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# CURRENT AFFAIRS FOR UPSC

DreamIAS





## INTERNATIONAL

### WHAT HAPPENED TO THE BRIDGE IN BALTIMORE?

#### The story so far:

On March 26, a container vessel ran into the pillar of a bridge on the Patapsco River in Baltimore, bringing a part of the structure crashing down together with some people and cars on the bridge. By late March 27, the U.S. Coast Guard had concluded its search in the river for the bodies of the six people who fell. The vessel had an all-Indian crew.

#### What is the timeline of events?

After departing from the port of Baltimore at 12.28 a.m. local time, the 300-metre-long vessel Dali was headed for Colombo, Sri Lanka, with several containers of oil and some hazardous material. Less than an hour after its departure, people nearby reported the Dali's lights flickering. Two minutes later, the ship's course also started to angle towards two of the bridge's pillars in the river. At 1.27 a.m. local time, the Dali mowed into the pillar and brought down a segment of the bridge.

A U.S. Coast Guard report said, the Dali's crew had broadcast a mayday signal seeking help to control the vessel. This signal alerted the Coast Guard as well as prompted local authorities to close the bridge for further traffic. A part of the bridge's superstructure also fell on the vessel, smashing some containers and leaving them balanced precariously on the vessel.

Maryland governor Wes Moore later declared a state of emergency. With inputs from the Federal Bureau of Investigation, federal officials had by March 28 also virtually ruled out deliberate intent to cause the collision.

The Dali belongs to the Danish shipping giant Maersk and flies a Singapore flag. It is managed by the Synergy Marine Group, headed by Rajesh Unni.

#### What were the casualties?

The Synergy Marine Group said in statements that all crew members were safe.

The bridge's collapse dropped eight people through 50 feet into the Patapsco River. While two people were fished out soon after, the Coast Guard postponed the search for the other six because of the river's depth, temperature, lack of light, the presence of sharp objects in the water, and the risk of more parts of the bridge and/or the containers falling in. Rear Admiral Shannon Gilreath told reporters on March 28 that the team no longer expected to find the six people alive.

#### What happened to the ship?

The Dali is propelled by a nine-cylinder two-stroke diesel engine. In the two-stroke cycle, fuel is pumped into the combustion chamber, where a spark plug causes the fuel-air mixture to explode. The energy release pushes a piston up, rotating the crankshaft. The explosion's residue (exhaust) is then pumped out of the engine to bring the piston down in the second stroke. Once the engine transfers mechanical power to the crankshaft, it can be further transferred to the propeller directly, via a gearbox or electric motors. It is also coupled with an alternator that converts the mechanical power to electric to supply appliances on the vessel, including lighting. The Coast Guard recorded a statement that at least one of Dali's engines "coughed" and that "the smell of



burned fuel was everywhere in the engine room”, suggesting the vessel’s engine failed. In this scenario, the vessel would have lost its lights and other facilities and, sans mechanical power, deprived its pilots of the ability to steer the vehicle. Onlookers reported the vessel’s lights flickering on later which experts have attributed to a backup generator.

The U.S. National Transportation Safety Board said it would be checking whether the fuel used in the Dali’s engine was contaminated.

In 2023, Chilean authorities reported issues with Dali’s propulsion, although Singaporean ones said it had cleared two inspections at foreign ports the same year.

#### **Could the collision have been prevented?**

The Francis Scott Key Bridge — the structure in question — was built in the mid-1970s. Colin Caprani, a civil engineer at Monash University, Melbourne, wrote that the protective shielding around the pillars into which the ship moved wasn’t designed to withstand the impact of such a large vessel. Together with the vessel’s speed at the time of the collision, around 15 km/hr, he estimated the impact force to be equivalent to 20,000 tonnes. In 2016, Panama Canal authorities upgraded its locks to allow larger ships to pass through. The Dali’s design was subsequently modified to increase its container capacity by 10%. Before this, Financial Times reported, vessels of this size seldom made port along the U.S. east coast — nor did bridges over waterways here have to contend with them.

#### **A NEW LOW**

When it comes to Israel’s military atrocities, the U.S. has historically had high tolerance levels. It never questions Israel’s nuclear arms. It ignores UN investigation reports that have accused Israel of committing war crimes. It hardly does anything to hold Israel accountable for the continuing occupation of the Palestinian territories flouting international laws and norms. But even by America’s standards, Joe Biden’s policy towards Israel’s war is a new low for the ‘leader of the free world’. It took five and a half months of war, in which over 32,000 Palestinians were killed, 70,000 injured and more than 90% of the besieged enclave’s population displaced, for the Biden administration to let a UN Security Council resolution, demanding an immediate ceasefire, pass. But the U.S., which abstained from voting, did nothing to enforce the resolution. Ever since the war began on October 7, the Biden administration has delivered more than 100 military sales to Israel. Just last week, when the world was raising concerns about a possible Israeli invasion of Rafah, the southernmost town of Gaza, Washington cleared the sales of more bombs and warplanes for Israel.

While Israel and the U.S. are arguably the closest two nation-states can get to each other, in the past, American Presidents had used hard pressure to influence Israel’s decision making. In 1956, during the Suez crisis, U.S. President Dwight D. Eisenhower threatened to cut off American aid unless Israel withdrew from Egypt’s Sinai Peninsula. And Israel complied. In the 1970s, President Jimmy Carter’s carrot and stick policy played a critical role in the peace process that resulted in the historic Camp David Agreement. In 1981, even Ronald Reagan, the Republican President known for his pro-Israel policies, initially withheld sales of F-16s, asking Israel to withdraw from Lebanon. But, for some strange reasons, despite domestic concerns and international criticism, Democratic President Biden continues to back Israel in one of history’s worst massacres of Palestinians. The UN has warned that the enclave is on the brink of a famine. The Biden administration itself has admitted that nearly all Gazans are hungry. And dozens are getting killed



from gun shots, in air strikes, stampedes and under air drops of food deliveries. If the U.S., which at least rhetorically takes pride in its commitment to human rights, cannot see this suffering of over two million Palestinians, it will go down in history as an enabler of this violence. Mr. Biden must start behaving as a statesman. His administration has the leverage to influence Israel's behaviour. It should call for an immediate ceasefire and more aid into Gaza and stop all arms supplies to the Jewish state if it continues the war.

## ESCALATION LADDER

The April 1 attack on an annex of the Iranian embassy in Damascus was a major point of escalation in the multifaceted conflict that has been spreading across West Asia since October 7, 2023. Iran blamed Israel for the strike, in which 13 Iranians, including Mohammed Reza Zahedi, a top commander who was in charge of the Quds Force's Syria operations, were killed. Israel neither confirms nor denies claims that it was behind such attacks, but it is an open secret that it has been carrying out operations across the region targeting Iranian military and nuclear figures. On December 25, a suspected Israeli strike killed Razi Mousavi, senior adviser in Iran's Islamic Revolutionary Guard Corps (IRGC), in Syria. What makes the April 1 attack different from Israel's past strikes is that an embassy complex was targeted this time. Embassy and other diplomatic premises have a protected status under international law. Even during the Second World War, diplomatic premises were spared by hostile powers. When the Chinese embassy in Belgrade was bombed in May 1999 by the U.S., the then U.S. President Bill Clinton issued a public apology, stating it to be an accident. But in the case of Damascus, the attacker's precision strike was aimed at killing a group of IRGC figures. Many in Iran see this as an act of war.

Even before the October 7 Hamas attack in Israel, there was a shadow war going on between Israel and Iran in West Asia. After October 7, Israel launched a two-pronged offensive — a full-throttled invasion of Gaza, the tiny Palestinian enclave of 2.3 million people on the one side, and dozens of air strikes in Syria and Lebanon against Iran and its network of militias on the other. Israel sees Iran as the lynchpin of all the non-state militias of the region, be it Hamas, Hezbollah, the Houthis or the Palestinian Islamic Jihad, and seems determined to roll back their influence in its immediate neighbourhood. Israel's war on Gaza is not proceeding as planned. Six months of fighting has turned Gaza into an open graveyard with a death toll of over 33,000, a majority of them women and children. As Benjamin Netanyahu, Israel's Prime Minister, under whose watch the October 7 attack unfolded, is coming under increased pressure at home and abroad to cease fire and resign, he appears to be more eager to escalate the regional crisis. This is a dangerous slope. An open war between Israel and Iran, which could drag the U.S. in, would be a security disaster for the whole region and an economic nightmare for the wider world. Iran should not walk into the trap set by Israel. It should show strategic patience and restraint and the U.S., Israel's most important diplomatic and military supporter, should restrain its closest ally from acting rogue again.

## INDIA ABSTAINS FROM HRC VOTE CALLING GAZA CEASEFIRE

India on Friday abstained on a resolution at the Human Rights Council that called upon Israel for an immediate ceasefire in Gaza, and the states to implement an arms embargo, which was adopted by the 47-member Council. While India's abstention is believed to be in line with previous votes on any HRC resolutions that call for "accountability", it did vote in favour of three other resolutions that criticised Israel for human rights violations against Palestinians, Israel's occupation of Syrian Golan, and called for the Palestinian right to self-determination.



All four resolutions were introduced at the HRC in Geneva by Pakistan on behalf of the Organisation for Islamic Cooperation.

While the Ministry of External Affairs did not issue any explanation for the vote, it is understood to follow previous abstentions on similar resolutions, and also in line with its vote at the UNGA in October 2023, since the HRC resolution (A/HRC/55/L.30) failed to condemn Hamas, while condemning Israel's killing of more than 33,000 Palestinians, blockade of food and humanitarian aid into the area, and "forcible transfer" of civilians from one part of Gaza to another in the past six months.

The U.S., Germany and four other countries voted against the resolution, titled "Human rights situation in the Occupied Palestinian Territory, including East Jerusalem, and the obligation to ensure accountability and justice" and India joined France and Japan among 13 countries that abstained. However, a significant majority, 28 members, including Bangladesh, China, Maldives, the UAE, Indonesia, Brazil and South Africa, voted in favour.

India voted in favour of three other resolutions that were also adopted with large majorities on "Right of the Palestinian people to self-determination", "Human rights in the occupied Syrian" Golan, and "Israeli settlements in the Occupied Palestinian Territory, including East Jerusalem, and in the occupied Syrian Golan".

## JACOB ZUMA BANNED FROM RUNNING IN SOUTH AFRICA ELECTIONS: ALL YOU NEED TO KNOW

South Africa's Election Commission Thursday (March 28) barred former President Jacob Zuma from contesting in the country's upcoming polls in May.

While the commission did not provide a specific reason for the decision, it is likely to do with Zuma's 2021 conviction and imprisonment. South Africa's constitution does not allow an individual convicted for more than a year to hold public office. Zuma now has until April 2 to appeal against his ineligibility, South Africa's Anadolu Agency reported.

Here is all you need to know about Jacob Zuma, and South Africa's upcoming elections.

### **Why is the ban a big deal?**

The African National Congress (ANC) came to power in 1994, on the back of its struggle against apartheid. Much like the Indian National Congress in the 1950-60s, it has had a strong stranglehold over South African politics since then. "This isn't a pattern peculiar to South Africa. Liberation movements that became governing parties... enjoyed wide popularity in the earlier years of independence," Mashupye Herbert Maserumule, Professor of Public Affairs at Pretoria's Tshwane University of Technology wrote for The Conversation.

While ANC's popularity has waned in recent years, it has still managed to maintain an over 50 per cent vote share every national election. Jacob Zuma, and his new uMkhonto weSizwe (MK) party, however, are poised to change that.

The latest polling by Markdata in March, suggests the ANC has 41 percent of the national vote, and the MK, 11 percent, Al Jazeera reported. In Zuma's home province of KwaZulu-Natal, the ANC is weaker still. Polling by the Social Research Foundation released in February, suggests that when voters were asked to choose between ANC and MK, more than 60 per cent chose the latter.



### Who is Jacob Zuma?

Zuma, 81, served as modern South Africa's fourth president, from 2009 to 2018. In his youth, as a member of the ANC, he fought to end the apartheid, and was even imprisoned in Robben Island with other anti-apartheid leaders, such as Nelson Mandela.

He served as deputy president of South Africa from 1999 to 2005, under Thabo Mbeki, Mandela's successor to the presidency. However, he was dismissed after receiving dubious payments in connection to a high-profile arms deal. He was also acquitted on rape charges in a very public trial in 2006.

Nonetheless, Zuma, in 2007 managed to win over the ANC's left-wing coalition and was elected president in 2009. Multiple criminal charges against him were formally withdrawn the very same week. While Zuma did win some acclaim for his populist policies which especially appealed to South Africa's poorest, his two-term presidency was marred by allegations of corruption and wrongdoing.

By 2016, allegations emerged that Zuma had allowed the Gupta family to acquire immense influence over his administration. The Gupta family was a wealthy Indian-origin business family, with interests ranging from IT and engineering, to mining, real estate, and leisure. Having cultivated a relationship with Zuma since 2003, the Guptas held sway at all levels of South African government and public life under Zuma, in what was described by many observers as a "state capture".

Under mounting pressure, and a looming no confidence vote (the fifth that he would face) Zuma resigned in 2017. His successor, current President Cyril Ramaphosa, effectively sidelined him from the ANC. In 2021, Zuma was arrested and sentenced to 15 months in prison for refusing to appear in court during a corruption inquiry. His arrest sparked riots which ended up killing around 300 people. Zuma was eventually released after a couple of months on medical parole.

In December 2023, while still technically an ANC member, he founded the MK party, named after ANC's former military wing. Zuma still sees himself as the true heir to the anti-apartheid movement's revolutionary roots, a BBC report stated. The ANC has since suspended Zuma.

### TURKEY'S OPPOSITION SCORES 'HISTORIC VICTORY' AGAINST PRESIDENT ERDOGAN'S PARTY IN LOCAL ELECTIONS: WHAT HAPPENED?

Turkish President Recep Tayyip Erdogan's ruling Justice and Development Party (AK Party) on Sunday (March 31) faced its biggest electoral defeat since Erdogan rose to power more than two decades ago.

In nationwide local elections, the main opposition Republican People's Party (CHP) won the municipalities of 36 of Turkey's 81 provinces and also registered mayoral victories in the country's five largest cities, including Istanbul, Ankara, Izmir, Bursa, and Antalya.

The elections were seen as a de facto referendum on Erdogan — who had won the national election less than a year ago — and his party as the President had thrown all his energy into campaigning for the AK Party's candidates. For Erdogan, the loss could mean the end of the road for his political career. Although Erdogan had announced that the 2023 presidential elections would be his last, many observers expected him to bring in a new constitution to allow him to rule beyond 2028 when his current term ends. This is unlikely to happen now.



## PHILIPPINES TO HOLD JOINT NAVAL DRILLS WITH U.S., JAPAN, AUSTRALIA TO COUNTER CHINA

The Philippines will hold joint naval drills with the United States, Japan and Australia, two diplomatic sources said on Thursday, as the four countries deepen military ties to counter China's expanding influence in the Asia-Pacific region.

The exercise will be held on April 7 in the disputed South China Sea — which Beijing claims almost entirely — days before U.S. President Joe Biden is due to hold the first trilateral summit with the leaders of the Philippines and Japan.

The diplomatic sources spoke on condition of anonymity because the drills have not yet been officially announced.

Earlier this week, the Australian warship HMAS Warramunga arrived at the Philippine island province of Palawan, which faces the hotly contested waters.

The Philippine military said the visit was “aimed at strengthening military relations with partner nations”.

Regional tensions have escalated in the past year as China has become increasingly confident in asserting its claims over waters also claimed by the Philippines and Japan, as well as over self-ruled Taiwan.

In response, the United States has sought to strengthen its alliances in the region, including with treaty allies Japan and the Philippines.

Mr. Biden's planned April 11 summit with Philippine President Ferdinand Marcos and Japanese Prime Minister Fumio Kishida at the White House will be the latest in a series of meetings with Asia-Pacific partners.

# DreamIAS



## NATION

### IS THE KATCHATHEEVU ISLET DISPUTED?

#### The story so far:

Prime Minister Narendra Modi on March 31 raised again the controversial matter of Katchatheevu, a few weeks ahead of the Lok Sabha poll in Tamil Nadu. Citing a report and posting it on X, he said: "New facts reveal how Congress callously gave away Katchatheevu..." Subsequently, the State BJP and the AIADMK sharpened their attacks on the DMK and the Congress. The matter comes back to the fore as political parties use it to attack their adversaries. On March 16, Tamil Nadu Chief Minister and DMK chief M.K. Stalin contended that Katchatheevu was ceded to Sri Lanka despite strong protests by the DMK. He asked the Prime Minister what steps were taken by the latter to retrieve the islet. About one-and-a-half months ago, Katchatheevu was in the limelight as, in late, February, fishermen associations in Ramanathapuram district boycotted the annual two-day festival, as a mark of protest against the Sri Lankan government's continuing arrests of Indian fishermen on charges of poaching.

#### When did Katchatheevu become a part of Sri Lanka?

During the year 1974, the then Prime Ministers of India and Sri Lanka, Indira Gandhi and Sirima R.D. Bandaranaike, signed an agreement to demarcate the boundary between the two countries in the historic waters from Palk Strait to Adam's Bridge.

A joint statement issued on June 26 and 28, 1974, stated that a boundary had been defined "in conformity with the historical evidence, legal international principles and precedents."

It also pointed out that "this boundary falls one mile off the west coast of the uninhabited" Katchatheevu.

The pact brought to a close the talks held between the two sides since October 1921. Initially, the negotiations were held between the governments of the then Madras and Ceylon.

#### How important has been Katchatheevu to the fisherfolk?

Fisherfolk of the two countries have been traditionally using the islet for fishing. Though this feature was acknowledged in the 1974 agreement, the supplemental pact in March 1976 made it clear that fishing vessels and fishermen of the two countries "shall not engage" in fishing in the historic waters, territorial sea and exclusive zone or exclusive economic zone of either of the countries "without the express permission of Sri Lanka or India."

St. Anthony's Church there holds an annual festival drawing devotees from both sides of the Palk Bay, a tradition which has been going on.

#### What triggered the negotiations between India and Sri Lanka?

Sri Lanka claimed sovereignty over Katchatheevu on the ground that the Portuguese who had occupied the island during 1505-1658 CE had exercised jurisdiction over the islet. India's contention was that the erstwhile Raja of Ramnad [Ramanathapuram] had possession of it as part of his zamin. According to a news article published by The Hindu on March 6, 1968, which was based on the interview of the erstwhile Raja Ramanatha Sethupathi, Katchatheevu was under the





jurisdiction of the zamin “from time immemorial” and it was the “last post’ of the Ramnad estate. He added that the zamin had been collecting taxes till 1947 when it was taken over by the State government following the Zamindari Abolition Act. However, replying to the debate on the matter in Lok Sabha in July 1974, the then External Affairs Minister Swaran Singh asserted that the decision had been taken after “exhaustive research of historical and other records” on the islet.

#### **How was the 1974 agreement received?**

The present demand for the Katchatheevu retrieval traces its origin to the opposition that the pact generated in 1974. During the debates in both Houses of Parliament in July 1974, most of the Opposition including the DMK, AIADMK, Jan Sangh, Swatantara and the Socialist Party, staged walkouts in the two Houses. Former Prime Minister Atal Bihari Vajpayee, who was Jan Sangh’s leader, had contended that the decision to transfer the islet had been taken “behind the back” of the people and the Parliament. He was supported by Madhu Limaye, a veteran socialist leader. The then Chief Minister M. Karunanidhi, even in 1973 when the talk of the islet transfer had been doing rounds, had urged Indira Gandhi that the popular feeling was in favour of retaining Katchatheevu which “belonged to India and not to Tamil Nadu alone,” according to a report published by The Hindu on October 17, 1973. Three months later, he wrote a letter reiterating the stand, a copy of which was released a day after the 1974 agreement was signed. M. G. Ramachandran, founder of the AIADMK, which was a fledgling party then, had criticised Mr. Karunanidhi for “his failure to guide the Centre properly” on the issue and sought his resignation.

#### **When did the issue get a fresh lease of life?**

After remaining low nearly for over 15 years, the Katchatheevu issue was revived in August 1991 with the then Chief Minister Jayalalithaa demanding retrieval during her Independence day address. She later modified her demand to one of getting back the islet through “a lease in perpetuity.” The Tamil Nadu Assembly had witnessed a number of debates on the matter. In the last 15 years, both Ms. Jayalalithaa and Mr. Karunanidhi approached the Supreme Court on the matter.

### **NO MAN’S LAND**

Prime Minister Narendra Modi, by raking up the contentious matter of Katchatheevu, has set an unhealthy trend of politicising an issue for electoral gains, and one that has bearing on ties with Sri Lanka. Mr. Modi, on March 31 on X, stated that “new facts reveal how Congress callously gave away #Katchatheevu”. Even though the State BJP, like other parties in Tamil Nadu, has been talking about the island’s retrieval, the situation gets complicated when its national leadership too lends its voice. As with the Congress-led UPA government, the BJP-led NDA regime too has seen the islet as a part of Sri Lanka. In 2022, the External Affairs Ministry (MEA) informed the Rajya Sabha that “Katchatheevu lies on the Sri Lankan side of the India-Sri Lanka International Maritime Boundary Line [IMBL]”. In 2013, the UPA regime told the Supreme Court that the question of retrieval did not arise as no territory belonging to India was ceded to Sri Lanka. It contended that the islet was a matter of dispute between British India and Ceylon and that there was no agreed boundary, a matter settled through the 1974 and 1976 agreements, leading to the IMBL. A little after Mr. Modi became Prime Minister, an MEA affidavit in the Madras High Court stated that sovereignty over Katchatheevu “is a settled matter”. But the present government has also been telling Parliament that the matter relating to the islet is sub judice as it was before the Supreme Court.



The crux of the row now is whether the Congress, under Jawaharlal Nehru or Indira Gandhi, had “callously” handled the matter. Documents from an RTI query by BJP State president K. Annamalai reveal that the Indian leadership, before the agreements of 1974 and 1976, had recognised that it did not have a strong case over the territory, even though the area was part of the zamindari of the Raja of Ramanathapuram since 1803. A report in The Hindu (March 1972) says the annual church festival began over “90 years ago”. But, what must have troubled the Indian authorities, going by the minutes of a meeting in Chennai in 1974 between Foreign Secretary Kewal Singh and Chief Minister M. Karunanidhi, were historical facts aiding Sri Lanka. These include the reference by an Indian survey team in 1874-76 to Kathatheevu being a part of Sri Lanka, Sri Lanka’s assertion of sovereignty since 1921 when talks began to demarcate the fishery line in the Palk Bay, and the inability of the Madras Presidency to establish the islet’s original title. Besides, Sri Lanka had been exercising jurisdiction over the territory since the mid-1920s without protest by India. Nehru’s observation on “giving up our claim” or constitutional expert M.C. Setavald’s favourable opinion is thus cited by critics of the Congress and the DMK, but the RTI documents show that the decision had sound basis. It is understandable if political leaders in Tamil Nadu raise the demand of Katchatheevu’s retrieval every now and then, but it would be extremely disturbing if the Prime Minister too joins the bandwagon.

#### DANGEROUS GAME

In February this year, the Supreme Court of India issued a contempt notice against Patanjali Ayurved for publishing misleading advertisements that were in direct violation of the Drugs and Magic Remedies (Objectionable Advertisements) Act, 1954 and its Rules despite the company’s assurance to the Court in November last year that it would not do so. On Tuesday, the apex court turned up the heat by threatening Patanjali’s co-founder Baba Ramdev with perjury proceedings in addition to contempt. The two-member Bench again came down heavily on the government, this time for turning a blind eye when the company was promoting its products as a panacea during the COVID-19 pandemic, in blatant violation of the Act. While the Court has asked the government to file an affidavit to dispel the impression that it was complicit, the fact is that the government did almost nothing to inform the people that Coronil was not a “cure” for COVID-19 — as claimed by the company in June 2020 — but only a “supporting measure in COVID-19”. In February 2021, the presence of Harsh Vardhan, then Union Health Minister, along with Union Minister Nitin Gadkari, at a press conference organised by Patanjali to promote Coronil, made the company’s claims sound very credible.

Emboldened by the absence of penal action by the courts or the government for the false claim that Coronil could cure COVID-19, the company went on an advertisement spree in 2022 claiming that its products could cure many non-communicable diseases and conditions. The advertisements also denigrated and derided evidence-based medicine (allopathy). On November 21, 2023 the Court warned the company not to advertise permanent cures and threatened to impose a penalty of ₹1 crore on every product for which such claims were made. But, in absolute defiance, the company held a press conference the next day to defend its products. In December last year and January 2024, cocking a snook at the Court, the company again issued newspaper advertisements, compelling the Court to issue a contempt notice in February. It is highly unlikely that the company could have continued to act this way in the absence of at least tacit support from the government at the Centre and in Uttarakhand, where the company is based. Independent of the Court, the absence of any restraining order by the government to stop the company from freely advertising highly misleading claims only strengthens the suspicion. In matters related to health



and medicine, the government playing favouritism can be extremely dangerous and harmful. Allowing commercial interests to override public health and safety can be perilous.

#### 'SECOND WIFE', KIN NOT LIABLE TO BE PROSECUTED IN BIGAMY CASES: KARNATAKA HC

The Karnataka High Court has ruled that only the person who got married for the second time despite a prior marriage being in effect would be liable to be prosecuted under Section 494 of the Indian Penal Code (IPC) which deals with bigamy.

The order was passed on March 13 by a single-judge bench of Justice Suraj Govindaraj based on the petition by the man who allegedly committed bigamy, his family members and his 'second wife'. The man's first wife had lodged a complaint against him, his 'second wife' and others for having knowledge of the continuance of the existing marriage and still participating in the ceremony.

The counsel for the petitioners argued that the relatives should not be accused in the case as merely participating in the wedding ceremony did not attract the relevant provision. The counsel for the opposing side stated that the high court should not intervene in the matter as it was open to the trial court to add sections pertaining to abetment. Further, it was argued that the bigamous marriage could not have taken place without the abetment of the family members.

The bench observed, "...it is only the person who marries during the subsistence and the lifetime of the earlier spouse and the earlier marriage could be prosecuted and punished for the offences punishable under Section 494 of IPC... The said provision does not even contemplate the person to whom the husband or wife has married to be prosecuted under Section 494 of IPC. Let alone the father, mother and sister who had participated in or attended the wedding."

#### WHY SUPREME COURT BARRED UNREGULATED SOIL EXTRACTION FOR LINEAR PROJECTS

The Supreme Court has set aside a notification issued by the Environment Ministry three years ago that exempted extraction of ordinary earth for linear projects, such as road and railways construction, from obtaining Environmental Clearance (EC).

