in the Legislative Assemblies of Assam and Manipur. These committees comprise MLAs elected from tribal areas and Hill areas respectively.

Special provisions have also been introduced to provide reservations in the Sikkim Legislative Assembly (Article 371-F), in order to protect "the rights and interests of the different sections of the population".

Notably, the special provisions for Nagaland, Manipur, Sikkim, Mizoram, Arunachal Pradesh (371-H), and Goa (371-I) were introduced shortly after each of these states was officially created. If special provisions are introduced for Ladakh, it would be the first time they are introduced for a Union Territory as opposed to a state.

Shah reportedly assured the Ladakh delegation that the government would ensure the representation and participation of locals through hill councils and was willing to provide up to 80% reservation in public employment.

FREE OF GUILT

The exoneration of former Delhi University professor G.N. Saibaba and five others of the charge of having Maoist links exposes the practice of invoking stringent laws based on nothing more than a person's likely association with or sympathy for extremist groups. Their acquittal by the Bombay High Court is notable for giving full meaning to the procedural safeguards that countervail the stringency of the Unlawful Activities (Prevention) Act. It also shines a light on the bail-denying features of the law that allows the state to imprison suspects for long years even though the evidence backing their arrest is doubtful or flimsy. In this particular case, five of the accused were arrested in 2013 and continued to be incarcerated since then, and one of them died during the pendency of the appeal. Mr. Saibaba was arrested in 2014. The trial court had convicted the six of them and sentenced five of them to life and awarded a 10-year term to the other. The case will also be remembered for a dubious reason: the Supreme Court's hasty intervention to stay their discharge by the High Court in 2022. They were discharged on the ground that the sanction given to prosecute them under UAPA was not valid, but an apex court Bench sat the very next morning, a Saturday, to stay the order, and later directed the High Court to pass a fresh judgment on merits. Many had questioned the haste with which the benefit of discharge was reversed.

The latest judgment is a complete repudiation of the prosecution case, holding that the seizure effected from the accused was not proved, the material relied upon by the state was inadequate and that there was nothing to link the accused with any terrorist act, conspiracy or membership of any Maoist organisation. It also found that the sanction given under UAPA to five of the accused was invalid because the report of the authority meant to review material against them independently was just a green signal for their prosecution, containing no discussion on the nature of the evidence. Further, the trial court had taken cognisance of the charge sheet against Mr. Saibaba even before the sanction, which came later, had been received. In its discussion on the use of UAPA against the accused, the Court has again emphasised that the more stringent a law is, the greater will be the need to adhere to procedural safeguards — the independent review was an additional safeguard introduced in UAPA in 2008. It reiterates the principle that mere possession

of literature or publicity material, without any direct evidence linking suspects with a terrorist act, cannot be a ground to convict them under UAPA.

WHY DID THE COURT PENALISE PATANJALI?

The story so far:

On February 27, the Supreme Court restrained Patanjali Ayurved from discrediting allopathy in its campaigns, and from advertising products that claim to cure chronic conditions. Patanjali's ads present its products to people as a 'permanent relief', which is "misleading" and "a violation of the law", the Bench remarked, citing provisions of the Drugs and Magic Remedies (Objectionable Advertisements) Act, 1954 (DMR&OA) and its Rules. The Bench also issued a contempt notice against Patanjali Ayurved (co-founded by yoga guru Baba Ramdev) and Managing Director Acharya Balkrishna for failing to adhere to directions passed last November.

What is the case?

The Indian Medical Association (IMA) in 2022 filed a petition in response to a Patanjali advert titled: "Save yourself and the country from the misconceptions spread by pharma and medical industry." The petition presented two grievances — that the company is denigrating allopathy through a "continuous, systematic, and unabated spread of misinformation", while making exaggerated claims about its drugs which are purportedly based on "scientific, evidence-based medicines". In December 2022, Nepal's drug regulator blacklisted Patanjali's Divya Pharmacy for failing to comply with WHO's drug manufacturing standards.

Such statements violate both the DMR&OA and the Consumer Protection Act, 2019 (CPA), the IMA has said. A Bench of Justices Hima Kohli and Ahsanuddin Amanullah on November 21 last year warned Patanjali from advertising a permanent cure and threatened to impose a penalty of ₹1 crore for every product which promises a 'permanent' treatment. Patanjali assured the court against future violations, "especially relating to advertising or branding of products", adding "that no casual statements claiming medicinal efficacy or against any system of medicine will be released to the media in any form". The company failed on both counts. One day after the hearing, Mr. Ramdev extolled Patanjali's products at a press conference. Ads subsequently appeared in December and January in mainstream media. A Patanjali ad dated January 7 claims its products are "more effective than chemical-based synthetic medicines of allopathy". In addition to issuing contempt notices to Patanjali's owners, the Bench chided the Centre: "This petition was filed in 2022. For two years you did nothing."

What does the law say?

The DMR&OA regulates false medical advertisements in India. People or entities can be sentenced up to six months imprisonment, and/or a fine for the first offence. The CPA also penalises misleading advertisements and carries a sentence that can extend to two years.

Section 3 of the DMR&OA prohibits ads for the "diagnosis, cure, mitigation, treatment or prevention of any disease, disorder or condition specified in the Schedule". The Schedule includes "diabetes", "heart diseases", "glaucoma" and 51 other diseases. In his regular programme, the yoga guru claimed, "Modern medical science says cataract and glaucoma can't be fixed. I had done it 30 years ago. Glaucoma gets better 100%." Researchers agree there is no effective, proven and permanent treatment for glaucoma, but "Patanjali claims you can just put some drops and cure these conditions," says Dr. K. V. Babu, an RTI activist and physician from Kannur. In addition,

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Section 4 prohibits any "misleading advertisement", which "directly or indirectly gives a false impression regarding the true character of the drug", "makes a false claim for the drug", or "is otherwise false or misleading in any material particular." Dr. Babu has seen at least 25 advertisements over the last two years which violates rules. The IMA had filed cases against Patanjali and Mr. Ramdev before in different States for making spurious statements about the efficacy of oxygen cylinders and for stoking vaccine hesitancy. The Uttarakhand Ayurvedic and Unani Services in 2023 ordered Patanjali to remove all 'misleading' ads and also banned the production of five drugs. The ban was reversed four days later.

Are there limitations in the law?

The DMR & OA is an imperfect law, suggest medical practitioners and experts. These limitations allow companies like Patanjali to go unscathed despite repeated offences.

Convictions under the Magic Remedies Act are few and far between. In 2017, the Ministry of AYUSH signed a memorandum of understanding with the Advertising Standards Council of India to identify illegal and misleading advertisements and agreed to bring cases to the notice of the State Regulatory Authorities. Between August 2018 and June 2021, the Ministry found 14,876 instances of misleading advertisements of Ayurveda, Siddha, Unani and Homoeopathy drugs, which were forwarded to State regulatory agencies, the Ministry said in the Lok Sabha. It is unclear how many were investigated.

What next?

The ads are not only unlawful, but also pose a risk to public health, argue experts. In 2022, Patanjali claimed to have developed an 'effective' treatment for insulin-dependent diabetics, who could now 'stop taking insulin'. The medical community criticised the company for peddling a false 'miracle cure'. "...Either [people] suffer due to delayed care from modern medicine or from a misguided and predatory advertisement that ...further exploits them," says Shivangi Shankar, doctor and public health expert. The Supreme Court has placed a temporary ban on all advertisements of medicinal products, refusing to even permit ads "without adjectives". The case will be heard next on March 19.

'Limitations in the law allow companies like Patanjali to go unscathed despite repeated offences'

ARE LEGISLATORS IMMUNE TO BRIBERY CHARGES?

The story so far:

A seven-judge Bench of the Supreme Court on Monday ruled that Members of Parliament (MPs) and Members of Legislative Assemblies (MLAs) cannot claim immunity from prosecution for accepting bribes to cast a vote or make a speech in the House in a particular fashion. Article 105(2) of the Indian Constitution confers on MPs immunity from prosecution in respect of anything said or any vote given in Parliament or on any parliamentary committee. Similarly, Article 194(2) grants protection to MLAs.

What was the case?

Sita Soren, a member of the Jharkhand Mukti Morcha (JMM), was accused of accepting a bribe to cast her vote in favour of a certain candidate in the Rajya Sabha elections of 2012. Soon a chargesheet was filed against her. In 2014, the Jharkhand High Court dismissed Ms. Soren's plea

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wherein she claimed she enjoyed legal immunity under Article 194(2). The dismissal in the High Court led to an appeal being filed in the Supreme Court. On September 20, 2023, a five-judge Bench headed by CJI Chandrachud while hearing the appeal doubted the correctness of the majority view in P.V. Narasimha versus State (1998) and accordingly referred the matter to a seven-judge Bench while underscoring that it is an "important issue that concerns our polity".

What was the 1998 ruling that was overruled?

The P.V. Narasimha Rao ruling involves the 1993 JMM bribery case against former Union Minister Shibu Soren, the father-in-law of Sita Soren, the petitioner in the present case. Mr. Soren, along with some of his party members, were accused of taking bribes to vote against the no-confidence motion against the then P.V. Narasimha Rao government. While two judges on the Constitution Bench opined that legislative immunity granted under the Constitution could not be extended to such cases, the majority of them, while acknowledging the seriousness of the offence, ruled that "a narrow construction of the constitutional provisions" may result in the impairment of the guarantee of "parliamentary participation and debate".

What did the top court rule now?

While elaborating upon the purpose of Articles 105 and 194, the Chief Justice pointed out that such privileges are guaranteed to sustain an environment in which debate and deliberation can take place within the legislature. However, such a purpose is destroyed when a member is induced to vote or speak in a certain manner following an act of bribery. He also highlighted that the assertion of any such privilege will be governed by a two-fold test — first, the privilege claimed has to be tethered to the collective functioning of the House and second, its necessity must bear a functional relationship to the discharge of the essential duties of a legislator.

"Bribery is not rendered immune under Article 105(2) and the corresponding provision of Article 194 because a member engaging in bribery commits a crime which is not essential to the casting of the vote or the ability to decide on how the vote should be cast. The same principle applies to bribery in connection with a speech in the House or a Committee," the court elucidated.

Importantly, it underscored that the offence of bribery is complete at the point in time when the legislator accepts the bribe, whether or not it is followed up by voting or making a speech in the manner wanted by the giver of the bribe. Equally, the place where the bribe was offered or received did not matter. Section 7 of the Prevention of Corruption Act strengthens such an interpretation since it expressly states that the "obtaining, accepting, or attempting" to obtain an undue advantage shall itself constitute an offence even if the performance of a public duty by a public servant has not been improper.

Additionally, the petitioners argued that the exercise of the Court's jurisdiction is unwarranted since the Parliament also has the power to punish its members for contempt either by suspending them or sentencing them to a jail term. Dismissing this, the Court said that parallel jurisdictions can be exercised since its jurisdiction to prosecute a criminal offence and the authority of the House to take action for a breach of discipline operate in distinct spheres.

"The potential of misuse against individual members of the legislature is neither enhanced nor diminished by recognising the jurisdiction of the Court to prosecute a member of the legislature who is alleged to have indulged in an act of bribery," it reasoned.

The Court also clarified that the principles enunciated by the verdict regarding legislative privileges will apply equally to Rajya Sabha elections and appointments of the President and Vice-President of the country. Accordingly, it overruled the observations in Kuldip Nayar versus Union of India (2006), which held that elections to the Rajya Sabha are not proceedings of the legislature but a mere exercise of franchise and therefore fall outside the ambit of parliamentary privileges under Article 194.

SLOW AND UNSTEADY

The Tamil Nadu Legislative Assembly Secretariat has, at last, declared the Tirukkoyilur Assembly constituency as vacant following the conviction and disqualification of former Higher Education Minister K. Ponmudy in a disproportionate assets case in December last. The delay is in stark contrast to the way Vilavancode was declared vacant in February — here, the legislator concerned quit after changing her party affiliation. But, it is inexplicable why there was so much of a time lag for Tirukkoyilur even though the Madras High Court's order of conviction was not stayed by the Supreme Court, which had only exempted Mr. Ponmudy and his wife from surrendering despite the High Court's sentence of three-year simple imprisonment. The AIADMK General Secretary, Edappadi K. Palaniswami, had written to the Assembly Speaker, M. Appavu, urging him to act without bias in declaring the seat vacant. Mr. Ponmudy's disqualification fell under Section 8(1) of the Representation of the People Act, 1951 and not Section 8(3) under which Member of Parliament Rahul Gandhi was disqualified after his conviction (now stayed by the Supreme Court) and two-year sentence in a criminal defamation case. Section 8(1) lists out offences covered under laws such as the Narcotic Drugs and Psychotropic Substances Act, and Prevention of Corruption Act and states that a conviction and mere imposition of a fine under those laws would be sufficient for a legislator's disqualification. The delay in the declaration of the vacancy becomes curiouser as jurists highlight that Section 8(1) uses the phrase "shall be disqualified". This means that the disqualification notification must necessarily take effect from the day when a legislator is convicted. In this case, it should have happened on December 19, 2023, when the High Court held Mr. Ponmudy guilty.

When the judiciary displays renewed interest in pursuing anti-corruption cases, especially those concerning lawmakers, it would do well for the legislature to act in tandem. Otherwise, there would be no purpose in having a system of special courts for cases involving MP/MLAs or an arrangement in the High Court to look after such cases, particularly after conviction is awarded. At a time when liberal democracy is facing serious challenges in India, the legislature supporting the judiciary in stamping out corruption in public life would instil confidence. At the same time, the judiciary and legislature should not be seen as failing to protect critics of the establishment. After all, democracy is about tolerating dissent and respecting it too. It is incumbent upon all to play by the rules of the game in a fair manner to avoid any impression that authoritarianism of the executive or "tyranny of the majority" in the legislature or judicial overreach is becoming the norm.

DELHI HC EXPRESSES CONCERN AFTER TRIAL COURT JUDGE 'SUGGESTS' SETTLEMENT IN 2020 RAPE CASE

The Delhi High Court recently expressed concern over the conduct of a trial court judge for allegedly "suggesting" to and "assisting" the accused and the woman in an alleged rape case to settle the matter during the recording of prosecution evidence.

The observations came while dismissing a man's plea seeking quashing of an FIR registered against him for alleged rape in 2020, on the ground that the matter had been settled and compromised. The court thereafter directed that the case be tried by another judge to ensure that justice should not only be done but also seem to be done.

The single-judge bench of Justice Swarana Kanta Sharma, in its March 7 order, said, "This Court is disturbed by the fact that it was the learned Trial Court Judge, as stated at bar as well as in the petition which is accompanied by an affidavit regarding the truthfulness of averments made in the petition, who had enquired from the victim if she wished to enter into a compromise with the accused. The Settlement Agreement in question also mentions the same, and in fact, the Agreement also records that the parties have arrived at an agreement with the aid and assistance of the learned Trial Court".

The high court observed that the trial court had framed charges against the accused and the prosecution evidence was being recorded, so it was unable to comprehend why the trial court judge would have asked the woman to settle the matter involving a heinous offence like rape.

The high court further said that the woman had also stated before it that she had entered into a settlement agreement only at the asking of the trial court judge and this was mentioned in the agreement itself "which is duly notarized".

"Therefore, this Court expresses concern over the conduct of the learned Trial Court Judge, if it is true, that the Trial Judge had suggested and assisted the accused and the victim, in a case under Section 376 of IPC, to settle the matter, while the same Court was recording the prosecution evidence," Justice Sharma said.

As per the settlement agreement of January 6, the man agreed to pay Rs 3.5 lakh to the woman if the FIR is quashed, wherein she had agreed that "whatever happened between her and the accused had happened out of her free will and it was a consensual relationship". The agreement also stated that the woman had agreed that she had deposed against the accused before the trial court due to a "misunderstanding".

On this, Justice Sharma observed, "Money, it seems, is to be exchanged for getting a quietus to the present criminal proceedings for offence of rape — a proposition that is not only immoral but also strikes at the very core of our criminal justice system".

Opining that rape is a "heinous violation of a woman's bodily autonomy" and an offence against society, the high court remarked that allowing a settlement like in the present case would amount to "trivializing the sufferings of a rape victim, and reducing her anguish to a mere transaction".

Raising doubts on the claims in the settlement agreement, the high court further said that if the woman's prior statements before the police, the magistrate and the trial court are based on a misunderstanding arising from a consensual relationship, then the "need for monetary compensation to settle the matter becomes questionable".

The high court also noted that the woman had made specific allegations in her testimony against the accused that he had intoxicated her and then established physical relations with her without her consent, as well as recorded inappropriate photographs and videos of her and had threatened her.

AADHAAR SEEDING WITH VOTER ID: EC WANTS LAW AMENDED TO CLARIFY IT'S VOLUNTARY

The Election Commission of India has approached the Union government proposing amendments to the Representation of the People Act, 1950, and voter enrolment forms, to delete the provision that compels a voter to provide reasons for her decision not to seed her Aadhaar number with the voter ID card.

The proposal, however, is learned to have been turned down by the Union Law Ministry on the ground that the Supreme Court gave no specific directions to amend the RP Act, 1950. It has, instead, suggested that the poll panel issue clarificatory guidelines reiterating its position that providing Aadhaar details is voluntary and that no name of any voter be deleted from or denied inclusion in the voters' list for want of Aadhaar number.

The exchange between the EC and the Law Ministry comes amidst complaints and a recent writ petition in the Supreme Court, where the petitioner argued that Form 6 (for new voter enrolment), Form 6B (for collecting Aadhaar number of enrolled voters), and other related forms lacked options for electors to abstain from providing Aadhaar, offering only two choices: either provide the Aadhaar number or declare, "I am not able to furnish my Aadhaar because I don't have Aadhaar number."

Opting for the latter potentially meant that electors who did not want to give their Aadhaar details would have to make a false declaration of not having an Aadhaar card, which is an offence punishable under the RP Act, 1950. Although the EC had told the Supreme Court last year that it is not mandatory to provide Aadhaar numbers for linking with the electoral roll, the top court had asked the Commission to issue clarificatory changes in voter enrolment forms to reflect this.