The exemption, offered in March 2020, was challenged before the National Green Tribunal (NGT), which asked the Ministry in October 2020 to review it within three months. As the Ministry dragged its feet, the matter reached the top court, which on March 21 this year struck down the "blanket" and "arbitrary" exemption.

##### **What was the 2020 exemption?**

In September 2006, the Environment Ministry had issued a notification under The Environment (Protection) Act, 1986, on activities that would require prior EC. In January 2016, a second notification was issued, exempting certain categories of projects from this requirement.

The third notification of March 2020 added "Extraction or sourcing or borrowing of ordinary earth for the linear projects such as roads, pipelines, etc" to the list of exempted activities.

The Centre argued before the NGT that the exemption was necessary "for the aid of general public", and would help "the kumhars (potters), farmers, gram panchayats, vanjara, oads of Gujarat", and all non-mining activities identified by the states. It also said that grant of exemption was a policy matter that did not warrant judicial interference.



The general purpose of the 2020 notification was to conform to the amendments made to the Mines and Minerals (Development and Regulation) Act, 1957, in March 2020, allowing new lessees to continue mining for two years with the statutory clearances and licences issued to their predecessors.

#### **What were the grounds for challenge?**

The exemption was challenged before the NGT on the ground that allowing the extraction of earth indiscriminately was arbitrary and violative of Article 14 of the Constitution of India. The petitioner argued that the exemption violated the requirement of prior EC in the leases as laid down by the top court in Deepak Kumar versus the State of Haryana (2012).

It was submitted that the Ministry had circumvented the legal procedure of inviting public objections before issuing the 2020 notification by wrongly exercising its powers to do away with such requirements “under the garb of ‘public interest’ during the Covid-19 national lockdown...to serve and further the interest of private miners and contractors”. In October 2020, the NGT held that the Ministry “should strike a balance and instead of being a blanket exemption, it needs to be hedged by appropriate safeguards such as the process of excavation and quantum”. The Tribunal asked the Centre to “revisit” the notification within three months.

#### **What the government did**

The Centre sat on the NGT order until the appellant moved the SC. It was only after the SC concluded the hearing and reserved its judgment on August 10, 2023, that the Ministry issued an Office Memorandum on August 21, laying down the enforcement mechanism for the exemption.

On August 30, 2023, the Ministry notified that the exemption in question would be “subject to the compliance of standard operating procedures and environmental safeguards issued in this regard from time to time”.

#### **What the SC said**

First, the court held that “completely unguided and blanket exemption” was arbitrary and violative of Article 14 because the 2020 notification did not define ‘linear projects’ or specify the quantum and the extraction area.

“It is also not provided that only that quantity of ordinary earth, which is required to implement the linear projects, is exempted,” the court said, adding that exemption granted without incorporating any safeguards defeats the purpose of the EP Act.

Second, the court held that the Ministry offered no justification for concluding “that in the public interest, the requirement of public notice should be dispensed with” at any stage — neither in the notification itself nor in its submissions to the NGT and SC. The decision was made without any application of the mind, it said.

Third, even the August 2023 notification, the court said, failed to elaborate on the concept of linear projects, specify the authority responsible for environmental safeguards or provisions for the same, or impose restrictions on the quantum of extraction.

“The notification was issued two days after the nationwide lockdown was imposed... The work of linear projects, such as roads, pipelines, etc, had come to a grinding halt... We fail to understand



the undue haste shown by the Central Government in issuing the impugned notification,” the court said.

#### **Not the first time**

Similar exemptions under the EP Act have come under judicial scrutiny in the past.

\* In January 2018, the NGT quashed an exemption offered by the Ministry’s 2016 notification from the requirement of prior EC for building and construction activities having built-up areas of more than 20,000 sq m. There was nothing to suggest an improvement in the quality of the environment to justify the exemption, the Tribunal observed.

\* Underlining that the EP Act mandates prior approval, the NGT in July 2015 struck down two Office Memorandums issued by the Ministry in December 2012 and June 2013 for granting ex-post facto EC to projects under the 2006 notification.

\* Another notification of the Ministry in July 2021 sought to perpetuate an amnesty window opened for just six months in March 2017 to clear projects under the “violation category” and issued ex-post facto approval to more than 100 projects, until the SC stayed it in January this year.

\* On March 6, the Kerala High Court quashed a 2014 notification that exempted educational institutions and industrial sheds with built-up areas of more than 20,000 sq m from obtaining EC.

### **BEFORE SC’S 9-JUDGE BENCH, QUESTION OF WHETHER STATES CAN LEVY EXCISE DUTY ON INDUSTRIAL ALCOHOL**

Excise duty levied on alcohol is a key component of a state’s revenue, with states often adding an additional excise duty on alcohol consumption to drive its income up. For example, in 2023, Karnataka hiked the Additional Excise Duty (AED) on Indian Made Liquor (IML) by 20%.

However, when it comes to ‘industrial alcohol’, do states have the power to regulate and tax it? This is the question that a 9-judge Bench of the Supreme Court is hearing.

#### **What is the current case before the SC?**

The Bench headed by Chief Justice of India D Y Chandrachud began hearing arguments on April 2 on whether state governments have the power to regulate and control the sale, distribution, pricing and other factors relating to ‘industrial’ alcohol. Industrial alcohol is used as a raw material to create other products, and is not meant for human consumption.

Entry 8 in the State List under the Seventh Schedule gives states the power to legislate on the production, manufacture, possession, transport, purchase and sale of “intoxicating liquors”. At the same time, Entry 52 of the Union List, and Entry 33 of the Concurrent List mention industries, whose control is “declared by Parliament by law to be expedient in public interest”.

Notably, subjects in the Concurrent List can be legislated upon by both states and the Centre, but where a central law exists, the state law cannot be repugnant to it. Industrial alcohol is listed in the Industries (Development and Regulation) Act, 1951 (IDRA).

Essentially, the question before the apex court is whether states can regulate industrial alcohol or whether the Centre exercises exclusive control on the subject.



### **Has the SC considered this issue earlier?**

In 1989, a 7-judge Constitution Bench in *Synthetics & Chemicals Ltd v. State of Uttar Pradesh* held that states' powers, as per Entry 8 of the State List, were limited to regulating "intoxicating liquors" which are different from industrial alcohol.

The SC acknowledged that states' power to regulate consumable alcohol must include the power to "prevent and/ or check industrial alcohol being used as intoxicating or drinkable alcohol". But the court found that the taxes and levies in question were designed primarily to increase the revenue collected by the state — not as measures to regulate the use of industrial alcohol, or prevent its conversion to drinkable alcohol.

Essentially, the SC said that only the Centre can impose levies or taxes on industrial alcohol, which is not meant for human consumption.

However, in a point that would be brought up decades later, the SC did not consider its prior Constitution Bench decision in *Ch Tika Ramji v State of UP (1956)* where five judges upheld a legislation enacted in UP to regulate the supply and purchase of sugarcane. This Act was challenged on the grounds that under Section 18-G of the IDRA, the Centre had exclusive jurisdiction over regulation of the sugar industry.

In contrast to its *Synthetic & Chemicals Ltd* decision, the court held that Section 18-G is not meant to "cover the entire field" and the state still had power to legislate on matters relating to the sugar industry under Entry 33 of the Concurrent List.

### **How did this lead to the case now before the SC?**

In 1999, the UP government issued a notification introducing a 15% fee for any sale made to licence holders under the UP Excise Act, 1910 for "alcohol used directly or...as solvent for vehicles and appear[ing] in the final product to some extent". This was challenged by a motor oil and diesel distributor who claimed that the Centre exercised exclusive jurisdiction over industrial alcohol as per Section 18-G of the IDRA.

In February 2004 the Allahabad High Court struck down the 1999 notification, holding that the state legislature did not exercise power over the general regulation of denatured spirits, only over drinkable alcohol. It directed the state to refund any fees collected with a 10% per annum interest from the date the fee was deposited. This decision was appealed at the SC, which then stayed the Allahabad HC judgment in August that same year.

In 2007, the court referred the case to a larger bench, noting that the *Tika Ramji* case "had not been brought to the notice of the seven-Judge Bench which decided the *Synthetics and Chemicals* case".

In order to determine whether states can exercise their powers under Entry 33 of the Concurrent List or if Section 18-G gives the Centre exclusive jurisdiction in matters relating to industrial spirits, in 2010 the case was referred to a nine-judge Bench.

### **What have the states argued so far?**

Senior Advocate Dinesh Dwivedi, appearing for the State of UP, said that the phrase "intoxicating liquors" in Entry 8 of the State List includes "all liquids containing alcohol". He said that 'liquor', 'spirit', and 'intoxicant' were used in excise laws before the Constitution came into force.



He also argued that the Union's power under Entry 52 of the Union List does not include control over "finished products" (such as industrial alcohol after the denaturation process), as that is specifically covered by Entry 33 of the Concurrent List. In order to exercise exclusive control over regulation of industrial alcohol, the Centre would first have to issue an order to that effect under Section 18-G of the IDRA. Without such an order, that control would vest with the states, he said.

Dwivedi also cautioned against adopting an approach that would reduce states' powers, relying on Justice Ruma Pal's concurring opinion in *ITC Ltd v Agricultural Produce Market Committee* (2002). The SC had held that states are not "mere appendages of the Centre... The Centre cannot tamper with their powers. More particularly, the courts should not adopt an approach, an interpretation, which has the effect of or tends to have the effect of whittling down the powers reserved to the States".

#### ED CAN SUMMON ANYONE FOR 'ANY INFORMATION': SC

The Supreme Court on Tuesday endorsed the sweeping powers of the Enforcement Directorate (ED), saying the Central agency could call "anybody for any information" even as it castigated four Tamil Nadu District Collectors for failing to appear in person in response to a summons issued to them by the anti-money laundering body.

The Tamil Nadu government and the Collectors informed a Bench headed by Justice Bela M. Trivedi that they had written to the ED expressing their inability to appear in person as the Lok Sabha election in Tamil Nadu was due on April 19 and they needed more time to collect the information sought by the Central agency about sand mining sites in their districts.

The Collectors said the information sought was not in their offices, but had to be collected from other branches of the district administration, verified and compiled to be presented before the ED. They had sought time till April-end.

The court refused to accept the Collectors' explanation. Justice Trivedi said their conduct showed scant respect for the court's February 27 order to appear in person before the ED on whatever date it summoned them.

Justice Trivedi said 50(2) of the PMLA empowered the ED to summon "any person" whose attendance was considered necessary for giving evidence or production of records in the course of "any investigation or proceeding" under the statute. Section 50(3) mandated that the individual summoned was "bound to attend in person or through authorised agents" and would be required to make truthful statements and produce the required documents.

The court ordered the four Collectors to be present in person before the ED on April 25. It listed the case for hearing on May 6.

#### KEJRIWAL'S ARREST: ALLEGATIONS AND DEFENCE

##### The story so far:

A Delhi Court, on March 28, extended the Enforcement Directorate's (ED) custody of Chief Minister Arvind Kejriwal till April 1 in a money laundering case registered in connection with the Delhi Excise Policy case. Mr. Kejriwal was arrested on March 21 after his plea for interim protection from arrest was rejected by the Delhi High Court, marking the first instance of a sitting Chief Minister being jailed. A plea challenging his arrest was withdrawn from the Supreme Court

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on March 22. On March 27, the Delhi High Court denied interim relief and granted the agency time till April 2 to respond to Mr. Kejriwal's plea and posted the matter for further consideration on April 3.

#### **What are the ED allegations against the Chief Minister?**

The case arose from a report submitted by Delhi Chief Secretary Naresh Kumar to Lieutenant Governor (L-G) Vinai Kumar Saxena in July 2022 alleging that there were procedural lapses in the formulation of the Delhi Excise Policy 2021-22, which came into force in November 2021 but was later scrapped in July 2022.

The Chief Secretary alleged that kickbacks received by the Aam Admi Party (AAP) leaders from operators of alcohol businesses for preferential treatment were used to "influence" the 2022 Assembly elections in Punjab and Goa. Subsequently, the ED claimed that the scam involved giving wholesale liquor businesses to private entities with a fixed margin of 12% for a 6% kickback.

Contending that Mr. Kejriwal was the "kingpin and key conspirator" of the scam, the agency in its remand application said that the excise policy was drafted "considering the favours to be granted to the South Group", a group of influential persons from South India who purportedly secured undue favours to establish wholesale businesses and paid the political party ₹100 crore in return. On March 15, K. Kavitha, Bharat Rashtra Samithi leader was arrested for allegedly being part of this group. After her arrest, the ED for the first time alleged that Mr. Kejriwal was also a conspirator in the case.

Others accused in the case include Raghav Magunta, Ongole MP Magunta Srinivasulu Reddy's son, and P. Sarath Chandra Reddy, the son of P.V. Ramprasad Reddy and co-founder of Hyderabad-based Aurobindo Pharma. Both later turned approvers in the case.

"AAP is a beneficiary which exists as a company. Every person responsible for the conduct of the company is responsible... apart from being liable as an individual, the CM is also vicariously liable (as the national convenor of the party)," appearing for the ED, Additional Solicitor General (ASG) S.V. Raju argued. It was further alleged that proceeds of about ₹45 crore received from the South group were used by AAP for election campaigning in Goa.

#### **What is Kejriwal's defence?**

During the proceedings before the High Court, senior advocate Abhishek Manu Singhvi, appearing for Mr. Kejriwal, contended that his arrest was solely based on the statements made by accused persons who later turned approvers in the case. He further underscored that the ED had failed to rely on any independent evidence to corroborate these statements, as required by law.

Comparing such approvers to a "Trojan horse," Mr. Singhvi pointed out that the accused persons succeeded in securing bail only after turning approvers.

Pointing out the context in which statements were extracted out of Sarath Chandra Reddy as an approver, the senior counsel remarked, "There are two statements which are not against me. Now comes the statement after arrest. He continues to maintain his stance (which is) not against me in nine statements. These nine statements are not out in six of the prosecution complaints. It is suppressed and they are making a mockery of the procedure. He then starts singing.. eighteen months later. Then nine days after the statement against me, he gets bail on medical grounds and twenty days later he gets pardoned."





Similarly, it was alleged that Raghav Magunta was granted bail only after his father gave statements to the ED incriminating the Chief Minister.

Notably, Mr. Kejriwal while personally arguing his case before Delhi's Rouse Avenue court on March 27, alleged that the ED was running an extortion racket in the name of investigation. "Sarath Reddy [director of Aurobindo Pharma] has donated ₹55 crore to the BJP. I have proof that it's an extortion racket," he said. Data divulged by the Election Commission revealed that Aurobindo Pharma Limited, which has Mr. Reddy as one of its directors, donated ₹5 crore to the BJP in 2022 through the now invalidated electoral bonds scheme, just five days after he was taken into custody. Another ₹25 crore was donated to the BJP after Mr. Reddy turned approver in the case.

#### **Can the ED implead AAP as an accused?**

The ED's claim that Mr. Kejriwal is "vicariously liable" for the offence of money laundering could result in AAP being subsequently impleaded as an accused in the case. In such a scenario, the ED could have the political party's assets attached or confiscated as per the provisions of the Prevention of Money Laundering Act, 2002 (PMLA). Vicarious liability is a legal principle that holds a person or entity responsible for the actions of others. It is based on the concept of agency which presumes that a person or entity has been authorised to act on behalf of another person or entity.

ASG's argument stems from Mr. Kejriwal's role as the Chief Minister in the formulation of the liquor excise policy that purportedly generated "tainted funds" as proceeds of the crime. Further, his role as the convenor of AAP has been cited to explain his knowing participation in the alleged use of this laundered money in the Punjab and Goa Assembly elections. Similar arguments were raised during the bail hearings of former Delhi Deputy Chief Minister Manish Sisodia who is an accused in the case and is currently under judicial custody.

Section 70 of the PMLA which is often invoked to investigate companies stipulates that when an offence of money laundering is committed by a company, each individual who at the time of the crime was in charge or responsible, being a part of the entity conducting business, "shall be deemed guilty of the contravention and shall be liable to be proceeded against and punished accordingly." However, a person will not be prosecuted if they can prove that the contravention took place without their knowledge or that they had exercised all due diligence to prevent such contravention. Further, Explanation 2 of the provision clarifies that a company is a separate legal entity and can be prosecuted independently of its members or those who operate it.

Notably, the provision contains a crucial explanation that could bring a "political party" under the ambit of the anti-money laundering law by deeming it to be a "company" incorporated under the Companies Act, 2013. Explanation 1 defines "company" to mean "any body corporate and includes a firm or other association of individuals."

Since Section 29A of the Representation of the People Act, 1951, refers to a political party as "any association or body of individual citizens of India" — the phrase "association of individuals" under Section 70 of the PMLA could include within its ambit a political party. If AAP is named as an accused in the case, it will be the first instance of a political party being brought under the ambit of the PMLA.

#### **What is the evidentiary value of an approver's testimony?**

An approver is an accomplice who is directly or indirectly involved in the commission of an offence and has been granted a pardon by the court under Section 306 of the Code of Criminal



Procedure, 1973, (CrPC) with a view to securing his testimony against other persons guilty of the offence. Once an accomplice turns into an approver, he acquires the status of a prosecution witness.

But an approver who deposes falsely can be tried again for the offence for which a pardon was granted as per Section 308 of the CrPC.

Courts over time have however warned that the testimony of an approver must be relied upon with utmost caution since it is prima facie of a tainted character. Additionally, illustration (b) of Section 114 of the Indian Evidence Act, 1872, stipulates that the court will presume that the testimony of an accomplice is unworthy of credit unless it is corroborated by material particulars.

In *Mrinal Das and Ors. v. State of Tripura* (2011), the Supreme Court ruled that it would be risky to base the conviction of an accused solely on the uncorroborated testimony of an approver. Thus, to ensure that he is a reliable witness, an approver's testimony must be accompanied by independent corroborative evidence.

Elucidating further on the threshold of corroborative evidence required in such cases, the top court relied on *Sheshanna Bhumanna Yadav v. State of Maharashtra* (1970) wherein it was held, "Corroboration must connect or tend to connect the accused with the crime. When it is said that the corroborative evidence must implicate the accused in material particulars it means that it is not enough that a piece of evidence tends to confirm the truth of a part of the testimony to be corroborated. That evidence must confirm that part of the testimony which suggests that the crime was committed by the accused. If a witness says that the accused and he stole the sheep and he put the skins in a certain place, the discovery of the skins in that place would not corroborate the evidence of the witness as against the accused. But if the skins were found in the accused's house, this would corroborate because it would tend to confirm the statement that the accused had some hand in the theft."

#### **Can money laundering be a standalone offence?**

While seeking Mr. Kejriwal's remand, ASG argued before a Delhi Court on March 22 that "one need not be an accused in the predicate offence to be an accused under PMLA."

The essence of such an argument is that even if the Chief Minister has not been arrayed as an accused in the primary case, i.e. the Delhi excise policy case, he can be booked for the offence of money laundering with respect to the "proceeds of crime" derived from the case. This brings to the fore the debate of whether money laundering is a standalone offence or if it is extrinsically linked to a larger predicate offence.

The PMLA contains a list of scheduled offences which are also called predicate offences.

In this case, the predicate offence that Mr. Kejriwal is to be tied to would be under the Prevention of Corruption Act, 1988. However, last year the Supreme Court clarified in *Pavana Dibbur v. Enforcement Directorate* that an accused in a PMLA case, who becomes involved after the commission of the scheduled offence by assisting in the concealment or use of proceeds of crime, need not be an accused in the scheduled offence.

The only requirement is that the proceeds of crime that the accused has allegedly concealed or possessed must simply be linked to the scheduled offence. In this case, only after the conclusion of the trial in the excise scam can it be determined if Mr. Kejriwal has laundered the money that forms the proceeds of the crime.



### Is non-cooperation with ED summons a ground for arrest?

Before being taken into custody, Mr. Kejriwal had ignored nine summons issued by the ED claiming that they were illegal. His counsel however argued that non-cooperation cannot be a ground for arrest since it will be hit by the fundamental right against self-incrimination.

Last year, a Supreme Court bench of Justices A.S. Bopanna and P.V. Sanjay Kumar in *Pankaj Bansal v. Union of India* underscored that a person could not be arrested by the ED for mere non-cooperation in response to summons issued under Section 50 of the PMLA. Addressing contentions of the ED that the responses given by the accused were “evasive” in nature, the Court pointed out, “In any event, it is not open to the ED to expect an admission of guilt from the person summoned for interrogation and assert that anything short of such admission would be an ‘evasive reply.’”

### HISTORY HEADLINE | 1920: THE START OF INDIA’S ELECTION JOURNEY

In 1920, Delhi resident Abdul Majid came to the attention of the British government. He was someone who would ordinarily not be on the administration’s radar. His description varied from petty trader to sweetmeat seller and confectioner. In November that year, he filed nomination papers to contest an election. Opposing him were a couple of lawyers and a bangle seller. The government dismissed Majid and the bangle seller as “ridiculous candidates”.

Come election day, Majid trumped his rivals, securing 288 votes. The lawyer, who came second, got 26 votes. In official records, a British officer described the contest as “...contrary to expectations impudent buffoonery carries the day”. With this win, Majid joined a select group of Indians elected to the highest law-making body in the country.

The 1920 elections were the starting point for direct elections in India. Until then, the colonial policy was to select a few educated Indians for the legislature and use them to understand the needs of the masses. However, it became difficult to ignore public sentiment on more Indian representation in legislatures. Our colonial administrators responded in 1909 by increasing Indian members through limited elections. A controversial measure was a separate electorate for Muslims.

The report on Indian Constitutional Reforms 1918 (popularly called the Montagu-Chelmsford Reforms) highlighted the shortcomings of the 1909 election process. The report noted, “At present electorates of a general character hardly exist. Almost all are designed to represent special classes or interests and consist of very few persons. Those which represent Muhammadans were intended to be fairly inclusive but even those are limited to a few hundred electors.”

The Montagu-Chelmsford report recommended setting up a national legislature with two Houses. One of the Houses in this law-making body would have members directly elected by the people. The report also suggested setting up legislatures at the state level with elected members. The British Parliament accepted these recommendations and passed the Government of India Act, 1919. Until then, there was no need for a full-scale electoral law. However, with these recommendations coming into effect, lawmakers had to be elected by the people. The government needed an electoral framework to hold the first large-scale elections in our country.

The 1919 law and the rules made under it provided the nuts and bolts of the election process. Together, they specified the qualifications for voting and contesting elections, and the mechanism for preparing the electoral roll. Eligible voters and candidates had to be British subjects. The age



for voting was 21. For contesting elections, it was 25. Women could neither vote nor contest elections unless the legislature in the state removed the sex disqualification (which they did). The law also provided for different constituencies, such as Muhammadan and non-Muhammadan (rural and urban for both), Sikh, European, Landholders and Chambers of Commerce. Voters and candidates also had to meet domicile, income, and property holding criteria to participate in the elections.

The bewildering array of qualifications for election participation meant that the administrative workload was reduced and resulted in a minimal franchise size. For example, in the election for the national legislative assembly, that Majid contested from the Delhi constituency, there were a total of 3,300 voters.

After the Montagu-Chelmsford reforms became operational, the British government scheduled the first direct elections towards the end of 1920. In August that year, Mahatma Gandhi launched the non-cooperation movement. A part of that movement was to not participate in the election process. Prospective candidates were discouraged from contesting. In some cases, individuals whose success at the ballot had the potential to ridicule the reform process and embarrass the British government were also put up.

In Lahore, the election process turned violent. A government officer reported, "It seems to me that these incidents are the direct results of violent speeches made by advocates of non-cooperation during the last month or two. Owing to this series of speeches the British Government of India is now hated by the ordinary citizens of Lahore. The gift of responsible government which is being made to India is now despised."

The 1919 law and the elections a year later led to more Indians in the legislature, but the right to vote was the domain of very few Indians. However, there were learnings that independent India's Parliament would build over. For example, the colonial government in 1920 passed a law criminalising threats, bribery and inducement during an election. It penalised these corrupt practices with both jail time and a fine. They were added to the Indian Penal Code and continue to be a part of it. Since Independence, our Parliament has worked towards strengthening legal provisions to keep elections free and fair. However, the most significant step has been ensuring that everyone over 18 is enrolled to vote. Now, roughly a billion Indians will be on the electoral rolls in the upcoming general elections.

Edwin Montagu, the catalyst for the 1920 elections, noted, "The honest education of the electorate is a matter of primary importance. May one who takes an anxious interest in India's future echo the appeal that there should be no appeal to racial or religious prejudices and express the hope that, in the turmoil of an election, the great charm of Indian courtesy may not disappear?" His words are as important today as they were a hundred years ago.

## HOW TO CHECK YOUR NAME IN THE VOTERS' LIST, AND WHAT TO DO IF IT'S NOT THERE

Voting in the first phase of Lok Sabha elections is on April 19, which is now two weeks away.

If you have come of voting age (18 years) since the last time elections were held for Lok Sabha or state Assembly in your constituency, you must enrol yourself to vote. To be eligible, you should have turned 18 as of April 1, 2024.

If you are older and have voted earlier, or if you have at least enrolled yourself to vote (even if you did not actually cast your vote the last time elections took place), your name should be in the

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voters' list of your constituency. This is provided you have not moved since then, and you do not now live in a different constituency.

If you have moved since the last time you voted, and you have not updated your address with the Election Commission of India (in the Voter ID), your name will not appear in the electoral roll of the constituency that you now live in.

Your name may still appear in your old constituency; however, many names are struck off the rolls during annual revisions. Duplicate entries, that is entries of the same person from two different addresses, are also deleted.

In any case, you should check your name in the voters' list. You can do this online; here's how, and where.

But first, you must know the date when you will vote.

The Lok Sabha elections are happening in seven phases. Votes will be cast on April 19, April 26, May 7, May 13, May 20, May 25, and June 1.

Several states will vote in multiple phases. Contiguous areas may vote in different phases (that is, on different days) — therefore, if you live in Delhi or Gurgaon, you will vote only in the sixth phase, on May 25; however, if you live in Noida (Gautam Buddha Nagar) or Ghaziabad, you will vote a month earlier in the second phase, on April 26.

You can check the all-India map of election voting dates [<https://www.eci.gov.in/newimg/ge2024.png>] on the website of the Election Commission of India (ECI).

#### **How can I check if I am on the electoral roll?**

There are multiple ways to do so. You can check on the website of the ECI, [[electoralsearch.eci.gov.in](http://electoralsearch.eci.gov.in)] or on the ECI's Voter Helpline app.