The amendments sought by EC to the RP Act 1950 and voter enrolment forms are a consequence of that. Just last month, the top court declined to consider a contempt plea for not changing the enrolment forms in view of EC's assertion that it was addressing the issue.

Over two months ago, EC had written to the Law Ministry proposing tweaks to Section 23(6) and Section 28(2)(hhhb) of the RP Act 1950. These sections state that no elector can be denied registration or deleted from the rolls for not providing Aadhaar, but they add that individuals should have "sufficient cause" for doing so. The EC is learned to have sought the deletion of the "sufficient cause" requirement.

Similarly, in Form 6 meant for the enrolment of new voters, the EC has asked the Law Ministry to amend the section pertaining to Aadhaar details so that prospective voters aren't obligated to declare that they are not providing their Aadhaar number because they don't have one.

The EC had first initiated the exercise of linking Aadhaar with EPIC in February 2015, when HS Brahma was Chief Election Commissioner. But the exercise was suspended in August of that year, after the Supreme Court restricted the use of Aadhaar to the Public Distribution System (PDS), and the distribution of LPG and kerosene. The EC had already linked 38 crore voter cards to Aadhaar by then.

In its final order passed in September 2018, the apex court held that although privacy is a fundamental right, it can be curtailed if there is either a specific law authorising collection of Aadhaar or if the interest of the state is involved or the test of proportionality is satisfied.

Following the Supreme Court's order of September 2018, the EC had written to the government again to empower it to collect and use Aadhaar data for "cleaning" voters' lists as a "back-end exercise". The Parliament had passed a Bill to amend the RP Act, 1950 to this effect in December 2021.

The EC started collecting Aadhaar numbers from electors through a new form, Form-6B, in 2022 on a voluntary basis. While the amended Act says no elector can be denied registration or deleted off the rolls for not providing Aadhaar, it adds that they should have "sufficient cause" for doing so. It had collected 66.23 crore till September last year, when the Supreme Court was hearing the petition. This is about 68% of the total electors in the country, 96.99 crore as of February this year.

The Aadhaar details have not yet been linked to Voter IDs and used to check for duplicates, as per EC. Initially, the deadline for linking Aadhaar with Voter IDs was April 1, 2023, however, in March last year, the government extended it to March 31, 2024.

FOR 'ELECTION INTEGRITY', CENTRE ASKS GENAI FIRMS TO SEEK NOD BEFORE USE

With Lok Sabha elections set to be announced soon, the IT Ministry has sent an advisory to generative Artificial Intelligence companies like Google and OpenAI and to those running such platforms — including foundational models and wrappers — that that their services should not generate responses that are illegal under Indian laws or "threaten the integrity of the electoral process".

Platforms that currently offer "under-testing/unreliable" AI systems or large language models to Indian users must explicitly seek permission from the Centre before doing so and appropriately label the possible and inherent "fallibility or unreliability of the output generated". The government also wants these platforms to add in a traceability requirement by adding an identifiable marker to content they generate in a way that can be traced back to the person who has instructed the service to create pieces of misinformation or deepfakes.

Google's AI platform Gemini had recently come under fire from the Ministry of Electronics and Information Technology (MeitY) for answers generated by the platform on a question about Prime Minister Narendra Modi. The Indian Express had earlier reported the government was planning to issue a show cause notice to Google. It also reported about Ola's beta generative AI offering Krutrim's hallucinations.

Minister of State for Electronics and IT Rajeev Chandrasekhar said that the advisory is a "signal to the future course of legislative action that India will undertake to rein in generative AI platforms". He said the requirement for such companies to seek permission from the government will effectively create a sandbox and that the government may seek a demo of their AI platforms including the consent architecture they follow.

The notice was sent to all intermediaries including Google, OpenAI, on Friday evening. The advisory is also applicable to all platforms which allow users to create deepfakes. Chandrasekhar said notice was sent to Adobe too. The companies have been asked to submit an action taken report within 15 days. The advisory, however, is not legally binding.

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

Outputs generated by such platforms depend on a number of factors including the underlying training data that has been scraped from the vast swathes of the Internet and algorithmic filters that are added on top of that: a number of instances of errors — called hallucinations — generated by these platforms have been reported across the world can typically be attributed to shortcomings in these factors.

UNION CABINET APPROVES INDIAAI MISSION WITH RS 10,372 CRORE OUTLAY: HOW IT COULD HELP PRIVATE PLAYERS

India has made the first move to address a key shortcoming it currently has in unlocking opportunities around generative artificial intelligence (AI) — that of computing hardware.

On Thursday (March 7), the Union Cabinet approved the IndiaAI Mission with an outlay of Rs 10,372 crore for the next five years, under which the government will allocate funds towards subsidising private companies looking to set up AI computing capacity in the country, among other things.

While still a blueprint, the approval could spur investments in this sector — with private companies setting up data centres in the country, and allowing startups access so they can test and build their generative AI models.

This is a benefit that startups such as Perplexity AI in the United States have enjoyed for some time now, since they can tap into the computing capacity offered by companies like Nvidia.

Computing capacity, or compute, is among the most important elements of building a large AI system, apart from algorithmic innovation and data sets. It is also one of the most difficult elements to procure for smaller businesses looking to train and build such AI systems, given the high costs.

For example, Nvidia's A100 chip — considered to be the most cutting edge for AI applications — costs around $10,000, which means that a data centre of 10,000 such graphics processing units (GPUs) could cost at least $100 million (more than Rs 800 crore).

In an interview with The Indian Express earlier, Perplexity's Aravind Srinivas had highlighted the hardware-related challenges that startups from India may face, compared with their counterparts in the West.

What is India's plan for setting up AI computing capacity?

Under the IndiaAI Mission, the government will look to establish a computing capacity of more than 10,000 GPUs and also help develop foundational models with a capacity of more than 100 billion parameters trained on datasets covering major Indian languages for priority sectors like healthcare, agriculture, and governance.

While the infrastructure is being set up, priority will be placed on selecting the most advanced GPUs.

The implementation of this AI compute infrastructure will be done through a public-private partnership model with 50 per cent viability gap funding. If the compute prices come down, the private entity will have to add more compute capacity within the same budgeted amount to meet increased demand. Of the total outlay, Rs 4,564 crore has been earmarked for building computing infrastructure.

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"Basically, there will be a tender inviting companies to set up data centres. When a company applies for, let's say a centre which may cost Rs 10,000 crore, they can seek a viability gap funding from the government for a certain amount of that," a senior government official said.

Are there proposals beyond hardware too?

The Cabinet has approved the financing by the government of deeptech startups at various levels of growth. Of the total outlay, roughly Rs 2,000 crore has been earmarked towards this.

As part of the programme, an IndiaAI Datasets Platform will be set up, which will look at leveraging the quality, access, and use of non-personal datasets for AI innovation. The platform will be tasked with hosting identified "high-quality" AI-ready datasets. Together, these proposals cover two of the most crucial elements of building large language models: the hardware and access to high-quality datasets.

The government will also set up the IndiaAI Innovation Research Centre, which will undertake the development and deployment of large foundational models, with focus on indigenous Large Multimodal Models and domain-specific foundational models. Close to Rs 2,000 crore has been earmarked for this centre. There is a plan to financially support 4,000 BTech, 400 Mtech, and 600 PhD candidates who will focus on AI in premier educational institutions.

How does this announcement fit in with the government's overall policy?

The IndiaAI Mission announcement came a week after the Cabinet cleared chip projects worth Rs 1.26 lakh crore, including what could be the country's first commercial fabrication plant. India has identified electronics manufacturing as a key economic driver, and the government is willing to spend money in the initial phase to get production rolling.

This is a strategy that the European Union is following as well. To allay concerns over overregulation of AI, which could stifle innovation, the European Commission earlier this year released a set of rules to enable startups and other businesses to access hardware — such as supercomputers and computing capacity — to build large-scale AI models.

But what about AI regulations and aspects of safety?

Even as the private industry innovates rapidly, lawmakers around the world are grappling with setting up legislative guardrails around AI to contain some of its downsides.

In India, the IT Ministry recently issued an advisory to generative AI companies deploying "untested" systems to seek the government's permission before doing so. However, the government's move was criticised by stakeholders around the world, forcing it to clarify that the advisory was not applicable to startups. Questions have also been raised over the legal basis of the advisory.

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

In the United States, a White House Executive Order on AI is being offered as an elaborate template that could become a blueprint for other countries looking to regulate AI. A blueprint for an AI Bill of Rights released last October is seen as a building block for the subsequent executive order.

WHAT'S IN A SURNAME?

In the quest for equal rights for women in all spheres of life, every act that justifies hierarchy, othering, and a patriarchal mindset must be shunned totally. Seeking the right to choose her own identity, Ms. Divya Modi Tongya, had petitioned the Delhi High Court that she be allowed to revert to her maiden name after her divorce comes through. She landed in court after running into a barrier in the form of a government notification which said a married woman who wants to use her maiden name after divorce must either furnish divorce papers or a no-objection certificate from her husband. The Delhi High Court has sought the Union government's response by May 28, the next date of hearing. In her plea, Ms. Modi Tongya states that the notification is "gender biased" and creates unnecessary restrictions for women who seek to exercise their constitutional right to choose their name — in her case a change of surname — by violating Articles 14, 19 and 21. The very idea of an NOC is objectionable, divorce proceedings or not, and is reflective of a deep-seated misogyny that wants to control an individual's preference. Ms. Modi Tongya should be able to choose whichever surname she is comfortable with and not have to fight for it.

Women have often complained of harassment when they have taken the path less trodden. For instance, women who have decided not to opt for their husband's surname after marriage face a barrage of unnecessary questions and a mountain of paperwork while, say, opening a joint bank account, or during a child's admission in school, or applying for a passport. A society that is already battling caste-based hierarchies should not add to the discrimination by giving an upper hand to anyone in a relationship, but work towards safer spaces without gender bias, difference and humiliation. In India, the most populous country in the world, stark gender disparities persist, both politically and socially. Women do most of the unpaid work at home, and are often edged out of the labour force for various reasons. What a girl or a woman can — and cannot — do, is often laid down by the men in the family; sometimes women too acquiesce to such indignities in the name of tradition. The United Nations has said that the greatest human rights challenge in the world right now is achieving gender equality and empowering women and girls. Paying lip service to rhetoric that women are equal without effecting change on the ground with legislative backing and strong social frameworks defeats the purpose.

CRIMES AGAINST FOREIGNERS IN INDIA RARELY RESULT IN CONVICTIONS

On March 1, a woman tourist from Spain camping with her husband was allegedly gang raped in Dumka district, Jharkhand, while travelling to Nepal from West Bengal. The incident occurred as the couple rested in a makeshift tent in a deserted area at Kurmahat village. According to a police source, eight people passing through the area stopped and assaulted the husband and raped the woman. The culprits also looted ₹10,000. The police have arrested eight persons in the case, so far.

The horrible incident bore chilling similarity to an incident in Madhya Pradesh, a decade ago, when a Swiss tourist was gang raped in Datia district, while on a cycling trip with her partner. She was camping near National Highway 75, close to a local police station. Six convicts were awarded life sentences in the case. In 2018, a Latvian woman disappeared near Pothencode, Thiruvananthapuram. Her body was discovered 40 days later. The prosecution argued that she was drugged, raped and murdered. In 2022, two persons were convicted in the case by a district court.

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The above cases are examples of the few crimes against foreigners which resulted in arrests by the police and convictions by the courts in India. Data shows that most crimes committed against foreigners in India rarely reach the courts and convictions are even rarer. In the seven years between 2016 and 2022, 148 rape cases in which victims are foreigners have been recorded in India. In the same period, only 16 rape cases were disposed of by the courts. Disposal of cases includes convictions, discharges, acquittals, or even disposals without trial if the case gets quashed, withdrawn, abated or ended in a plea bargain. So disposals are some action taken by the court in a case.

Of those 16 cases, only seven resulted in convictions. So, approximately one in about 20 rape cases in which victims are foreigners result in convictions. This is only an approximation as even these seven convictions could have come in cases filed much before 2016. However, when cases reported and convictions achieved are compared over a period (in this case, seven years), it gives a sense of the volume of cases reported to the police and how many ultimately result in convictions.

65 cases were reported under the Immoral Trafficking Prevention Act and no convictions were recorded. In the seven years, 35 forgery cases were reported and no convictions were recorded. Approximately, one in 88 thefts resulted in convictions. In the period considered, 79 foreigners were murdered, and in the same period, only three convictions were achieved.

The number of rape cases pending increased from 33 in 2016 to 131 in 2022. Cases of assault on women with intent to outrage her modesty increased from 70 to 137 in the period. Number of murder cases pending increased from 21 to 69.

A MAJORITY OF INDIANS SUPPORT AUTHORITARIANISM: PEW SURVEY

In India, 85% of respondents to a 2023 survey said that military rule or rule by an authoritarian leader would be good for the country. India's share was the highest among the 24 countries surveyed. Notably, the share of Indians who said that it is important for Opposition parties to operate freely was the third lowest among the countries surveyed. In 2023, the share of Indians who believed that representative democracy is a good way of governance declined considerably from 2017, when the same survey was conducted. Interestingly, a very high share of Indians also wanted experts to rule and not elected officials.

These were some of the conclusions of the Pew Research Center's Spring 2023 Global Attitudes Survey. In India, face-to-face interviews were conducted between March 25 and May 11, 2023, among adults. The north-eastern States and the Andaman and Nicobar and Lakshadweep Islands were excluded. The sample was selected in a way to proportionally represent Indians across gender, age, education, region, and urbanity.

The survey asked about preferences for two types of authoritarian governance: one led by a powerful leader who operates without the need for approval from legislative or judicial bodies (authoritarian leader) and another governed by the military (military governance). Public support for at least one of these governance models varied significantly across countries, with 85% in India showing support in contrast to just 8% in Sweden. Such support was more prevalent in middle-income countries than in wealthier ones. Further, a higher proportion of respondents from countries in the Asia-Pacific, Africa, and Latin America expressed support for these models compared to those from Europe and North America.

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In countries where fewer individuals regarded democratic values as crucial, there was a greater share of people favouring governance by an authoritarian leader or military rule. In countries where a smaller proportion of the population believed in the importance of allowing Opposition parties to operate without restrictions, there tended to be greater endorsement of authoritarian forms of governance. India had the third lowest share of people who considered the freedom of Opposition parties crucial.

Since the last survey in 2017, in many countries, there has been a notable decrease in support for representative democracy. In 11 of the 22 countries with comparable data from 2017 (excluding Australia and the U.S.), there was a significant reduction in the share of the population that viewed representative democracy as a highly effective method of governance. Close to 44% of Indians believed that representative democracy was a very good approach in 2017, while just 36% held this view in 2023.

Compared to 2017, in 2023 there was also a considerable increase in the number of people who favoured a governance model where experts, rather than elected representatives, are put in charge of taking crucial decisions. This shift in opinion towards technocracy may be partly attributed to the COVID-19 pandemic. This share in India increased from 65% in 2017 to 82% in 2023. The share who felt that this was a bad way of governance stayed put at around 15% in both these years.

LAW AND DISORDER

One of the cardinal principles of a functioning and modern democracy is that only the state, led by a government that is elected by the people, has a legitimate right to use or to authorise the use of physical force. When civilian groups resort to violence against state actors without repercussions, one has to call into question the maintenance of law and order in the State of Manipur. In late February, cadres of the Meitei chauvinist group, the Arambai Tenggol, allegedly abducted a police officer, assaulted him and vandalised his home. Police officers protested the attack, lamenting their inability to take action against the group. It is another matter that the group has managed to source its weapons from the looting of police stations in the valley following the ethnic conflagration last May. Many of the weapons are yet to be seized or returned despite the government's appeals. The police in the valley are heavily ethnicised with barely any representation from the Kuki-Zo minority. Yet, the impunity with which the Arambai Tenggol has acted against a police official, and even assaulted a leader of the opposition in the recent past besides administering oath to legislators from the valley to pledge for its majoritarian cause, suggest that such actions have either the nod of the leadership of the State government or have been deliberately ignored. The severe ethnicisation in the valley and the hills has also granted a degree of popularity to groups such as the Arambai Tenggol and counterparts in the hills, making law enforcement difficult to achieve.

It is now incumbent upon the Union government and the ruling Bharatiya Janata Party (BJP) to take into account the severity of the ethnic polarisation and the dangers posed to law and order. Humanitarian concerns related to the displacement of people apart, the predominance of extra-legal forces in public life in the valley and the hills points to the delegitimisation of the idea of the state alone having a monopoly over the use of physical force in establishing law and order. The rampant radicalisation provides an opportunity for the muzzled civic voices in Manipur, and in the valley in particular, to raise their concerns about the impunity enjoyed by such forces. Unless the Chief Minister, N. Biren Singh, cracks the whip on the Arambai Tenggol, the radicalisation of Manipuri society will continue, making a return to a much-needed civic state of affairs all the more

difficult. But with Mr. Singh acting less as a Chief Minister and more as a leader promoting majoritarian politics, it is incumbent upon the BJP leadership to yet again rethink its strategy to let the status quo continue in the State.

WHO WAS AYYA VAIKUNDAR, AND WHY TN GOVERNOR CALLING HIM 'SANATAN DHARMA SAVIOUR' SPARKED A ROW

Tamil Nadu Governor R N Ravi's recent remarks about the 19th-century social reformer Ayya Vaikundar — that he was Lord Vishnu incarnated to prevent the destruction of Sanatan Dharma — have evoked sharp reactions in the state, from politicians as well as Vaikundar's followers.

The Governor made the statements on March 4, at an event to mark the 192nd Ayya Vaikundar Avathara Dina Vizha, or his birth anniversary.

Vaikundar, the social reformer

Ayya Vaikundar, born in 1809, is revered as a social reformer and the founder of the Ayyavazhi sect, primarily in southern Tamil Nadu. His teachings focused on equality, fraternity, and the eradication of caste-based discrimination, challenging the established religious and social hierarchies of the time. Thus, Governor Ravi's portrayal of him as a protector of Sanatan Dharma, a term often associated with orthodox Hinduism in contexts of caste politics debates, has been vehemently opposed.