On the site, you can look up your name (i) by your Voter ID, which in ECI jargon is called "EPIC", or Elector's Photo Identification Card, (ii) by your mobile phone number, or (iii) by your personal details such as name, date of birth, etc.

Read | Lok Sabha Election 2024: Don't have Voter ID? Here's how you can still vote If you have your voter ID handy, checking by the number on the card is the easiest. If your mobile number is registered with the ECI, that's convenient too. You will get an OTP on your phone, which you have to enter to obtain the details.

The third way, checking through personal details, may create a problem in returning a response if the Voter ID has a mistake — such as an error in the spelling of your name or that of your father/husband. Ideally, you should get the mistake or inconsistency corrected, but it may be difficult for some to do it for the coming election.

#### **What information about myself will I find on the electoral roll?**

The information is available in separate columns: EPIC Number, Name, Age, Relative (Father's/Husband's) name, State, District, Assembly constituency (each Lok Sabha constituency is made up of several Assembly constituencies or segments), Polling station, etc.



### What can I do if my name is not on the rolls?

For those who have been registered voters earlier but now can't find their names in the rolls, there is still time to apply to become a voter for Phases 3 to 7 of the Lok Sabha elections.

The ECI carries out continuous updates to the electoral roll till the last date of nominations for the respective phase. In the case of phase 1, the last date for nominations was March 27. The last date for nominations for phase 2 was on April 4. And for phases 3, 4, 5, 6, and 7, the last dates for nominations are April 19, April 25, May 3, May 6, and May 14 respectively.

However, ECI officials advise that you should apply to have your name included in the electoral roll at least seven days before the last date of nomination so as to give enough time for the form to be processed.

There are various forms for various requirements of voters. You can access the form that applies to you on the relevant page of the ECI's website. [<https://voters.eci.gov.in/>]

How should a new voter — someone who has just turned 18, or who has never voted before — go about getting their name in the voter's list?

To register as a voter, you must fill in Form 6, which is available on the ECI website along with the other forms. You can fill this form online after signing up using your mobile phone number or email address.

Apart from filling in details like name, gender, address, date of birth and relative (father, mother, husband or wife), the applicant will have to give a self-attested copy of any one of the following documents to prove date of birth: birth certificate issued by competent local body/ municipal authority/ registrar of births and deaths; Aadhaar or PAN; driving licence; certificates of Class X or Class XII issued by CBSE/ ICSE or state education boards if it contains date of birth; and Indian passport.

A self-attested copy of address proof is also needed. One of several documents can be submitted for this purpose, including water/ electricity/ gas connection bill for that address for at least one year, current passbook of nationalised/ scheduled bank/ post office, an Indian passport, a registered rent-lease deed in case of a tenant, or a registered sale deed in case of own house.

### OVERKILL

The introduction and use of the Voter Verifiable Paper Audit Trail (VVPAT), an adjunct system attached to the Electronic Voting Machine (EVM), and the provision of counting VVPAT tallies from five random polling booths in every Assembly constituency to be matched with the EVM vote-count, have not assuaged critics of the use of EVMs in Indian elections. Some suggest the fact that the process could be more transparent if a machine audit trail of all the commands that are executed is maintained in the system, beyond just the votes recorded in the EVM's ballot unit and the printed slips in the VVPATs, allowing for an audit to rule out any malicious code. This could indeed make the system more robust and be considered as an upgrade to the existing machines. Others suggest that the use of VVPATs has introduced potential vulnerabilities that did not exist with the standalone nature of EVMs and the technical and administrative safeguards that undergirded the legacy system. This too could be addressed by reworking the safeguards to ensure that the VVPAT-combined systems are as secure and foolproof as the standalone EVMs were. But incomprehensible is the critique from many, including political parties such as the



Congress, that only a 100% recount of all VVPATs would suffice, instead of the current method of sampling the number of recounts, in order to have full transparency. The Supreme Court of India has now listed a series of petitions related to this demand.

Despite Cassandra-like pronouncements about malpractices and EVM-hacking, there has been no proof of any actual tampering of EVMs so far. While EVMs, as any machine is bound to, have suffered glitches, and promptly been replaced in the event of machine failures, the critique that they are prone to hacking or manipulation despite the existing technical and administrative safeguards has not been made with any actual proof. The sample counting of VVPATs, across both the general election in 2019 and several other Assembly elections for instance, which allow the voter to confirm whether the mandate matches the choice made on the EVM, have shown that the mismatch between the VVPAT recount and the EVM count has been minuscule — an outcome of trivial errors such as non-deletion of mock polls in the machine before the voting process or errors in manual recording of the final count from the machine. An increase in the recount sample to make it more statistically significant, by making the selected number of Assemblies specific to each State/Union Territory based on the size of the province, or, simply to increase the recount sample in seats where the margin of victory is narrow (say, less than 1% of the overall votes) could be solutions. But to insist on a full recount seems an overkill and a clear lack of trust in the EVM itself.

## HOW ARE SYMBOLS ALLOTTED TO POLITICAL PARTIES?

### The story so far:

The Naam Tamilar Katchi (NTK) that secured 3.9% and 6.5% votes in Tamil Nadu in 2019 and 2021 respectively, has been allotted a new common symbol (Mike). The Viduthalai Chiruthaigal Katchi (VCK) that secured 1.09% and 0.99% votes in 2019 and 2021 has been denied a common symbol (Pot). This has raised questions about the allotment of symbols to 'registered unrecognised parties'.

### What do the rules specify?

A party is recognised as a 'national' or 'state' party under the provisions of the Election Symbols (Reservation and Allotment) Order, 1968 (Symbols Order) by the Election Commission of India (ECI). The criteria for recognition at the State level consists of (a) winning one Lok Sabha seat for every 25 seats or 3% of Legislative Assembly seats or (b) winning one Lok Sabha and two Assembly seats along with 6% of votes polled or (c) securing 8% of votes polled in a general election. Symbols are allotted to political parties and contesting candidates as per the provisions of the Symbols Order by ECI. In the largest democracy where a sizeable population is still illiterate, symbols play a crucial role in the voting process. A recognised political party has a reserved symbol that is not allotted to any other candidate in any constituency. For registered but unrecognised political parties, one of the free symbols is allotted as a common symbol during an election if that party contests in two Lok Sabha constituencies or in 5% of seats to the Assembly of a State as the case may be.

### What is the current issue?

Rule 10B of the Symbols Order provides that the concession of a common free symbol shall be available to a 'registered unrecognised party' for two general elections. Furthermore, a party shall be eligible for a common symbol in any subsequent general election if it had secured at least 1%



of votes polled in the State on the previous occasion when the party availed of this facility. Such an unrecognised party should however apply for a symbol every time in the prescribed format. This application can be made any time during the period commencing six months prior to the expiry of the term of the Lok Sabha or State Assembly as the case may be. The symbols are thereafter allotted on a 'first-come-first-served' basis.

In the above cases, the NTK had secured more than 1% of votes in the last two elections with the common symbol of 'Ganna Kisan'. However, since they applied for that symbol only in February 2024, the ECI had allotted that symbol to Bharatiya Praja Aikyata Party (BPAP), that had applied earlier, based on the 'first-come-first-served' rule. However, the BPAP has not contested elections in Tamil Nadu before. The VCK was declined allotment of a common symbol as it had failed to secure 1% of votes polled in the elections to the State Legislative Assembly in 2021. The VCK notably has one Lok Sabha MP and four MLAs in Tamil Nadu contesting on the 'Pot' symbol in 2019 and 2021 elections.

#### **What can be the way forward?**

The ECI has decided on the applications of NTK and VCK as per existing rules. However, it is counter intuitive from a layman's perspective that the NTK which secured more than 6% of votes polled is not allotted the previous common symbol of its choice. It would be equally baffling for an average voter that the VCK which has elected representatives is ineligible to obtain a common symbol. The two VCK candidates have been eventually allotted the free symbol of 'Pot' by the respective returning officers.

The existing threshold for recognition of a party may continue. The candidates set up by recognised parties enjoy the advantage of being listed at the top of the ballot in the Electronic Voting Machine. Nevertheless, the ECI may consider amending the rules that registered unrecognised parties that secure at least 1% of votes polled in a previous election or have an elected representative in the Lok Sabha or State Assembly, shall have the right to be allotted a common symbol of their choice. This would ensure a fair weightage being given for their past electoral performance and strengthen the democratic process.

## ON GLOBAL INDICES MEASURING DEMOCRACY

### **The story so far:**

The V-Dem Institute's recent democracy index termed India as "one of the worst autocratisers". Similar indices have downgraded India's democratic standing in recent years — India is only 'partly free' (Freedom House), is home to a "flawed democracy" (The Economist Intelligence Unit) and is better classified as an "electoral autocracy." The Indian Government has however refuted these assessments. It now plans to release its own democracy index, which, according to Al Jazeera, will help India "counter recent downgrades in ratings and severe criticisms by international groups".

### **Why does India care about a democracy index?**

From the Varieties of Democracy (V-Dem) project to Freedom House, there is a consensus that India's democracy is in peril. Ahead of the election season, these indices and "negative commentary" by think tanks and agencies threaten India's sovereign ratings and its ranking on the World Bank's Worldwide Governance Indicators, the Al Jazeera report noted. India has previously denounced all global rating assessments of Indian conditions, from democracy and





press freedom to hunger, human development and happiness. Foreign Minister S. Jaishankar in 2021 called the makers of these indices “self-appointed custodians,” who are “not motive-less.” The grouse with democracy assessments is that the methodology is flawed, sample sizes are inadequate, and that these indices favour cultural bias and subjective opinion over objective metrics. India, for instance, ranks between Niger (which is ruled by a military junta) and the Ivory Coast, and is in the same category as Palestine. Any yardstick of democracy — be it fair elections or electoral participation — would suggest India is “doing as well as any other democracy,” Mr. Jaishankar said.

#### **What data do indices use?**

There are many approaches to measuring democracy, some using facts, some judgment and some a mix of both. The four broad types of data that these indices use are — observational data (OD) which is data on observable facts, such as voter turnout rates; ‘in-house’ coding, where researchers assess country-specific information using academic material, newspapers, etc.; expert surveys, where selected experts from a country provide a subjective evaluation; and representative surveys, where a selected group of citizens offer judgments. The Office of the United Nations High Commissioner for Human Rights has endorsed the use of observational, objective data over judgment-based methodology for assessments to make them “more broadly acceptable.” Others, however, find fact-based metrics “insufficient”, and expert intervention necessary, to capture on-ground realities of governance.

Additionally, each index asks and responds to a different question evaluating the health of democracy. While all agree that democracy is a political system in which citizens get to participate in free and fair elections (electoral democracy), indices like V-Dem’s, Economist Intelligence Unit and the Bertelsmann Transformation Index assess other dimensions as well: is the democracy ‘participatory’, are citizen groups and civil society organisations functional? Are decisions made deliberately, in the best interest of all people, rather than through coercion or minority group interests? Is it egalitarian — are economic and social resources distributed equally? The approach also varies vastly. Some use only two indicators while others have more than 400; the weightage assigned and aggregation model followed also fluctuates across projects. V-Dem’s researchers code a series of indicators for 12 areas across media, civil society, political parties, and civil liberties and each area is assigned five experts.

#### **What are the limitations of indices?**

The first and the most frequently cited criticism is that there is a degree of subjectivity that tugs at the indices’ credibility and precision. Regardless of the scholarly pool and aggregation model used, evaluations are still based on the judgment of researchers and coders, rather than tangible characteristics. V-Dem’s “egalitarian” indicator, for instance, assesses the equality of social groups in the political arena — an equivocal question in comparison to say, how many political parties are present in the country. However, a project investigated the degree of expert biases in some indices and found them to be limited. Scholar Paul Staniland, who studied V-Dem’s assessment of India since 1947, concurred, telling the BBC that “there’s not an obvious anti-right-wing bias.” Another concern is over the scope of countries included in these indices. Only some survey non-independent and microstates. Smaller countries may thus be overlooked in certain cases. The next criticism is of a perceived ideological discrepancy, partly due to the amorphous definition of democracy itself. Lesotho, which suffered a military coup in 2014, is assigned a higher score than India.



Therefore, there is no singular, perfect democracy index, just like there is no singular definition of democracy. Experts, including Mr. Staniland, agree the indices “capture important big-picture dynamics and trends” in democracy. They offer ways to benchmark the strengths and weaknesses of regimes, and make different components comparable over time periods and geographies.

## POLITICAL ROW ERUPTS OVER DOORDARSHAN’S DECISION TO TELECAST THE KERALA STORY

Democratic Youth Federation of India activists attempted to storm the precincts of the Doordarshan Kendram here on Friday morning demanding that the broadcaster rescind its decision and apologise.

The dispute has found the ruling Left front and the Congress-led Opposition on the same page for once. The Left Democratic Front (LDF) and United Democratic Front (UDF) have accused the BJP-led Union government of sanctioning the movie’s broadcast to allegedly stoke sectarian divisions and cause communal polarisation in Kerala with an eye on Hindu votes in the Lok Sabha election.

Chief Minister Pinarayi Vijayan and Leader of the Opposition V.D. Satheesan have separately demanded that Doordarshan cease beaming the movie.

### EC approached

On Friday, Mr. Satheesan moved the Election Commission of India (EC) to bar Doordarshan from broadcasting the movie.

He termed the production “poisonous Sangh Parivar propaganda” garbed as a feature film based on utterly false premises and devious hyperbole. CPI(M) State secretary M.V. Govindan followed suit.

The three leaders said the movie insulted the people of Kerala and sought to scuttle the State’s secular and democratic polity. They pointed out that the screening of the movie triggered protests and caused communal tension across the country in 2023.

Mr. Satheesan said Doordarshan’s notification that it would air the film on April 5 evening violated the model code of conduct.

Union Minister of State for External Affairs V. Muraleedharan said those opposed to the film’s beaming seemed scared of contrarian and dissenting points of view. “They are free to approach the EC. The Censor Board had cleared the film for screening,” he said.

The LDF and UDF worry that the spat over the broadcasting of the allegedly divisive film might take on a new level of vitriol and perhaps focus the campaign on communally divisive issues.

However, the BJP reportedly calculates that the film’s messaging resonates among Christians, including Church leaders and Hindus, who subscribe to the “love jihad” theory, a supposition that Islamist organisations have tasked radicalised Muslim men to lure impressionable Hindu women into the global jihadist cause.

## LEVEL PLAYING FIELD

One of the heartening features of the press briefing by the Election Commission of India (EC) on the day general elections 2024 were announced was its emphasis on level playing field (LPF). The

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CEC said that the EC had circulated the Model Code of Conduct (MCC) to all political parties, requesting them to bring it to the notice of their star campaigners. It would be ruthless in dealing with complaints of action that disturbed the LPF, he said.

LPF should be a sacred precept for free and fair elections. One reason could be that an election in a democracy is neither a war nor an amorous contest. It is the most crucial event of a democracy where different parties and independent candidates vie with each other to earn the voters' mandate to represent them in the House of elected representatives. A vote is meant to be a social contract based on faith and facts.

In order for this contest to be fair, the availability of LPF is considered a sine qua non during elections even if it is acknowledged that the contestants might not be equal otherwise. It is neither for the political parties nor for the candidates themselves to even out the field by not trying to be one-up on each other. If inherent inequality is recognised as part of the game, it is the responsibility of the regulator to ensure that there is LPF during elections when they endeavour to influence the voters in their favour.

Although there are common laws to govern ordinary civic behaviour in normal times, political parties and candidates are expected to observe a certain decorum during elections, which they have voluntarily agreed to under the superintendence of the EC. Not all the prescribed restraint is strictly inscribed in law. Sometimes it is a mark of their commitment to decent public behaviour; at others, it is a display of the EC's even-handed approach. That indeed is the genesis of the MCC that the EC is expected to enforce during elections.

A scrutiny of the MCC shows that there are four principal players covered by the Code; candidates, political parties, ruling party and bureaucracy. The last two are part of the ruling dispensation but the code applies to them separately too. The bulk of the code covers violations otherwise covered in law, such as, not to "aggravate existing differences or create mutual hatred or cause tension between different castes and communities", or not to level "unverified allegations" and launch personal criticism, or not appealing "to caste or communal feelings for securing votes", or parties and candidates not resorting to "corrupt practices". The Code stipulates that parties and their workers will not disrupt the activities of rival parties. There are sections on campaign meetings, processions, polling booths and election manifestos.

The noteworthy thing, however, is that the MCC devotes a separate section on the "party in power whether in the Centre or state", enjoining it to "ensure that no cause is given for any complaint that it has used its official position for the purposes of its election campaign". The misuse, as covered by the Code, is essentially pertaining to the use of government facilities such as guest houses, transport or public infrastructure, and the use of its authority to utilise public funds for issuing advertisements or granting new sanctions. The MCC doesn't go beyond this.

The routine functioning of the state machinery and the legal system is in no way restricted by the letter of the current MCC. It is a moot point if it is even desirable for the EC to interfere in the due process of law such as court hearings, or whether routine investigation by law enforcement agencies be subject to adjudication by the EC, as it might make the situation more untenable. Perhaps, misuse of authority by state agencies was not even conceived or flagged by the stakeholders when the MCC was initially drafted.

The **MCC** of ECI is a set of guidelines issued to regulate political parties and candidates prior to elections. The rules range from issues related to speeches, polling day, polling booths, portfolios,



the content of election manifestos, processions, and general conduct, so that free and fair elections are conducted. ([eci.gov.in](http://eci.gov.in))

The MCC comes into force from the date the election schedule is announced until the date that results are out.

## MANIFESTO FOR NARI SHAKTI

Gender is incorporated in government policy in India, and the gender budget statement reflects the extent of this integration, but there is a need for a nuanced understanding of intersectionality within the gender discourse.

Examples include initiatives such as the National Health Mission, National Rural Livelihood Mission, MGNREGA, and Integrated Child Development Services. Effective analysis using gender disaggregated data is critical for ensuring that policies and activities benefit women. Lack of funds and inefficient use has a negative influence on gender equality.

We must work towards pay parity to ensure that men and women receive equal wages for performing the same work in the informal sector.

Over the past decade, financial inclusion schemes such as the MUDRA Yojana, Mahila e-Haat and Pradhan Mantri Jan Dhan Yojana (PMJDY) have helped millions of women in asserting their basic rights. With access to banking, LPG cylinders and education, they need not be reliant on male family members to lead a dignified life. The digitalisation of access to government schemes and facilities has the potential to create equal access to social security, micro-financing, skill-based funding, and subsidies.

An unprecedented number of women have gained access to clean toilets and energy under Swachh Bharat and the Ujjwala scheme, which are important for a life of dignity. Policies like PM-JAY and PM-SUMAN, are a move in the right direction while addressing women's health, although, there is a need to invest in pre- and post-natal care for women.

There is also a need to broaden the scope for women entrepreneurs and focus on diversification of skills.

## GOVT. TO RECORD PARENTS' RELIGION TO REGISTER BIRTHS

When registering the birth of a child, parents will now be required to separately record the religion of the father and mother, according to Model Rules drafted by the Union Ministry of Home Affairs. These Rules will have to be adopted and notified by the State governments before they are implemented.

Earlier, only the family's religion was recorded in birth registers. The proposed "Form No.1-Birth Report" will expand the column requiring a tick mark selection "for religion" of the child to now also state the "religion of father" and "religion of mother". Similar changes have been made for parents of an adopted child.

Under the Registration of Births and Deaths (Amendment) Act, 2023, passed by Parliament on August 11 last year, the birth and death database will be maintained at the national level and may be used to update the National Population Register (NPR), electoral rolls, Aadhaar number, ration card, passport, driving licence, property registration, and such other databases as may be notified.



According to the law, which became effective October 1 last year, all reported births and deaths in the country are to be digitally registered through the Centre's portal for the Civil Registration System (crsorgi.gov.in). The digital birth certificates issued under this system will become a single document to prove the date of birth for various services, including admission to educational institutions.

The office of the Registrar General of India (RGI) under the Union Home Ministry has proposed substituting the existing forms related to the registration of births, deaths, still births, adoptions, and the Medical Certificate of Cause of Death as per the draft rules. The certificate will also include the "history of illness, if any" from now on, apart from the actual cause of death.

Any birth register includes two parts: legal information and statistical information. The information on the parents' religion is to be maintained for statistical information.

The birth register form pertaining to legal information has been expanded to record the Aadhaar number, and the mobile and e-mail IDs of both the parents, "if available". The address box has been made more descriptive to contain the name of the State, district, sub-district, town or village, ward number (in case of town and if available), locality, house number, and PIN code.

The "informant" providing the information in the form will also have to provide their Aadhaar and mobile numbers, and email address, along with the name and address details which were earlier required.

#### **National database**

According to the 2023 amendment, the RGI shall maintain the database of registered births and deaths at the national level and it is obligatory upon the Chief Registrars and the Registrars to share the data of registered births and deaths to such a database.

According to the parent Act — the Registration of Births and Deaths Act, 1969 — the RGI has been empowered to take steps to coordinate and unify the activities of Chief Registrars, who are appointed by State governments. Civil Registration System (CRS) functionaries are appointed up to the panchayat level.

## WILL GLOBAL FOREST EXPANSION HIT TRIBALS?

### **The story so far:**

A symposium on the rights of indigenous people organised by the University of Arizona on March 21-22 put the spotlight on the Kunming-Montreal Global Biodiversity Framework (GBF) and how, in conjunction with the Forest (Conservation) Amendment Act of 2023, it will hit India's tribes the hardest. Many at the symposium foresaw doom for the country's indigenous communities already affected by the establishment of national parks.

### **What is the Kunming-Montreal GBF?**

This framework was adopted during the 15th meeting of the Conference of the Parties to the UN Convention on Biological Diversity in December 2022 following a four-year consultation and negotiation process. It claims to support the achievement of sustainable development goals and build on previous strategic plans, paving "an ambitious pathway to reach the global vision of a world living in harmony with nature by 2050." Accordingly, four goals were set for 2050 and 23 targets for 2030 toward planning, monitoring, reporting and reviewing implementation,

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organising finance, and drawing up strategies for capacity development, technical and scientific cooperation, and an agreement on digital sequence information on genetic resources. In adopting the GBF, all parties have committees to set national targets to implement it. Participating at the event, New Delhi-based rights activist Suhas Chakma drew the attention of environmentalists and leaders of indigenous communities to Target 3 of the Kunming-Montreal GBF, which aims to “increase terrestrial, inland water, and of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem functions and services” to at least 30% of the world’s terrestrial area. At present, protected areas (PAs) cover about 16%.

#### **What are its implications?**

Participants at the ‘Symposium on Conservation, Racism, and Indigenous Peoples Human Rights’ felt that the seemingly benign goals of the GBF tilt the scale in favour of corporate houses eyeing forest resources at the expense of the indigenous communities living with nature. Indigenous peoples have been denied the right to housing, health, education, electricity, and security in Indonesia’s Ujungkulon National Park while Heng Saphen, an indigenous leader living inside the Beng Per Wildlife Sanctuary of Cambodia was convicted by a kangaroo court for cultivating on her own land. About 18% of Cambodia’s Botum Sakor National Park stands protected after much of its land was sold off to private firms, the participants said. Involving the private sector in forest conservation is a bad idea and India has taken a step in that direction with the Forest (Conservation) Amendment Act to 2023 to include zoos, safaris, ecotourism facilities, etc., as forest activities, Mr. Chakma pointed out. The UN Special Rapporteur on Indigenous Peoples, José Francisco Calí Tzay, said the PAs were initially created “as recreational opportunities, hunting grounds for western colonial elites”. The concept, the participants pointed out, has not changed much with ecotourism or sustainable ecotourism projects reducing the indigenous peoples to animals in a zoo, made to sit in “model replicas” of traditional houses wearing traditional dresses and ornaments, and playing traditional musical instruments.

#### **What would GBF mean for India?**

About 84% of India’s national parks (89 out of a total of 106) were established in areas inhabited by the indigenous peoples and meeting the GBF targets will threaten their existence, the activists said. For instance, the initiative to upgrade the Kumbhalgarh Wildlife Sanctuary in Rajasthan to a tiger reserve will affect 162 tribal villages located inside and outside the sanctuary while the expansion of the Nauradehi Sanctuary in Madhya Pradesh is set to affect 62 villages of mostly tribal people. In Assam, the June 19, 2022, notification for the Barak Bhuban Wildlife Sanctuary will affect the indigenous groups. The gazette notification states that the sanctuary “is free from encroachment as per record, there are no rights and concessions of any person in the area” but the Khasis possess documents showing they have been living in the area since 1914.

#### **What can be done to protect the tribal lands?**

Mr. Chakma said a multilateral agreement like the Kunming-Montreal GBF cannot be amended but the government of India needs to change its policy.

First, it has to recognise the right to free, prior, and informed consent as guaranteed under the Panchayats (Extension to Scheduled Areas) Act and make further amendments to the laws to make the tribals custodians of the PAs as nature has largely been protected because of their special relations with the forests and their denizens. Secondly, the government of India should not only target the tribal areas simply because they do not matter electorally.



“That Uttar Pradesh and Bihar only have one national park each – Dudhwa inhabited by the indigenous Tharu people and Valmiki inhabited by the Tharus, Oraons, Mundas, etc. — speaks for itself. If tiger reserves can be created in areas where there are no tigers such as Sahyadri (Maharashtra), Satkosia (Odisha), Kamlang (Arunachal Pradesh), Kawal (Telangana), and Dampa (Mizoram), there is no reason why PAs cannot be created in non-tribal areas,” he said. Finally, India ought to address human rights violations in the PAs seriously.

Human rights issues of these people such as access to education, healthcare, and housing cannot be left to the Wildlife or Forest Department. Thousands of indigenous people living within the PAs must be respected and recognised for preserving the biodiversity and the ecosystem and not punished, he said.

## WILL INDIA EXPERIENCE MORE HEAT WAVE DAYS THIS SUMMER?

### The story so far:

The India Meteorological Department (IMD) on Monday announced above-average heat wave days for India, impacting southern, central, east, and northwestern regions. The announcement comes even as India is already struggling to keep up with its power demand. A Reuters analysis reported that India’s hydroelectricity output fell at the steepest pace in at least 38 years. Hydroelectric output will remain low in the coming months, leading to a greater dependence on coal at a time when India has, in its Nationally Determined Contributions under the Paris Agreement, promised to reduce the emissions intensity of its GDP by 45% by 2030, compared to the 2005 level.

### What does the forecast say?

The IMD forecast has said most of India will experience above-normal maximum and minimum temperatures.

The El Niño event, which causes weak rainfall and more heat over India, has weakened since the beginning of the year, the forecast noted. However, moderate El Niño conditions still exist over the equatorial Pacific, increasing the sea surface temperature. The heat redistribution affects airflows above the ocean. Since the Pacific Ocean covers almost a third of the earth, changes in its temperature and changes in wind patterns can disrupt weather worldwide.

January 2024 was the warmest in 175 years, the U.S. National Oceanic and Atmospheric Administration noted. The average global land and ocean surface temperature was also higher.

The El Niño is, however, likely to weaken during the upcoming season. Some models have even predicted the possibility of La Niña conditions developing during the monsoon, which can intensify rainfall across South Asia.

### What is a heat wave?

A period of abnormally high temperatures is called a heat wave. The IMD declares a heat wave if the maximum temperature of a weather station reaches at least 40 degrees C in the plains and at least 30 degrees C in hilly regions, with a departure of around 4.5-6.4 degrees C from the normal maximum temperature. The IMD can also declare a heat wave if the actual maximum temperature crosses 45 degrees C, and a ‘severe heat wave’ if it crosses 47 degrees C. Qualitatively, a heat wave can also occur when the temperature of the air becomes fatal to the human body.



Heat waves in India are typically recorded between March and June and tend to peak in May.

**What is causing an increase in heat wave days?**

A study published in the journal PLOS Climate in April 2023 found heat waves all over the world are getting more “recurrent, intense and lethal” due to climate change. Data from April 2022 used in the study also showed abnormal temperatures caused due to climate change could have a severe impact on over 90% of India.

An increase in the number of heat-wave days and their intensity can exact steep costs affecting livelihoods, food production, disease spread, and more, the study noted. Higher temperatures can affect human health by causing heat stress and even death, according to the World Health Organization. The ongoing El Niño weather condition also contributes to higher-than-usual temperatures, driving an increased occurrence of heat waves.

**What measures has the EC advised to manage the impact of heat waves?**

Starting on April 19, general elections will be conducted in seven phases until June 1, coinciding with India’s summer and possibly several heat waves. The Election Commission (EC) has issued an advisory to manage the impact of heat waves during voting, including carrying a water bottle and protecting oneself from direct sunlight.

The heat itself can be deadly outside a heat wave if the wet bulb temperature crosses 30-35 degrees C. The wet bulb temperature is the lowest temperature to which a surface can be cooled by water evaporating from it. In other words, it’s the lowest temperature at which the surface of the skin can be cooled by sweating. Beyond this threshold, even short periods spent idling in ambient conditions can have deadly health effects.

**WHY UTTARAKHAND GOVT WANTS TO EVALUATE THE RISK OF GLACIAL LAKE OUTBURST FLOODS**

The Uttarakhand government has constituted two teams of experts to evaluate the risk posed by five potentially hazardous glacial lakes in the region. These lakes are prone to Glacial Lake Outburst Floods (GLOFs), the kind of events that have resulted in several disasters in the Himalayan states in recent years.

The goal of the risk assessment exercise is to minimise the possibility of a GLOF incident and provide more time for relief and evacuation in case of a breach. The National Disaster Management Authority (NDMA), which operates under the Union Ministry of Home Affairs, has identified 188 glacial lakes in the Himalayan states that can potentially be breached because of heavy rainfall. Thirteen of them are in Uttarakhand. Lakes in Uttarakhand’s Pithoragarh and Chamoli districts are more vulnerable to flooding.

Rising surface temperatures across the globe, including India, have increased the risk of GLOFs. Studies have shown that around 15 million people face the risk of sudden and deadly flooding from glacial lakes, which are expanding and rising in numbers due to global warming.

**What are GLOFs?**

GLOFs are disaster events caused by the abrupt discharge of water from glacial lakes — large bodies of water that sit in front of, on top of, or beneath a melting glacier. As a glacier withdraws, it leaves behind a depression that gets filled with meltwater, thereby forming a lake.

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The more the glacier recedes, the bigger and more dangerous the lake becomes. Such lakes are mostly dammed by unstable ice or sediment composed of loose rock and debris. In case the boundary around them breaks, huge amounts of water rush down the side of the mountains, which could cause flooding in the downstream areas — this is referred to as a GLOF event.

GLOFs can be triggered by various reasons, including glacial calving, where sizable ice chunks detach from the glacier into the lake, inducing sudden water displacement. Incidents such as avalanches or landslides can also impact the stability of the boundary around a glacial lake, leading to its failure, and the rapid discharge of water.

GLOFs can unleash large volumes of water, sediment, and debris downstream with formidable force and velocity. The floodwaters can submerge valleys, obliterate infrastructure such as roads, bridges, and buildings, and result in significant loss of life and livelihoods.

“While the number and size of glacial lakes in these areas (India and Pakistan) isn’t as large as in places like the Pacific Northwest or Tibet, it’s that extremely large population and the fact that they are highly vulnerable that mean Pakistan and India have some of the highest GLOF danger globally,” Tom Robinson, co-author of the study and lecturer in Disaster Risk & Resilience at the University of Canterbury, told The Indian Express in February last year.

#### **What is the situation in Uttarakhand?**

Uttarakhand has witnessed two major GLOF events in the past few years. The first took place in June 2013, which affected large parts of the state — Kedarnath valley was the worst hit, where thousands of people died. The second occurred in February 2021, when Chamoli district was hit by flash floods due to the bursting of a glacier lake.

As mentioned earlier, Uttarakhand has 13 glacial lakes which are prone to GLOF. Based on the analysis of available data and research from various technical institutions, these lakes have been categorised into three risk levels: ‘A’, ‘B’, and ‘C’.

Five highly sensitive glacial lakes fall into the ‘A’ category. These include Vasudhara Tal in the Dhauliganga basin in Chamoli district, and four lakes in Pithoragarh district — Maban Lake in Lassar Yangti Valley, Pyungru Lake in the Darma basin, an unclassified lake in the Darma basin, and another unclassified lake in Kuthi Yangti Valley.

The areas of these five lakes range between 0.02 to 0.50 sq km, and they are situated at elevations ranging from 4,351 metres to 4,868 metres.

The rising surface temperatures could worsen the situation in Uttarakhand. The state’s annual average maximum temperature may increase by 1.6-1.9 degree Celsius between 2021-2050, according to a 2021 study, ‘Locked Houses, Fallow Lands: Climate Change and Migration in Uttarakhand, India’, carried out by the Germany-based Potsdam Institute for Climate Research (PIK) and The Energy and Resources Institute (TERI) in New Delhi. This could exacerbate the risk of GLOFs in the state.

#### **WHAT IS KALLAKKADAL, WHICH HAS FLOODED HOUSES IN KERALA’S COASTAL AREAS?**

Hundreds of houses have been flooded in several coastal areas of Kerala due to high sea waves, also known as swell waves, since Sunday (March 31). The worst affected regions include Alappuzha, Kollam, and Thiruvananthapuram districts. Authorities have opened relief camps for



the affected local communities. Such flooding events are called swell surge or Kallakkadal in Malayalam.

Here is a look at the phenomenon, why it happens, and how it is different from a tsunami.

#### **What is Kallakkadal?**

Kallakkadal is essentially coastal flooding during the pre-monsoon (April-May) season by swell waves on the southwest coast of India. The term Kallakkadal, used by local fishermen, is a combination of two Malayalam words, including Kallan and Kadal. “Kallan means thief and Kadal means sea. In spoken language, these words were combined and pronounced as Kallakkadal, meaning ocean that arrives as a thief,” the study said. In 2012, the term was formally approved by the United Nations Educational, Scientific and Cultural Organization (UNESCO).

#### **What causes Kallakkadal?**

Kallakkadal is caused by waves that are formed by an ocean swell, hence the name swell surge. Ocean swells occur not due to the local winds, but rather due to distant storms like hurricanes, or even long periods of fierce gale winds. During such storms, huge energy transfer takes place from the air into the water, leading to the formation of very high waves. Such waves can travel thousands of kilometres from the storm centre until they strike shore.

Usually, Kallakkadal is a consequence of the strong winds in the southern part of the Indian Ocean, where an ocean swell is generated, and the waves then travel north to reach the coast in two or three days.

The latest instance took place after a low atmospheric pressure system moved over the region around March 25 from the South Atlantic Ocean — 10,000 kilometres off the Indian coast. The arrival of the pressure system resulted in strong winds, which led to the formation of swell waves of up to 11 metres in height. These waves have been hitting the Kerala coast and Lakshadweep since Sunday.

Kallakkadal occurs without precursors or any kind of local wind activity and as a result, it has been very difficult for the coastal population to get an advance warning. However, early warning systems like the Swell Surge Forecast System —launched by the Indian National Centre for Ocean Information Services (INCOIS) in 2020 — give forewarning seven days in advance.

#### **Why is Kallakkadal different from tsunami?**

Kallakkadal came under the spotlight after the 2004 tsunami that killed more than 10,000 people. However, Kallakkadal is often mistaken to be a tsunami, which is a series of enormous waves created by an underwater disturbance usually associated with earthquakes occurring below or near the ocean.

#### **What is the forecast?**

The swell surge is likely to continue impacting Kerala and other western coast regions of the country for the next two days before they gradually weaken.

INCOIS has stated high waves will move to the Tamil Nadu coast on Tuesday night. It has alerted people in coastal areas vulnerable to sea erosion to take precautionary steps and ensure the safety of fishing vessels.



## PLANS UNDER WAY TO MAKE MUMBAI FIRST TRI-SERVICE COMMON DEFENCE STATION

The Armed Forces are planning to turn Mumbai into the first “tri-service common defence station” in the country for the Army, Navy and the Indian Air Force (IAF) — a step aimed at achieving jointness among the three services ahead of the creation of integrated theatre commands, The Indian Express has learnt.

Discussions to this effect are under way in the top military hierarchy and a decision is likely to be taken soon, officials said.

Currently, there are no common defence stations in India. The Andaman and Nicobar command is a full-fledged command raised as a tri-service command in 2001. Other efforts to bring in jointness among the services—such as inter-service postings—were brought in last year.

A common defence station would mean that all facilities of the Army, Navy, IAF will be combined — including logistics, infrastructure, repair and maintenance as well as stores and supplies— so that they could be optimised and brought under a common lead service. In the case of Mumbai, the Navy will be the lead service given that it has the largest presence there.

At present, wings of the three services are spread across Mumbai and its suburbs and operate separately. Under the plan, logistics, infrastructure and administration will be brought under a common chain.

The Navy’s INS Hamla and INS Karanja, for example, are responsible for imparting logistics training to Naval personnel and housing a major armament depot respectively. The Army’s ordnance depot, a separate training area, an air defence regiment and IAF units are planned to be combined for common usage by the three services.

An official said this will mean the logistics, services, and works of the individual services will be integrated so that there is a single system of delivery of supplies such as fuel and ration and common items can be repaired at one place.

“As per plans, the resources of the individual services will be shared by all and this would include infrastructure such as schools, hospitals and sports complexes; training facilities; as well as storages, repair and maintenance facilities and works,” the official said.

For example, the services of INHS Asvini — a Naval hospital in Mumbai — are also being used by the other two services.

A second official said this will lead to better optimisation and management of resources and avoid duplication of efforts since the idea is to have a single channel for funds and delivery and avoid redundancy.

Officials said that with Mumbai being the first common defence station being planned, Sulur (near Coimbatore) and Guwahati are likely to be chosen as locations for the second and third common defence stations. While the lead service for Sulur is likely to be IAF, the Army will likely be the lead service for the Guwahati station.



## NUCLEAR CAPABLE AGNI PRIME BALLISTIC MISSILE SUCCESSFULLY TEST-FIRED IN FIRST NIGHT LAUNCH

India carried out a successful flight test of its new generation nuclear-capable ballistic missile 'Agni Prime' on Wednesday. It was done by the Defence Research and Development Organisation (DRDO) from Dr APJ Abdul Kalam Island off the coast of Odisha. During the test, all objectives were successfully demonstrated.

The Ministry of Defence (MoD) in a statement said, "Range instrumentation like radar, telemetry and electro-optical tracking systems were deployed at different locations, including two down-range ships, at the terminal point to capture flight data covering the entire trajectory of the vehicle."

This was the first pre-induction night launch conducted by the users after three successful developmental trials of the missile, validating the accuracy and reliability of the system, added the MoD.

The test flights are significant steps towards the operationalisation of the new weapons system.

The Agni P is a two-stage canisterised solid propellant nuclear-capable ballistic missile with dual redundant navigation and guidance system.

The assembly of missiles into canister mode assists with quick deployment, storage and mobility.

It has a range capability between 1,000 and 2,000 km and is an advanced variant of the Agni class of missiles.

The Agni series of missiles is a product of the Integrated Guided Missile Development Project (IGMDP) launched by the Ministry of Defence (MOD) in 1982. The further development of the Agni series of missiles has continued to achieve enhanced ranges, mobility and maintainability. This series includes Agni-1(700 km range), Agni-2(2000 km range), Agni-3 (2500 km range), Agni-4 (3500km range) and Agni-5 capable of striking targets at ranges up to 5,000 kilometres.

As stated often by the Ministry of Defence, the development of the missiles "is in line with India's stated policy to have 'credible minimum deterrence' that underpins the commitment to 'No First Use'."

Senior officials from the DRDO and Strategic Forces Command witnessed the successful flight-test, which paved the way for the induction of the system into the Armed Forces.

Defence Minister Rajnath Singh has congratulated the DRDO and Armed Forces for the success of the test. Secretary, Department of Defence R&D & Chairman, DRDO Dr Samir V Kamat also appreciated the efforts put in by the teams of DRDO laboratories and the users involved in the test launch.

## PIN CODE MH-1718: IN ANTARCTICA, A POST OFFICE WITH INDIAN ADDRESS

In 1984, shortly after India's first foray to Antarctica, its first post office on the icy continent was set up at Dakshi Gangotri — the nation's first scientific base there. Within the first year, as many as 10,000 letters and mail had been posted and 'cancelled' at the historic post office.



And so began what officials describe as a “unique experiment” for India’s postal fraternity. Dakshin Gangotri submerged in ice in 1988-89 and was subsequently decommissioned. On January 26, 1990, a post office branch was set up at India’s Maitri research station on Antarctica.

Since then, for more than 35 years, letters and postcards in blank envelopes are sent — mostly by philatelists, collectors and hobbyists — to the Maitri post office for ‘cancellation’. The impression, ‘Maitri North Goa’, from the Antarctic research base is a famed “collector’s item”.

Almost four decades later, letters meant for Antarctica will now have a new PIN code, MH-1718, with the Department of Posts opening a second branch of the post office on Bharati research station in Antarctica. The code currently assigned is “experimental”, which is the norm when a new branch begins, officials said.

India’s two research bases on Antarctica — Maitri and Bharati — are located 3,000 km apart. Notably, both branches are part of the Goa postal division.

“In practice, the letters meant for the post office in Antarctica are sent to the National Centre for Polar and Ocean Research (NCPOR), the nodal agency for India’s polar expeditions, in Goa. When a scientific expedition to the continent leaves from the NCPOR, a researcher is usually tasked with carrying the consignment of letters. At the research base, the letters are ‘cancelled’, brought back, and returned via post,” said an official from the Department of Posts.

Officials said ‘cancellation’ is a marking on a postage stamp or stationery done to deface the stamp and prevent reuse. Typically, ‘cancelled’ letters include the date and post office location where the stamps were mailed. For collectors, they are crucial to determine value of stamps.

M Sudhakar, former scientist, NCPOR, elaborated on another reason why the post office is significant. He said Antarctica is governed by the Antarctic Treaty, which puts aside territorial claims by any country, and prohibits military activity or nuclear testing and underlines that the continent can only be used for scientific exploration.

“Typically, an Indian post office can only be in the jurisdiction of Indian land. Antarctica gives a unique opportunity to have an Indian post office in a land which is foreign and does not belong to us. So, it serves a strategic purpose in terms of asserting presence on the continent,” he said.

On the occasion, joining via video conferencing, Chief Postmaster General, Maharashtra circle, K K Sharma made an appeal to the scientists in Antarctica to continue to post letters back home to their families and friends.

“There is always a lot of excitement about these post offices (in remote locations). Nowadays with WhatsApp and Twitter, all this (technology) has taken over. But, nothing can beat the written word. Particularly, when you are sitting so far from your family. I would request that you please make use of this fantastic opportunity, and write letters to your loved ones... You can create memories and they will stay with you in physical form. All these e-formats get erased fast, but you can look at a letter years later and it will take you back to those memories,” said Sharma.

A majority of the mail to India’s post office branches in Antarctica is driven by philately enthusiasts and collectors.

R P Patil, Director, Postal Services, Goa region, said, “Collectors of postage stamps see it as a rare opportunity to collect the ‘impression’ of a stamp from a remote post-office location. There is always a high demand from philatelists for cancellation of letters.”



Dr Thamban Meloth, Director, NCPOR Goa, said, “For anyone going to Antarctica, getting a postal stamp is an experience. There is always a high demand for these among the philately community.”

## ARMY IS CRANKING UP EFFORTS TO BOOST INFRASTRUCTURE, CONNECTIVITY ALONG LAC IN ARUNACHAL

Over the past year, the village of about 130 residents has witnessed its Primary Health Centre and residences of the school teachers being upgraded, and concrete tracks being laid under the Central government’s Vibrant Villages Programme (VVP).

### Army’s demarcation

For administrative purposes, the Army classifies Arunachal as Kameng, derived from the name of the river that flows through the State. Tawang district is part of the Kameng area, while the remaining part of the State is considered separate and was earlier referred to as the Rest of Arunachal Pradesh (RALP).

Of the 3,488-km-long LAC, 1,346 km falls in the eastern sector, comprising Sikkim and Arunachal. While the Tawang and Kameng areas are under the Army’s IV Corps, headquartered at Tezpur, RALP is under the III Corps, which is based at Dimapur. Kameng and Tawang have seen development in the last 10-15 years, with the remaining areas only now catching up with the kind of infrastructure that China possesses.

The VVP was approved as a Centrally-sponsored scheme on February 15, 2023, with an outlay of ₹4,800 crore for the financial years 2022-23 to 2025-26 for the development of 2,967 villages in the border States of Arunachal Pradesh, Himachal Pradesh, Sikkim, Uttarakhand, and the Union Territory of Ladakh.

Union Home Minister Amit Shah formally launched the VVP in Kibithoo on April 10, 2023. He also inaugurated nine micro hydel projects of the State government and 14 infrastructure projects for the Indo-Tibetan Border Police (ITBP). “

The topography of Arunachal is like a wheel, the flat plateau as the hub with mountains and valleys jutting outwards like spokes. It means for travel between valleys, one must come back to the plains.

Work on the 2,400-km trans-Arunachal highway, which goes along the length of the border, is about 92% complete and the rest is expected to be completed this year, another official says.

The new, almost 1,800-km-long frontier highway, on which work has commenced, will fill a critical void facilitating inter-valley movement. It will start from Bomdila in Arunachal’s west, pass through Nafra, Huri and Monigong villages, and end in Vijaynagar, near the Indo-Myanmar border. The roads cut through eastern Arunachal’s thick forests.

Another infrastructure input is the connectivity across the Lohit river, which, for India, starts from Kibithoo and flows to Tezu, and then joins the Brahmaputra in Assam, a distance of almost 350 km, dividing the stretch into east and west banks. Three key bridges across the river, to be ready by next year, can handle 80 tonnes of load.

The Army’s artillery guns — M777 Ultra-Light Howitzers and 105mm Indian Field Guns — are deployed close to the LAC. The M777s, with a range of over 30 km, weigh just four tonnes and can be airlifted underslung on Chinooks, giving significant manoeuvrability in terms of long-range



firepower between the valleys. Over the last few years, a range of new-generation equipment ranging from SIG-716 rifles, Negev light machine guns, Sako TRG-42 sniper rifles, tactical drones, sensors and other weapons and equipment have been inducted here.

### Reaching out

Another aspect witnessing tremendous change is mobile connectivity. The Universal Service Obligation Fund (USOF) was established with the fundamental objective of providing access to “basic telegraph services” to people in remote and rural areas at affordable and reasonable prices.

In the past, mobile phones at Kibithoo would only connect to Chinese networks. Locals would tell the few tourists here to put their phones on flight mode to avoid international roaming charges. However, now phones pick up both Indian and Chinese networks. Officials explain that while towers have been set up, optical fibre networking is in progress.

As connectivity improves, efforts are on to promote tourism. Under the Seema Darshan project, the State government, with support from the Army, has approved 12 tourist circuits, including two foreign tourist ones, beyond the Kameng area. Religious tourism to Khepang La, Pasang Sonam Tso Lake, and Taksang Gompa is also being showcased and promoted, an official says, adding that passes for trekking are also being facilitated.

## 125 YEARS OF KODAIKANAL SOLAR OBSERVATORY: HOW THE GREAT DROUGHT OF 1876 LED TO ITS ESTABLISHMENT

Since ancient times, seafarers, mathematicians, astronomers and physicists have all extensively studied and followed the Sun and its activities. In 1792, the British East India Company established the Madras Observatory, a first of its kind in this part of the world.

Here, astronomical observations of the Sun, the Moon, bright stars and planets recorded during 1812-1825 were preserved in two large data volumes. The first dedicated solar observations were recorded later in 1878 from the Trigonometrical Survey Office in Dehradun.

Back then, astronomy was largely limited to special events like eclipses or planetary transits that drew huge interest from foreign astronomers to visit India. Some of these visitors later settled here and laid a foundation for observatory-based astronomy in the country. Several important observations were made here – the spectroscopic observations taken during the August 18, 1868, total solar eclipse from Guntur in Andhra Pradesh led to the discovery of helium, the Universe’s second-most abundant element after hydrogen.

For the first time, celestial and solar photography were attempted from the Madras Observatory during the total annual solar eclipse on December 12, 1871. Here is its story.

### Links to the Great Drought

Scanty rainfall over south India during the winter monsoon of 1875 triggered one of the worst droughts the country had experienced till then. Multiple failed crops over the famine-stricken peninsular India killed 12.2 to 29.3 million people across the Madras and Mysore Provinces during 1875-1877.

India, along with China, Egypt, Morocco, Ethiopia, southern Africa, Brazil, Columbia and Venezuela, suffered concurrent multi-year droughts during 1876-1878, later named the Great Drought, and an associated global famine that killed nearly 50 million.

3<sup>RD</sup> FLOOR AND 4<sup>TH</sup> FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR



The drought was thought to be due to multiple reasons – solar activity; cool Pacific Ocean conditions followed by a record-breaking El Nino (1877-1878); strong Indian Ocean Dipole and warm North Atlantic Ocean conditions.

### **Why study the Sun?**

Being the primary source of energy, life on Earth is supported by the Sun. Any change on the solar surface or its periphery could significantly affect the Earth's atmosphere. Powerful solar storms and solar flares can be potentially harmful to Earth's satellite-based operations, power grids and navigational networks.

The KoSO (Kodaikanal Solar Observatory), which has been imaging the Sun for over a century now, has a rich repository of data. This is extremely useful not only to reconstruct the Sun's historic past but also to link its behavioural changes to better understand and predict its future and its impact on life on Earth and Space weather.

### **Solar Physics Observatory in Palani Hills**

Based on the evidence that solar activity was linked to the seasonal rainfall distribution over India, the specially constituted Famine Commission of the British Raj recommended that the Government of India take regular solar observations.

Thus was born the idea for an Indian solar observatory, 'for carrying out systematic examinations and the study of changes in progress in the Sun and their co-relations with the larger features of Indian meteorology'. ('Hundred Years of Weather Service', IMD)

Scotland-born Charles Michie Smith, a Professor of Physics at the Madras Christian College, was entrusted to locate an ideal site for setting up this solar observatory in undivided India.

The hills of Leh, Mussoorie and Shimla were rejected for being dusty and cloudy and the atmosphere around them being unstable. Smith then conducted regular astronomical observations on southern India's hilltops, which were found to be better.

Later, Smith surveyed hill stations located over 2,000 metres above the mean sea level in Tamil Nadu – Kodaikanal in the Palani hills and Kotagiri in the Nilgiris. The survey of rainfall, cloud cover and sky transparency, haze, atmospheric stability, humidity, fog and mist was completed and Kodaikanal was chosen as the ideal location for the observatory.

In August 1893, the Government of India sanctioned a Solar Physics Observatory under the meteorological budget.

In 1895, Lord Wenlock, the then Governor of Madras, laid its foundation stone. Supervised by Smith, who went on to become the first director of the renamed Kodaikanal Solar Observatory (KoSO), the ongoing civil construction picked pace. By the end of the 1900s, the main observatory building and the two adjacent domes were built and ready to accommodate instruments.

The Madras Observatory, where Smith briefly served as the Government Astronomer, was merged with the KoSO following the reorganisation of all Indian observatories implemented by the Government of India on April 1, 1899. Instruments mainly from the Madras Observatory supplemented the new ones at KoSO, where systematic observations commenced on March 14, 1901.





The Bhavnagar Telescope, named after Maharaja of Bhavnagar, operated during KoSO's nascent years. This 16-inch Newtonian (later Cassegrain) mobile telescope remained India's largest from 1888-1968. It was imported from Dublin, Ireland, and was first established at the Maharaja Takhtasinghji Observatory in Poona (now Pune) around 1888.

However, the Poona observatory closed down and the telescope was sent to KoSO in 1912. Some of the early solar observations at KoSO included the examination of the Sun's disc from spots and faculae; tracing bright lines from the Sun's chromospheres and prominences; visual and photographic observations of bright lines widened in the spectra of sunspots; measuring solar radiations on clear sky days and the direct photography of the Sun in monochromatic lights of calcium and hydrogen.

The radial motion of sunspots, better known as the Evershed Effect, was discovered from the sunspot observations made at KSO by John Evershed, KoSO director from 1911-1922.

Until the end of World War II in 1945, KoSO remained an observatory dedicated to solar physics. Thereafter, it expanded its ambit to study cosmic rays, radio astronomy, ionospheric physics, stellar physics and more areas. The continuous recording of the solar radio noise flux commenced in 1952 is considered the earliest solar radio observations in the country.

The contemporaries – Maharaja Takhtasinghji Observatory, Lucknow Observatory, and Calcutta Observatory – did not stand the test of time.

#### **KoSO @125**

The Government of India separated Astrophysics from the India Meteorological Department (IMD) in April 1971. The KoSO was brought under the Indian Institute of Astrophysics (IIA), Bengaluru on April 1, 1971.

From solar data recorded on basic photographic plates or films, the 125-year-old KoSO boasts a mammoth digital repository containing 1.48 lakh digitised solar images of 10 terabytes. These include 33,500 white-light images (showing sunspots) and thousands of other images of the Sun recorded every day since the start of the 20th century.