At a time when rigid casteism and caste-based atrocities were the norm, Vaikundar introduced measures to challenge these divisions. He organised Samapanthi-bhojana or community eateries for people from all backgrounds. He would send his disciples to the homes of lower castes to eat with them.

When lower castes were not allowed to fetch water from wells used by upper caste Hindus, Vaikundar initiated the digging of common wells, called Muthirikinarus.

At a time when priests threw vibhuti and sandal paste at devotees from a distance to avoid touching them — a practice that still exists — and lower castes were not allowed to enter temples at all, Vaikundar introduced Thottu Namam, in which he inspired priests to apply the sacred paste on devotees' forehead, irrespective of their caste. The paste would be applied in the form of a lamp, indicating the soul and God, representing the form of God inside every life.

Vaikundar also encouraged all devotees to wear turbans and dhotis, promoting equality. He initiated the Thuvayal Panthy programme, teaching vegetarianism and discipline to followers, who spread these teachings across Tamil Nadu. He established Nizhal Thangals as community worship spaces, which did not have any idol or deity, and only Tamil was used for worship. These community worship centers also had community kitchens and even basic schools.

He pioneered education for the lower castes and opposed discriminatory taxes. One of his significant interventions was the introduction of simplified, inclusive marriage customs without a Brahmin priest or Sanskrit mantras.

The remarks, reactions

On March 3, Prime Minister Narendra Modi had paid tributes to Ayya Vaikundar on his birth anniversary. "On his birth anniversary, I bow to Sri Ayya Vaikunda Swamikal. We are all proud of his innumerable efforts to build a compassionate and harmonious society where the poorest of

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the poor are empowered. We reiterate our commitment to fulfilling his vision for humanity," he wrote on X.

A day later, Ravi said Ayya Vaikundar was an incarnation of Lord Vishnu who appeared in the early 19th century to prevent the destruction of Sanatan Dharma and the evangelisation of the public by the British government. He said that Vaikundar's text 'Akilathirattu Ammanai' is the essence of Sanatan Dharma, which is that everyone is equal and children of the same divine.

Ayyavazhi sect chief administrator, Bala Prajapathi Adigalar, was quick to condemn Ravi for his "non-factual" remarks. Speaking to reporters in Kanyakumari, Adigalar said "those who are ignorant of history should not pass comments".

"Vaikundar's fight was to eradicate ignorance in people. When he called those who divided people on the basis of caste as vile persons, how can [the Governor] call him a savior of Sanatan dharma?" he said.

Tamil Nadu Legislative Assembly speaker M Appavu also criticised the Governor's remarks. Law Minister S Regupathy accused Ravi of "seeking publicity through his controversial remarks" and acting as the Opposition figure in the state "as both AIADMK and BJP are inactive."

Historians, too, contested Ravi's version. "Mainstream political parties engage in appropriation, and it may not always be a bad thing. However, appropriation without any logic or reason is called misappropriation, which is what Ravi has done to Vaikundar," said a historian in Tamil Nadu on the condition of anonymity.

Another expert and history professor, requesting anonymity, said movements led by Vaikundar and similar figures in South India were fundamentally different from mainstream political or religious agendas of their times.

"You cannot appreciate the unique nature of social reform movements in Travancore and neighbouring regions without understanding the historical context of the struggles faced by the lower castes, particularly the Pulayars and Ezhavas. These movements, including those led by Vaikundar, Narayana Guru, and Ayyankali, emerged as counter-movements to the severe societal restrictions imposed by the upper castes and the ruling class of Travancore. While Vaikundar and Narayana Guru's movements took a more conventional religious route and seemingly stood within the societal faith system, Ayyankali's approach was more militant," he said.

WHY DID GOOGLE DELIST SOME INDIAN APPS FROM PLAY STORE?

The story so far:

On March 1, Google announced that it was pulling the apps of almost a dozen firms out of its marketplace for Android apps. While the announcement seemed sudden, it was preceded by years of wrangling between the search giant and Indian companies, with proceedings in the Madras High Court and the Supreme Court. After the Ministry of Electronics and Information Technology intervened, the apps were restored on Monday, but the issue remains unresolved.

What is the problem?

At the heart of the issue is Google's platform fees. For all in-app purchases that involve a purely digital service — such as an ebook purchase or an OTT streaming subscription — Google collects a fee of anywhere between 11 to 30% per transaction. This fee, Google argues, helps the company

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pay for Google Play and develop the Android ecosystem. The exact fee paid by each developer varies. If a developer is using Google's own billing product, and is offering a recurring subscription service, or if they make less than $1 million a year in revenue from in-app payments, the company charges 15%. For app purchases for bigger firms, the amount is 30%. In India and South Korea, where regulatory scrutiny on these fees has been among the most intense, Google collects 11% or 26% in fees if developers choose to use a different payment method. However, Indian developers — like many global counterparts — see these fees as a high price to pay. Some, including Bharat Matrimony and Disney+ Hotstar, approached the courts at different stages to avoid paying the fee altogether.

"While Google should definitely be able to charge a fee for creating and maintaining the app store ecosystem, the main contention is the size of the fee," Rohit Kumar, founder of the public policy firm The Quantum Hub explained.

What about other marketplaces?

Apple has not faced similar pushback in India, as relatively fewer Indians use its products. Android, however, dominates the smartphone market, and Google Play is widely seen as the best bet for developers who want to be discovered by consumers. However, both Apple and Google have faced serious international resistance to these fees, and both firms have pushed back strongly against developers' resistance. The music streaming firm Spotify filed a complaint with the European Commission, after Apple stopped Spotify from telling its users how to pay for its service using a browser to avoid the App Store's fees. Additionally, Spotify said this was anti-competitive because Apple Music was not subjected to the 30% barrier that was erected for Spotify. Following the complaint, Apple was hit with a €1.84 billion fine by the European Commission, which ruled that it had fined the company over unfair trading conditions. Similarly, in the U.S., Epic Games, the developer of the popular Fortnite franchise, sued Apple as well as Google over the 30% fee.

Unlike Apple, Google allows third party app stores around the world, something that gives app developers a little more leeway in avoiding these fees. But Google Play comes installed by default on most Android phones.

How have regulators responded?

The Competition Commission of India (CCI) had in 2022 fined Google ₹936.44 crore for its Play Store policies. The company is in the process of appealing that fine, as well as orders by the CCI that it give developers comprehensive choices for in-payments. An appeal by Google against this fine is pending at the National Company Law Appellate Tribunal. Meanwhile, the Indian apps that went to the Court are back on the platform for now. In-app payments are not yet a major part of the digital economy in India, as purely digital services for which Indian consumers have been willing to pay have been limited to content streaming, dating and matrimonial services — the very segment that is largely up in arms against Google's fees. "What we really need is regulation to increase competition in the app store market," Mr. Kumar said. "This should involve removing barriers to the adoption of other app stores (by placing restrictions on arrangements that Google makes with phone manufactures to set defaults and give primacy to its own apps) and allowing sideloading (for apps to be downloaded via websites)."

WHAT WILL GAGANYAAN CHANGE FOR INDIA?

The story so far:

On February 27, Prime Minister Narendra Modi publicised the final shortlist of candidates to be astronauts on board the maiden human spaceflight mission — called Gaganyaan — of the Indian Space Research Organisation (ISRO). Assuming two important test flights this year and the next are successful, the first crewed flight of the mission is scheduled for 2025.

What is Gaganyaan?

Gaganyaan is the name of the ISRO mission to send Indian astronauts to low-earth orbit for a short duration, onboard an Indian launch vehicle. Technically, it is a demonstration mission: it will test various technologies required for human spaceflight, which remains the most complicated form of spaceflight, and demonstrate India's familiarity with their production, qualification, and use. Last year, Prime Minister Narendra Modi "directed" ISRO to have an indigenous space station by 2035 and land an Indian on the moon by 2040. While its most recent missions have reinforced ISRO's reputation as a reliable launch provider also capable of flying sophisticated interplanetary missions, including Chandrayaan-3, the two new goals are technologically even more ambitious.

Further, ISRO will attempt to execute them together with future moon missions. Chandrayaan-3 concluded the first phase of ISRO's lunar exploration programme. The second phase begins with a joint mission with Japan to land a rover on the moon and another to collect a lunar soil sample and bring it back to earth. To these ends, the Indian government has divvied up spaceflight and services-related responsibilities that once rested solely with ISRO to two new offices. They are the New Space India Ltd. (NSIL; to commercialise space technologies) and the Indian National Space Promotion and Authorization Centre (IN-SPACe; to authorise space activities in all sectors). ISRO also set up a coordinating body for Gaganyaan called the Human Space Flight Centre (HSFC).

What are the components of Gaganyaan?

Gaganyaan comprises the following components aside from the HSFC:

The Launch Vehicle Mark-3: The LVM-3 is the launch vehicle. Formerly called the GSLV Mk-III, it is a three-stage rocket. The first stage comprises of two solid-fuel boosters strapped to the rocket core. The second stage is powered by two liquid-fuelled and clustered Vikas 2 engines. The third stage has the CE-20 indigenous cryogenic engine with liquid hydrogen and liquid oxygen as fuel and oxidiser, respectively.

The orbital module: The 8.2-tonne orbital module is the object the LVM-3 rocket will launch and place in low-earth orbit. It consists of the crew module and the service module. The crew module can house up to three astronauts for a week. It includes parachutes to slow its descent to the ground once it descends from orbit; an environmental control and life-support system (ECLSS; to control the temperature, breathing environment, waste disposal, fire protection, etc.); and the crew escape system, which the astronauts can use to escape in case the rocket malfunctions during its ascent. The service module contains the propulsion system required to raise the orbital module's altitude once it separates from the rocket and later to propel it back towards the earth.

The crew: Of the first four astronaut candidates, Prashant Nair, Ajit Krishnan, and Angad Pratap are group captains and Shubanshu Shukla is a wing commander, all in the Indian Air Force (IAF). When Gaganyaan was approved, the IAF prepared a longlist of candidates, who were trained at

the IAF's Institute of Aerospace Medicine. A subsequent shortlist of candidates were sent to Russia for advanced training. The crew module will include a gynoid (feminine robot) named 'Vyommitra' fit with sensors to track the effects of radiation and weightlessness, monitor capsule conditions, and sound alarms in the event of an impending emergency, aside from being able to perform some other tasks.

How was the mission put together?

ISRO had realised many of the underlying technologies by the time the Union Cabinet approved Gaganyaan in 2018. Post-approval, it proceeded to human-rate many of them, that is, ensure their reliability met the minimum thresholds for human spaceflight.

It had already conducted the 'Space Capsule Recovery Experiment' (SRE) in 2007 and the 'Crew-module Atmospheric Re-entry Experiment' (CARE) in 2014. In 2007, a satellite placed in orbit earlier descended from an altitude of 635 km to splash into the Bay of Bengal. In 2014, a prototype of the module was launched onboard an LVM-3 rocket. It separated at an altitude of 126 km, descended until 80 km with retrograde thrusters, and finally with parachutes into the Bay of Bengal. Together, SRE and CARE tested the module's separation mechanism, heat shield, braking system, parachutes, floatation devices (in the water), and retrieval procedures. ISRO conducted a similar test on October 21 last year — a crew module was launched on a small rocket before being ejected using an 'emergency abort' command, followed by testing its descent and retrieval.

In October 2023, ISRO chairman S. Somanath told The Hindu there was no domestic capability to manufacture the crew module and that it will have to be procured "from outside". He also said ISRO's hope to source technologies related to the ECLSS from abroad didn't fructify, forcing the organisation's engineers to develop them internally. Other major components, including the engines and the rocket stages, underwent similar tests of their own until ISRO could sign off on their reliability. This has happened through a series of tests, simulations, and quality-control exercises. For example, ISRO said on February 21 it had finished testing four CE-20 engines for 8,810 seconds in all, in conditions mimicking those during the flight.

What will Gaganyaan achieve?

The birth of NSIL and IN-SPACe followed wide-ranging reforms of the space sector. They were joined by the National Geospatial Policy 2022, the Indian Space Policy 2023, and the Telecommunications Act 2023. On February 21, in a fillip to India's nascent space startups scene, the Cabinet also cleared 49% to 100% automatic foreign direct investment in space services and spaceflight. The Space Policy in particular provides an overview of what the Indian space programme will aim for in the coming decades as India joins a host of countries going to space, the moon, and beyond while conducting scientific, commercial, and exploratory missions. This new 'space race' extends geopolitical boundaries drawn on the earth into outer space. The result is a heavy premium on the human presence of different nationalities for longer durations in space and on the moon.

Against this backdrop, Gaganyaan will establish India's self-sufficiency vis-à-vis sending humans to space, on timelines it can control, instead of relying on expensive contracts with foreign launch services — and in step with other efforts to represent India in the final frontier.

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WHY IS ISRO BUILDING A SECOND ROCKET LAUNCHPORT IN TAMIL NADU'S KULASEKARAPATTINAM?

Prime Minister Narendra Modi laid the foundation stone of the second rocket launchport of the Indian Space Research Organisation (ISRO) at Kulasekarapattinam on February 28. Situated at a geographically advantageous location in coastal Tamil Nadu's Thoothukudi district, the facility costs Rs 986 crore. It will be extensively and exclusively used for commercial, on-demand, and small satellite launches in the future.

Why does India need a new launchport?

With the Union government's recent policy announcing the opening of the space sector to private players, a sharp rise in the number of commercial launches is certain. To ensure that ISRO's first launchport, the Satish Dhawan Space Centre (SDSC) SHAR in Sriharikota, is not overburdened with a high number of launches, the space agency has decided to build another facility.

While SHAR will be only used for launching bigger and heavy-lift-off missions, the Kulasekarapattinam launchport will be used to launch smaller payloads. SHAR will also be available for India's big ticket missions to the Moon, Venus, and much touted human-flight mission, the Gaganyaan.

Private players could develop space-qualified sub-systems, build satellites, and even launch vehicles using the new launchport. It will also facilitate dedicated launch infrastructure for all the on-demand commercial launches.

Why is the new ISRO launchport located in Tamil Nadu?

Geographically, scientifically, and strategically, the Kulasekarapattinam launchport provides a natural advantage to ISRO's future launches pertaining to the Small Satellite Launch Vehicle (SSLV).

Allowing a direct southward and smaller launch trajectory for the light weight SSLVs carrying less fuel, the Kulasekarapattinam facility will boost ISRO's attempts to enhance payload capacities.

Currently, the trajectory followed by all launches from SHAR are longer as they follow a path which requires the vehicle to skirt eastwards around Sri Lanka before taking the actual southward flight. This consumes additional fuel. However, the same would not be required for future launches from Kulasekarapattinam, which is geographically located several kilometers to the west of Colombo, thereby allowing a straight southward flight and simultaneously saving the already limited fuel available onboard SSLV.

Notably, both the launchports are located on Southern India, near the equator.

According to 'From Fishing Hamlet to Red Planet: India's Space Journey', a book edited by former Isro scientists, "For a launch site close to equator the magnitude of the velocity imparted due to Earth's rotation is about 450 m/s, which can lead to substantial increase in the payload for a given launch vehicle. Geostationary satellites must necessarily be in the equatorial plane. So, for such satellites, closer the launch site is to the equator the better it is".

What is the status of the new launchport?

The Tamil Nadu government has completed the acquisition of over 2,000 acres of land in Kulasekarapattinam. This has now been handed over to ISRO.

S Somanath, chairman, ISRO, informed last week that it may take up to two years for the completion of the construction at the site. The new facility could permit anywhere between 20 to 30 SSLV launches, annually.

What are SSLVs and what are they used for?

SSLV is the new small satellite launch vehicle developed by ISRO to cater for the launch of small satellites. It has a three-stage launch vehicle, having a lift-off weight of about 120 tonnes and is 34 metres in length and 2 metres in diameter. SSLV is designed with a three-stage solid propulsion and a liquid propulsion stage, which is the terminal stage.

The SSLV missions are useful to launch small-sized satellites weighing anywhere between 10 to 500kg into the Low Earth Orbit. Going by their size and weight, these are typically referred to as mini, micro or nano satellites. They are low on cost and intended satellite insertion into orbits takes a shorter flight time.

SSLV are best suited for commercial and on-demand launches. Previously, satellite projects built by college students and private players involved in the space sector have benefitted from SSLV missions.

How has India's SSLV journey been so far?

SSLV is a relatively new development by ISRO, which is expanding its launch capabilities.

The first SSLV mission — SSLV-D1 — carrying two satellites, including EOS-02 and AzaadiSat, in August 2022, was a failure. Despite a text-book launch, perfect lift-off and smooth transitioning into subsequent stages, the insertion of the two satellites after their separation took place into a 356 km circular orbit instead of the intended elliptical orbit.

Six months later, in its second attempt with the SSLV-D2 in February 2023, ISRO tasted success. The rocket inserted three satellites onboard into the intended 450 km circular orbit following a 15 minute flight.

Both these launches were from SHAR.

What are the features of SHAR?

SHAR is situated along the east coast of Andhra Pradesh and is located 80 km off Chennai. It currently provides launch infrastructure to all ISRO missions. It is equipped with a solid propellant processing setup, static testing, and launch vehicle integration facilities, telemetry services — tracking and command network to oversee the launch — and a mission control centre.

SHAR has two launch complexes that are routinely used to launch the Polar Satellite Launch Vehicle (PSLV), the Geosynchronous Space Launch Vehicles (GSLV) and the Geosynchronous Satellite Launch Vehicle Mk-III, now renamed as LVM3. The maiden launch from the First Launch Pad, built in the early 1990s, was in September 1993. Operational since 2005, the Second Launch Pad saw its maiden launch in May 2005.

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THE STATUS OF INDIA'S NUCLEAR PROGRAMME

What is the PFBR?

The PFBR is a machine that produces more nuclear fuel than it consumes. Its core-loading event is being hailed as a "milestone" because operationalisation of the PFBR will mark the start of stage II of India's three-stage nuclear power programme.