KoSO is the only observatory offering high-resolution digitised images for such a long period (with coverage of more than 75 per cent).

Today, it houses a spectrum of advanced instruments like the H-alpha telescope to perform full disc imaging, a White light Active Region Monitor (WARM) with calcium and sodium filters to make full disc simultaneous observations of the photosphere and chromosphere layers of the Sun, a solar tunnel telescope and more.

### COMPOUNDING CRISES

There is only enough water to fill 23% of the holding capacity in all of South India's reservoirs, The Hindu reported last week based on an analysis of Central Water Commission data. This, according to the analysis, is nine percentage points lower than the rolling decadal average, speaking to the certainty and the magnitude of the impending crisis. The last time South India faced a summertime water crisis was in 2017. The crisis in the same region this year is poised to be different, and worse, for a few reasons. First, the monsoons are influenced by various factors; of these, El Niño events render them more erratic, even if isolating their influence thus is a



simplification. There was an El Niño event in 2014-16 whereas this time there is an ongoing event and among the five strongest such events in recorded history. Second, after meteorologists recorded 2023 to be the warmest year on record, they also said they expected 2024 to be worse. A team led by the U.K. Meteorological Office also predicted a 93% chance that every year until 2026 will be a record-breaker. Third, millions in India will be spending some additional time outdoors this summer to cast their votes in the general election. Fourth, this crisis has happened before; yet, while (some) policies and forecasting have improved, preparedness and implementation of these policies on the ground have not. Other factors, including unplanned urban growth, over-extraction of groundwater, low water reuse efficiency, insufficient community involvement, and encroachment and/or degradation of catchment areas, persist.

Climate change will impose a deadlier cost on low- and middle-income countries such as India by creating simultaneous crises. While the phenomenon changes the way weather events co-evolve, it also affects the frequency of their occurrence such that two events may develop a greater chance of transpiring together than they did before — such as a drought and a disease outbreak, which in turn will worsen socio-economic conditions among marginalised groups. Any water crisis must be seen against this backdrop, where it is both a crisis in itself and a factor that compounds the effects of another. That a region's water situation becomes precarious after one year of deficient rain is a sign governments are not learning their lessons or are ignoring them, even if the deficit was considerable. No more information or context is necessary to understand this fact than what already exists. But governments and policymakers seem to need reminding that this and future crises will neither be just about the water nor the fault of climate change.

#### BENGALURU AND CAPE TOWN: A TALE OF TWO CITIES HIT BY WATER SCARCITY

With Bengaluru facing severe water shortage, many have compared the city's predicament to Cape Town's in 2015-18.

Cape Town faced a serious water shortage between 2015 and 2018, which peaked around 2017. It was characterised by critically low levels of water in the city's reservoirs, threatening to completely exhaust the city's water supply, and forcing authorities to implement strict water-rationing measures.

The scarcity was such that the prospect of "Day Zero" — the day when municipal authorities would effectively cut water supply due to empty reserves, and residents would have to queue up for a daily ration of water — defined life in the city. This would have made Cape Town the first major city in the world to "run out" of water.

The crisis was caused by a prolonged period of below-average rainfall, resulting in a drought across the Western Cape. This resulted in the water levels in Cape Town's reservoirs dropping significantly. A rapidly growing population, unplanned urbanisation, and inefficient water-use practices further strained the city's water supply.

Fortunately, by September 2018 the scarcity had started to ease, and by 2020, things were back to normal.

#### **Low rainfall a key reason**

Beyond low rainfall, rapid, unplanned urbanisation has played a significant role in the crisis in both Cape Town and Bengaluru.



In Cape Town, as the city expanded, existing water infrastructure (reservoirs, pipelines and treatment plants) struggled to keep up with demand. This strain then resulted in leaks and other problems, and led to inefficient water use. Moreover, as concrete covered increasing swathes of land, groundwater levels fell drastically, with replenishment not keeping up with consumption.

Bengaluru too has seen something similar. In the 1800s, the city had 1,452 water bodies, with roughly 80% of its area covered in greenery. Now, only 193 water bodies remain, and green cover is below 4%.

#### A RECORD 60 TRADITIONAL PRODUCTS FROM ACROSS INDIA GRANTED GI TAG

This is the first time that such a large number of products have been given the GI tag at one go, a senior official from the Geographical Indications Registry said, adding that more States were coming forward and filing applications to get a GI tag for their traditional products.

Six traditional crafts from Assam — Asharikandi terracotta craft, Pani Meteka craft, Sarthebari metal craft, Jaapi (bamboo headgear), Mishing handloom products, and Bihu dhol — have bagged the GI tag.

Thirteen other products from Assam have been given the tag, including the Bodo Dokhona, the traditional attire of Bodo women; and Bodo Eri silk, referred to as the fabric of peace or ahimsa (non-violence), which comes from the silkworm *Samia ricini* that feeds mostly on the leaves of the castor plant (*Ricinus communis*), and cassava. Bodo Jwmgra (a traditional scarf), Bodo Gamsa (traditional dress of Bodo men), Bodo Thorkha (a musical instrument), and Bodo Sifung (a long flute) are also on the list.

Assam Chief Minister Himanta Biswa Sarma, in a post on X, said it was a big win for Assam's heritage. "These products, deeply rooted in history, support nearly one lakh people directly," he said.

The famous Banaras Thandai, a drink made by blending milk with a mix of nuts, seeds and spices, also got the tag. Details in the GI filing mentioned that on any given evening, in the heart of the city, in areas such as Gaudaulia Chowk, Lahurabir, and the old lane of Pakka Mahal, traditional Banaras Thandai shops attract large crowds. The drink was first introduced centuries ago as an offering to the Shri Kashi Vishwanath deity on the occasion of Mahashivaratri, Rangbhari Ekadasi, and Holi. The Banaras Tabla, Banaras Shehnai, Banaras Lal Bharwamirch, and Banaras Lal Peda are among the products that walked away with GI tags in this region.

The Tripura region secured two tags — one for the Pachra-Rignai, which is a traditional dress worn on special occasions, and the other for the Matabari Peda, a sweet preparation.

Meghalaya Garo Textile weaving, which is linked to socio-cultural and religious rituals, Meghalaya Lyrnai Pottery, and Meghalaya Chubitchi also secured the tag.

#### SOLAR SURGE

The new financial year has begun with the government finally bringing into effect a policy that will discourage solar power project developers from relying on imported panels. The Approved Models and Manufacturers of Solar Photovoltaic Modules (Requirement for Compulsory Registration) Order, 2019, requires module makers to submit to an inspection of their manufacturing facilities by the National Institute of Solar Energy. Being on the list as an 'approved'

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manufacturing facility certifies a company as legitimately manufacturing solar panels within its premises and not importing modules. The major advantage is eligibility to compete for the government's tenders for its flagship solar energy programmes. This includes the recently announced PM solar rooftop scheme.

The creation of such a list was also aimed at restricting imports from China, which controls nearly 80% of the global supply, amid the downturn in diplomatic relations. India has ambitious plans of sourcing about 500 GW, nearly half its requirement of electricity, from non-fossil fuel sources by 2030. This would mean at least 280 GW from solar power by that year or at least 40 GW of solar capacity being annually added until 2030. In the last five years, this has barely crossed 13 GW though the government has claimed that the COVID-19 pandemic affected this trajectory and the country was on track to add between 25 GW-40 GW annually. The difficulty is that meeting the targets requires many more panels and component cells than India's domestic industry can supply. In recent years, a significant fraction of India's solar installations has been met by imports. This affects the interests of domestic panel manufacturers who have to pay the government to be certified while at the same time losing out on orders to the cheaper Chinese panels. To meet demand, the Centre, which has kept postponing the implementation of the approved list, has now decreed that this will take effect from April 1. The yardstick of success is when India meets its 2030 commitment while also ensuring that solar power is affordable to most Indians. This means that domestic manufacturers should be subject to stringent quality checks and not be allowed to compromise on cost and quality merely on nationalistic grounds. While the Indian solar industry must grow and gain a reputation for being a high quality exporter, it should not forget that this is a road with no easy shortcuts.

#### WHY GREEN HYDROGEN PRESENTS BOTH MAJOR OPPORTUNITIES AND SIGNIFICANT CHALLENGES

The Ministry of New and Renewable Energy (MNRE) has announced a Rs-496-crore (until 2025-26) scheme to support pilot projects that either test the viability of green hydrogen as a vehicle fuel or develop secure supporting infrastructure such as refuelling stations.

Big Indian commercial vehicle manufacturers such as Tata Motors, Volvo Eicher, and Ashok Leyland are doubling down on efforts to develop hydrogen-powered trucks and buses by ramping up research and development, and building manufacturing capacities.

Indian energy companies too are trying to scale up production of green hydrogen and bring down costs to make it affordable enough to compete with other fuels.

Hydrogen is expected to be used widely in the transportation sector in the coming years, and as a large and growing market for both vehicles and energy, India stands to gain significantly from the large-scale adoption of green hydrogen as vehicular fuel.

Green hydrogen promises significant reductions of emissions to help slow global warming and climate change. India sees advantages ranging from curbing pollution and meeting its climate goals to reducing costly fossil fuel imports, as well as a business opportunity to become a global hub for the production and export of green hydrogen.

#### Green and grey hydrogen

Hydrogen is colourless, and green hydrogen is 'green' only by virtue of the way it is produced, and the source of the energy used to manufacture it. Green hydrogen refers to hydrogen that is

3<sup>RD</sup> FLOOR AND 4<sup>TH</sup> FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR



produced from the electrolysis of water — splitting it into hydrogen and oxygen — using an electrolyser powered by renewable energy.

This is considered to be a virtually emission-free pathway for hydrogen production — it is ‘end-to-end’ green because it is powered by green energy, uses water as feedstock, and emits no carbon on consumption.

Currently, most hydrogen produced for industrial consumption and applications is ‘grey’ hydrogen, which is produced from natural gas through energy-intensive processes, and has high carbon emissions. Except for a difference in the production pathway and emissions, green hydrogen is essentially the same as grey — or hydrogen categorised by any other colour.

### **Transport sector scheme**

The major objectives of the MNRE scheme, guidelines for which were issued in February, include

- i) validation of technical feasibility and performance of green hydrogen as a transportation fuel,
- ii) evaluation of the economic viability of green hydrogen-powered vehicles, and
- iii) demonstration of safe operation of hydrogen-powered vehicles and refuelling stations.

The Ministry of Road Transport & Highways will appoint a scheme implementation agency that will invite proposals for pilot projects. The selected company or consortium will be the project’s executing agency.

Based on the recommendation of a Project Appraisal Committee, the MNRE will approve viability gap funding (VGF) for the project. The VGF amount will be finalised after considering “specific needs, merits, and feasibility of each project”. The executing agency will be required to complete the pilot project within two years.

### **Hydrogen fuel cell vehicles**

A hydrogen internal combustion engine (ICE) vehicle utilises hydrogen through combustion — which is similar to cars running on diesel and petrol, except there are no carbon emissions.

A hydrogen fuel cell electric vehicle (FCEV) utilises hydrogen electrochemically by converting hydrogen stored in a high-pressure tank into electricity, leaving water as the byproduct. Even though hydrogen ICE vehicles do not emit carbon, research suggests that burning hydrogen is far less energy efficient than converting it into electricity in a fuel cell.

Compared to battery electric vehicles (BEVs), in which the battery is the heaviest part, hydrogen FCEVs are typically much lighter because hydrogen is a light element, and a fuel cell stack weighs lesser than an electric vehicle (EV) battery.

This makes hydrogen fuel cell technology a viable alternative to EV battery technology, especially for heavy-duty trucks that can benefit from an increased payload capacity — without coughing clouds of smoke from burning diesel.

Indeed, research shows that long-haul FCEVs can carry freight amounts similar to diesel trucks, whereas long-haul BEVs have a weight penalty of up to 25% due to heavier batteries. Given the



need to cut carbon emissions in the transportation sector while ensuring there is no loss in revenue-generating payload capacity, green hydrogen holds promise.

#### **A number of challenges**

There are significant challenges to the large-scale use of green hydrogen in the transportation sector. The foremost among these is the prohibitive cost of production, followed by challenges of storage and transportation at scale. With more innovation in technology and scaling-up of production though, costs are likely to come down in a few years.

Green hydrogen-powered vehicles are not yet seen as a suitable alternative to four-wheel BEVs due to challenges arising from fuel costs and building supporting infrastructure. Shell, a pioneer in hydrogen refuelling technology, last month announced it was shutting all its hydrogen refuelling stations for cars in California due to “supply complications and other external market factors”. Hydrogen filling stations for heavy-duty vehicles, however, continue to remain operational there.

For hydrogen FCEVs to compete with BEVs, green hydrogen needs to cost between \$3 and \$6.5 per kilogram by 2030. For perspective, retail green hydrogen prices in California touched \$30 per kilogram in 2023. Also, the California Transportation Commission estimates that building a hydrogen truck fuelling station costs up to 72% more than the cost of building a battery electric truck fuelling station.

The MNRE plans to convene a meeting with stakeholders to discuss the development of specialised cylinders to store green hydrogen after manufacturers of commercial vehicles flagged challenges related to high-pressure storage cylinders.

Currently, most cylinders manufactured in India are designed to carry compressed natural gas (CNG). But hydrogen is stored at a much higher pressure, and CNG cylinders cannot carry hydrogen. For cylinders to carry a high mass of hydrogen, the carbon fibre needs to be stronger, which makes high-pressure hydrogen cylinders expensive. This is a key barrier to the adoption of hydrogen as a transport fuel. For the same reason, the existing natural gas pipeline infrastructure is also not seen as viable.

Hydrogen is extremely flammable, which means that special care would be needed in handling the fuel at retail stations compared to diesel, petrol, or even CNG. Robust and fool-proof handling and safety standards need to be developed before pushing large-scale adoption.

Finally, as advancements in battery technologies continue to reduce the overall weight of EV batteries, the long-term viability of green hydrogen-powered heavy duty commercial vehicles could also come under pressure.

#### **VENKY'S PUSHING ANTIBIOTICS AS POULTRY GROWTH PROMOTER**

Poultry producer Venky's is marketing antibiotics to be used by farmers in ways that contribute to the spread of drug-resistant infections, according to the Bureau of Investigative Journalism (TBIJ).

The company is selling products aimed at speeding up poultry growth that contain drugs vital for human health. Other critically important antibiotics are being sold for so-called “preventative use”.



### Drugs for chickens

At least two poultry farms in southern Telangana were found to be using the drugs, including one for preventive purposes as recommended by Venky's on its website, TBIJ found.

The World Health Organization (WHO) has opposed antibiotics for both growth promotion and preventative use because they can reduce the effectiveness of the drugs when used to treat infections in humans.

In 2018, TBIJ reported that Venky's was selling colistin, a "last resort" antibiotic for many severe human infections, as a growth promoter for poultry. The expose led the Indian government to ban such use of the drug. At the time, Venky's told TBIJ that on their own farms and those of their contractors, "antibiotics are used only for therapeutic purpose".

But it now appears that Venky's is selling different drugs to be used both preventatively and for growth promotion. The company did not respond to repeated requests for comment.

#### 'Critically important'

Venky's was founded in 1971 and now has a significant presence across India, supplying a number of the country's fast-food restaurants, including KFC, and is involved in various stages of the poultry production chain.

TBIJ found Venky's marketing a number of products containing vital medicines.

Its medicated poultry feed Tylomix contains the antibiotic tylosin, part of the macrolide class of drugs classified by the WHO as "critically important" to human medicine. While tylosin is purely for veterinary use, some other drugs of this class are used to treat bacterial infections in humans. The product listing on Venky's website says Tylomix can be used for growth promotion in poultry reared for meat and says it should be added to the feed for chicks aged up to 10 days.

Another medicated feed marketed by Venky's for growth promotion is Amo-premix. This product contains amoxicillin, a drug regularly used to treat humans and classified by the WHO as highly important for human health. A product called Vendox, containing the critically important antibiotic neomycin, is touted to "prevent early chick mortality", which is an example of preventative use.

Earlier this year, TBIJ visited a farm in Telangana that houses tens of thousands of chickens per year. Workers said a number of medicines were given to the animals throughout the production cycle. "This is used after the chicks arrive," a worker said about Vendox. "We start it after two days."

TBIJ could not verify which retailers this farm supplies meat to. TBIJ was also able to buy Vendox and another antibiotic product containing "critically important" drugs from a specialist poultry pharmacist in south Telangana without veterinary prescriptions.

The overuse of antibiotics on farms around the world has led to the spread of drug-resistant food-borne pathogens, including Salmonella, Escherichia coli, and Campylobacter, which can be spread via contaminated meat and other food products.

A landmark study of the global impact of antimicrobial resistance estimated it caused at least 1.27 million deaths in 2019, which is more than those due to HIV/AIDS or malaria.



## TWO STATES: A COMPARISON ON ACCESS TO LIFE-SAVING C-SECTIONS

A study published by IIT Madras shows that in Tamil Nadu, access to caesarean section (C-section), an essential medical intervention that can save lives when vaginal deliveries are risky, is more equitable compared to India's average. However, C-section rates among the women of Tamil Nadu are also alarmingly high, especially in private hospitals, pointing to the need for corrective action, the study points out. The report also compares Tamil Nadu's figures with those of Chhattisgarh to show how in certain States, C-sections are more prevalent among richer sections of society, while the poor lack access to it.

A C-section delivery refers to a surgical procedure in which an incision is made in the woman's abdomen to deliver one or more infants. According to the World Health Organization, access to hospitals that are equipped to perform such procedures is crucial to ensure the safety and well-being of both the mother and child in the event of medical necessity. Maternal and neonatal mortality rates decline in countries which have C-section rates of about 10%, the WHO concludes. However, the agency also warns that if C-section rates go beyond 10%, it will not necessarily reduce maternal mortality. In 2021, global C-section rates exceeded 20%. They are projected to rise to 30% by 2030.

### Between 2015-16 and 2019-21

In public sector hospitals, nearly 40% of women underwent C-sections in Tamil Nadu in 2019-21. That is, of every 100 deliveries in public sector hospitals, 40 were C-sections. This is much higher than India's average of around 16% and Chhattisgarh's 10%.

The gap narrowed considerably in private hospitals: close to 64% women underwent C-sections in private sector hospitals in Tamil Nadu in 2019-21 compared to India's average of around 50% and Chhattisgarh's 59%. "In Chhattisgarh, a woman is 10 times more likely to undergo a C-section in a private hospital than in a public hospital. This could be due to a lack of adequate or high-quality services in public health institutions," the study concludes. Assuming that poorer households choose public hospitals for deliveries and richer households prefer private ones, this points to inequitable access at the national level and more equitable access in Tamil Nadu.

The study also shows that the location of childbirth (whether in a public or private institution) had the most considerable influence on the decision to get a C-section delivery. This suggests that 'clinical necessity' isn't always the driving factor for surgical births. Throughout India and Chhattisgarh, individuals who were better off financially tended to choose C-sections more frequently, whereas, in Tamil Nadu, the situation was distinct, with poorer individuals being more prone to undergo C-sections in private hospitals.

It shows that the poor were more likely to have C-sections in private hospitals in Tamil Nadu. "The inversion in income-based inequality in Tamil Nadu in private institutions in 2019-21, with a greater proportion of the poor than the non-poor delivering via C-section, is difficult to explain," the study says.

## PROSTATE CANCER CASES IN INDIA SET TO DOUBLE BY 2040: LANCET

Two years ago, a 64-year-old general surgeon in Pune complained of backache and was diagnosed with an advanced stage of prostate cancer that had already spread to his spine. Yet he had no early symptoms like difficulty in passing urine. Many Indian men, like him, are being diagnosed in late





stages and succumbing to the disease, says a latest Lancet Commission paper, which has projected prostate cancer incidence in India to surge sharply by 2040.

According to the International Agency for Research on Cancer projections, which Lancet has factored in its analysis, prostate cancer incidence in India will double to about 71,000 new cases per year by 2040. Prostate cancer accounts for three per cent of all cancers in India, with an estimated 33,000-42,000 new cases diagnosed annually.

— The cases of prostate cancer are projected to double from 1.4 million per year in 2020 to 2.9 million per year by 2040 worldwide, with low and middle-income countries predicted to see the highest increase.

— The Lancet authors have recommended use of MRI scans and PSA tests to screen men at high risk of prostate cancer in high-income countries.

#### EXPRESS VIEW ON INDIANS SEEKING SURROGACY ABROAD: FOR LOVE OF A CHILD

The aftermath of constricting surrogacy laws has become manifest in the latest trend of urban, economically solvent Indians travelling overseas to have children through surrogacy. A report in this newspaper points to the burgeoning number of Indians heading to the US, Canada, Mexico, Colombia and to countries in east Europe, including Georgia, to avail commercial surrogacy at prices that can range from Rs 6 crore to Rs 50 lakh, depending on the country of choice. The cross-section of people availing it is telling — single men and women, same-sex couples as well as couples with children of their own who want to opt for surrogacy for their subsequent family building. It puts the spotlight on the challenges and lacunae in the regulation of family and reproduction rights in the country.

Progress on the regulation of surrogacy has been incremental in India, where commercial surrogacy became legal in 2002 and saw a rapid boom because of its affordability and the trickle-down economic benefits it afforded women from lower socio-economic strata. The rise of a rent-a-womb industry, with Anand in Gujarat its ground zero, necessitated a regulatory framework that could curb exploitation and malpractices. In 2015, the government made commercial surrogacy illegal for foreigners. A year later, the concept of altruistic surrogacy was introduced. In its present avatar, only altruistic gestational surrogacy that receives no financial or material compensation is allowed. There are other restrictive criteria: Couples can use donor gamete for surrogacy only if medically mandated; the option of surrogacy is accorded to married couples with medical conditions that make conception impossible and to widowed or divorced women. It leaves out live-in couples, LGBTQIA+ couples and single people from its ambit.

This makes for an inherently unequal landscape where the idea of a family is still guided by a patriarchal imagination. It mandates marriage for a heterosexual couple and only recognises need — and not desire for children — as a further eligibility clause. Assisted Reproductive Technologies come at a cost that often make access to them restrictive for the economically weak. A narrow imagination of eligibility additionally accentuates the stigma that single people, especially women, and same-sex couples face for their choices. In February, while responding to a single woman's petition challenging the surrogacy laws as discriminatory, the Supreme Court remarked upon the necessity of protecting the institution of marriage. Yet, laws need to keep up with changing times and aspirations. Surrogacy laws in India need to be mindful of atypical families, endorsed by the apex court in a 2022 judgment, to ensure that becoming a parent does not become the privilege of a few.

**GOVT. BODY HIKES PRICES OF ESSENTIAL MEDICINES AGAIN, SAYS 'IT'S MINISCULE'**

An increase in the prices of essential medicines came into force on April 1, earlier this week. The National Pharmaceutical Pricing Authority (NPPA) enforced an increase in the Maximum Retail Price (MRP) this year of 0.00551 percent for scheduled formulations (of drugs) from the beginning of the fiscal year 2024–25. The Department of Pharmaceuticals issued its annual list of revised ceiling prices for 923 scheduled drug formulations and revised retail prices for 65 formulations, with the ceiling rates coming into effect on April 1. The price revision, according to the Central Government, is in line with the change in the Wholesale Price Index (WPI). “Based on the WPI data provided by the office of the Economic Advisor, Department of Industry and Internal Trade, Ministry of Commerce and Industry, the annual change in WPI works out to (+) 0.00551% during the calendar year 2023 over the corresponding period in 2022,” said the notice by the NPPA.

**Increase based on WPI**

According to the recent notice, manufacturers may increase the MRP of the scheduled formulations based on this WPI and no prior approval will be required from the government. Notably, this increase in prices comes after medicine prices were hiked by 12 per cent last year and 10 per cent in 2022. Despite this, the government will have you believe that the current hike will only marginally increase the cost of antibiotics, painkillers and other essential drugs. Currently, India has approximately 400 molecules and 960 formulations covered under the National List of Essential Medicines. The prices of non-essential drugs are also monitored by the government to ensure that the manufacturers of these drugs don't increase MRP by more than 10% annually. NPPA follows DPCO (2013), which allows for price hikes in line with the changes in the WPI index. “The NPPA under the Department of Pharmaceuticals annually revises the ceiling prices of scheduled medicines on the basis of WPI. The scheduled medicines included in Schedule-I of the DPCO, 2013 are essential medicines. During the calendar year 2023 compared to the corresponding period in 2022, the annual change in WPI with the base year of 2011–12 was +/- 0.00551%, according to data published by the Department for Promotion of Industry and Internal Trade (DPIIT). Accordingly, the Authority, in its meeting held on March 20, has approved the WPI increase of +/- 0.00551% for the scheduled medicines,” said the Health Ministry. It added that the ceiling prices on 923 medicines are effective as of date. Based on the mentioned WPI factor of (+) 0.00551%, there will be no change in the prevailing ceiling prices for 782 medicines, and the existing ceiling prices will continue to prevail up to March 31, 2025.

**Almost no change**

Fifty-four medicines with ceiling prices ranging from ₹90 to ₹261 will see a miniscule increase of ₹0.01. As the permissible price increase is so low, the companies may or may not avail of this increase. Thus, in FY 2024–25, there will be almost no change in the ceiling price of medicines based on WPI, said the Ministry. NPPA, constituted by the government of India in 1997 under the Ministry of Chemicals and Fertilizers, regulates drug pricing while ensuring the availability and accessibility of medicines at affordable prices. The authority is allowed to direct a price hike of over 10% for the drugs and devices listed on the National List of Essential Medicines (NLEM). All medicines under the NLEM are subject to price regulation.

“With the announcement of the new National Pharmaceutical Pricing Policy, 2012, and the DPCO, 2013, there has been a shift in regulation of prices from economic and cost-based criteria to essentiality and market-based criteria, which involves creating and maintaining a data base and



strengthening the existing monitoring system of the NPPA," the Central Government stated. The WPI is a measure that tracks average changes in prices of goods at the wholesale level, providing insights into inflation and price trends for goods sold to retailers and businesses rather than individual consumers.

The marginal hike this year has the pharmaceutical companies concerned, as they claim to be facing high input costs, stringent price controls, and diminishing profit margins.

The lower-than-expected hike in drug prices has seen pharma companies discontinue production of drugs that they claim have become economically unviable. Also earlier this year, India's pharmaceutical industry sought a one-time exemption from price control measures tied to the declining WPI.

#### **Prices hiked to save firms**

In 2019, for instance, NPPA used its emergency powers to raise the ceiling prices of 21 essential drugs by 50% after several companies applied for the discontinuation of products due to their high cost. Pharma companies maintain that a rational increase in the cost of drugs contributes to quality control. According to information shared by the Centre in the Lok Sabha, the key principles for regulation of prices in the 2012 National Pharmaceuticals Pricing Policy are the essentiality of drugs, control of formulation prices, and market-based pricing. It added that all manufacturers of scheduled medicines have to sell their products within the ceiling price (plus applicable Goods and Service Tax) fixed by the NPPA. DPCO, 2013, which also allows an annual price rise for scheduled formulations based on WPI. NPPA also fixes the retail price of a new drug under DPCO, 2013 for existing manufacturers of scheduled formulations. Hence, the annual increase allowed in the case of scheduled formulations is up to the level of annual revision in WPI. Further, in cases of non-scheduled formulations, no manufacturer can increase the MRP by more than 10% of the MRP during the preceding 12 months. Instances of overcharging are dealt with by NPPA under the relevant provisions of DPCO 2013. "The fixation of prices has resulted in a notional savings of about ₹12,447 crore per annum to the public after the implementation of DPCO, 2013," Parliament was informed. Meanwhile, though some consumers are happy with the almost steady pricing for medicines for another year, experts point to the country's dependence on China for raw materials for drug manufacture. The country faced major challenges with these high-cost imports, especially during the COVID pandemic.

#### **Dependence on China**

In a discussion paper 'India's Import Dependence on China in Pharmaceuticals: Status, Issues, and Policy Options' author Sudip Chaudhuri argues that while India has one of the most advanced pharmaceutical industries among developing countries, being the third largest in the world in volume terms and the 13th largest in value, it is critically dependent on China for supplies of bulk drugs and drug intermediates, with China accounting for about two-thirds of the total imports. The paper further notes that the largest export destination of bulk drugs from India is the US, which has the strictest regulatory standards, followed by Brazil, Bangladesh, Turkey, China, the Netherlands, Nigeria, Vietnam, and Egypt. India is among the top five suppliers of bulk drugs to many developing countries, like, Bangladesh, Nigeria, Vietnam, Egypt, Iran, and Pakistan. China is a larger supplier, but India is also a substantial exporter, it said.



## LIVING WILLS IMPLEMENTATION LAGS IN INDIA

In early March this year, 30 people in Thrissur in Kerala executed living wills. Living wills have been legal since 2018, when the Supreme Court of India created a process to allow terminally-ill patients, with no hope of a cure, to withhold or withdraw treatment and die with dignity. Since patients may not be able to communicate their wishes for a variety of reasons, including being unconscious or suffering from dementia, living wills allow them to make choices about future medical care. Six years after the judgment, however, the Court's process is unavailable in most of India. Officials remain unlikely to implement the procedure without direct orders and guidance from State governments.

When the Court created the process, it was unworkably complex. As the Court worried that "unscrupulous persons who wish to inherit or otherwise grab the property of the patient" might abuse the process, it created elaborate bureaucratic procedures as safeguards. One particular requirement — that living wills must be countersigned by a judicial magistrate — was too much of a burden. Predictably, few living wills were executed in the first five years after the judgment. In January 2023, the Court recognised that requiring a judge to countersign each living will 'impaired, if not completely defeat' the objective of its judgment, and streamlined the procedure.

Under the streamlined procedure, living wills have to be signed in the presence of two witnesses, attested before a notary or a gazetted officer, and handed over to a "competent officer" in the local government who will act as a custodian. If the patient becomes terminally ill and does not have decision-making capacity, the treating doctor is to authenticate the living will against the copy held with the custodian or against digital health records, if any. However, local governments have not generally designated custodians for living wills, nor are they likely to. In Maharashtra, a public interest litigation had to be filed in the High Court of Bombay, with the result that Maharashtra appointed 417 custodians across the State recently. As for digital health records, the National Health Authority is yet to produce a protocol that will allow living wills to be authenticated through digital health records.

Making a living will does not automatically imply that it will be given effect. The guidelines require that the decisions on withholding or withdrawing treatment are certified first by a primary medical board and then confirmed by a secondary medical board. The secondary board must have a doctor nominated by the chief medical officer. Practically, this means that hospitals cannot have secondary medical boards unless the chief medical officer has nominated a doctor in the hospital where you are a patient. As a consequence, terminally-ill patients — even those who have made living wills — may not be able to make critical decisions about medical care.

It is not difficult to imagine why this happened. Officials are discomfited, like many of us, by the subjects of death, mortality, and end-of-life care. The whole subject is strange and unfamiliar, the guidelines are sometimes ambiguous, and the stakes are high. For example, the Supreme Court requires the primary medical board, if the patient does not have a living will, to obtain the written consent of the 'next of kin' for withdrawing/withholding treatment.

But Indian law does not have a clear definition for 'next of kin'. When family members disagree about the best course of action, the law does not provide a clear answer about whose decision finally governs. They are bound to argue in the absence of a clear legal commandment. Officials will not be eager to issue orders, at their own risk, for the implementation of a Supreme Court judgment on such a sensitive subject. They will want a direct order from their superiors and a



detailed process created by the State government before proceeding. They do not seek discretion. They want to anchor the polity to a rock.

And, similarly, State governments are reluctant to wade in; the area is complex and requires attention from medical and legal experts. Last year, Haryana issued directions to civil surgeons across the State to follow the judgment but did not offer essential guidance or protocols on how to implement it. A more thorough approach is being followed in Odisha, where the State government has formed a committee of experts to consider detailed draft orders for implementing the judgment. More States, hopefully, will follow suit. The Central government can bridge the gap in expertise by developing and publishing model orders and protocols which can provide State governments the confidence and the guidance to effectively implement the judgment.

Six years after the Supreme Court declared that Indians have the right to die with dignity, our governments have failed to take basic steps to implement it. Until they implement the judgment, doctors will remain worried about the consequences of giving effect to their patients' express wishes. To quote a survey in 2023 of intensive care doctors, "[t]here is a general belief that [end-of-life] decisions are fraught with legal implications, and this becomes a major barrier to taking these decisions in the ICU." Only effective guidance and persistent action at every level of government will give doctors the confidence they need to act in the patient's best interests.

#### POLITICAL REALITY: EVERYBODY LOVES A BHOJPURI STAR BUT THE LANGUAGE REMAINS MARGINAL TO MAINSTREAM POLITICS

Bhojpuri folk singer Neha Singh Rathore, who the Congress party is considering for a Lok Sabha ticket from North East Delhi, said, "Crores of Bhojpuri-speaking people have been waiting for decades for their language to get the official status. It is unfortunate that people who got votes in the name of Bhojpuri have kept the language in a neglected state. Until Bhojpuri is accepted as a language for imparting education, no entrance examinations for jobs can be conducted in the language and it cannot be used for government work." Ms. Rathore has a YouTube channel which has 1.2 million subscribers, through which she has started a movement called the Bhojpuri Bachao Aandolan.

According to the 2011 Census, 5.6 crore people in India identified Bhojpuri as their mother tongue, ranking sixth in terms of the number of people who speak it in the country. Yet it is not part of Schedule 8 of the Indian Constitution that lists 22 official languages. Bhojpuri speakers and experts believe this needs to be addressed immediately.

Actor-singer Pawan Singh, who has been fielded by the BJP from Asansol, has 3.5 million followers on Instagram and over 11 lakh followers on X. Actor-singer Dinesh Lal Yadav (popularly known as Nirahua), BJP MP from Azamgarh who has been given a ticket again, has 1.8 million Instagram followers and over 25 lakh followers on X. Actor-singer-music director Manoj Tiwari, sitting BJP MP from North East Delhi, has over 8 lakh Instagram followers and 1.7 million followers on X. Actor-producer Ravi Kishan, who is the sitting BJP MP from Gorakhpur and has been fielded from there again, has over 2 lakh Instagram followers and over 56.5 lakh followers on X.

#### Words not spoken

For a language, which has long been subsumed under the umbrella of Hindi, Bhojpuri has evolved over the last four decades as a cultural identity which has a dedicated genre of literature, films,



and folk music. Linguists says it originated from Prakrit spoken in the Indo-Gangetic planes of India and drew its grammar from existing tribal languages.

The total number of people who speak Bhojpuri is larger than the combined strength of the speakers of four languages inducted into the list in 2004: Bodo, Dogri, Maithili, and Santhali. The Vishwa Bhojpuri Sammelan (World Bhojpuri Conference) estimates that approximately 20 crore people speak the language worldwide. It is officially recognised in three countries in the world: Mauritius, Fiji, and Nepal.

Ajit Dubey, national president of the Vishwa Bhojpuri Sammelan, says only when it is included in the National Education Policy will it come into the mainstream. “We need defined parameters to decide which language should be designated as an official language,” he said.

On March 9, when the Indian government launched primers in 52 languages to help impart education in a child’s mother tongue, Bhojpuri was not part of them. The Sahitya Akademi, the premier literary institution of the country, does not have any awards for the language, as it is not part of the official languages list. “Hindi and Bhojpuri have substantially different origins, but because of geographical proximity, the two languages have developed many common elements,” says Prof. G.N. Devy, linguist and author of People’s Linguistic Survey of India.

According to Peggy Mohan, Bhojpuri scholar and visiting professor at Ashoka University, Sonipat, historically, it grew as the language of the masses and non-elites, lending it a subaltern hue.

“This seems to have continued to the present day. It has created a situation where Hindi is spoken in school, but Bhojpuri otherwise,” she said.

## REMEMBERING VAIKOM SATYAGRAHA, A 100 YEARS LATER

Vaikom, a temple town in the princely state of Travancore, saw the start of a non-violent agitation on March 30, 1924 — the first among temple entry movements that would soon sweep across the country. The satyagraha foregrounded social reform amidst the growing nationalist movement, bringing Gandhian methods of protest to the state of Travancore. A century later, we recall.

### Early 20th century Travancore

The princely state of Travancore had a “feudal, militaristic, and ruthless system of custom-ridden government,” cultural anthropologist A Aiyappan wrote in *Social Revolution in a Kerala Village: A Study in Culture* (1965). The idea of caste pollution worked not only on the basis of touch but also sight — lower castes were forbidden entry to any “pure” place, such as temples and the roads surrounding them.

The second half of the 19th century saw several social and political developments ushering in unprecedented social change. First, Christian missionaries converted large sections of lower castes seeking to escape the clutches of caste oppression. Second, the reign of Maharaja Ayilyam Thirunal Rama Varma (1860-80) saw many progressive reforms, such as universal free primary education — including for the lower castes.

While religion and custom remained pervasive, the absolute material and intellectual deprivations of lower castes did not continue. The Ezhavas, in particular, emerged as “the most educated and organised untouchable community in Travancore”, historian Mary Elizabeth King wrote in *Gandhian Nonviolent Struggle and Untouchability in South India* (2015).



But government jobs were still reserved for upper castes — in 1918, caste Hindus, a numerical minority, held 3,800 out of 4,000 jobs in the state's revenue department. This meant that education itself did not act as a means of socio-economic advancement.

Also, while a small Ezhava elite had started to emerge, in many cases, the ritual discrimination, overrode material and educational progress. Take for instance the story of Aloomootil Channar, an Ezhava, and one of the few people in Travancore to own a car in the early 20th century. Whenever the automobile reached a road where the Ezhavas were not allowed to pass, Channar had to get out of his vehicle and take a detour on foot.

### **Road to agitation**

The issue of temple entry was first raised by Ezhava leader T K Madhavan in a 1917 editorial in his paper Deshabhimani. Inspired by the success of Gandhi's Non-Cooperation Movement, by 1920, he began to advocate for more direct methods. That year, he himself went beyond the restrictive notice boards on a road near the Vaikom temple.

But upper-caste counter-agitations across Travancore made any progress difficult — and the Maharaja, fearful of caste Hindu backlash, shied away from reforms.

It was the entry of the Indian National Congress into the picture that changed the dynamics. Madhavan met Gandhi in 1921, and secured the Mahatma's support for a mass agitation to enter temples. In the 1923 session of the INC in Kakinada, a resolution was passed by the Kerala Provincial Congress Committee to take up anti-untouchability as a key issue. This was followed by a massive public messaging campaign and a movement to open Hindu temples and all public roads to avarnas. Vaikom, with its revered Shiva temple, was chosen as the location for the very first satyagraha.

### **The Vaikom satyagraha**

Madhavan and other leaders took the strategic decision to initially focus on opening up the four roads around the temple — not the temple itself — to avarnas. Early morning on March 30, 1924, "a Nair, an Ezhava and a Pulayu, dressed in Khaddar uniforms and garlanded, and followed by a crowd of thousands, attempted to use the roads", Jeffrey wrote.

They were promptly stopped and arrested. So, the next morning, another three men entered the forbidden roads and courted arrest. This went on every day — until the police stopped making arrests on April 10 and barricaded the whole area instead.

From then through September, protesters sat in front of the barricades, fasting and singing patriotic songs. Leaders such as Periyar, who was arrested multiple times, and C Rajagopalachari came to Vaikom to offer support and lead the protesters. At the same time, counter-agitations raged on, and the satyagrahis often faced violence and intimidation from caste Hindus.

In August, 1924, the Maharaja of Travancore died, following which, the young Maharani Regent, Queen Sethulakshmi Bai, released all prisoners. But when a large group of protesters marched to the royal palace in Trivandrum, she refused to allow all castes access to temples.

In March 1925, Gandhi was finally able to iron out a compromise: three out of the four roads surrounding the temples were opened up for everyone, but the fourth (eastern) road was kept reserved for brahmins. This was finally implemented in November 1925, when the government



completed diversionary roads that could be used by the low castes “without polluting the temple”. The last satyagrahi was recalled from Vaikom on November 23, 1925.

#### Legacy and aftermath

The Vaikom satyagraha was a remarkable movement, which sustained itself for over 600 days, amidst hostile social forces, police crackdowns, and one of the worst floods in the town’s history in 1924. The satyagraha also saw previously unseen unity across caste lines, which was crucial for its continuing mobilisation.

But the final compromise disappointed many. Famously, Periyar, who had envisioned a far more spectacular outcome, fell out with Gandhi over the issue.

In November 1936, the Maharaja of Travancore signed the historic Temple Entry Proclamation which removed the age-old ban on the entry of marginalised castes into the temples of the state. This, along with the demonstration of Gandhian methods of civil disobedience as effective tools of protest, was the great success of the Vaikom satyagraha. As King wrote: “Despite its shortcomings ... the Vykam satyagraha brought untouchability, unapproachability, and unseeability to the forefront of political issues in India.”

#### NEAR KUTCH HARAPPAN GRAVEYARD, REMAINS OF A SKELETON AND THE KEY TO A PUZZLE

A human skeleton, degraded and in a flexed posture, found on the slope of a hillock in a Gujarat village could hold the key to a mystery that’s been puzzling a team of archeologists.

In 2018, archaeologists from the University of Kerala, working in collaboration with Krantiguru Shyamji Krishna Varma Kachchh University, Bhuj, had unearthed a mass burial site with 500 graves on the outskirts of Khatiya village in Gujarat’s Kutch district. The question then was: whose graves are these? Was this the burial ground — arguably the largest such — for a big human settlement in the vicinity or was it a common facility for a cluster of smaller settlements? Since then, the team has been looking for the remains of settlements in the vicinity.

Now, the presence of the skeleton, along with pottery artefacts and animal bones, that the team of archaeologists excavated from a hillock, locally called Padta Bet, point to the presence of a 5,200-year-old Harappan settlement that was 1.5 km from the mass burial ground of Juna Khatiya, an Early Harappan necropolis. The latest find bolsters the theory that the graveyard site may have served as a common facility for a cluster of several such smaller settlements.

Rajesh S V, Assistant Professor in the Department of Archaeology at the University of Kerala and co-director of the project, told The Indian Express, “The hillock at Padta Bet may be one of the sites catering to the skeletal remains (in the burial ground) found at Juna Khatiya. Right now it suggests that this was one of the many settlements whose burial site was Juna Khatiya.” The researchers believe that a network of such small Harappan settlements around the necropolis “might have played a significant role in the cultural formation of Early Harappan and subsequent occupations in this arid area.”

Within the four-hectare area of Padta Bet, the researchers identified two localities where the archaeological deposits were found during excavation – Locality 2 with artefacts from the Early Harappan era (3,200 BC to 2,600 BC), Mature Harappan era (2600 BC to 1900 BC) and Late





Harappan era (1900 BC to 1700 BC), and Locality 1 with artefacts dating back to Mature Harappan era and Late Harappan era.

Professor Abhayan G S, Head of the Department of Archaeology at the University of Kerala and who led the Padta Bet excavation, said one hypothesis is that the population may have grown in the area, thus spreading out from Locality 2 to Locality 1 or that the inhabitants selected different areas to stay at different points of time.

While the habitation site appears to have only a few structures, the researchers said it is possible that much of the structural remains were eroded due to the unstable nature of the landscape.

Researchers said the pottery artefacts and the animal bones — representing cattle, sheep or goat and shell fragments that point to possible animal domestication as well as shellfish “exploitation” — are an indication of the occupation of the Harappan people. One of the most striking features of the excavation are the ceramic artefacts, which could be from one of the unidentified pottery traditions of the Harappans, involving large storage jars to small bowls and dishes, they said.

Harappa Within the four-hectare area of Padta Bet, the researchers identified two localities where the archaeological deposits were found during excavation. (Photo: Prof Rajesh SV and Abhayan GS)

The team also found semiprecious stone beads made of carnelian and agate, terracotta spindle whorls, copper, lithic tools, cores and debitage, grinding stones and hammer stones. Archaeobotanical samples too have been collected from the site for further identification of plant exploitation and to understand agricultural practices.

The presence of the skeleton raises another question. If the mass burial site possibly catered to people in the settlement, why were the remains of this body here, and not at the Juna Khatiya burial site?

Rajesh explains that while Juna Khatiya was a burial ground from the Early Harappan phase, the skeleton at Padta Bet possibly indicates a change in burial practice over time. “It is an intentional burial and it is possible that the skeletal remains (excavated at Padta Bet) are from the Late Harappan era or there might be a practice to bury within the habitational limits. We have not seen any burial from the Late Harappan era at Juna Khatiya (the mass burial ground).”

Last year, Rajesh was awarded the Field Discovery Award by the Chinese Academy of Social Sciences of Shanghai University for his discovery of the Juna Khatiya cemetery.

The skeleton, along with the other artefacts, are currently in transit and are expected to reach Kerala in a week.

**BUSINESS & ECONOMICS****INDIA'S RUSSIAN OIL IMPORTS FLOW HEAVY DESPITE TIGHTER SANCTIONS**

Tightening sanctions from the United States (US) and other Western powers on Russia's oil trade appear to have had no impact so far on India's Russian oil purchases, with delivered volumes in March rising over 6 per cent over February levels to a four-month high of nearly 1.7 million barrels per day (bpd), accounting for a third of New Delhi's total oil imports for the month, as per preliminary data from commodity market analytics firm Kpler.

In the latest action against oil tankers over alleged violation of the G7 price cap of \$60 per barrel on seaborne Russian crude, the US on February 23 sanctioned Russia's state-owned shipping major Sovcomflot along with 14 tankers associated with it. Indian refiners are now refusing to take delivery of crude transported by Sovcomflot tankers in an evident bid to steer clear of any secondary sanction risk. According to a senior government official, the government does not want Indian refiners to brazenly flout the G7 price cap or get involved in trades that might have sanctions-related risks.

This had led to considerable speculation that imports of Russian oil by Indian refiners could drop. The data for March, however, paints a contrarian picture. The increase in volumes in March was led by abundant availability of Russia's flagship Urals crude, which has been the mainstay of India's oil imports from Moscow. Following drone attacks on Russian refining assets, around 400,000 bpd of Russia's own refining capacity is offline, which means all that oil — mostly Urals — is making its way to the international market, said Viktor Katona, Kpler's lead crude analyst.

Importantly, the strong oil flows from Russia to India show that Russian oil exporters have been able to arrange tankers that are not sanctioned, and therefore, are welcome at Indian ports.

Russian oil is bought by Indian refiners on a delivered basis, which means that chartering of tankers and the associated procedures are the responsibility of the oil supplier. Indian buyers pay the all-inclusive landed price of crude and have no involvement in the shipping of the oil, which keeps them largely insulated from possible price cap-related complications. While a lot of crude deliveries on Sovcomflot tankers are now evidently shifting to China — the other big buyer of Russian crude — the massive so-called opaque fleet of tankers involved in Russian oil trade is likely to keep Moscow's oil flowing to India. Broadly speaking, the opaque tanker fleet refers to vessels of unclear ownership involved in crude oil and petroleum products trade of suppliers under sanctions or restrictions of various degrees from international powers, particularly the US.

With major Western fleet operators loath to get involved in the oil trade of these countries, little-known operators from countries like Greece, Turkey, Russia, and tax havens like Marshall Islands, Liberia, and Panama have emerged as the key players in the so-called shadow fleet network. Additionally, ship-to-ship (STS) transfers of Russian oil are also picking up, particularly in waters off Oman's coast. STS transfer refers to transfer of cargo between ships positioned alongside each other, either while stationary or underway.

Indian refiners ramped up Russian oil purchases in the aftermath of Moscow's February 2022 invasion of Ukraine. As the West started weaning itself off Russian energy supplies, Russia began offering deep discounts on its crude oil, which Indian refiners began lapping up. Prior to the war in Ukraine, Russia was a marginal player in India's oil imports, but is now New Delhi's biggest source of crude ahead of traditional heavyweights Iraq and Saudi Arabia.



## INDIAN AMERICANS ARE THE LEAST POOR AMONG ASIAN AMERICANS

Only 6% of Indian Americans lived along or below the poverty line as of 2022 in the United States. This is the lowest share among the various Asian groups that live in the country, according to a recent Pew Research Centre report. Most Asian Americans who lived in poverty felt that their 'American dream' was out of reach as they struggled to pay bills and turned to charities, friends, and family for food and employment. Pew's analysis was based on the U.S. Census Bureau's 2022 American Community Survey (ACS) and Pew Research Centre's 2022-23 survey of Asian American adults, conducted between July 2022 and January 2023, with 7,006 respondents.

While Asian Americans are considered educationally and financially successful compared to other racial and ethnic groups, there are wide economic and educational differences within the group. The highest poverty rates were seen among Burmese (19%), Hmong (17%), and Mongolian (16%) Americans, while the lowest poverty rates were seen among Indian (6%), Sri Lankan (6%) and Filipino (7%) Americans. Chinese, Bangladeshi, and Pakistani-origin Americans were in the middle with poverty rates of 11%, 12% and 13%, respectively.

Among Asians living along or below the poverty line, 57% were immigrants and 43% were born in the U.S. About 23% of them were teenagers, 26% were aged 18-29, and 21% were aged 30-49. Close to half of them had completed high school or less. The poverty levels among those with college degrees saw a drastic decline.

A third of Asian immigrants who came to the U.S. due to conflict or fear of persecution in their home country said they received help from governments for various expenses and employment. In contrast, a smaller share of Asian immigrants who came for educational opportunities (14%) or economic opportunities (16%) or who migrated to be with family (25%) said the same.

## FISCAL BATTLE

The Supreme Court of India order referring a suit filed by Kerala, challenging the Centre's decisions curtailing its borrowings, to a Constitution Bench is a welcome development. The Court declined to grant an interim order to restore the position prior to the imposition of borrowing limits by the Centre, but the referral will give a larger Bench an opportunity to examine the extent to which the Union government may regulate a State's borrowings. The litigation is much more than a tussle over the Centre's charge of fiscal mismanagement against the Left Front regime in the State. The Court has recognised that it is also a constitutional question on Centre-State relations: an apparent conflict between efforts to maintain the country's fiscal health on the one hand and moves that undermine the fiscal space of States on the other. At the heart of this dispute is Article 293, which confers executive power on the States to borrow money within limits prescribed by the State legislature. It also allows the Union to extend loans and guarantees to the States, and requires the Centre to give its consent and impose conditions for States to raise further loans while earlier ones are outstanding. Kerala contends that the Article does not confer on the Centre any power to regulate all State loans and that it can impose conditions only on borrowings from the Centre.

Kerala also challenges the Union's decision to include borrowings by State-owned enterprises and the liabilities on its public account under its 'Net Borrowing Ceiling' (quantified as 3% of its projected Gross State Domestic Product for 2023-24, or ₹32,442 crore). A 2018 amendment to the Fiscal Responsibility and Budget Management Act capped the 'general government debt', or the sum total of the debts of the Central and State governments, at 60% of the GDP. The Union



government argues that public finance being a national issue, it wanted to prevent the use of off-budget borrowings to bypass the borrowing ceiling. It also claims that unlimited borrowing by State governments will have the spillover effect of raising the cost of borrowing and crowding out private sector borrowers. The issue comes at a time when the current formula for distribution of revenue is seen as one that penalises States that perform better on social indicators. It is no surprise that Kerala, a topper in social advancement, faces this crisis. In an era in which a major revenue source for the States has been subsumed by a system in which they share the proceeds of a common Goods and Services Tax with the Centre, fiscal space has become precious. It is now up to the highest court to determine how strict the Centre should be on borrowing limits and giving consent to hold States to their fiscal obligations without violating federal norms.

## SHOULD STATE GOVERNMENTS BORROW MORE?

The financial relation between the Union and various State governments has been a matter of vigorous debate. In a recent development, the Government of Kerala has approached the Supreme Court for a resolution of the following question: how much can the State government borrow from the market to bridge the excess of its expenditures over receipts? The Union government says that the borrowing should be limited to 3% of the State's income or Gross State Domestic Product (GSDP). Kerala contends that by curtailing its borrowing powers, the Centre is undermining the State's ability to fulfil some of its basic financial commitments and violating the principle of federalism.

### How States spend more

It is well known that in India the power to raise taxes rests largely with the Union government while a greater part of the overall government spending is done by the State governments. More importantly, when it comes to spending on sectors which affect people's daily lives, the overwhelming responsibility lies on the shoulders of the State governments. On social services, which include health and education, the expenditure incurred in 2022-23 was ₹2,230 billion (1 billion = ₹100 crore) by the Union government while the combined expenditure by all State governments was ₹19,182 billion. The expenditures of all the States put together was bigger than the expenditure of the Union by 8.6 times in social services as a whole; 2.6 times in education; and by 3.8 times in health.

Of course, the spending priorities of the Union and the States are guided by the constitutionally allocated powers and functions for them. Compared to its expenditure on social services, the Union government's spending on defence was approximately twice as high, while its spending on transport, urban development and energy combined was 2.4 times higher.