In the first, India used Pressurised Heavy Water Reactors (PHWRs) and natural uranium-238 (U-238), which contains minuscule amounts of U-235, as the fissile material. In nuclear fission, the nucleus of an atom absorbs a neutron, destabilises, and breaks into two while releasing some energy. If the destabilised nucleus releases more neutrons, the reactor's facilities will attempt to use them to instigate more fission reactions. The heavy water in PHWR — water molecules containing the deuterium isotope of hydrogen — slows neutrons released by one fission reaction enough to be captured by other U-238 and U-235 nuclei and cause new fission. The heavy water is pressurised to keep it from boiling. The reactions produce plutonium-239 (Pu-239) and energy.

Only U-235, not U-238, can sustain a chain reaction but it is consumed fully in stage I. In stage II, India will use Pu-239 together with U-238 in the PFBR to produce energy, U-233, and more Pu-239. The Department of Atomic Energy (DAE) set up a special-purpose vehicle in 2003 called Bharatiya Nabhikiya Vidyut Nigam, Ltd. (BHAVINI) to implement stage II.

In stage III, Pu-239 will be combined with thorium-232 (Th-232) in reactors to produce energy and U-233. Homi J. Bhabha designed the three-stage programme because India hosts roughly a quarter of the world's thorium. The three stages are expected to make the country completely self-sufficient in nuclear energy.

Why was the PFBR delayed?

The PFBR saga in India has been associated with numerous delays, cost overruns, and broken promises, and has accrued many critics.

The fast breeder test reactor (FBTR) at Kalpakkam is a testing ground for PFBR technologies. It was built by 1977 but sanctions against India's 'Smiling Buddha' nuclear test forced the use of a mixed carbide fuel over enriched uranium (which France was to deliver). The former lowered the power output and changed operating conditions. By the time the Indian government green-lit the PFBR in 2003, most people who worked on the FBTR were also nearing or had completed retirement.

The Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam, designed the PFBR. Its original cost was ₹3,492 crore and the original deadline, 2010. Six years later, the DAE sought more funds and an extended deadline, which the government granted in 2012 — ₹5,677 crore and commercial operations by March 2015. The nuclear power establishment further pushed the deadline to the next year, then the year after that, and so on until by March 2020, the new deadline to commercialise was October 2022. Even by 2019, its cost had ballooned to ₹6,800 crore. In a 2014 audit, the Comptroller and Auditor General found BHAVINI had fumbled the procurement of some PFBR components by becoming inordinately dependent on the Nuclear Power Corporation of India, Ltd. The result: the placement of a hundred purchase orders had a "median delay" of 158 days per order. Other causes of delay included technical difficulties with the reactor coolant.

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How does the PFBR work?

PHWRs use natural or low-enriched U-238 as the fissile material and produce Pu-239 as a byproduct. This Pu-239 is combined with more U-238 into a mixed oxide and loaded into the core of a new reactor together with a breeder blanket. This is a material the fission products in the core react with to produce more Pu-239. A breeder reactor is a nuclear reactor that produces more fissile material than it consumes. In a 'fast' breeder reactor, the neutrons aren't slowed, allowing them to trigger specific fission reactions.

The PFBR is designed to produce more Pu-239 than it consumes. It uses liquid sodium, a highly reactive substance, as coolant in two circuits. Coolant in the first circuit enters the reactor and leaves with (heat) energy and radioactivity. Via heat-exchangers, it transfers only the heat to the coolant in a secondary circuit. The latter transfers the heat to generators to produce electricity. In a 2020 paper, former IGCAR scientist R.D. Kale wrote about several issues with getting this system to work as expected. For example, according to him, personnel working with the PFBR had expected the reactor vessel could be preheated to 150 degrees Celsius in about a month based on theoretical calculations and tests with a mock-up. But the process took more than a year in reality.

What role can SMRs play?

The delays brooked another potential complication in the form of Small Modular Reactors (SMRs). These reactor designs have a maximum capacity of 300 MW, require less land, and accommodate more safety features.

"Several countries are developing SMRs to complement conventional [facilities] since SMRs can be installed at reduced cost and time by repurposing ... infrastructure in brownfield sites," R. Srikanth, a professor at the National Institute of Advanced Studies, Bengaluru, told The Hindu. He added SMRs can work with low-enriched uranium, which India can import from the U.S. via its 123 Agreement. According to him, increasing SMRs' contribution would require, among other things, amendments to the Atomic Energy Act (1962) "and other related statutes" to allow private sector participation "under the oversight of the Atomic Energy Regulatory Body (AERB), with both nuclear fuel and waste controlled by the DAE" according to international safeguards.

What is the value of stage II?

The PFBR has a capacity of 500 MWe. In 2019, the DAE proposed building four more fast breeder reactors (FBRs) of 600 MWe capacity each — two in Kalpakkam from 2021 and two from 2025, with sites to be selected. Experts have said the best way to moot work on stage II technologies is to press the reactors into commercial service.

The delays haven't helped, however. In 2003, renewable sources of energy were a blip on the horizon. Today, the tariff for solar electricity is under ₹2.5/kWh whereas nuclear electricity costs around ₹ 4/kWh. The 2011 Fukushima Daiichi disaster also shifted public opinion worldwide against nuclear power, slowing work on new facilities. Today nuclear power has a new lease of life thanks to the pressure on India to decarbonise, reduce its import of fossil fuels, and give its renewable sector some breathing space. NPCIL chairman B.C. Pathak told The Hindu the corporation plans to "commission a nuclear power reactor every year" from 2024.

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What are the challenges of stage II?

On the flip side, bigger challenges await. FBRs are harder to handle than other reactor designs, whereas the DAE has acquired an unfavourable public reputation over its often heavy-handed response to safety concerns.

Further, the civilian nuclear programme's nodal regulatory body, the AERB, was set up by executive order and reports ultimately to the DAE secretary. In 2015, the International Atomic Energy Agency urged India to set up an independent statutory atomic regulator instead.

The DAE had responded to similar concerns with the Nuclear Safety Regulatory Authority (NSRA) Bill in 2011. It sought to replace the AERB with the NSRA. But it was criticised for allowing the Union government too much control over the NSRA's composition.

Finally, among other products, the thorium fuel cycle produces caesium-137, actinium-227, radium-224, radium-228, and thorium-230 — all isotopes radioactive in ways that complicate their handling and storage.

WHY INS JATAYU, INDIA'S NEW NAVAL BASE IN LAKSHADWEEP, MATTERS

On Wednesday (March 6), Naval Detachment Minicoy will be commissioned as INS Jatayu, an upgraded naval base, marking an important milestone in the Indian Navy's resolve to incrementally augment security infrastructure at the strategic Lakshadweep Islands.

While India has had a naval detachment in Minicoy, the southernmost atoll of the Lakshwadeep archipelago, since the 1980s, INS Jatayu will effectively be the country's second naval base in Lakshadweep. The Navy's first base on the islands, INS Dweeprakshak in Kavaratti, was commissioned in 2012.

INS Jatayu will be commissioned days after Prime Ministers Narendra Modi and Pravind Jugnauth of Mauritius jointly inaugurated an airstrip and a jetty that India has built on the Mauritian island of Agaléga off the coast of Africa in the western Indian Ocean.

Names of ships, bases, and detachments of the Indian Navy carry the prefix INS.

The Lakshadweep Islands

Lakshadweep, 'a hundred thousand islands' in Sanskrit and Malayalam, is an archipelago of 36 islands located between 220 km and 440 km from Kochi. The islands, only 11 of which are inhabited, have a total area of only 32 sq km.

The Lakshadweep are part of a chain of coralline islands in the Indian Ocean that includes Maldives to the south, and the Chagos archipelago farther beyond, to the south of the equator. Given their location in the Indian Ocean, the Lakshadweep are of huge strategic importance to India.

Minicoy straddles vital Sea Lines of Communications (SLOCs) — the world's main maritime highways — including the Eight Degree Channel (between Minicoy and Maldives) and the Nine Degree Channel (between Minicoy and the main cluster of Lakshadweep islands). In consequence, the Lakshadweep Islands are also vulnerable to marine pollution.

INS Jatayu naval base

A naval detachment has administrative, logistics, and medical facilities. INS Jatayu will be upgraded to a naval base with additional infrastructure such as an airfield, housing, and

Sources said the fragile ecology of the island may pose challenges for the construction of a jetty. But there are plans to construct a new airfield that will be capable of operating both military and civil aircraft.

Teeth to Navy operations

As per the Navy, the basing of an independent naval unit with requisite infrastructure and resources will enhance its overall operational capability in the islands. The establishment of the base is in line with the government's focus on comprehensive development of the islands.

The Navy has also said that the base will enhance its operational reach, facilitate its anti-piracy and anti-narcotics operations in the western Arabian Sea, and augment its capability as the first responder in the region.

With the commissioning of INS Jatayu, the Indian Navy will add to its strength on the western seaboard. The proposed airfield will allow operations for a range of aircraft, including P8I maritime reconnaissance aircraft and fighter jets, and extend the Navy's reach and operational surveillance capabilities at a time when India is seeking to counter the growing Chinese influence in the Indian Ocean Region.

This has an immediate bearing at a time when India's relations with the Maldives have come under strain since the election of the pro-China President Mohamed Muizzu.

MINING SECTOR

According to experts, India's current resource classification rules based on the UNFC have made the prospect of mineral exploration unattractive to private companies as it fails to provide any degree of economic certainty, which in turn has hindered the flow of private investment in the sector. Between FY19 and FY23, the mining industry recorded foreign direct investment (FDI) in equity valuing $1.1 billion, just .4 per cent of gross equity inflows worth $259 billion.

A resource classification code is necessary to assess resources and reserves in a mineral block, to prepare geological reports to facilitate its auction for both exploration and mining, and for a mining company to evaluate its assets. While the UNFC framework allows for the reporting of resources in general, which include undiscovered and uneconomic resources, the IMIC and the JORC classification, both aligned with the Committee for Mineral Reserves International Reporting Standards (CRIRSCO) template, also require the reporting of reserves, which are economically viable deposits with high geological confidence confirmed through studies at least to a pre-feasibility level. In other words, reserves indicate the likelihood of profitably mining a mineral block at the time of reporting. "You cannot report resources in the CRIRSCO system unless you establish that there is a reasonable prospect for eventual economic extraction," explained Dr P V Rao, co-chair of the National Committee for Reporting Mineral Resources and Reserves in India (NACRI), which developed and maintains the IMIC code.

In determining the economic viability of mining projects, the CRIRSCO template considers ten modifying factors including legal, infrastructural, processing, metallurgical, marketing,

environmental, and governmental factors. Globally, CRIRSCO consists of 15 members including the USA, Australia, Brazil, Canada, Chile, South Africa, and the European Union. Membership to CRIRSCO requires countries to produce reporting codes that comply with the CRIRSCO template. India was admitted to CRIRSCO in 2019 following the recognition of the IMIC as a CRIRSCO-compliant code.

"The CRIRSCO framework's primary function is to ensure that investors and their advisors have comprehensive information that is relevant to make financial and technical decisions. This data is crucial for forming reliable opinions on the results and estimates being reported, thereby promoting informed decision-making in the mining sector," according to Vikram Mehta, partner at EY India's metals and mining division.

In addition to the mineral reporting template, CRIRSCO also provides a governance system to ensure competent and ethical reporting by industry professionals. In 2015, the mines ministry notified the Minerals (Evidence of Mineral Contents) (MEMC) Rules, for which they used the CRIRSCO definitions for resources and reserves, while the framework for classification of resources was borrowed from the 1997 UNFC framework. "At the time, we told them that you cannot mix oranges and apples to say that they are one. The two are not compatible in that manner," Rao explained.

Then, in 2021, the ministry amended the MEMC Rules and removed the definitions stated in the 2015 version. "The amended rules totally ignored the CRIRSCO definitions and the UNFC framework. At present, India is also not following the UNFC framework in toto, which was updated in 2019," Rao added. MEMC Rules are used for the purpose of preparing geological reports for the auction of mineral blocks. Mining companies have to rely on such reports for the valuation of mineral blocks and to determine whether or not they should participate in a given auction.

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Sri Lanka holds significant reserves of vein graphite, a highly pure form of natural graphite that is only found on the island nation. Graphite is a critical mineral that is extensively used as the anode material in lithium-ion batteries. By weight, graphite is typically the largest component in lithium-ion batteries, with up to 70 kilograms of graphite used in an average electric vehicle (EV).

Graphite's vital application in EVs explains the participation of Ola Electric in the ministry meeting. Ola has previously shown interest in entering the critical minerals supply chain by participating in the ministry's ongoing first tranche of critical minerals auction. It had also attended a ministry meeting in October on opportunities in Zambia for the mining of copper, which is used as the cathode material in EV batteries.

India's interest in Sri Lanka's graphite coincides with the Sri Lankan government's active pursuit of Indian companies for graphite mining in the country. "We have the best graphite in the world. Now, Indian companies will be manufacturing electric vehicles. One of the large components for electric batteries is graphite. We used to have about 30,000 graphite mines. So there's a lot of opportunity with the expertise and the technology these Indian companies have, I think they should seriously look at Sri Lanka," the Sri Lankan Minister of State for Foreign Affairs Tharaka Balasuriya said in an interview to ANI on February 22.

Graphite mining in Sri Lanka peaked during the two World Wars in the 20th century, hitting over 30,000 tonnes in annual exports. In 2023, however, the country only exported graphite weighing

around 2,500 tonnes and valuing roughly $6 million. Sri Lanka has graphite reserves of around 1.3 million tonnes, as per data with the US Geological Survey.

Graphite in India is largely concentrated in Arunachal Pradesh, Jammu & Kashmir, and Jharkhand, with these three states collectively accounting for 74 per cent of India's graphite resources. However, only Tamil Nadu, Jharkhand, and Odisha have graphite reserves, which are measured resources that are economically viable to extract.

ON THE RELEVANCE OF UNIVERSITY RANKINGS

What do ranking systems do?

At present, the Times Higher Education (THE), the Quacquarelli Symonds (QS), the Academic Ranking of World Universities (also known as the 'Shanghai Ranking'), and the U.S. News & World Report are the most popular rankings schemes worldwide and hold significant weight and influence in shaping educational policies and priorities in the higher education sector in many countries.

A ranking system orders the higher education institutes in a place (country, region, etc.) by their accomplishments on various fronts — including teaching, research, reputation, industry-focused research, and collaborative efforts. Each of these activities is complex, multifaceted, and highly contextual, but for the purposes of the ranking, an institute's performance on each one is translated into a few composite indicators, which are then combined to create a consolidated score.

Are ranking systems perfect?

In 2021, Elizabeth Gadd, a research officer at Loughborough University in the U.K., published a critique in which she reported that universities' quests for higher ranking mirrors the flawed pursuit of Gross Domestic Product (GDP) as the sole measure of a country's prosperity.

For example, in their 2010 book Mis-Measuring Our Lives: Why GDP Doesn't Add Up, eminent economists Joseph Stiglitz, Amartya Sen, and Jean-Paul Fitoussi contended that the use of a single indicator to capture the economic and social progress of a country will inevitably overlook the environmental impact of its growth and measures of its inequality, among other crucial issues. According to Dr. Gadd, university rankings, like GDP, distil complex roles that universities play in society into a single, unidimensional score.

Experts have noticed that the highest ranked universities in various ranking systems are old, large, wealthy, research-intensive, science-focused, English-speaking, and in the Global North. Studies have also shown that higher scores in research excellence in rankings are influenced to a great degree by two factors: citations and reputation. For example Bielefeld University leaped from 250th to 166th in the 2020 THE rankings. The jump has been attributed to a single scholar's work, who published 10 papers, co-authored with hundreds of other researchers, most of them in The Lancet, contributing to 20% of the university's total citations over two years. (These citations are not spurious but over-represented.)

Arbitrary measures of research excellence like citations can dramatically alter an entire university's performance in the rankings. For example, in 2023, Science reported the case of Saveetha Dental College in Chennai rocketing up the ranking ladder allegedly by manipulating citations.

In two analyses in 2016, Richard Holmes, an expert in ranking systems and who has been running the 'University Ranking Watch' initiative since 2006, wrote that THE's regional rankings appeared to favour universities that hosted an important THE summit. According to Mr. Holmes, these changes in favour were effected by, among other things, tweaking the way the ranking system counted citations. There are many similar instances, incentivised by the value accorded to ranking schemes and the riches that universities that rank highly reap.

INDIA TO RESTART PENICILLIN G MANUFACTURE: WHY WAS IT STOPPED, WHAT CHANGED NOW

India will start manufacturing the common antibiotic Penicillin G later this year, three decades after the country's last plant shut down, Union health minister Mansukh Mandaviya announced last week.

This is one of the successes of the government's Production Linked Incentive scheme launched during the pandemic to promote domestic manufacturing — the scheme gives incentives to companies on incremental sales.

Penicillin G is the active pharmaceutical ingredient (API) used in manufacturing several common antibiotics.

Penicillin G is generally administered intravenously or intramuscularly.

Why did penicillin manufacturing stop in India?

Penicillin G, just like many other APIs that India manufactured, was phased out of production because of subsidy-driven cheaper Chinese products flooding the market. The last plant to stop production of the antibiotic was of Torrent Pharma in Ahmedabad. "There were at least five companies, including Torrent, which manufactured Penicillin G in the country in the 90s. But the prices of the Chinese products were so low that the Indian manufacturers went out of business. The huge plants had to be sold for scrap," said an industry expert on condition of anonymity.

Another industry expert, CM Gulhati, said: "There were nearly 2,000 API manufacturers in India in the early 90s. But there were nearly 10,000 units that manufactured formulations. And, for them, the cheaper Chinese products made more sense, especially at a time when the country's economy was opening up and customs rules were relaxed. The Drug Prices Control Order — which capped prices of essential medicines — also ensured that more companies went for cheaper imported products."

Citing the example of paracetamol, he said India used to sell it for around Rs 800 per kg at the time, but China brought the prices down to nearly Rs 400 per kg, making it unviable for Indian manufacturers. He added: "Now, there are only a couple of hundred API manufacturers in the country. And, many of them produce it for their own products and not for sale."

The production of Penicillin will be restarted by mid-2024 by Hyderabad-based Aurobindo pharma.

Why did it take so long to restart?