The Reserve Bank of India (RBI) has categorised the budgetary expenditures by the Union and the State governments as 'developmental' and 'non-developmental'. The former includes expenditures on social services and economic services (such as on agriculture and industry) while the latter refers to interest payments, pensions, subsidies, and so on. It is remarkable that developmental expenditures, and within that, the expenditures on social services incurred by the State governments have risen significantly over the last two decades. As a proportion of the country's Gross Domestic Product (GDP), the combined developmental expenditures by all State governments increased from 8.8% in 2004-05 to 12.5% in 2021-22. On the other hand, the social and developmental expenditures by the Union government remained somewhat unchanged over the two-decade period. The upsurge in spending during the 2008-12 period was reversed over the next eight years, with a brief revival after 2020. In the end, it was the spending by the State



governments that has helped to alleviate the livelihood crisis in the country, caused due to the slow growth of rural incomes and employment.

#### A REFORM WINDOW

The financial year 2023-24 appears to have ended on a high on the revenue front. Net direct tax collections rose 19.9% by mid-March to hit 97% of revised Budget targets, while the Goods and Services Tax (GST) has yielded a robust ₹20.18 lakh crore. Gross GST revenues in March, for transactions undertaken in February, crossed ₹1.78 lakh crore, the second highest tally since the rollout of the indirect tax six and a half years ago. The only month when collection stood higher was in April 2023, aided by year-end compliances. There is a good chance the same compliance effects will lift this month's tally past ₹2 lakh crore, marking a fresh high. Average monthly collections have grown 11.6% in 2023-24 to over ₹1.68 lakh crore. The growth may be lower than the previous year's 21.8% uptick but establishes a new normal for revenues that the coming year can build on. This should settle the Centre's concerns that the GST has not yielded expected returns. Central GST collections in 2023-24 have overshoot revised estimates presented in the interim Budget and the Finance Ministry may have to revise its 2024-25 targets when it presents the full Budget as those can now be achieved even if growth slips below 10%.

Some of the increase in collections may well stem from tax demands raised for past years and tightening the screws on known evasion routes such as fake invoices and fraudulent input tax credits. Yet, an uptick in growth of net GST revenues, which the government has started revealing since last month, and the rise in gross collections from domestic transactions (17.6% compared with 13.6% in February) suggest economic activity has been busy in the last quarter of 2023-24. Perhaps, the only worry is a 5% decline in GST on goods imports during March, from an 8.5% rise in February, which may signal some cutbacks in discretionary consumption. Yet, the overall GST trajectory should give the next government comfort to focus on much-needed reforms to the tax. This must include retrieving the plan to rationalise its multiple rates from deep freeze, expanding it to excluded items such as electricity and petroleum products, and reducing high levies on key products such as cement and insurance. The GST Compensation Cess, now being used to repay the COVID-19 pandemic-era borrowings made to recompense States, raked in ₹1.44 lakh crore last year, and it is likely possible to wind it down earlier than the extended March 2026 deadline. It is critical to resist the temptation to replace it with a new levy except for truly demerit goods such as tobacco. Taxing hybrid vehicles over 40%, for instance, makes no sense, either for India's green goals or boosting consumption and spurring private investments.

#### EXPRESS VIEW: LESSON FROM WHEAT FIELDS

With wheat stocks in government godowns, at 9.7 million tonnes on March 1, the lowest in seven years for this date, all eyes are on the crop about to be marketed. For now, a bumper harvest seems to be in the offing, at least in Punjab, Haryana, UP and Bihar. Unlike in 2022 and 2023, when the crop suffered yield losses due to temperature spikes and unseasonal heavy rains respectively during the final grain formation and filling stage, no such "Ides of March" weather events have been reported from this major wheat belt. March temperatures ruling near normal this time and three-fourths of the grain-filling completed augurs well for the crop across the Indo-Gangetic plains. The problem, if any, is with the wheat in central India — MP, Gujarat and Maharashtra — that has already been, or is close to being, harvested. And even there, it's not March but November-December temperatures that may have played spoiler.



It only highlights how susceptible wheat — and agriculture itself — has become to climate change. In this case, it isn't just terminal heat stress, leading to premature ripening and drying of the crop in its final growth phase. It is also about relatively warm temperatures at the time of sowing and initial vegetative growth period, resulting in fewer tillers being formed and premature flowering. Climate change, thus, manifests itself both in the early onset of summer and the delayed setting in of winter. If the 2021-22 wheat in northwest and north India was affected by the former, the crop this time in central India has apparently taken a hit from the latter. To the extent the lower yields from central India are offset by better-than-average production in the Indo-Gangetic plains, the country can still end up harvesting more wheat than in 2021-22 and 2022-23. Whether that is so will be known in a month's time. Thankfully, global wheat prices are currently at their lowest in four years, making imports feasible. The government should enable it by doing away with the 40 per cent customs duty.

From a medium- to long-term perspective, India has to invest more in breeding for climate change. The Green Revolution strategy essentially relied on expansion of irrigation and developing crop varieties responsive to high fertiliser application. Green Revolution 2.0's focus must be on input use efficiency — producing more from the same or even less quantity of water, nutrients and energy — and building climate resilience through breeding of drought-resistant and heat-tolerant varieties. This would entail screening germplasm and identifying genes in plants responsible for the desirable traits.

## 90 YEARS OF THE RESERVE BANK OF INDIA (RBI): ITS HISTORY, HOW IT NAVIGATED TIMES OF CRISIS

The Reserve Bank of India (RBI), which was established on April 1, 1935, is responsible for monetary stability, currency management, inflation targeting, regulating the banking system, and setting interest rates. The central bank's story of the last 90 years includes ups and downs, but has generally been one of stellar achievement.

### Early years of RBI

Legislation to set up the Reserve Bank of India was enacted in March 1934, and the provisions relating to the constitution of the bank, issue of share capital, and establishment of central and local boards became operative from January 1, 1935.

The first Governor of the RBI was the Australian Sir Osborne Arkell Smith, one of the two managing governors of the Imperial Bank of India. Sir C D Deshmukh was the first Indian to become Governor.

Following Partition, it was agreed that the RBI would cease to be the currency authority for Pakistan, and Indian notes would cease to be legal tender in Pakistan.

The RBI's relationship with the government has been testy at times. But the bank has been steadfast in defending its turf whenever the government has tried to interfere.

### The reforms of 1991

A sharp increase in oil prices in August 1990 led to an acute economic crisis, making the balance of payments situation unmanageable, depleting foreign exchange reserves along with massive capital outflows, and pushing India close to default.



The RBI transferred more than 46 tonnes of gold from its reserves to the Bank of England to borrow forex to manage immediate liquidity problems. The rupee was devalued twice, by 9% and 10%, in three days.

Full convertibility of the rupee on trade account was allowed, giving more flexibility to trade. Banking reforms were announced, the setting of interest rates by lenders was deregulated, and new private bank licences issued between 1991 and 1995.

### **Manmohan & Pranab**

In 1982, Prime Minister Indira Gandhi brought Manmohan Singh, then Member Secretary of the Planning Commission, to the RBI to succeed I G Patel as Governor. Singh, who held office till January 14, 1985, prepared the groundwork for strengthening monetary policy actions, and banking reforms got a boost.

Singh acknowledged in the book *Strictly Personal: Manmohan and Gursharan*, authored by his daughter Daman Singh, that as Governor, he had serious differences with then Finance Minister Pranab Mukherjee. Singh advised the government against granting approval to Bank of Credit and Commerce International (BCCI), a foreign bank promoted a decade earlier by the Pakistani businessman Aga Hasan Abedi, to open branches in India. However, the government wanted the RBI to grant BCCI a licence, and directed it to approve the application.

After the RBI led by Singh opposed it, the government took to the Cabinet a proposal to strip the RBI of its power to license foreign banks. Singh sent his resignation to Mukherjee and the Prime Minister. However, he was persuaded to stay on as Governor.

Singh and Mukherjee reportedly had differences of opinion on the hostile takeover plan of Escorts and DCM by UK-based industrialist Swraj Paul. However, Mukherjee wrote in his book *The Turbulent Years*, that the decision to move Singh from the RBI to the Planning Commission in 1985 was taken by then Prime Minister Rajiv Gandhi.

### **Subbarao, Patel vs Govt**

D Subbarao, who was Governor between September 5, 2008 and September 4, 2013, mentioned his disagreements with then Finance Minister P Chidambaram. "The Prime Minister (Singh) never asked me (about it). He would ask...whether the Finance Minister was persuaded. I would say yes or no. He would leave it at that. He never pressed a point of view. You can say he was supporting me for he remained above this conflict between the Finance Ministry and the Governor," Subbarao told *The Indian Express* in an interview.

Governor Urjit Patel had a running feud with the Finance Ministry when the government asked for more surplus (dividend income) from the RBI. Patel resigned after serving for two years in the post.

### **2008 crisis and after**

India escaped the 2008-09 global financial crisis through a combination of management, structure, and luck. Pre-crisis, the policies of Governor Y V Reddy against capital inflows, especially to the real estate sector, and against rapid foreign bank expansion, were timely. Post-crisis, management was excellent, and appropriately measured.



**Under Subbarao, the RBI opted for a liberal accommodative policy to salvage economic growth.**

Raghuram Rajan announced plans to internationalise the rupee, float inflation bonds linked to the consumer price index, steps to boost exports and increase inflows, and plans to review the monetary policy process, and gave banks freedom to open branches without having to approach the RBI for licences.

### **Demonetisation of 2016**

On November 8, 2016, the government announced the demonetisation of Rs 500 and Rs 1000 notes of the Mahatma Gandhi Series. It also announced the issuance of new Rs 500 and Rs 2000 notes in exchange for the demonetised notes.

The sudden withdrawal of notes created a liquidity shortage in the country. There were long queues outside banks, and people faced immense hardships across the country. It also roiled the economy — demand fell, businesses faced a crisis, and GDP growth declined close to 1.5 per cent. Many small units reported huge losses even after nine months. The pace of remonetisation was slow.

Managing the situation was one of the biggest challenges faced by RBI. At stake was the credibility of the bank and Governor Patel.

### **MPC, asset quality review**

The Monetary Policy Committee (MPC) which decides on interest rates started during the early phase of Patel's tenure; he chaired the first meeting of the MPC on October 3 and 4, 2016.

Despite calls from corporate India to go easy on the asset quality review kicked off by Rajan, Patel continued the exercise. The RBI has utilised the Insolvency and Bankruptcy Code (IBC) to address the huge debt pile of some of the biggest defaulters; it has drawn up two lists of 40 corporates with debt of around Rs 4 lakh crore which are in various stages of resolution in National Company Law Tribunals.

### **Covid-19 pandemic**

As demand crashed, there were production cuts and job losses, and growth declined. Shaktikanta Das, the current Governor, and his team opted for an accommodative monetary policy. Repo rate, the main policy rate, was brought down to 4% to kickstart growth. However, the liberal policy led to a spike in inflation, forcing the RBI to raise rates by 250 basis points to 6.5% now.

However, the pandemic aided the RBI in boosting digitisation of payments. The launch of UPI revolutionised payments in the banking system.

## **RBI DEFERS EXCHANGE TRADED CURRENCY DERIVATIVES NORMS**

A standardised financial contract that is traded on stock exchanges under strict regulations is known as an exchange-traded derivative.

The Reserve Bank of India (RBI) deferred the implementation of its new norms for exchange traded currency derivatives (ETCD) market to May 3 from April 5. This comes after market participants expressed worries about ETCD market participation, and the currency market experienced a substantial increase in volatility leading up to the April 5 deadline.





The new norm allowed users to take positions (long or short) in foreign exchange derivatives market, without having to establish existence of underlying exposure, up to a single limit of \$100 million equivalent across all currency pairs involving the rupee, put together, and combined across all recognised stock exchanges.

However, the regulator asked stock exchanges to inform users that while they are not required to establish the existence of underlying exposure, they must ensure the existence of a valid underlying contracted exposure which has not been hedged using any other derivative contract and should be in a position to establish the same when required.

The RBI said the regulatory framework for participation in ETCDs involving the rupee (INR) is guided by the provisions of the Foreign Exchange Management Act (FEMA), 1999 and regulations framed thereunder which mandate that currency derivative contracts involving the rupee — both over-the-counter (OTC) and exchange traded — are permitted only for the purpose of hedging of exposure to foreign exchange rate risks.

The regulatory framework has been reiterated in the Foreign Exchange Management (Foreign Exchange Derivative Contracts) Regulations, which states that a person may enter into an ETCD contract involving the rupee only for the purpose of hedging a contracted exposure.

For the purpose of ease of doing business, the RBI permitted users of ETCDs to take positions up to \$10 million per exchange without having to provide documentary evidence to establish the underlying exposure but did not provide any exemption from the requirement of having the exposure.

#### RBI TO ENABLE UPI FOR CASH DEPOSIT

The Reserve Bank of India (RBI) has proposed to enable the Unified Payment Interface (UPI) for cash deposits considering the app's popularity and convenience.

RBI Governor Shaktikanta Das, while making a statement on developmental and regulatory policies, said, "Given the popularity and acceptance of UPI, and also the benefits seen from the availability of UPI for card-less cash withdrawal at ATMs, it is now proposed to facilitate cash deposit facility through the use of UPI."

Cash Deposit Machines (CDMs) deployed by banks enhance customer convenience while reducing cash-handling load on bank branches. The facility of cash deposit is presently available only through the use of debit cards.

The Governor said operational instructions on enabling UPI for cash deposit facility will be issued shortly.

In another measure, to facilitate wider non-resident participation in Sovereign Green Bonds (SGrBs), the RBI decided to permit eligible foreign investors in the International Financial Services Centre also to invest in such bonds.

A scheme for investment and trading in SGrBs by eligible foreign investors in IFSC is being notified separately in consultation with the Government and the IFSC Authority.

At present, foreign portfolio investors (FPIs) registered with SEBI are permitted to invest in SGrBs under different routes available for investment by FPIs in government securities.



The RBI also decided to introduce a mobile app for its Retail Direct scheme, introduced in November 2021. The scheme gives access to individual investors to maintain gilt accounts with RBI and invest in government securities. The scheme enables investors to buy securities in primary auctions and buy/sell securities through the NDS-OM platform.

## TAMIL NADU ACCOUNTS FOR 30% OF INDIA'S ELECTRONICS EXPORTS

Tamil Nadu, India's largest exporter of electronic goods in FY23, accounted for 30% of all electronic goods exports from India in FY24. The State is in fact a late bloomer in this sector, with Uttar Pradesh and Karnataka dominating electronic goods exports until FY22. However, in recent years, among the top exporters of electronics, only Tamil Nadu's numbers have consistently risen, while the figures of other States have either dropped or become stagnant.

The share of the electronic goods sector in India's overall exports has more than doubled — mostly due to the rise in Tamil Nadu's contribution — in recent years. At the core of this rise is the surge in exports of smartphones, which currently forms close to 40% of India's electronics exports. In the last two fiscal years, close to 40% of smartphones in India were sent out from just one district, Kancheepuram, located in the north-eastern part of Tamil Nadu. Most of these electronic goods, mostly dominated by mobile phones, were exported to the United States, followed by the United Arab Emirates, and the Netherlands.

Between April 2023 and January 2024, Tamil Nadu exported electronic goods worth more than \$7.4 billion, close to four times its volume in FY22.

### State-wise data

Tamil Nadu's exports in FY24 were higher than the combined exports of Uttar Pradesh and Karnataka (\$6.7 billion) in the period. These two States were the second and third biggest exporters of electronic goods, respectively. Exports of electronic goods from Gujarat and Maharashtra, the other States in the top five list, have stagnated in recent years.

In FY24 India's exports were dominated by engineering goods (\$98 billion), followed by petroleum products (\$78 billion), gems and jewellery (\$30 billion), and electronics goods (\$25 billion). In FY18, however, exports of electronic goods were not even in the top 10 most exported commodities and had an export value of just \$0.8 billion.

### Biggest markets

The U.S. and the UAE are the biggest markets for India's electronic goods exports. In FY24 (till February), the U.S. imported close to 35% of India's electronic goods exports worth \$8.7 billion, followed by the UAE at \$3 billion (12%). The share of the Netherlands and the U.K. stood at about 5% each.

Since FY21, the U.S. has remained the primary destination for India's electronics exports. Its share in India's electronics exports has surged in recent years. From just around 15-20% between FY18 and FY22, the U.S.'s share surged to 24-34% in the latest two financial years.

If all the data are read together, it can be inferred that in the latest two financial years (FY23 and FY24), the smartphones that were exported from Kancheepuram district in Tamil Nadu played a major part in boosting India's exports of electronic goods, most of which went to the U.S. Notably, the U.S. is also the biggest importer of smartphones across the world.



## 'INDIA RISKING DEMOGRAPHIC DIVIDEND'

The World Bank has warned that the South Asia region including India was not making use of its demographic dividend as the pace of job creation in the region fell short of growth in the working-age population, even as it projected a strong 6.0-6.1% growth for 2024-25 for the region in its South Asia regional update, Jobs for Resilience, released on Tuesday.

Observing that India's employment growth was "well below" the average growth in its working age population for the 2000-23 period, the multilateral lender said consequently the country's employment ratio had declined more than in any other country in the region except Nepal up till 2022. However, preliminary data suggested a 3-percentage point rebound in 2023, which had partially reversed the decline.

Noting that India's economy was expected to post a "robust growth" of 7.5% in FY23/24, the lender said this growth coupled with recoveries in Sri Lanka and Pakistan, was largely driving the strong numbers for the South Asian region.

Still, the region could have 16% higher output growth if the share of its working-age population that was employed was on a par with other EMDEs, stressed Franziska Ohnsorge, World Bank Chief Economist for South Asia.

"South Asia is failing right now to fully capitalise on its demographic dividend," said Ms. Ohnsorge. "This is a missed opportunity," she added.

The weak employment trends in the region were concentrated in non-agricultural sectors, the World Bank said, reflecting challenges in the institutional and economic climate, which had stifled the growth of businesses.

To encourage job growth the Bank recommended supporting the participation of women in the economy, increasing openness to trade, and improving education.

## WHY IS UNEMPLOYMENT HIGH AMONG THE YOUTH?

### The story so far:

The India Employment Report 2024, prepared jointly by the Institute of Human Development (IHD) and the International Labour Organization (ILO), and released on March 26, revolves around "youth employment, education and skills." It has analysed trends and patterns of the Indian labour market for two decades, including the COVID-19 years, and listed the "emerging characteristics of the employment challenges now confronting the economy as well as the impact of growth on employment."

### What are the key findings?

The report's authors note that the proportion of India's working-age population (aged 15-59) increased from 61% in 2011 to 64% in 2021 and is projected to reach 65% in 2036. About 7-8 million young people are added each year to the labour force. Though the proportion of youth getting an education increased from 18% in 2000 to 35% in 2022, the percentage of youth involved in economic activities decreased from 52% to 37% during the same period.



The authors warn that unemployment in the country is “predominantly a problem among youth”, especially those with a secondary level of education or higher, and that it has intensified over time.

“In 2022, the share of unemployed youth in the total unemployed population was 82.9%,” they noted, adding that the share of educated youth among all unemployed people also increased, from 54.2% in 2000 to 65.7% in 2022. Also, among the educated (secondary level or higher) unemployed youth, women accounted for a larger share (76.7%) than men (62.2%).

#### **Is the crisis the result of a lack of jobs?**

Santosh Mehrotra whose studies have been cited in several chapters in the report, told The Hindustan Times that it’s a question of both lack of opportunities and unemployability of educated youth due to poor quality of education. He urged the government to ensure that the development of skills was separated from formal education. The ILO and IHD said the share of technically qualified youth was low in India: 15.62% youth had vocational training in 2022, but out of them only 4.09% had formal vocational training. According to Mr. Mehrotra, the fact that employment in the agriculture sector has increased after 2019 is because of the lack of quality education among the youth, making it difficult for them to get jobs in other sectors. The report’s authors pointed out that most jobs in 2023 (90.4%) were in the informal sector; and that around half the jobs in the formal sector (45.2%) were also of an informal nature. Mr. Mehrotra stressed the importance of creating more jobs in the formal sector, pointing out that the unemployment rate among youth had tripled between 2012 and 2018.

#### **What is the quality of employment?**

The ILO and IHD stated that the jobs remained low-productive and low-earning. Real wages and earnings showed a decline or had stagnated. A large proportion of regular workers (40.8%) and casual workers (51.9%) did not receive the average daily minimum wage prescribed for unskilled workers. The government-prescribed rate is ₹480 per day.

Central trade unions and the Samyukt Kisan Morcha are concerned about the report’s findings. According to senior trade union leader Amarjeet Kaur, the ILO report flags the “wage depression” prevalent in the country, especially when food inflation is not under control. She adds that formal employment is merely 9% of total employment and that most of the workforce is kept out of any social security net. “This itself adds to unemployment and underemployment as workers without formal employment may not be able to build a base of education and skill enhancement for the next generation,” she observes.

The report’s authors said as individuals attain higher levels of education, they are more likely to have access to more secure and formal employment options, leading to higher average returns. Youth residing in the southern, western and north-eastern regions had greater probabilities of being in formal employment, they noted, also flagging the larger presence of socially marginalised youth in informal jobs.

#### **Why are jobs scarce in the formal sector?**

Trade unions contend that thousands of posts have not been filled for years and the policy of letting one-third of the vacancies lapse after retirements have resulted in the decrease of formal employment. The trend of contractual appointments and clamour for consultancies are also blamed for the dip in formal jobs.



### What about the gender gap?

There is a significant gender gap in the labour market, with low rates of female labour force participation. The gender gap in the LFPR has remained almost consistent over the past two decades, the report's authors observed.

In 2022, the LFPR of young men (at 61.2%) was almost three times higher than that of young women (at 21.7%), and the gender gap was similar in both rural and urban areas. The report's authors have noted that there is a large proportion of young persons, particularly women, who are not in education, employment or training. Between 2012 and 2019, there was an alarming increase in unemployment because of the decrease in women participation in the workforce, a trend which has been slightly reversed post 2019. "Young women are more likely to engage in agriculture than young men," they said.

### What has the report recommended?

India was expected to have a sustained economic growth of 5-6% in the next 15 years or so, the report's authors noted. "Rapid technological changes and high growth have increased the gap between skill supply and demand," they said, urging policymakers to take adequate steps to ensure rapid integration of youth into the labour market through well-targeted supply and demand measures.

The report's authors have recommended "five missions" to address the challenges: Make production and growth more employment-intensive; improve the quality of jobs; overcome labour market inequalities; make systems for skills training and active labour market policies more effective; bridge the deficits in knowledge on labour market patterns and youth employment. They have recommended measures such as integrating employment creation with macro and other economic policies to boost productive non-farm employment. They also said micro, small and medium-sized enterprises must be supported and decentralised.

The report's authors have urged the government to take steps to increase agriculture productivity, create more non-farm jobs and promote entrepreneurship. Calling for a focus on policies that boost women's participation in the labour force, they also sought a minimum quality of employment and basic rights of workers across all sectors.

## HOW FIRMS WITHOUT PROFITS DONATED THROUGH BONDS

The sources of funds of at least 45 companies that donated electoral bonds to various political parties (and whose financials could be matched with data from the CMIE Prowess IQ Database) are found to be suspect based on a joint analysis by The Hindu and an independent research team. These 45 companies are subdivided into four categories (A, B, C & D). 33 companies donated an aggregate sum of ₹576.2 crore in EBs, out of which ₹434.2 crore (nearly 75%) was encashed by the BJP. These companies had negative or near zero profit after tax in aggregate over seven years, from 2016-17 to 2022-23. The aggregate net losses of these 33 companies were over ₹1 lakh crore. 16 out of these 33 companies (category A) paid zero or negative direct taxes in aggregate. That these loss-making companies made such substantial donations indicates they could be acting as fronts for other firms or have misreported their profits and losses — raising the possibility of money laundering.

Six companies donated a total of ₹646 crore, out of which ₹601 crore (93%) was encashed by the BJP. They had positive net profits in aggregate from 2016-17 to 2022-23, but the amounts donated



through EBs exceeded their aggregate net profit significantly. These companies (category B) could also have acted as fronts for other companies or have misreported their profits and losses.

Three companies donated an aggregate sum of ₹193.8 crore, out of which ₹28.3 crore (around 15%) was encashed by the BJP. Of the rest, the Congress received ₹91.6 crore (47%), the Trinamool - ₹45.9 crore & 24%, BRS and BJD - ₹10 crore, close to 5% each, and the AAP - ₹7 crore & 3.6%. These three companies had positive net profits but reported negative direct taxes in aggregate from 2016-17 to 2022-23. Such companies (category C) could have engaged in tax evasion.

Three companies (category D) donated a total of ₹16.4 crore in EBs, out of which ₹4.9 crore (around 30%) was encashed by the BJP and the rest by the Congress (58%), Akali Dal and JD(U), 6.1% each. These three companies had no reported data on net profits or direct taxes paid for the entire seven-year period which raises the question of whether the donors were shell companies that were involved in money laundering.

Internal communications between the RBI and the Finance Ministry brought to light the central bank's doubts regarding the EB scheme since its inception. In a letter to a Finance Ministry official dated January 30, 2017, the Chief General Manager of the RBI wrote: "Even the intended purpose of transparency may not be achievable, as the original buyer... need not be the actual contributor to a political party. The bonds are bearer bonds and are transferable by delivery. Hence, who finally... contributes the bond to the political party will not be known. While the person/entity buying the bearer bond will be as per [KYC] parameters, the identities of the intervening persons/entities will not be known. Thus... the spirit of the Prevention of Money Laundering Act (PMLA) 2002 [is] affected." The then revenue secretary Hasmukh Adhia, wrote in response: "[The] RBI has not understood the proposed mechanism of having pre-paid instruments to keep the identity of the donor secret while ensuring that donation is made only out of fully tax paid money of a person." The Finance Ministry went ahead with the introduction of the electoral bonds scheme in January 2018, authorising the SBI to issue and encash the bearer bonds. The scheme continued till January 2024 before the Supreme Court ruled that it was unconstitutional. Data from these 45 EB donor companies seem to vindicate RBI's concerns about money laundering and tax evasion.

#### EXPRESS VIEW ON TESLA IN INDIA: CHARGING UP

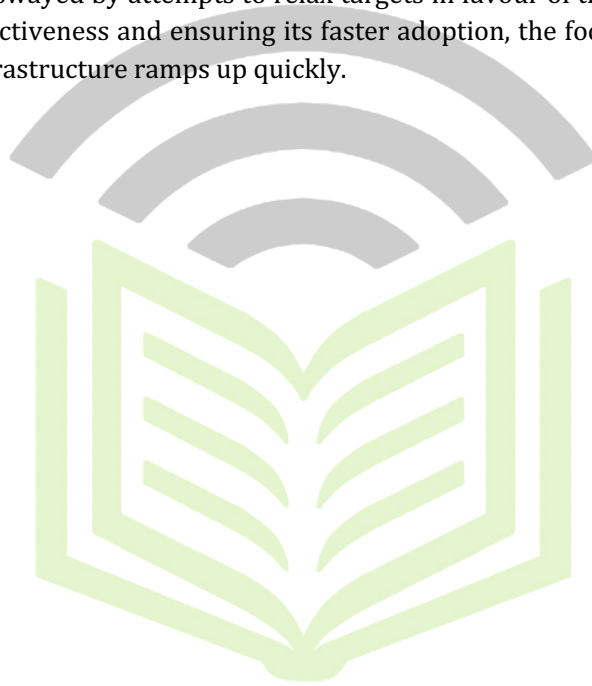
In March, the Union government had approved a new e-vehicle policy with the aim to facilitate the entry of global EV manufacturers in the country. The policy involves lowering the duty for EV imports — this has been a long-standing demand for EV majors like Tesla — for companies setting up a manufacturing plant with a minimum investment of Rs 4,150 crore. Alongside, the policy also lays out clear localisation targets that companies have to achieve — 25 per cent by the third year and 50 per cent by the fifth — in order to boost domestic value addition. It would appear that this new policy is evincing serious interest. According to reports, US electric car maker Tesla Motors will be sending a team to India to scout for locations for a \$2-3 billion electric car plant. This is welcome news.

Access to one of the largest and fastest growing markets in the world — India is the third largest auto market behind China and the US — at a time when others are slowing down, will be a big draw for electric vehicle manufacturers like Tesla. While the EV market is currently small in the country, it is gaining traction — in 2023, sales of electric vehicles surpassed 1.5 million, dominated by two-wheelers and three-wheelers as per a recent report by CareEdge. The scope for growth in various segments is immense, especially considering the government wants to increase the share



of electric vehicles to 30 per cent by 2030. The reports also suggest the possibility of Tesla building a smaller and more affordable car in India, priced at less than \$30,000. This would increase the likelihood of India being used as a base for the company to export its cars to other regions. Coming on the heels of the rapid expansion in Apple's manufacturing capacity in the country, and movement in the government's semiconductor plans, if Tesla's plans were to fructify, it would be a big boost for the government's Make in India plans.

The entry of global manufacturers will not only provide greater choice to consumers, but will also help bring in the latest technology and promote competition in a sector that is dominated by domestic players. It will help cut carbon emissions and reduce the country's dependence on oil imports. However, care must be taken to closely monitor progress on investment and localisation criteria, and not get swayed by attempts to relax targets in favour of the companies. Further, for increasing EVs' attractiveness and ensuring its faster adoption, the focus should be on ensuring that the charging infrastructure ramps up quickly.



# DreamIAS



## LIFE & SCIENCE

### TEAM LED BY PRL AHMEDABAD FINDS OZONE ON JUPITER'S MOON

An international team of scientists, including from India, has discovered strong evidence indicating the presence of ozone on Jupiter's moon, Callisto, shedding light on the complex chemical processes taking place on icy celestial bodies in the Solar System.

The study was published in the March 2024 issue of the journal *Icarus*. It outlines the researchers' investigation into the chemical evolution of 'SO<sub>2</sub> astrochemical ice', which is ice primarily composed of sulphur dioxide (SO<sub>2</sub>) in the presence of ultraviolet irradiation.

This shed light on the chemical processes and composition of the surface of Callisto. By analysing the data of the UV absorption spectra of the irradiated ice samples, the team was able to identify a distinct signature indicating the formation of ozone. They corroborated their findings by comparing them with data from the Hubble Space Telescope to understand Callisto's environment and the potential habitability of icy moons in the Solar System.

#### **The importance of ozone**

The earth has life not just because it found a way to originate here; it also has the resources to thrive, evolve, and diversify. These resources include sunlight containing the "right" frequencies of radiation, water, a stable atmosphere providing a stable supply of the requisite gases at the right temperature, and various compounds required for the life-forms' biochemical processes.

This said, not all emissions from the sun are good for organisms on earth. Ultraviolet radiation in particular is harmful to many species (but also useful to some others). Two of its components, called ultraviolet-B and ultraviolet-C, of wavelengths 290–320 nanometres and 100-280 nanometres respectively, can damage DNA, trigger mutations, and increase the risk of skin cancer and cataracts in humans.

Ultraviolet light has also been known to inhibit plant growth and have detrimental effects on various organisms. This is why the ozone layer is a crucial part of the earth's atmosphere: it completely absorbs ultraviolet-B and ultraviolet-C radiation.

The ozone molecule is composed of three oxygen atoms bonded together. The ozone layer, found in the lower part of the earth's stratosphere, around 15–35 km above ground, serves as a shield. Without the ozone layer, ultraviolet radiation levels would be much higher on the planet's surface, rendering it uninhabitable for many species and disrupting entire ecosystems.

Scientists are currently studying various celestial bodies in the Solar System that show signs of ozone, suggesting the existence of stable atmospheric conditions and, by extension, the possibility of their being able to host life.

#### **Callisto and its unique environment**

After Saturn, Jupiter has the most moons in the Solar System. Callisto is one of Jupiter's largest moons and the third-largest moon in the Solar System after Ganymede and Titan.

Callisto, despite its impressive size, is distinguished by its composition. Despite being as big as the planet Mercury, it has less than half as much mass. Callisto is primarily composed of water ice,





rocky materials, sulphur dioxide, and some organic compounds. These substances make the moon a potential candidate for supporting life in the solar system beyond the earth.

Callisto's surface is heavily cratered, indicating a long history of being struck by asteroids and comets. (It may have the oldest surface in the Solar System, in fact.) It also lacks the extensive seismic activity seen on some of Jupiter's other moons, such as Io and Europa.

The presence of relatively few geological features suggests Callisto's surface is geologically inactive. In other words, its surface has likely been relatively stable for a long time. This stability could be vital to preserve any subsurface ocean or potential habitats beneath the icy crust.

The detection of sulphur dioxide on Callisto's surface has encouraged this team of scientists to conduct spectroscopic observations to gain a better understanding of the moon's surface composition and formation.

The discovery of ozone on Callisto suggests the presence of oxygen, which in turn is a fundamental ingredient required for the formation of complex molecules required for life (as we know it), such as amino acids, raising questions about the moon's habitability. This extends to other icy moons in our solar system, potentially informing our understanding of habitable conditions beyond Earth. In addition to the ozone, the researchers observed an unidentified band in the absorption spectrum – similar to that observed on Ganymede in 1996 – hinting at a common molecular source in their surface compositions or chemical processes.

This finding could provide valuable insights into geological and atmospheric processes on these moons. In particular, it could help us to understand the precise mechanisms that led to the formation of Jupiter and its moons, which remain topics of active research.

## INDIA AMONG COUNTRIES MULLING TELESCOPES ON, AROUND THE MOON

Astronomers are looking forward to opening a new window on the universe by posting high-resolution telescopes on the moon and in orbit around it. There are numerous proposals to do this from astronomers around the world, including one from India called PRATUSH.

On the earth, optical telescopes (which collect visible light at longer wavelengths) and radio telescopes (which collect radio waves with the shortest wavelengths) have to peer through layers of the planet's atmosphere. While it is becoming increasingly difficult for optical instruments to see through the polluted skies, radio telescopes also contend with radio and TV signals adding to the cacophony of the electromagnetic 'hiss' from the communications channels used by radar systems, aircraft, and satellites. It also does not help that the earth's ionosphere blocks radio waves coming from outer space.

### **A pristine desolation**

Scientists tried to find a way out of this by launching radio telescopes into orbit around the earth. But this only made the problem worse, as orbiting telescopes started receiving radio noise from the whole planet along with signals from outer space. So astronomers are now seriously considering an idea they have toyed with since the 1950s: placing optical and radio telescopes on the far side of the moon, which always faces away from the earth.

The pristine, airless desolation of the moon provides optical telescopes crystal-clear seeing conditions throughout the long lunar night, which lasts two weeks at a time. Radio telescopes on



the lunar far side will also be protected by a 3,475-km-thick wall —a.k.a. the moon (its diameter is 3,476 km) — that blots out radio transmissions from the earth and electrically charged plasma winds blowing from the Sun.

In the past, the enormous costs involved discouraged scientists from setting up lunar telescopes. But renewed interest among spacefaring nations to return to the moon promises to open up “the most radio-quiet location in the solar system”, to quote The Royal Society, to astronomers.

Indian scientists plan to do with the radio telescope PRATUSH (Probing ReionizATIOn of the Universe using Signal from Hydrogen), to study the universe from the moon’s far side. PRATUSH is being built by the Raman Research Institute (RRI) in Bengaluru with active collaboration from the Indian Space Research Organisation (ISRO).

As astronomers open new windows from the moon to look at the far reaches of the universe, who knows what discoveries await them. One thing is certain: they are in for some exciting times as the cosmos yields clues to some of its greatest mysteries, such as dark energy (which pushes the universe in every direction at an accelerating rate), primordial black holes and, indeed, the very nature of the cosmos.

## MASSIVE EARTHQUAKE HITS TAIWAN: WHAT IS THE RING OF FIRE?

Nine people died and more than 1,000 were injured in Taiwan after the island was hit by its biggest earthquake in at least 25 years on Wednesday (April 4) morning. While Taiwan’s earthquake monitoring agency said the quake was 7.2 magnitude, the US Geological Survey (USGS) put it at 7.4. The epicentre of the quake was located just 18 kilometres south-southwest of Hualien County, which is situated in eastern Taiwan. Multiple aftershocks were experienced, and one of them was 6.5 magnitude, according to USGS.

Notably, Taiwan is prone to earthquakes as it lies along the Pacific “Ring of Fire” — where 90% of the world’s earthquakes take place. The island and its surrounding waters have registered about 2,000 earthquakes with a magnitude of 4.0 or greater since 1980, and more than 100 earthquakes with a magnitude above 5.5, according to the USGS, a report by The Associated Press said.

Here is a look at the Ring of Fire and why so many earthquakes take place there.

### **What is the Ring of Fire?**

The Ring of Fire is essentially a string of hundreds of volcanoes and earthquake-sites which runs along the Pacific Ocean. It is a semicircle or horse shoe in shape and stretches nearly 40,250 kilometres. The Ring of Fire traces the meeting points of numerous tectonic plates, including the Eurasian, North American, Juan de Fuca, Cocos, Caribbean, Nazca, Antarctic, Indian, Australian, Philippine, and other smaller plates, which all encircle the large Pacific Plate, according to a report by National Geographic.

It runs through 15 more countries including the USA, Indonesia, Mexico, Japan, Canada, Guatemala, Russia, Chile, Peru, and the Philippines.

### **Why is the Ring of Fire vulnerable to earthquakes?**

The Ring of Fire witnesses so many earthquakes due to constant sliding past, colliding into, or moving above or below each other of the tectonic plates. As the edges of these plates are quite



rough, they get stuck with one another while the rest of the plate keeps moving. An earthquake occurs when the plate has moved far enough and the edges unstick on one of the faults.

Taiwan experiences earthquakes due to the interactions of two tectonic plates — the Philippine Sea Plate and the Eurasian Plate.

#### **Why are there so many volcanoes in the Ring of Fire?**

The existence of volcanoes in the Ring of Fire is also due to the movement of tectonic plates. Many of the volcanoes have been formed through a process known as subduction. It takes place when two plates collide with each other and the heavier plate is shoved under another, creating a deep trench.

“Basically, when a ‘downgoing’ oceanic plate [like the Pacific Plate] is shoved into a hotter mantle plate, it heats up, volatile elements mix, and this produces the magma. The magma then rises up through the overlying plate and spurts out at the surface,” which leads to the formation of volcanoes, according to a report by DW.

Most of the subduction zones on the planet are located in the Ring of Fire and that’s why it hosts a large number of volcanoes.

### HOW HAS KAHNEMAN’S WORK IN PSYCHOLOGY WITHSTOOD THE TEST OF TIME?

On March 27, one of the pioneers of psychology and economics research, Daniel Kahneman, passed away. Kahneman was a psychologist who spent a large part of his career at Princeton University. He did some of his best known work with Amos Tversky, a mathematical psychologist who passed away in 1996.

#### **No stranger to fame**

Kahneman and Tversky made substantial contributions to the field of judgement and decision-making, which deals with how human beings make choices in different situations. They published a series of pioneering research papers in the 1980s that integrated insights from psychology and economics to better understand human behaviour at large.

Together, they form the bedrock of the contemporary field of behavioural economics, despite explicitly never having had the intention for their work to be part of economics.

Kahneman was also not a stranger to fame and attention outside of academia. His 2011 book *Thinking Fast and Slow* is among the best-selling books in psychology and business, and his partnership with Tversky was famously the subject of Michael Lewis’ 2016 book *The Undoing Project*.

But before embarking on his unspoken mission to change the face of psychology and economics, Kahneman’s work was concerned with attention and perception, which are the core cognitive faculties that often precede action, or for that matter inaction.

#### **Attention and decision-making**

His first book, *Attention and Effort* (1973), summarised the then-state-of-the-art literature on divided attention, which is the bane of multi-tasking; focused attention, i.e., what moves in and out of an individual’s awareness; and selective attention. He also co-authored some other papers with



Anne Triesman, a leading cognitive psychologist, and his wife on the topics of attention, memory, recall, and visual perception. Triesman passed away in 2018.

His book *Judgement Under Uncertainty* (1982) cemented the connections between Kahneman's early work in mental effort and the then emerging area of decision-making. Their original 1974 paper, published in the general-interest journal *Science*, has nearly 50,000 citations, according to Google Scholar, making it one of the most influential papers in psychology.

For example, one of the major postulates of the duo's prospect theory deals with loss aversion. They hypothesised that individuals are more sensitive to loss than an equivalent amount of gain, and that, in general, losses loom larger on an individual's mind. They were able to prove this by running laboratory experiments in which they compared outcomes framed as gains and losses.

The results changed the world of decision-making, which previously held that individuals only looked at outcomes in an absolute way, not as changes in outcomes. For example, if someone found an unclaimed ₹500 note on the ground versus if they suddenly realised a ₹500 note was missing from their wallet, loss aversion contended that the person would experience the loss more strongly than the gain.

#### **Limits on loss aversion**

Kahneman and Tversky's experiments, however, didn't explicitly delve into the context in which loss aversion manifests in the human psyche. For example, they did not test whether loss aversion is sensitive to the stakes of a decision (e.g. a choice such as gaining or losing a high-valued stock or asset).

In later studies (Zeif and Yechiam 2022), other psychologists found that loss aversion actually only showed up when people were dealing with very large losses, those worth more than around \$40 (₹3,300). Loss aversion was also found to be somewhat context-specific. One 2019 study (Mrkva et al.) found it was more common in decisions related to automobile purchases and household financial decisions.

Nonetheless, when he won the economics Nobel Prize in 2002 with experimental economist Vernon L. Smith, it was a formal recognition of the role psychological insights, as Kahneman and his collaborators had inferred them, played in economics. Although the Nobel Prize has never been awarded posthumously, Kahneman has said his half of the prize was shared with Tversky, to honour their joint work.

#### **Measuring happiness**

Kahneman also made substantial contributions to the study of happiness and well-being later. His work focused on measuring happiness using multiple methods. One, called the day reconstruction method, asked participants to think about their previous day and break it up into episodes. For each episode, a participant had to calculate the happiness they experienced as the difference between a rating of "happy" (worth +6 points) and other ratings for "tense," "depressed" or "angry" (each worth -6 points). This measure, as well as some others, drew from Kahneman's theory of hedonic psychology, which suggests that people value experiences, not just outcomes.

Such advances in measurements were important because scholars were beginning to realise they couldn't measure individual well-being in economic terms alone. An important study by Anna Alexandrova in 2005 suggested such an approach only accounted for a part of subjective well-



being, not for happiness as an experience and an attitude. Kahneman's work also identified how high income could impact life satisfaction but not really happiness.

### Rethinking thinking

Kahneman's legacy is multifold. Among his most influential works is the dichotomy between System 1 and System 2 thinking. The former is quick, intuitive, and nearly automatic, whereas the latter is slow, deliberative, and cautious. Psychologists have studied and verified the two processes extensively.

But then, like some of his other work, including loss aversion, experts realised Kahneman didn't have the full picture: they found System 1/2 may not apply across cultures, especially in non-WEIRD (Western, educated, industrialised, rich, and democratic) contexts.

Even so, psychology, behavioural economics, science, public policy, and many other fields owe a great debt to Kahneman's work. His work couldn't be generalised to more than a few settings or contexts, but that shouldn't spell the end of Kahneman's mission to rethink how people think. Much like other foundational work in the behavioural sciences, it has instead given us a better idea of where to begin.

## TROPICAL CYCLONES OF HIGHER INTENSITY DEMAND A NEW CATEGORY

Tropical cyclones are powerful and destructive weather systems that form over warm tropical ocean basins where sea surface temperatures are above 26.5 degree C. These storms are characterised by strong winds, heavy precipitation and storm surges and can cause significant damage to coastal communities and infrastructure.

Climatologically, tropical cyclones form mainly in the North Atlantic, East Pacific, West Pacific, South Pacific and the Indian Ocean. Out of 85 tropical storms that develop annually over the warm tropical oceans, more than half (45) of them intensify into tropical cyclones. The Western Pacific basin is the most active region for tropical cyclones and accounts for about a third of the world's tropical cyclones. The North Indian basin accounts for only about 4% of the global total, although it is one of the most vulnerable regions in the world to the effects of such cyclones.

The Saffir-Simpson (SS) hurricane wind scale, introduced in the early 1970s, is the most widely used metric for warning the public about the dangers of tropical cyclones. The SS hurricane wind scales are categorised by the maximum sustained wind speed at a height of 10 metres. Although most tropical cyclone-related deaths are caused by storm surge and heavy rainfall, wind hazard remains an important metric for communicating risk to the public and a critical metric for measuring the impact of these cyclones. There are five categories on the SS hurricane wind scale — category 1 to category 5 — with category 5 wind speed exceeding 252 km/hour. The combined effects of wind, storm surge, and rainfall in a category 5 impact would completely raze any structure.

The sharp rise in man-made greenhouse gas emissions has led to global warming of the order of 1.10 degree C since pre-industrial times. The warming can be observed not only at the sea surface, but also in the depths of the ocean, which increases the heat content of the ocean and thus favours the intensification of tropical cyclones. Long-term data indicate that the frequency of intense tropical cyclones is increasing in the large ocean basins. For every degree of warming, an increase in wind speed of 12% is observed in the strongest cyclones, which corresponds to a 40% increase in destructive potential. As warm waters extend further poleward, cyclones are shifting poleward,



with more storms forming at higher latitudes than in the past. A warmer atmosphere can hold more moisture, leading to heavier rainfall when tropical cyclones make landfall. As the oceans warm, cyclones also strengthen faster and spend more lifetime over the oceans. In 2023, tropical cyclone Freddy spent 37 days over the oceans, making it the longest-lived cyclones ever recorded.

### Category 5

In a recent research paper published in the Proceedings of National Academy of Sciences, the authors document that storms are occurring at intensities well above Category 5 and that record wind speeds are likely to continue as the planet continues to warm. At the time of its introduction, the SS wind scale did not foresee the need for a tropical cyclone-beyond category 5. However, due to global warming, there is now a need to define a category 6 cyclone. The authors therefore proposed to introduce a hypothetical modification of the SS wind scale to tie category 5 to peak wind speeds between 252-309 km/hour and to include an additional category 6 above 309 km/hour.

Observations indicate that of the 197 tropical cyclones categorised as category 5 in the 42-year period from 1980 to 2021, half occurred in the last 17 years of the period. Five of these storms which occurred in the last nine years of the record, exceeded the hypothetical category 6 (with wind speeds of over 309 km/hour). Simulations of future climate change suggest that the annual exceedance of the category 6 threshold will increase even more in the regions where intense tropical cyclones currently occur. It is expected that the proposed 6th category of the SS wind scale could raise awareness of the dangers of the increased risk of large cyclones due to global warming.

At present, the North Indian Ocean is not as vulnerable to category 6 storms. However, as global warming continues unabated, there is a good chance that a category 6 storm with maximum wind speeds of over 309 km/hour may occur over the North Indian Ocean in the near future. Therefore, there is a need to revisit India's disaster management strategy for tropical cyclones and the early warning systems.

### SPROUTING A SANDALWOOD SAPLING

Sandalwood hardly needs an introduction to the readers of The Hindu. It has been valued for many centuries, for its fragrant oil, its prized wood, and the many medicinal uses it has been put to. The tree that all this comes from, however, is not all that familiar. Growing in deciduous forests, it is a partial, or hemiparasite that needs four or five other trees growing around it. Under the ground, sandalwood roots form a haustorium that forms an octopus-like hold on the host tree's roots, from where water and nutrients are taken.

The sandalwood fruit is probably even more unfamiliar. About 1.5 cm in diameter, the fleshy fruit is a shiny purplish black when ripe. The one seed inside is a hard, dry kernel, not the usual tough seed coat protecting a fleshy interior. This makes it difficult for the seed to survive beyond one season.

Both the above properties - the need for other trees in the early growth phase, and the seeds, which are short-lived and cannot be stored, have added to the overexploited tree's difficulties. This has led to a drastic fall in the number of sandalwood trees in the forests of South India. The IUCN has classified sandalwood as a vulnerable species. It is not surprising that Australia is now the world's largest supplier of sandalwood and its oil.



### Dispersal by birds

The fruit is bitter, and not to human tastes. But it is loved by birds. About 10 species, such as the Asian Koel, and the Gray Hornbill swallow the fruit whole, and over time drop the seeds at great distances from the tree they feasted on. These birds are among India's larger frugivores, or eaters of fruit. The sandalwood tree's fruit is just right for the koels and hornbills. It has been established that sandalwood trees that produce larger seeds usually end up with the seeds close by. Although the large seeds are better equipped for germination, birds cannot swallow those large seeds, and drop them off after pecking away at the flesh.

The passage through the digestive system is good for the seeds. The seeds now germinate very quickly and have better chances of maturing into trees. This is the reason why forests, and not plantations, are where we get to see a few mature sandalwood trees. Sadly, the thinning of forests has reduced bird populations, and therefore the chances of proper seed dispersal.

Can humans try to emulate birds? Researchers at the Kerala Agricultural University in Thrissur, working with European colleagues have tried various ways of priming sandalwood seeds for germination (Forests, 14:1076, 2023). Best results were obtained when they soaked freshly collected sandalwood tree seeds in a 5% solution of polyethylene glycol-6000 for two days. This interesting synthetic substance induces osmotic pressure on the cells of the seed and pushes the germination process forward. This is called osmopriming, and when done correctly is more effective than soaking in just water. The sprouting rate was 79% compared to 45% when just planting the seed.

### HOW DOES A FRIDGE KEEP BISCUITS CRISP ?

**Q: When biscuits are kept in cool air, they lose their crispness. Then how do they remain crisp when kept in a fridge?**

**A:** Moisture content in fresh biscuits is about 5% after baking resulting in crisp texture and good storage stability.

When they are left open in air, they absorb moisture and lose their crispness.

The relative humidity in the atmosphere can vary from about 40% (during summer) to 90% (on a cool, rainy day).

Inside a fridge, the temperature is kept low by cooling the air.

The water molecules present inside the fridge condense on the cooling coils (evaporator coils) and so the humidity is also low (the air is moisture-free).

This moisture appears as frost. As a result the biscuits remain cool as well as crisp.

### PUNNETT SQUARE: A GENETICS PUZZLE

#### WHAT IS IT?

The little four-square grid we drew in school while learning about genetic crossing has a name: the Punnett Square. These squares are a way to predict the possible genetic outcomes of the offspring when two individuals with known genotypes are crossed.



The Punnett Square is named after British geneticist Reginald Punnett. Drawing these squares is simple. Imagine a grid, usually with four squares. Along the top and side of the grid, you list the possible genetic traits of one parent on one side and the other parent on the other side. Then, you fill in the squares by combining the traits from each parent.

Each square effectively represents a possible combination of traits that their offspring could inherit. It's a simple way to visualise the probabilities of different traits showing up in the offspring.

Punnett Squares are commonly used in biology to understand inheritance patterns, like when you learn about dominant and recessive genes in school. A Punnett Square is a useful tool that helps predict the variations and probabilities resulting from cross-breeding. It is often used to study the outcomes of cross-breeding but it can also be used to understand the genetic traits in the offspring of animals, including humans. Researchers typically use them together with Mendelian inheritance, a fundamental concept in genetics discovered by Gregor Mendel.

### VAPING INCREASES RISK OF HEART FAILURE BY 19 PER CENT, REVEALS STUDY. WHY E-CIGARETTES ARE NOT SAFE FOR THE YOUNG

For those thinking e-cigarettes are better than conventional smoking, a large US study now says that vaping at any point in life has been linked to a 19 per cent increase in the risk of heart failure.

Heart failure is a condition where the muscles of the heart either stiffen or become weak and are unable to pump blood properly. "Nicotine in the vaping solution increases your heart rate and blood pressure, stressing your heart with long use. It constricts your blood vessels, makes them less flexible and stiffens them up as in fibrosis," says Dr Nishith Chandra, Principal Director, Interventional Cardiology, Fortis Escorts Heart Institute, Delhi.

While India is one of the few countries to have banned manufacture, import and sale of e-cigarettes, the products continue to be available in the grey market. Around 23 per cent people in India reported using e-cigarettes, with eight per cent using it daily, according last year's survey in Preventive Medicine Reports. The Global Adult Tobacco Survey pegs the number of current e-cigarette users at 0.02 per cent of the population.

#### What is vaping?

Vapes or e-cigarettes electronically heat up a solution of glycerine, flavours and nicotine, the addictive substance in the cigarettes. While people use cigarettes for the nicotine hit, it is the tar from smoking that kills. This is the reason e-cigarettes were pushed as aid for smoking cessation.

There is, however, not enough data to show that the use of e-cigarettes actually helps you quit smoking and users end up using both cigarettes and vapes. Besides, different flavours in vapes may prompt non-smokers to take up the habit. US data shows that e-cigarettes are the most commonly used tobacco products by students.

#### What does the recent study say?

The study scanned 1.7 lakh people and followed them up for 45 months. Of them, 3,242 developed a heart failure. The results showed that those who used e-cigarettes at any point were 19 per cent more likely to develop heart failure compared to non-users. Researchers accounted for a history of smoking and other risk factors for heart diseases.