One, the need wasn't felt. "While the industry and government were aware of the decline in production of APIs in India, as cheaper alternatives were available in the globalised world, there wasn't much focus on restarting production within the country. The supply chain disruption

caused during the pandemic was a wake-up call that we needed to be self-reliant," said Dr Viranchi Shah, president of Indian Drug Manufacturers Association.

This led to the government launching the PLI scheme to support manufacturing within the country.

Two, there are huge initial costs. "Manufacturing an API, especially a fermented one like Penicillin G, is cost-intensive. There is huge capital expenditure involved in setting up a factory, with the company being able to break even only after a couple of years," said the first expert.

Third, China is already a well-established supplier. "Our neighbour has scaled up manufacturing several-folds in the last three decades. Competing with the prices would require investments in bigger facilities," said Shah.

What has been the impact of PLI schemes?

The first expert and Shah both agree that there has been a decline in imports of APIs since the launch of the PLI scheme. "There has been a decline in the imports of APIs. Take the example of paracetamol — before the pandemic, we were importing two-thirds of the API needed, now that volume has halved," said Shah.

The other expert, however, added: "We still import 90% of our API for antibiotics and nearly 70% of all APIs. It will take time for API manufacturing to pick up."

The scheme envisages a support of 20% for first four years, 15% for fifth year, and 5% for sixth year on eligible sales of fermentation-based bulk drugs such as antibiotics, enzymes, and hormones such as insulin. These are more difficult to manufacture, with fermentation used to cultivate micro-organisms for the synthesis of the drugs. For chemically synthesised drugs, the incentive will be at the rate of 10% for six years on eligible sales.

EXPRESS VIEW ON OBESITY IN INDIA: A BIG FAT PROBLEM

In recent years, studies and surveys have flagged a distinct shift in India's disease burden. Non communicable diseases such as diabetes, strokes and heart ailments claim more lives in the country compared to infectious diseases. Experts have also underlined the links between these lifestyle-related diseases and obesity. Long thought to be an urban problem, obesity has become a health threat in rural parts of the country in the last decade. Now, a study published in the medical journal, The Lancet, has revealed that it also affects children. More than 12 million children (7.3 million boys and 5.2 million girls) in the country, aged between five and 19, were grossly overweight in 2022, up from 0.4 million in 1990. A gender skew also marks the rise in obesity levels: The Lancet study found 44 million women and 26 million men aged above 20 in India to be obese, up from 2.4 million women and 1.1 million men in 1990.

WHO defines obesity as an "abnormal or excessive accumulation of fat that poses health risks". Like in most parts of the world, in India too the problem stems from an increase in sedentary lifestyles, improvement in living standards and access to processed foods. The recently released results of the Household Consumption Survey show that Indians are spending less on cereals and pulses and more on beverages, refreshments and processed food. According to a joint study conducted by WHO and ICRIER last year, India's ultra-processed food industry grew at a compound annual growth rate of 13.37 per cent in terms of retail sales value between 2011 and 2021. Unfortunately, the country's nutrition-related policies, such as Poshan 2.0, do not give

adequate attention to unhealthy eating habits. The National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Strokes does recommend screening and early interventions to check the obesity-related risk factors from becoming complicated. The guidelines recommend annual screening for excess weight in children as young as two to six years old. However, a lack of awareness about the seriousness of the issue, including in the medical community, means that these prescriptions are rarely followed.

India is not the only country with an intractable obesity problem. WHO notes that no country is on track to meeting its target of bringing down obesity to 2010 levels by 2025. However, in several parts of the world, conversations have begun on trying to deal with the problem through measures such as higher taxes on unhealthy food and incentives for healthy food, front-of-pack nutrition labelling to guide consumers and awareness programmes. India has been an outlier to such discussions. The Lancet report should serve as a wake-up call for policymakers.

EL NIÑO AND THE SUMMER, MONSOON: WHAT IS IN STORE THIS YEAR

Earlier this month, the India Meteorological Department (IMD) predicted a hot summer this year, with above-normal temperatures and an above-normal number of heatwave days from March to May.

On Tuesday, the World Meteorological Organisation (WMO), a specialised agency of the UN, said in a media release that the 2023-24 El Niño, one of the five strongest on record, has peaked and is gradually weakening — but it will continue to impact climate around the world in the coming months.

What are the implications for India and the southwest monsoon?

First, how has the ongoing El Niño event played out?

El Niño refers to the abnormal warming of sea surface waters in the equatorial Pacific Ocean. El Niño episodes emerge naturally during autumn-summer in the northern hemisphere, typically once every 2-7 years. It peaks during winter (October-February) before weakening in the subsequent summer, making it a phenomenon that typically lasts for between 9 and 12 months. Occasionally, El Niño will last up to two years in a row.

El Niño episodes affect the global weather, lead to an increase in temperatures and large-scale dryness and droughts, and disrupt normal rainfall patterns globally. Large parts of East Africa have experienced multiple failed rainy seasons in recent years, in part due to El Niño conditions.

After the last episode in 2015-16, El Niño conditions emerged for the first time in June last year — and average temperatures breached new records across most parts of the world in every subsequent month. As the El Niño peaked between November 2023 and January 2024, recorded sea surface temperatures in the Pacific Ocean touched 2 degrees Celsius above the 1991-2020 normal, the WMO said. The 2023-24 El Niño played a significant role in 2023 ending as the warmest year ever recorded.

El Niño and the summer, monsoon: What is in store this year IMD has predicted harsher spells of heatwaves in the regions marked by darker shades of red.

So what does the peaking and weakening of El Niño mean?

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The intensity of an El Niño event is measured by the temperature values recorded over the sea along the equatorial Pacific Ocean.

One of the key indicators of the sea surface temperatures is the Oceanic Niño Indices (ONI) values (in degree Celsius). Data from the United States National Oceanic and Atmospheric Administration (NOAA) show that after peaking at 2 degree Celsius during November-January, the ONI value has started to decline. The timing of the fall in ONI is important because it suggests that the El Niño will not extend into another year.

What is the heat forecast for India for 2024?

The IMD has said that even as they weaken, El Niño conditions will push temperatures above normal in most of the country during March, April, and May (see map).

Above normal maximum temperatures are likely to be experienced over Ladakh, Himachal Pradesh, Rajasthan, Uttar Pradesh, Jharkhand, Odisha, Maharashtra, coastal Gujarat, Karnataka, Kerala, Tamil Nadu, Lakshadweep and the Andaman and Nicobar islands, the IMD has said in its summer forecast. Nights too, shall remain warmer than usual over almost the entire country, except some regions in Eastern India.

Heat waves are common over Central and Northern Peninsular India during March to June, when day temperatures rise 4.5 degree Celsius above normal. The IMD has warned of longer and harsher heat wave spells this summer, mainly due to prevailing El Niño conditions.

Individual spells of heat wave are expected to last for as long as 12-15 days in Maharashtra, Telangana, and North Karnataka. Heat waves are also expected to sweep over Andhra Pradesh, Gujarat, Rajasthan, Madhya Pradesh, Uttar Pradesh, Jharkhand, Odisha, West Bengal, Bihar, Delhi, Haryana and Punjab in the coming months.

And how is the Indian summer monsoon likely to be in 2024?

The four-month southwest monsoon is India's economic lifeline. The country receives nearly 70% of its annual rainfall (880 mm) during the June to September period. A good monsoon is crucial for sustaining the agrarian economy and for replenishment of the country's water reservoirs.

Although no direct one-on-one link has been established yet, El Niño episodes are correlated with a depressed southwest monsoon. Past El Niño episodes have coincided with India receiving below-average rainfall during the four-month rainy season. The 2015-16 El Niño coincided with a deficient monsoon in 2015, at 84% below the Long Period Average.

However, climatologically and historically, about 50% of El Niño events are followed by ENSO (El Niño Southern Oscillation) neutral conditions, and in 40-50% cases, La Niña conditions develop post an El Niño event.

This time, multiple global climate models have suggested that ENSO neutral conditions will emerge during the April-June period. India's Monsoon Mission Climate Forecast System (MMCFS) model has predicted ENSO neutral conditions to be established along the equatorial Pacific Ocean by May. The transition from El Niño to ENSO neutral will take some time after that.

If these conditions are realised, the desired establishment of favourable oceanic conditions could take place ahead of the onset phase of the southwest monsoon over the country. The southwest monsoon arrives over the Andaman and Nicobar Islands around mid-May. Thereafter, it

progresses and enters the mainland through the gateway in Kerala around June 1 (with a standard deviation of four days). By mid-July, it covers the entire country.

As the country awaits the Long Range Forecast (LRF) for the upcoming southwest monsoon, expected to be released by the IMD by mid-April, the prediction about the development of ENSO neutral conditions would suggest that the southwest monsoon may not be directly impacted by the ongoing El Niño episode.

There are chances of normal monsoon rainfall — provided other ocean-atmosphere parameters, wind conditions, formation of low-pressure systems, etc remain favourable — this year.

EXPRESS VIEW ON KERALA DECLARING HUMAN-ANIMAL CONFLICT AS STATE DISASTER: TERMS OF CO-EXISTENCE

In recent years, Kerala has been grappling with a spate of human-animal conflicts, predominantly involving elephants, tigers and wild boars. According to the state government's records, 98 people died after being attacked by animals last year. This year, wild animal attacks have claimed more than 10 lives. Protests have erupted in several parts of the state including Wayanad district, where elephants have killed at least three people in the last fortnight. Attacks by wild animals have also hurt the state's agriculture sector. On Wednesday, Kerala's cabinet declared the conflict as a state-level disaster. Committees at various levels, including at the districts and other local governance units, have been tasked with stepping up vigilance against aggressive animals. The state government has also sought the cooperation of plantation owners and decided to deploy more forest watchers in areas prone to human-animal conflicts. This wide-ranging response, though belated, is welcome. The time has also come to look at the issue from beyond the perspective of an emergency.

Kerala is not the only state to report loss of lives, property and livelihoods in the battle for space between humans and wildlife. According to data submitted by the government to the Lok Sabha in 2022, more than 1,500 people lost their lives in the country between 2019-2020 and 2021-2022 after being attacked by elephants. Tigers killed 125 humans between 2019 and 2021. The number of animals killed in this standoff adds to the depressing story. With forests thinning out, wildlife, especially elephants, and increasingly now leopards, have dispersed into areas with high density of human population. The conflict intensifies when people try to chase away animals with searchlights, crackers or guns, making them even more aggressive.

On February 14, the Kerala assembly passed a resolution that called on the Centre to amend the Wildlife (Protection) Act. It asked for simplifying procedures to deal with wild animals that pose a threat to human life. The state also wants the Centre to declare wild boar as vermin. Extreme measures such as culling rogue animals, however, provide short-term solutions at best. The country needs a serious debate on balancing conservation with its developmental priorities. By all accounts, most protected areas in the countries do not undertake carrying capacity studies. At the same time, development projects fragment wildlife habitats, turning a large number of animals into ecological disclocates who have little option but to compete with humans. Kerala's predicament could be an occasion to start conversations that transcend the polarities of conservation and development.

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A SLIPPERY SLOPE

The Supreme Court of India has come down heavily on the Uttarakhand government for the felling of about 6,000 trees in the Jim Corbett National Park. That forest officials and a top politician in the State connived to vastly expand the scope of a tiger safari in the park precincts was a travesty of conservation practices, according to the Court. In the judgment by a three-judge Bench, Justice B.R. Gavai observed, "The presence of tigers in the forests is an indicator of the well-being of the ecosystem. Unless steps are taken for the protection of tigers, the ecosystem which revolves around tigers cannot be protected... Events like illegal construction and illicit felling of trees like the one in Corbett cannot be ignored." The link between political corruption and environmental damage is especially relevant in this case as the Court's judgment has consequences for the management of wildlife parks, particularly on the question of whether 'tiger safaris' in the buffer and fringe zones of wildlife parks gel well with conservation measures. The Court also alluded to various resorts in the vicinity of the park that often played loud music and posed a threat to animals.

Both the Central Zoo Authority and the National Tiger Conservation Authority are expert bodies affiliated to the Union Environment Ministry, and tasked with the conservation and protection of wild animals. These organisations, in principle, have no objection to the existence of tiger safaris, provided these are conducted within the ambit of an array of guidelines. Wildlife safaris in a designated spot draw attention away from the core zones of the forest and hence promote its inviolate nature as well as raise public awareness about conservation. This is the underlying rationale for safaris. Their overarching aim, thus, ought to be eco-tourism and not commercial tourism. However, in recent times, the argument that this could be a source of employment opportunities for locals, and that State governments should be promoting this, has been gaining ground. The recent translocation of cheetahs from Africa to Kuno National Park, Madhya Pradesh, also aims to revive the cat's presence and promote tourism. This, however, is a slippery slope and can very easily lead to political capture, as the proceedings in the Corbett Park demonstrate. The Court has recommended that the Centre evolve guidelines on the conduct of safaris and the government would do well to deliver on this at the earliest and be extremely circumspect on its messaging regarding tourism and conservation.

BUSINESS & ECONOMICS

TEPID TRADE-OFFS

The latest meeting of the World Trade Organization's (WTO) apex decision-making body concluded late on Friday with precious little progress on key issues that affect global trade, despite extending deliberations by a day. To be clear, hopes for any significant outcomes from the 13th Ministerial Conference (MC13) in Abu Dhabi were not high to begin with. Yet, this was an important moment for the WTO to deliver on its mandate amid an increasingly fractious environment for the very rules of trade it seeks to enforce. The intervening period has delivered significant shocks to the global trading architecture such as the ripple effects of conflicts in some parts of the world, the disruptions on critical shipment routes that are expected to linger for long, and recalibrations in supply chains to reduce dependence on single suppliers such as China. An increasing inward-looking tendency among nations has also catalysed isolationist, tariff-heavy trade policies that run adrift of the WTO's primary purpose of open trade for the benefit of all. The Abu Dhabi declaration does refer to some of the challenges, such as the need to ensure open, inclusive and resilient supply chains, but there is little of substance beyond lip service.

Divergences between the WTO's 164 member-countries persisted on most issues carried forward from Geneva (MC12), including areas of particular interest to India, such as a permanent solution in agriculture for public stock holding to ensure domestic food security or subsidies to the fisheries sector. The WTO Director-General, Ngozi Okonjo-Iweala, has noted that the agriculture deliberations, in the works for over two decades now, have made some progress as there is finally a text to work with that the body will strive to clinch in future parleys. The exemption from customs duties for e-commerce, that India had sought an end to, citing the adverse impact on countries' revenues, will now carry on for at least two more years. Commerce Minister Piyush Goyal has nuanced this outcome stating that India is "not necessarily" fully opposed to them. Prospects for the resuscitation of WTO's dispute resolution body, rendered defunct for four years, remain bleak, though the Geneva commitment to revive the vital body by 2024 was reiterated. A key win for India at the MC13 was its successful efforts with South Africa to thwart an attempt that was led by China and backed by over 120 countries, to introduce an investment facilitation pact into the WTO framework. Going forward, India will have to redouble efforts to retain policy space for sensitive sectors, especially farms. The WTO itself must do much more to stay relevant in an increasingly polarised world. That members find it convenient to tout its failed biennial meetings as successes is a sad commentary on its waning efficacy.

EXPRESS VIEW ON WTO AND ATTACKS ON INDIA'S FOODGRAIN POLICY: POINT OF THE SUBSIDY

At the World Trade Organisation's 13th ministerial conference in Abu Dhabi, Thailand replaced its ambassador, Pimchanok Vonkorpon Pitfield, after the Indian government lodged a protest against her remarks on its public stockholding programme. Pitfield had said that India's rice procurement programme for PDS is not for the people, but for capturing the export market. Thailand is the second biggest rice exporter after India. It is also part of the Cairn Group — a group of 20 nations that includes rice exporters such as Thailand and Vietnam as well as countries like Australia, Brazil and Canada. The group, which pushes for liberalisation of global trade in agriculture, has raised questions in the past as well over India's programme on grounds that it is

"distorting" global food prices and "hurting" the food security of other countries. They are missing the point.

The Indian government procures foodgrains for meeting objectives such as its commitments under the National Food Security Act, and other schemes. It is directed towards ensuring food security for a large part of the country's population, not for distorting global food trade. The requirement of rice and wheat under these welfare schemes is not more than 60 million tonnes. Even after making adjustments for an additional quantity for open market interventions, the total requirement is not significantly more. Procurement did rise during 2021-22 and 2022-23 in excess of the requirements for the public stockholding programme. But stocks declined as beneficiaries were given 5 kg of free grain per person per month in addition to their existing quota under the National Food Security Act during the Covid period and because of two poor wheat crops.

In turn, India has legitimate concerns over the manner in which subsidies are estimated at the WTO. The price level at which the calculation is carried out to determine if the product specific support exceeds the specified ceiling of 10 per cent of the total value of production is outdated. The calculation, carried out at 1986-88 prices, tends to overestimate the subsidy. As per the calculations, the value of India's rice production was $46.07 billion, while the subsidies it gave were pegged at $6.31 billion. This works out to 13.7 per cent, higher then the prescribed ceiling. As reported in this paper, India and other developing countries are seeking a sustainable solution for the issue of public stockholding for foodgrains. Procurement of foodgrains at the minimum support price and distribution under the NFSA is a pact the Indian government has made with its farmers and citizens. Countries across the world have different ways of helping their farmers. In fact, other countries such as the US and the EU, are estimated to give far more subsidies to the farmer than India.

TRADE SECRETS

According to World Intellectual Property Organization, "Trade secrets are intellectual property (IP) rights on confidential information which may be sold or licensed". In general, to qualify as a trade secret, the information must be: Commercially valuable because it is secret, be known only to a limited group of persons, and be subject to reasonable steps taken by the rightful holder of the information to keep it secret, including the use of confidentiality agreements for business partners and employees. The unauthorized acquisition, use or disclosure of such secret information in a manner contrary to honest commercial practices by others is regarded as an unfair practice and a violation of the trade secret protection.

22nd Law Commission headed by Justice Ritu Raj Awasthi recommended new legislation be introduced to protect trade secrets.

Trade secrets are intellectual property rights on confidential information that may be sold or licensed. They derive their value from being kept secret. However, unlike other forms of intellectual property, which are limited in duration, trade secrets can be protected indefinitely. Currently, India lacks a specific law for the protection of trade secrets. Instead, they are safeguarded under the general laws governing contracts, common law, criminal law, and principles of breach of confidence and equity.

However, the 289th Law Commission Report, published on Tuesday on 'Trade Secrets and Economic Espionage', states that the reference to the commission arose after deliberations in the

government, where the need for legislation on the subject was felt. Subsequently, the Department of Legal Affairs and the Legislative Department examined the issue of enacting the Economic Espionage Act and Trade Secrets Protection Act and prepared a concept paper along with a draft cabinet note and a draft Bill, the report states.

However, owing to the inherent complexities of the subject matter, the matter was referred to the Law Commission through a letter in October 2017, requesting it to examine the possibility of enacting the laws and ensure a thorough evaluation. In an opening letter to Union Law Minister Arjun Ram Meghwal, the Law Commission states that after extensive deliberations with domain experts from different spectrums like the judiciary, academia, government, and industry, it undertook a comprehensive study of the law on trade secrets and economic espionage.

While doing so, the Commission has looked at the Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement and India's obligations arising from it. It has also explored the development of laws relating to trade secrets and economic espionage in other jurisdictions like the UK, USA, EU, and Germany while proposing a draft Protection of Trade Secrets Bill, 2024.

The concept of trade secrets first came to the limelight in 1977 when the government asked Coca-Cola to hand over the formula for its cola drink, which led to the company exiting India to re-enter only a decade later. However, the National Intellectual Property Rights Policy, 2016, and the Parliamentary Standing Committee Report have brought back focus on the need for introducing legislation to deal with trade secrets, the report informs.

On the subject of economic espionage, the report states that "even trade secrets held by the Government of India have been consistently targeted by foreign governments in acts of active and passive economic espionage", and hence, there is a need for a single statute to address "all issues related to trade secret leakages and economic espionage".

EXPRESS VIEW ON RIGHT TO APPRENTICESHIP LAW: TRAINING GROUND

The Congress has promised to enact a Right to Apprenticeship law, mandating private or public sector concerns to provide a one-year internship with part-government funding to any college degree/diploma holder on demand. The idea of forcing companies to accept candidates seeking temporary employment — which is what a legal entitlement amounts to — is bad.

The decision to hire , even if for only a year, should be the employer's prerogative and not a government diktat. But the idea of the government subsidising an apprenticeship training system in private industry isn't a bad one. Equally welcome is the main opposition party's effort to make jobs for the youth a key election campaign issue, even if questions may be raised as to what stopped its own governments, whether in the past or in the states now, from implementing similar programmes.

There are costs to a firm's decision to engage in apprenticeship training. The potential employee's capabilities aren't fully known at the time of recruitment, which is often based on unreliable CVs or personal recommendations. Nor does the person contribute much to the firm's revenues during the period of training, when she's still learning on the job. Worse, there's no certainty that the apprentice who has acquired the requisite skills will remain after the training period is over.

These costs and uncertainties are higher for MSMEs (micro, small and medium enterprises), which can neither afford to hire people from top-notch educational institutions nor invest in training employees whom they cannot retain. This leads to a classical market failure where firms

are deterred from hiring due to a lack of skilled workforce and their own reluctance to train those who may end up working elsewhere.

One way to avoid under-employment and under-provision of training at the workplace is for the government to bear part of the cost. That's what the Congress has proposed, while billing a one-year apprenticeship in the organised private sector or government for a Rs one-lakh annual stipend as a "Pahli Naukri Pakki" or first job guaranteed scheme.

A government-financed workforce training programme incentivising companies, especially MSMEs, to hire is preferable to unemployment allowance schemes such as the Congress-ruled Karnataka's recently rolled out Yuva Nidhi. India has to generate gainful employment for its young labour force —both a challenge and a demographic dividend-seizing opportunity. The solution cannot be doles.

Instead, it has to be skilling the youth for them to be employable. Those skills have to be imparted in schools, colleges and the workplace. The government can and should do more there, both by itself and partnering with the private sector.

HOW TO BRING ABOUT WHITE REVOLUTION 2.0

The government's latest Household Consumption Expenditure Survey (HCES) for 2022-23 shows milk emerging as India's top food spend item, both in rural and urban areas.

The monthly value of milk and dairy products consumed by an average person in rural India, at Rs 314, was ahead of vegetables (Rs 203), cereals (Rs 185), egg, fish & meat (Rs 185), fruits (Rs 140), edible oil (Rs 136), spices (Rs 113) and pulses (Rs 76).

The HCES data reveals the same for urban India: Milk (Rs 466), fruits (Rs 246), vegetables (Rs 245), cereals (Rs 235), egg, fish & meat (Rs 231), edible oil (Rs 153), spices (Rs 138) and pulses (Rs 90).

The challenge

Indians spending more on milk – viewed as a "superior" food – is good news for the dairy industry, especially farmers. But this could face headwinds from two sources.

The first relates to consumer demand itself from inflation. The all-India modal (most-quoted) price of milk has gone up from Rs 42 to Rs 60 per litre in the last five years, according to the department of consumer affairs. Much of the increase – from Rs 52 to Rs 60 – has happened in the last one year alone.

The second has to do with the cost of fodder, feed and raw materials/ingredients. As these have increased significantly, dairies have had to hike procurement prices paid to farmers and, in turn, pass-through the same to consumers.

There's a limit to how much more the consumer can pay for milk without it causing demand destruction. If farmer incomes are to be raised without shrinking domestic demand and eroding the global competitiveness of the Indian dairy industry, the only solution is to reduce the cost of milk production.

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How can that be achieved?

One way is to boost milk yield per animal through genetic improvement and new breeding technologies.

A typical crossbred cow giving birth first at 24-30 months can produce 5-7 calves over its lifetime. The normal breeding route, whether natural or via artificial insemination (AI), would result in only 50% of these being female calves or future milk-producing cows. But with the use of sex-sorted (SS) semen, there is a 90%-plus probability of only female calves being born, as against 50:50 with conventional semen.

The Kaira District Co-operative Milk Producers' Union, better known as Amul, performed 13.91 lakh AIs of its farmers' cows in 2022-23 (April-March). Out of that, 2.86 lakh or 20.5% were based on SS semen. "We are targeting the ratio at 30% by 2024-25," said Amit Vyas, managing director of the union. Roughly every third AI leads to conception. With 90% female calves, it means more cows than bulls down the line.

ET and IVF

A good cow, even with SS semen, can produce, at best, 5-6 as-good future milkers. That's where embryo transfer (ET) technology, to exploit the high genetic merit (HGM, i.e. milking potential) of an existing cow, comes in.

ET entails injecting follicle-stimulating hormone in cows to make them release multiple ova (eggs) in a single estrous cycle. These ova – numbering 4-6 in Jersey, 6-8 in Holstein Friesian (HF) and 10-15 in Gir cows – are fertilised by sperms from the semen of a proven genetically-superior bull. The fertilised eggs (zygotes) are, then, collected from inside the donor cow and transferred for implanting in the uteruses of multiple recipient animals. Multiple ovulation and ET, thus, enables production of several calves from a single HGM cow. With 6 such procedures, each yielding 6 viable embryos, and 33-35% conception rate, it would result in some 12 calves being born from every donor cow per year.

A more recent technology involves extracting the oocytes or immature ova directly from the cow's ovaries using an aspiration pump. The oocytes – about 10-50 can be collected from each ovary at a time – are kept in an incubator for 24 hours to develop into ova. In this case, the fertilisation of the mature ova takes place in vitro, i.e. outside the cow's body, in a petri-dish where the sperms are introduced. The zygotes formed remain in the in vitro culture medium for another six days, before ready for transfer to the recipient cows. With 20 procedures, 5 viable embryos per procedure and 33-35% conception, there can be 33-35 calves per donor cow per year. This is as compared with 5-7 calves during its entire lifetime through normal breeding!

Taking to farmer

Amul, in March 2020, opened a Bovine Breeding Centre at Mogar in Gujarat's Anand district. The objective was to breed a nucleus herd of HGM bulls and cows, whose superior semen and in vitro-fertilised embryos frozen at minus 196 degrees Celsius, could be used for AI or transferring into the animals of farmers.

The Centre, set up with an investment of Rs 15 crore, has so far produced 170 male and 180 female animals through in vitro fertilisation (IVF) and ET technology. These include exotic (HF and Jersey giving 10,000-12,000 litres and 7,000-10,000 litres of milk respectively per year), HF-Gir and HF-

Sahiwal crossbred (5,000-7,000 litres) and indigenous Gir, Sahiwal and Murrah buffalo (3,000-4,000 litres) breeds.

"By AI and SS semen, we are exploiting male genetics. In IVF-ET, we are exploiting female genetics of the donor cow," explained Gopal Shukla, manager (animal husbandry projects) at Amul. The Kaira union has already taken IVF-ET technology to its farmers' doorstep, with 63 pregnancies and 13 calvings recorded up till now.

Other member unions of the Gujarat Co-operative Milk Marketing Federation have also followed suit. Bhavnaben Chaudhary, who supplies around 150 litres of milk daily to the Banaskantha District Co-operative Milk Producers' Union, has a 4.5-month-old pure Kankrej calf born through IVF-ET to a surrogate HF-Kankrej crossbred mother.

Animal nutrition

Genetics apart, there is intervention required to bring down feeding costs of animals. This should be done by farmers cultivating high-yielding protein-rich green fodder grasses and reducing reliance on expensive compound cattle feed and oil-meal concentrates.

Amul is putting up a 30-tonnes-per-day Total Mixed Ration (TMR) plant at Sarsa in Anand. TMR will contain dry and green fodder, along with concentrates, vitamins and mineral mixtures, in a ready-to-eat mashed form for animals. It would save farmers the cost of purchasing and storing fodder separately, and administering it in addition to cattle feed. The plan is to source the fodder from farmer producer organisations, whose members would exclusively grow maize, jowar, hybrid napier or oat grass and make their silage for using in the TMR plant.

The focus of White Revolution 2.0 would clearly have to be on lowering the cost of producing milk at the farm-gate, as opposed to increasing procurement prices year after year.

HOW RBI'S NEW DIRECTIONS ON CREDIT CARDS COULD BENEFIT CUSTOMERS

The Reserve Bank of India (RBI) has directed credit card issuers to give customers an option to choose from multiple card networks. The regulator has restricted card issuers from entering into any kind of exclusive arrangements with a card network for the issuance of credit cards. The move is beneficial for customers as they will get the freedom to choose from multiple card networks.

What does the announcement entail?

The RBI has ordered banks and non-banks that issue credit cards not to enter into any arrangement or agreement with card networks that restrain them from availing the services of other card networks.

The card issuers should provide an option to their eligible customers to choose from multiple card networks at the time of issue, it said. The regulator has given a timeline of six months to card issuers to follow the new norms.

Why have new directions been issued?

There are five authorised card networks in India: American Express Banking Corp, Diners Club International Ltd, MasterCard Asia/ Pacific Pte Ltd, National Payments Corporation of India–Rupay, and Visa Worldwide Pte Ltd.

These authorised card networks tie up with banks or non-banks (card issuers) for the issuance of credit cards. The choice of network for a card issued to a customer is decided by the card issuer and is linked to the arrangements that the card issuers have with card networks in terms of their bilateral agreements.

After a review, the RBI found that some of these arrangements existing between card networks and card issuers are not conducive to the availability of choice for customers.

In July last year, the central bank came out with a draft circular on arrangements with card networks for the issuance of debit, credit and prepaid cards. However, on March 6, the regulator issued the final norms on arrangements with card networks for the issuance of credit cards.

How will the new norms benefit customers?

With the new directions in place, eligible customers will get to choose one among the multiple card networks. Banks and non-banks will not be able to force customers to take credit cards issued by a particular card network with whom they have any tie-ups. The move will boost competition among card networks as they will have to issue cards with attractive features.

What happens to existing credit card customers?

The RBI said for existing cardholders, the option to choose the card network should be provided at the time of the next renewal of the credit card.

Is there any exclusion?

The regulator said the new directions are not applicable to credit card issuers with the number of active cards issued by them being 10 lakh or less in number.

The RBI also said that card issuers such as American Express, who issue credit cards on their own authorised card network, are excluded from the new norms.

What is the total number of credit cards in India?

The number of outstanding credit cards at the end of January 31, 2024, stood at 9.95 crore, as per the RBI's latest data. Some of the top credit card issuers include HDFC Bank (2.01 crore), SBI Cards (1.86 crore), ICICI Bank (1.68 crore) and Axis Bank (1.37 crore).

WHY DID STOCK EXCHANGES CONDUCT SPECIAL TRADING SESSIONS ON MARCH 2?

Domestic stock exchanges the Bombay Stock Exchanges (BSE) and the National Stock Exchanges (NSE) conducted special live trading sessions on Saturday (March 2) as part of the SEBI's framework for business continuity plan (BCP) and disaster recovery site (DRS).

The special sessions were aimed at checking the preparedness of stock exchanges to handle any glitches or disruptions at the exchanges.

Typically, BSE and NSE are shut on Saturdays and Sundays, and open on weekdays from Monday to Friday.

Why did stock exchanges conduct special trading sessions?

The BSE and the NSE Stock exchanges said that they initiated the transition of trading systems from the primary site (PR) location to the disaster recovery (DR) location.

The session was conducted based on specific discussions with SEBI and their Technical Advisory Committee.

SEBI has laid out a framework for BCP and DRS for market infrastructure institutions (MIIs) — stock exchanges, depositories, and clearing corporations. The framework aims to ensure that in case of any outage, trading activities continue to take place without any disruptions. Besides, it also helps in maintaining data integrity.

THE DETERMINANT IN 'MORE WOMEN IN THE JOB MARKET'

There is growing demand from social scientists, governments and international organisations, such as the World Bank and the International Monetary Fund, that women's participation in the economy/labour market should increase to promote economic growth of India. It is believed that when women's participation rate, which is one of the lowest in Asia, increases, it will bring prosperity to the Indian economy.

Key factor of patriarchy

Why is women's participation in the labour market in India so low?

Though there are various explanations such as low human capital, and even discrimination against women, the root cause is patriarchy, which is a social system marked by the supremacy of the father/man in the family, community and society. As Marina Watanabe says, patriarchy is "a social structural phenomenon in which males have the privilege of dominance over females". This supremacy is manifested: in values, attitudes, and customs in the society; in ownership of assets, incomes and wealth; and in institutes and organisations that govern our society and economy. With economic growth and increasing education, the strength of patriarchy has perhaps declined in some ways. However, the overall culture of male dominance over women has not changed much in our traditional society.

Under patriarchy, men are considered to be the breadwinners and women are expected to be the homemakers. That is, women are responsible for household upkeep, and for providing care to the child and those who are old, sick and the disabled in the family. Even when there is hired help, it is the woman who is responsible for household upkeep and care.

Though performed with love, this work of women is inferior work for several reasons. This work is unpaid and invisible as time use data are not available on a regular basis in India, and, therefore, not covered under national policies. It is repetitive (performed every day) and boring. There is no upward mobility, and, therefore, a dead-end job. There is no retirement and no pension. This implies that a significant part of the total labour force available to the economy is locked up in low productivity and inferior kind of work, which is performed mainly by women. Women perform this work not necessarily by free choice or by any particular efficiency in this work but because it is largely imposed on women as a social construct. As this work is outside the purview of economic policies, the drudgery of work, the time stress, technology and low productivity of this type of work and working conditions of workers are outside the purview of policy making. This is unjust, unfair, and unacceptable.

As a result, many women do not enter the labour market due to their high domestic responsibilities. When the others enter the labour market, they enter with domestic responsibilities on their shoulders, implying that there is no level playing field for them from the beginning. Again, they usually have lower human capital (thanks to social norms); restricted mobility due to their domestic responsibilities.

Therefore, their choice is gendered in the labour market. They tend to prefer work that is close to home, part time or flexible work, and which has a safe work environment. Consequently, they overcrowd in stereotyped low productivity jobs and lag behind men in all average labour market outcomes such as participation, wages, and diversification of work. This is clearly not the optimum use of women labour power in the economy. Therefore, women's participation in the labour market must be raised.

Greater participation, but also exploitation

As women with higher education and professional qualifications in India tend to participate more in the labour market, it is argued by experts that greater women's education will raise their participation rate in the labour market.

However, this is only half truth, as this increase in participation is backed by an army of domestic workers, who are known to be highly exploited in the Indian economy.

Women's participation in the labour market can increase at all levels mainly by reducing their burden of unpaid domestic work and care by reducing the drudgery/strain of work or improving productivity of women's work (for example, providing fuel-efficient stoves in cooking in place of primitive stoves that use fuel wood); by providing infrastructural support to reduce the burden of their work (for example, water supply at the doorstep); by shifting a part of unpaid work to the mainstream economy (for example, child care, disabled care, care of the old can be provided by the government, the market or by civil society organisations to the mainstream economy).

The burden of unpaid domestic work on women can also be reduced by redistributing this work to other household members, mainly men. These steps will release women from the burden of unpaid work to a significant extent and give them free time to acquire higher education and new skills, or to participate in productive work in the labour market.

Address the issue of subordination

If we want not only women's participation but also gender equality in the labour market, households will have to provide equal opportunities to men and women within the household, i.e., by sharing the "inferior work", or unpaid domestic work and care by men and women. However, irrespective of sharing, what is critical is removing the subordination of women in the household by sharing the responsibility of unpaid household work by men and women.

On hired domestic workers, there is an International Labour Organization Convention that provides minimum basic rights to domestic workers in the world. These include a weekly day off, limited hours of work, overtime compensation, minimum wages and minimum social security. It is unfortunate that India has not even ratified this Convention. If India raises the participation rate of (well-educated) women in the labour market along with a rapid increase in the size of domestic workers, the gains in terms of economic growth will be lost as it will create a huge army of highly exploited domestic workers also.

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LIFE & SCIENCE

MEET METHANESAT, A SATELLITE WHICH WILL 'NAME AND SHAME' METHANE EMITTERS

MethaneSAT — a satellite which will track and measure methane emissions at a global scale — was launched aboard a SpaceX Falcon9 rocket from California on Monday (March 4).

While the washing-machine-sized satellite is not the first spacecraft to identify and quantify methane emissions, it will provide more details and have a much wider field of view than any of its predecessors.

Here is all you need to know about MethaneSAT.

But first, why do we need to track and measure methane emissions?

Methane is an invisible but strong greenhouse gas, and the second largest contributor to global warming after carbon dioxide, responsible for 30 per cent of global heating since the Industrial Revolution. According to the United Nations Environment Programme, over a period of 20 years, methane is 80 times more potent at warming than carbon dioxide.

The gas also contributes to the formation of ground-level ozone — a colourless and highly irritating gas that forms just above the Earth's surface. According to a 2022 report, exposure to ground-level ozone could be contributing to one million premature deaths every year.

Therefore, it is crucial to cut methane emissions. And the main culprit: fossil fuel operations, which account for about 40 per cent of all human-caused methane emissions. The objective of MethaneSAT is to help achieve this goal.

What is MethaneSAT?

The entity behind MethaneSAT is the Environmental Defense Fund (EDF) — a US-based nonprofit environmental advocacy group. To develop the satellite, EDF partnered with Harvard University, the Smithsonian Astrophysical Observatory, and the New Zealand Space Agency.

Essentially, MethaneSAT will orbit the Earth 15 times a day, monitoring the oil and gas sector. It will create a large amount of data, which will tell "how much methane is coming from where, who's responsible, and are those emissions going up or down over time", according to a statement by EDF.

The data collected by MethaneSAT will be made public for free in near real-time. This will allow stakeholders and regulators to take action to reduce methane emissions.

What are the features of MethaneSAT?

Historically, tracking the source of methane emissions and measuring them has been quite challenging.

While some satellites can provide high-resolution data, they can only scan specific, pre-targeted sites. Others can examine larger areas and detect large emitting events, but cannot scan "smaller sources that account for the majority of emissions in many, if not most, regions," the EDF statement added.

Due to this discrepancy, according to an International Energy Agency (IEA) report, global methane emissions are about 70 per cent higher than levels reported by national governments.

MethaneSAT is expected to fix the issue. Equipped with a high-resolution infrared sensor and a spectrometer, the satellite will fill critical data gaps. It can track differences in methane concentrations as small as three parts per billion in the atmosphere, which enables it to pick up smaller emissions sources than the previous satellites. MethaneSAT also has a wide-camera view — of about 200 km by 200 km — allowing it to identify larger emitters so-called "super emitters".

The collected data will be analysed using cloud-computing and AI technology developed by Google — the company is a mission partner — and the data will be made public through Google's Earth Engine platform, a report by The New York Times stated.

Why is it significant?

The launch of MethaneSAT has come at a moment when the world is implementing more stringent methane management policies. For instance, more than 150 countries signed the Global Methane Pledge in 2021, to cut their collective methane emissions by at least 30 per cent from 2020 levels by 2030. At last year's COP, more than 50 companies committed to virtually eliminating methane emissions and routine flaring. MethaneSAT will help them meet these targets.

The satellite will also usher in a new era of transparency. Its publicly available data, which can be accessed by anyone in the world, will keep track of methane commitments made by governments and corporations.

However, it does not necessarily mean that the data will compel polluters to curb their emissions. Drew Shindell, an earth-science professor at Duke University who wasn't involved with MethaneSAT, told The NYT: "There's no guarantee that this information leads to a change in behaviour."

MANAGING OUR RESOURCES WITH ARTIFICIAL INTELLIGENCE

These days, the term Artificial Intelligence (AI) seems to be everywhere. The public has come to view it with mixed perceptions. On one side, it is a problem-solver: AI has helped in monitoring heart problems and eye conditions and offered treatment options; AI predicts protein structure and aids in the development of new drug molecules. Likewise, it predicts cyclones, monsoon strengths, etc. On the dark side are fears that jobs may be lost to thinking machines that work 24/7 and do not need a Diwali vacation, and may intrude on your privacy and misuse your data. But nobody doubts that AI will help us in addressing large-scale problems that require the analysis of huge data.

As India's development gathers momentum, we are faced with the eventuality of resource limitations. We may need much more than we have. This is especially true of water—every year we see floods in parts of the country and drought in others. Engineers have long dreamt of building links between our rivers to mitigate these problems. But uncertainties over the effects of such large-scale changes have stalled many initiatives.

Linking rivers

For the nation's planners, minimising the water deficit has become a critical goal in this age of climate change and unpredictable weather. Can AI tools be used to make predictions on how to

bring about change? Computational modelers at the IIT-ISM, Dhanbad and the NITs in Tripura and Goa have done just this while examining the proposed Pennar-Palar-Cauvery link canal.

This canal is part of a scheme to connect the flood-prone Mahanadi and Godavari rivers with the 'deficit' rivers further south. The link canal would aid half-a-million hectares in a chain of districts, from Nellore in Andhra Pradesh to Cuddalore in Tamil Nadu. Such proposals have a complex set of objectives, which can be modeled in the search for maximum benefits to the most people.

Fulfilling objectives

In a multi-objective model, the goal is to achieve more than one objective optimally. For example, a farmer may wish to get the maximum yield of his crop with the minimum use of water. He would tweak his system to a point where he could no longer improve one objective without worsening the other.

The IIT-NIT team has presented a model that aims to improve the returns from farms, without depleting groundwater or wasting the water in rivers and reservoirs (Agricultural Water Management, v-279, 2023).They used data that has been collected over the years by the National Water Development Agency on (a) water levels before and after monsoons in the 1.2 lakh wells and tube wells in these districts; (b) crop-sowing patterns; (c) prevailing minimum support price and the cost and benefits to farmers. This AI-based modeling effort suggests that favourable outcomes will come with a few adjustments to the choice of crops that are grown in the two seasons of July and November. Collecting more detailed data will help such AI-based models in making more focused predictions.

WHAT MAKES ASML'S CHIP-MAKING MACHINE A SCIENTIFIC MARVEL?

By continuously making semiconductor chips smaller, faster, and more efficient, technology has progressed from just four transistors in the first integrated circuit in 1948 to more than 19 billion in smartphone chips. The High NA EUV machine is the current cutting edge in making these chips,

Computers denote data in bits — the famous 0s and 1s — using semiconductors. These are small physical devices that store these values and perform mathematical operations on them. The sum of all these operations is what allows the computer to compute.

The world has powerful computers almost everywhere around us thanks to a technology called semiconductor lithography — the science of printing intricate circuits with extreme precision.

There are machines that automate this process, at a cost of anywhere between ₹800 crore and ₹1,600 crore. Only one company, ASML, headquartered in the Netherlands, makes them, giving it an absolute monopoly in a market worth $125 billion and rendering it the technology company with the highest market value in Europe.

In February, ASML unveiled its new 'High NA EUV' machine. It costs $350 million (₹2,900 crore) apiece and is as big as a double decker bus. Industry analysts say the machine ups ASML's competition with Intel in the market for the most advanced semiconductors, to power the next generation of computers and smartphones.

AI HAS A BIG AND GROWING CARBON FOOTPRINT, BUT ALGORITHMS CAN HELP

Given the huge problem-solving potential of artificial intelligence (AI), it wouldn't be far-fetched to think that AI could also help us in tackling the climate crisis. However, when we consider the energy needs of AI models, it becomes clear that the technology is as much a part of the climate problem as a solution.

The emissions come from the infrastructure associated with AI, such as building and running the data centres that handle the large amounts of information required to sustain these systems.

But different technological approaches to how we build AI systems could help reduce its carbon footprint. Two technologies in particular hold promise for doing this: spiking neural networks and lifelong learning.

The lifetime of an AI system can be split into two phases: training and inference. During training, a relevant dataset is used to build and tune – improve – the system. In inference, the trained system generates predictions on previously unseen data.

For example, training an AI that's to be used in self-driving cars would require a dataset of many different driving scenarios and decisions taken by human drivers.

After the training phase, the AI system will predict effective manoeuvres for a self-driving car. Artificial neural networks (ANN), are an underlying technology used in most current AI systems.

They have many different elements to them, called parameters, whose values are adjusted during the training phase of the AI system. These parameters can run to more than 100 billion in total.

While large numbers of parameters improve the capabilities of ANNs, they also make training and inference resource-intensive processes. To put things in perspective, training GPT-3 (the precursor AI system to the current ChatGPT) generated 502 metric tonnes of carbon, which is equivalent to driving 112 petrol powered cars for a year.

GPT-3 further emits 8.4 tonnes of CO_2 annually due to inference. Since the AI boom started in the early 2010s, the energy requirements of AI systems known as large language models — the type of technology that's behind ChatGPT — have gone up by a factor of 300,000.

With the increasing ubiquity and complexity of AI models, this trend is going to continue, potentially making AI a significant contributor of CO_2 emissions. In fact, our current estimates could be lower than AI's actual carbon footprint due to a lack of standard and accurate techniques for measuring AI-related emissions.

Spiking neural networks

The previously mentioned new technologies, spiking neural networks (SNNs) and lifelong learning (L2), have the potential to lower AI's ever-increasing carbon footprint, with SNNs acting as an energy-efficient alternative to ANNs.

ANNs work by processing and learning patterns from data, enabling them to make predictions. They work with decimal numbers. To make accurate calculations, especially when multiplying numbers with decimal points together, the computer needs to be very precise. It is because of these decimal numbers that ANNs require lots of computing power, memory and time.

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This means ANNs become more energy-intensive as the networks get larger and more complex. Both ANNs and SNNs are inspired by the brain, which contains billions of neurons (nerve cells) connected to each other via synapses.

Like the brain, ANNs and SNNs also have components which researchers call neurons, although these are artificial, not biological ones. The key difference between the two types of neural networks is in the way individual neurons transmit information to each other.

Neurons in the human brain communicate with each other by transmitting intermittent electrical signals called spikes. The spikes themselves do not contain information. Instead, the information lies in the timing of these spikes. This binary, all-or-none characteristic of spikes (usually represented as 0 or 1) implies that neurons are active when they spike and inactive otherwise.

This is one of the reasons for energy efficient processing in the brain.

Just as Morse code uses specific sequences of dots and dashes to convey messages, SNNs use patterns or timings of spikes to process and transmit information. So, while the artificial neurons in ANNs are always active, SNNs consume energy only when a spike occurs.

Otherwise, they have closer to zero energy requirements. SNNs can be up to 280-times more energy efficient than ANNs.

The lower computational requirements also imply that SNNs might be able to make decisions more quickly. These properties render SNNs useful for a broad range of applications, including space exploration, defence and self-driving cars because of the limited energy sources available in these scenarios.

Lifelong learning

L2 is another strategy for reducing the overall energy requirements of ANNs over the course of their lifetime that we are also working on.

Training ANNs sequentially (where the systems learn from sequences of data) on new problems causes them to forget their previous knowledge while learning new tasks.

ANNs require retraining from scratch when their operating environment changes, further increasing AI-related emissions.

L2 is a collection of algorithms that enable AI models to be trained sequentially on multiple tasks with little or no forgetting.

L2 enables models to learn throughout their lifetime by building on their existing knowledge without having to retrain them from scratch.

The field of AI is growing fast and other potential advancements are emerging that can mitigate the energy demands of this technology. For instance, building smaller AI models that exhibit the same predictive capabilities as that of a larger model.

Advances in quantum computing — a different approach to building computers that harnesses phenomena from the world of quantum physics — would also enable faster training and inference using ANNs and SNNs.

The superior computing capabilities offered by quantum computing could allow us to find energy-efficient solutions for AI at a much larger scale.

The climate change challenge requires that we try to find solutions for rapidly advancing areas such as AI before their carbon footprint becomes too large.

TRANSPARENT YET IMPENETRABLE

Q: What constitutes bulletproof glass?

A:High-strength ceramics such as silicon nitride, dual hardness steel, and layers of heavy nylon fabric make up bulletproof glass.

The hard ceramic stops the bullet abruptly, dissipating its energy as it destroys the first layers of the glass at the point of impact, and entangles it in a coarse mesh.

A textile bulletproof vest is fashioned of 16-24 layers of nylon cloth of heavy weave. The layers are stitched together like a quilt.

Such vests, also known as full-torso protectors, can be worn undetected under regular clothing.

A vest of 16 layers will stop regular handgun and submachine-gun bullets, while those of 24 layers will stop the move powerful magnum bullets from the same weapons.

WHY SCIENTISTS VOTED DOWN PROPOSAL TO DECLARE START OF THE ANTHROPOCENE — AND WHAT IT MEANS

From the peak of Mount Everest to the depths of the Mariana Trench, the evidence of human activity is unmissable — and possibly indelible. Yet, a committee of 18 scientists have voted down a proposal to declare the start of the Anthropocene, or the "Human Epoch", in geologic time.

What are (or not) the implications of such a vote? First, some context.

A timeline of Planet Earth

Geoscientists, or scientists who study the Earth, use the geologic time scale (GTS) to measure the history of the planet. The GTS (since the formation of Earth, roughly 4.54 billion years ago) is divided, in descending order of duration, into aeons, eras, periods, epochs, and ages.

The GTS is based on chronostratigraphic classification. Stratigraphy is a branch of geology that deals with the study of rock layers (or strata). Chronostratigraphy ("chrono": relating to time) is an aspect of stratigraphy that deals with the relation between rock strata and the measurement of geological time.

An alternative representation of GTS as a clock. Note how recently, in this timescale, the first hominins (ancestors of modern-day humans) emerged. Keep in mind that GTS is linear, not cyclic. An alternative representation of GTS as a clock. Note how recently, in this timescale, the first hominins (ancestors of modern-day humans) emerged. Keep in mind that GTS is linear, not cyclic. (Courtesy: Wikimedia Commons)

Chronostratigraphic units are not uniform — any two aeons, eras, periods, epochs, and ages do not encompass the same length of time (like days or minutes). Rather, transition from one to

another is marked by events (often violent, such as mass extinctions) that shape the planet and its living conditions. Importantly, each interval of Earth time must have a clear, objective, universally applicable starting point.

Currently, we are living in the Phanerozoic aeon, during the Cenozoic era, in the Quaternary period, the Holocene epoch, and the Meghalayan age.

The proposed 'Human Epoch'

The Holocene epoch (from the Greek "holos", meaning 'whole', and "kainos", meaning "new") began some 11,700 years ago, at the end of the Last Glacial Period (LGP). During the LGP, up to 25% of the Earth's land surface was covered by glaciers, the mean sea level was up to 400 feet lower, and the average temperature fell to 8 degree Celsius.

The Holocene saw the warming of the Earth, which closely corresponded with the rise and proliferation of human beings. While Homo sapiens as a species had evolved well before the Holocene began, all of humanity's recorded history falls in this epoch.

Since the year 2000, when the Dutch meteorologist Paul Crutzen and American botanist Eugene Stoermer coined the term Anthropocene, the idea of a separate 'human' epoch ("Anthropo": relating to humankind) has excited many geoscientists. Proponents of Anthropocene argue that humans have changed the Earth to such an extent that a new geological epoch has begun.

The Anthropocene Working Group (AWG), a 37-member research group, began deliberations in 2009 to come up with a starting point for the epoch and, after years of deliberation, decided on the year 1952. The period after World War II is seen as the "Great Acceleration", during which the human population skyrocketed, the burning of fossil fuels surged, the fallout of nuclear tests spread across the planet, the use of nitrogen-based fertilisers became rampant, and plastics became ubiquitous.

Rejection of the proposal

The AWG submitted its proposal to the International Union of Geological Sciences (IUGS), the representative body of more than a million geoscientists from more than 120 countries and regions devoted to international cooperation in the field of geology, last fall.

Starting February this year, the proposal was taken up for a vote by the Subcommission on Quaternary Stratigraphy (SQS), a constituent body of the International Commission on Stratigraphy (ICS), the largest scientific organisation within the IUGS, The New York Times reported.

The SQS voted 12 to 4 against the proposal, with two abstentions, The NYT report said. The IUGS committee determined that adding an Anthropocene epoch — and terminating the Holocene — was not supported by the standards used to define epochs according to chronostratigraphy.

This criticism is not new. In 2015, the geologist Bill Ruddiman and others wrote in Science magazine: "Does it really make sense to define the start of a human-dominated era millennia after most forests in arable regions had been cut for agriculture?"

This week, the ecologist and environmental scientist Erle C Ellis, a former member of the AWG, wrote for The Conversation: "By tying the start of the human age to such a recent and devastating event — [such as] nuclear fallout — this proposal risked sowing confusion about the deep history

of how humans are transforming the Earth, from climate change and biodiversity losses to pollution by plastics and tropical deforestation."

Also, as mentioned above, the boundaries between epochs typically tend to represent truly massive geological change. "Our last boundary, between the Holocene and the Pleistocene, was almost one-third of this planet being covered by ice," Joseph Desloges, a professor at the University of Toronto who studies the impact of climate change and human disturbance on geomorphic processes, told the Canadian Broadcasting Corporation (CBC).

Again, GTS is based on records in solid rocks, not sediments like the ones in Crawford Lake, Ontario, Canada, which AWG's proposal had selected as the physical site which most clearly showed a definitive break between the Holocene and the Anthropocene.

"I think people are kind of sceptical about the permanency of it," Prof Desloges said.

Long live the Anthropocene!

It is important to note that the SQS vote was against the limited definition of the Anthropocene epoch, as proposed by the AWG. It was not a referendum on whether or not humans have had a lasting impact on the planet. Evidence for that is already past the point of being undeniable, and is mounting.

"Our impact is here to stay and to be recognizable in the future in the geological record — there is absolutely no question about this," Jan A Piotrowski, professor of geoscience and one of the committee members who voted against the AWG proposal, told The NYT. "It will be up to the people that will be coming after us to decide how to rank it," Prof Piotrowski said.

Scientists have long proposed that the Anthropocene should not be seen as a new epoch but rather as an "event". Events, in the language of geology, are looser terms which do not appear on the official GTS, and thus need no committees to approve their start dates.

Nonetheless, many of the planet's most significant happenings have been deemed as events — from mass extinctions such as the one that wiped out dinosaurs to the rapid expansion of biodiversity that filled the sky with oxygen 2.1-2.4 billion years ago.

The concept of the Anthropocene as a transformative time for the planet due to human activity, remains very much relevant.

IN SNAKE GENES, STUDY FINDS THEY EVOLVED 3X FASTER THAN OTHER REPTILES

The sci-fi writer David Brin built his fictitious 'Uplift Universe' in a series of novels for two decades from 1980. In the series, a patron race uplifts species of a future universe to a higher order of life.

Something similar happened in the earth's distant past when many species went through bursts of evolutionary innovation, taking giant leaps and incorporating extraordinary diversity in their population, while others were left behind.

Unexplained bursts of change

The question of how some species become capable of taking these quantum leaps has been an enduring mystery in evolutionary biology.

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The popular Darwinian theory of evolution states that all organisms evolve through the process of natural selection. In other words, organisms inherit small changes over many generations and these changes collectively enhance the organism's ability to compete, survive, and reproduce. However, the earth's fossil records tell a more complex, in fact different story: in addition to a constant rate of transformation, organisms also evolved at different speeds and through varying degrees of complexity.

Our planet's evolutionary history is dotted with numerous instances of such unexplained bursts of evolutionary changes, leading to the emergence of new species or the extinction of old ones.

A tree of snakes and lizards

One such evolutionary explosion happened about 100-150 million years ago, when dinosaurs roamed the planet's surface. An extraordinary evolutionary transformation happened at this time: the nondescript lizards lost their legs to become one of the most highly adapted predators in history, capturing almost every environmental niche on the planet. We know them today as snakes.

Through a series of remarkable adaptations, snakes acquired legless bodies that could slither across diverse terrains, developed complex chemical sensory systems to track prey, incorporated flexible jaws to swallow large animals, and evolved an assortment of attack mechanisms, including the production of lethal venoms.

DNA and protein sequences evolve at a relatively constant rate over time, irrespective of the organism. This allows scientists to use genetic differences between two species to estimate the time that has passed since these species last shared a common ancestor. This is then used to calculate the relative pace of evolution of the organism. In a way, genetic sequences serve as a molecular clock using which scientists can determine the 'evolutionary distances' between various organisms.

Along with snakes, many lizards also adapted to these rapid changes and developed snake-like traits, including losing their limbs and elongating their bodies. The Australian scincid lizard (Lerista), a member of the clade Squamata (which includes lizards and snakes), provides perhaps the best example of such evolution.

PREDATORY FISH USE RAPID COLOUR CHANGES TO COORDINATE ATTACKS

Striped marlin are some of the fastest animals on the planet and one of the ocean's top predators. When hunting in groups, individual marlin will take turns attacking schools of prey fish one at a time. Now a new study (Current Biology) explains how they might coordinate this turn-taking style of attack on their prey to avoid injuring each other. The key is rapid colour changes.

Studying the way rapid colour change as groups of marlin hunted schools of sardines, the authors found that the attacking marlin 'lit up' and became far brighter than others as it made its attack and the colour rapidly returned to its 'non-bright' colouration after the attack. The researchers used drones to study this phenomenon.

A BOLD STEP TOWARDS A CERVICAL CANCER-FREE FUTURE

As the world observes International Women's Day, India's interim Union Budget 2024-25 has emerged as a beacon of hope, particularly in the realm of women's health. The Narendra Modi

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government's support in encouraging the vaccination of girls (from nine to 14 years) against cervical cancer stands out as a pivotal move towards safeguarding women's well-being.

The '90-70-90' targets, global programmes

Despite advances in health care, cervical cancer remains the second most common cancer among women in India, with 1.27 lakh cases and around 80,000 deaths being reported annually. Human papillomavirus (HPV) is a primary culprit in the development of cervical cancer. In response to this pressing public health challenge, HPV vaccination emerged as a cornerstone of a comprehensive strategy for disease prevention and health promotion. The World Health Organization has outlined the '90-70-90' targets by 2030 — for 90% of girls to be fully vaccinated with the HPV vaccine by age 15, for 70% of women to undergo cervical cancer screening tests by the age of 35 and 45, and for 90% of women with cervical cancer to be treated. These targets represent milestones in the global effort to eradicate cervical cancer and highlight the pivotal role of India's call for HPV vaccination in achieving this goal.

Across the world, over 100 countries have implemented HPV vaccination programmes, resulting in a notable decline in the incidence of cervical cancer. A study out of Scotland illuminates the real-world impact of HPV vaccines. The findings show that there have been no reported cases of cervical cancer among women born between 1988 and 1996 who received full HPV vaccination between the ages of 12 and 13. Australia, which initiated HPV vaccination for girls in 2007 and expanded to include boys in 2013, is poised to eliminate cervical cancer by 2035.

Similarly, the successful HPV vaccination campaign in Rwanda, Africa, has significantly reduced the prevalence of vaccine-targeted HPV types, particularly among women who participated in their catch-up programme in 2011. These global success stories underscore the importance of prioritising vaccination for tackling cervical cancer.

Closer to home, six out of the 11 South East Asia Region countries have introduced the HPV vaccine nationwide, i.e., Bhutan, Indonesia, the Maldives, Myanmar, Sri Lanka, and Thailand. Bhutan was the first low-middle income country (LMIC) to introduce a nationwide HPV vaccination programme for girls (12 to 18 years) in 2010 and achieved an initial coverage of 95% of targeted girls. Bhutan is also one of the only LMICs to have begun vaccinating boys as well (in 2021). Ongoing programme assessments and research in Thimphu have observed a reduction in the prevalence of HPV types targeted by the vaccine, indicating the programme's broader impact on reducing HPV transmission in the community.

The Sikkim model

The key to the success of any vaccination campaign is a robust communication strategy that educates and empowers communities. Within India, Sikkim's exemplary approach to HPV vaccination is an example of an effective public health strategy. Through targeted efforts to educate teachers, parents, girls, health-care workers, and the media about the benefits of the HPV vaccine, Sikkim achieved vaccination coverage of 97% during its campaign rollout in 2018. It provides a compelling example of effective communication and outreach. This rigorous effort has not only dispelled myths and misconceptions but has also fostered trust and confidence in the vaccination process.

India's recent milestone in developing its indigenous quadrivalent vaccine, Cervavac, marks a significant stride towards ensuring accessibility and affordability. Developed by the Serum Institute of India in collaboration with the Department of Biotechnology, and priced at ₹2,000 a

dose, Cervavac is cheaper than available vaccines, and holds promise in the fight against HPV infections and cervical cancer.

Whenever India plans to expand its vaccination programme, there is also an opportunity to include adolescent boys, thereby maximising the impact of HPV vaccination in preventing HPV transmission and HPV-related diseases. Also, in line with recent evidence, it has been recognised that one dose of HPV vaccine provides similar protection to that provided by two or three doses.

Drawing inspiration from global and local triumphs, India is ready to make significant strides in combating cervical cancer through HPV vaccination. India's track record in vaccination campaigns, exemplified by the widespread acceptance and coverage of the COVID-19 vaccine, instils confidence in the feasibility of scaling up HPV vaccination efforts. India's ability to reach remote and underserved populations highlights the inclusivity and accessibility of its vaccination programmes, laying a solid foundation for the success of the HPV vaccination initiative.

The importance of HPV vaccination extends beyond individual health outcomes. It has the potential to alleviate the societal and economic burden of cervical cancer. Cervical cancer predominantly strikes women during their prime years, exerting a profound toll on both their families and communities. Premature deaths of young mothers due to cervical cancer negatively impact health and education outcomes in children. By preventing HPV infections, vaccination diminishes the occurrence of cervical cancer and its associated health-care expenses, ultimately fostering the overall welfare and productivity of women.

Meet the challenges

However, challenges persist, particularly in addressing vaccine hesitancy and ensuring equitable access to HPV vaccination. To overcome these hurdles, concerted efforts are needed to engage communities, dispel misinformation, and strengthen health-care infrastructure. The interim Budget also announced the rollout of U-WIN throughout the country. U-WIN, like Co-WIN that was designed to track the COVID-19 vaccination campaign, is a portal that will maintain an electronic registry of all immunisations across the country and enable vaccination programmes to be responsive in real time.

On the supply side, ensuring access to vaccination services is imperative, particularly in underserved populations. And to improve demand among the community, awareness must be improved. Vaccine hesitancy, fuelled by myths and misinformation, poses a significant barrier to the acceptance of HPV vaccines across different regions. Cultural and societal norms are also a factor, highlighting the importance of tailoring messages to resonate with diverse communities. Utilising diverse channels such as social media and community workshops can amplify reach. Including HPV information in health education in schools can be a step to generate demand among adolescents.

Collaborations between government agencies, community partners, health-care providers, and civil society organisations will be instrumental in building trust and ensuring the success of HPV vaccination programmes. We can build upon our experiences of the successful nationwide rollout of COVID-19 vaccines amidst a landscape of pervasive digital and mass misinformation. Moreover, public-private partnerships are instrumental in ensuring equitable access to vaccination services, thereby advancing the collective goal of safeguarding women's health against cervical cancer.

Thus, India's inclusion of HPV vaccination in the interim Union Budget 2024-25 heralds a new era in women's health.

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BIG SWEDISH STUDY HINTS AT LINK BETWEEN BOWEL DISEASE, INFANT DIET

Inflammatory Bowel Disease (IBD) describes disorders where the lining of the digestive tract is inflamed. There are two types of IBD disorders: ulcerative colitis, where the large intestine and the rectum are prone to inflammation and sores, and Crohn's disease, which usually affects the small intestine.

Researchers have reported diet, age, family history, cigarette smoking, and certain medications, among other factors, as being responsible for causing or worsening IBD.

They have also said changing diet patterns can help explain changing patterns of the prevalence of IBD. For example, a 2023 study in The Lancet attributed a higher incidence of IBD in rural Telangana to the greater availability and consumption of processed foods.

A diet that predicts IBD

More recently, a study published in the journal Gut in January reported that the diet of infants as young as a year old could affect their chances of developing IBD in future. Researchers behind the study followed the dietary habits of more than 80,000 children through adolescence in Norway and Sweden as they consumed plenty of vegetables and fish in the first year of life, and were associated with a lower future risk of developing IBD.

Consuming sugar-sweetened beverages in this time was associated with a higher risk of IBD, they reported. According to their analysis, at three years of age, no dietary factor other than fish intake was associated with IBD risk. The researchers suspect the developing gut microbiome may be at the heart of the apparent age-dependent relationship of dietary intake and IBD.

The gut microbiome comprises a vast number and types of micro-organisms that live in the human gut. According to the authors of the Gut paper, it changes significantly through the first year and stabilises by the time the infant is two to three years old.

Ashwin Ananthakrishnan, a gastroenterologist at the Massachusetts General Hospital, Boston, suggested in an article accompanying the paper that infants may benefit from a "preventive" diet that includes "adequate dietary fibre, particularly from fruit and vegetables", "intake of fish", a minimal amount of sugar-sweetened beverages, and a preference of "fresh over processed and ultra-processed foods and snacks".

FOETAL GROWTH

Oxygenation levels in the placenta, formed during the last three months of foetal development, are an important predictor of cortical growth (development of the outermost layer of the brain or cerebral cortex) and are likely a predictor of childhood cognition and behaviour, a study has found. In the latest study, researchers used MRI to image placental growth. The use of MRI allows researchers to study neurodevelopmental disorders very early on in life. Poor nutrition, smoking, cocaine use, chronic hypertension, anaemia, and diabetes may result in foetal growth restriction and may cause problems in the development of the placenta. If the placenta does not develop properly, the foetal brain may not get enough oxygen and nutrients, which may affect childhood cognition and behaviour. The study revealed that a healthy placenta in the third trimester particularly impacts the cortex and the prefrontal cortex, regions of the child's brain that are important for learning and memory.

BRIDGING THE GENDER GAP IN HEALTH RESEARCH

As of 2023, there were 4 billion women in the world, accounting for approximately 49.75% of the population. Despite this, it is unfortunate that our approach to health and well-being has been shadowed by a deep-seated gender bias. For far too long, women's health has been confined to gynaecological and reproductive issues.

Moreover, the historical bias in medical research, favouring the male body as the standard, has resulted in dire consequences. Women face disproportionate risks in various health domains, from disability and obesity to cardiovascular health. Additionally, systemic biases in data collection perpetuate these disparities, leading to misdiagnoses, ineffective treatments, and unnecessary suffering. On this International Women's Day, we must scrutinise the path towards gender parity, especially within healthcare.

The recently released World Economic Forum's report, 'Closing the Women's Health Gap', underscored the profound disparity between men's and women's health worldwide. It elucidated historical neglect in women's health research, funding, and policymaking, and highlighted the need for a global effort to address the women's health gap by urging governments, the private sector, and civil society to realign their strategies with a gender-sensitive approach. A definitive, oft-reiterated point is that by prioritising women's health, we can create a future where health equity is a reality. Likewise, in India, several research studies have observed that many Indians have genetic variations that make them more susceptible to certain diseases. For example, Indians have higher levels of insulin resistance than Caucasians, which is a major reason for the increased prevalence of type 2 diabetes in this population.

Therefore, regarding health research, to effect meaningful change, we must undertake concrete actions. First, we need to champion the analysis of gender differences in clinical trials. Going forward, it is imperative that all clinical trials diligently analyse and report gender-specific findings to tailor treatments effectively. Second, we must advocate for including gender differences on drug labels, including information on safe use during pregnancy. Empowering healthcare providers and patients with this information enhances treatment decisions and fosters a more inclusive healthcare landscape. Third, we must prioritise the recruitment of women in clinical trials. Ensuring adequate representation is not just a matter of fairness but a necessity to understand treatment efficacy across diverse populations. Fourth, it is imperative that we delve into data with a gender lens. By dissecting data through the prism of gender, we uncover nuances crucial for refining healthcare strategies. This could be different patterns of disease, divergent responses to treatment, and different safety profiles. Finally, it is important to embrace precise terminology on sex and gender. Clear and accurate language fosters understanding and inclusivity, laying the foundation for more effective healthcare communication.

It's equally crucial to encourage the participation of more women in the research and scientific arenas. The unique insights and experiences women bring can enrich our understanding and approach to health challenges, fostering a more inclusive, women-centric perspective in research. Women's inclusion is essential in dismantling the one-size-fits-all approach that has dominated medical research, allowing for the development of more nuanced, effective healthcare solutions that benefit everyone.

Above all, it is vital to note that these actions are not just about ticking boxes; they're about building a future where healthcare truly serves everyone with compassion, insight, and equity.

Good health is a fundamental human right. It is time to dismantle the invisible barriers hindering equitable healthcare access. By bridging the gender gap in health research and practice, we pave the way for a future founded on equality and fairness. This issue transcends gender —it is about reshaping healthcare systems to serve everyone equitably and effectively.

A CASE FOR LIFE-SAVING MODERN CONTRACEPTION

The article on high-risk pregnancies in The Hindu on February 17 astutely drew public attention to a matter of great concern to the obstetrics and gynaecology community, but often overlooked by the rest of the country. India has great strides in decreasing maternal mortality — from an MMR of 130/100,000 live births in 2016-2018 to a MMR of 97/100,000 in2018-2020— by ensuring an increase in institutionalised deliveries and antenatal care and improving women's access to reproductive healthcare services. However, India still has a long way to go. While we celebrate our achievements, we must confront the challenges that persist, ensuring that every pregnancy is safe, and every woman is assured of the best possible care.

Acknowledging that India is now the most populous country in the world, most States have begun to see an optimal total fertility rate to ensure a more stable population growth. But pregnancy is not always easy to go through and abounds with risk factors. The study referenced in the mentioned piece illustrates that on average across India 49.1% of pregnancies are high-risk. Short birth spacing — less than 18 months between two pregnancies — tops the list making up for 31% of the contributing risk factors, followed by previous adverse outcomes at 19%. These risks are disproportionately higher among women with limited or no education. In a telling comment, the researchers noted in the article, "nearly half of Indian women were not using contraception to delay their next pregnancy". This is a stark reminder of a critical gap in our healthcare and educational systems: the underutilisation of continuous, consistent, effective, modern contraception. Women and their partners need more information about and access to modern contraceptive products to help them choose what's best for their bodies.

Pregnancy is an intense physiological experience. A gap of two-three years between pregnancies is recommended to give a woman enough time to recover, regain her health, strength, and nourishment before she is ready to give birth to and take care of another child. Beyond the health benefits, when women exercise autonomy and agency over their bodies and reproductive decisions, they are stepping into a realm of empowerment that has ripple effects beyond themselves.

The Indian family planning programme has for many years effectively offered a basket of choices for modern methods — and has reached many milestones in reducing what is known as the unmet need across most parts of the country. In the public sector, the current basket includes condoms, combined oral contraceptive pills, emergency contraceptive pills, intrauterine contraceptive device (IUCD), an injectable contraceptive (medroxyprogesterone acetate or MPA) and contraceptive tablet centchroman (Chhaya). Additionally, two new methods — a subdermal contraceptive implant (HI) and the subcutaneous injectable contraceptive (DMPA-SC) — have been introduced in the public health programmes of a few States (these two methods though aren't available in the private sector just yet). They are easy to administer and can prevent pregnancy for three years (subcutaneous implants) and three-four months (DMPA-SC)at a time thus making them convenient and discreet choices. All these methods are safe, high-quality, and reversible.

But evidence suggests that the most common modern methods still in use in the country are female sterilisation (which is permanent), and male condoms(which are often incorrectly used — thus reducing their effectiveness — and women may not always have the choice to use them). Awareness and evidence-based information are key to encouraging people to choose the best method for themselves. However, a lack of information and understanding among the end users, and limited engagement with communities can mean that people do not feel comfortable and empowered to make these choices. Misconceptions, negative experiences, misinformation, and taboos, often fuel hesitancy. Better counselling and stronger communication are imperative.

And that is where medical providers come in. As trusted credible sources of information, it is incumbent on medical providers to go the extra mile to ensure that people have accurate information that can help them exercise their right to choose. Contraception and family planning are an essential part of a woman's freedom, her agency, her bodily autonomy — her empowerment. When we make sure our women are empowered, we can unleash and realise the full potential of Nari Shakti.