

# News Juice Monthly

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**For Civil Services  
Preparation**

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### 1. Kejriwal's arrest: allegations and defence

#### Why in News?

Mr. Kejriwal was arrested by Enforcement Directorate 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.

#### 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.

### **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.

### **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.

ED'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.

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

While seeking Mr. Kejriwal’s remand, ED 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 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.'"

Relevance: GS Prelims & Mains Paper II; Governance

Source: The Hindu

## **2. Sanjay Singh gets bail: What are the ED's allegations against the senior AAP leader and MP?**

### **Why in News?**

The Supreme Court gave bail to senior Aam Aadmi Party (AAP) leader and Rajya Sabha member Sanjay Singh in a case relating to the alleged Delhi excise scam after the Enforcement Directorate (ED) did not oppose it.

Singh was the third AAP leader to be arrested in the case after former Deputy Chief Minister Manish Sisodia and AAP communications in-charge Vijay Nair. Chief Minister Arvind Kejriwal was arrested in the same case on March 21, and sent to Tihar jail on April 1.

### **When and why was Sanjay Singh arrested?**

Singh was arrested on October 4, 2023 after a 10-hour search at his home in North Avenue, New Delhi. According to the ED, Singh is a "key conspirator" in the alleged scam, in which the wholesale liquor business in Delhi was given to private entities in return for kickbacks. In its first prosecution complaint, the ED said the policy, which came into force in November 2021 but was scrapped in July 2022, was "formulated with deliberate loopholes" that "promoted cartel formations through the back door" to benefit AAP leaders.

According to the ED, the alleged proceeds of crime amounted to more than Rs 292 crore, and a part of the money was used by the AAP in its election campaign in Goa.

The Delhi Excise Policy 2021-22 envisaged the exit of the state from the liquor business to allow it to reach its full potential. The stated goal of the policy was to shut down black

marketing and the liquor mafia, increase revenue, improve the consumer experience, and ensure equitable distribution of liquor vends across the capital. The licensees were allowed to offer discounts and set their own prices instead of selling at the MRPs fixed by the government.



**Supreme Court grants bail & directs ED to release AAP MP Sanjay Singh during the pendency of trial in a money laundering case relating to Excise Policy Scam matter**

#### **What were the specific allegations against Singh?**

In its remand application, the ED had said: "Sanjay Singh has exploited and gained illegal money/ kickbacks, which is 'proceeds of crime' generated from the liquor policy (2021-22) scam... (He) has been part of the conspiracy of collecting kickbacks from liquor groups... (He) has a close relationship with Dinesh Arora since 2017 as revealed by Dinesh Arora as well as from his call records."

Dinesh Arora is a businessman whom the ED had earlier accused of being a "conduit for kickbacks" between the "South group" and the AAP. The ED had claimed that Arora had told investigators that he spoke to many restaurant owners at Sanjay Singh's behest, and had "arranged cheques amounting to Rs 82 lakh for collection of party funds for the upcoming elections". The ED had also alleged that Arora had given Rs 2 crore in cash to Singh.

Arora in 2022 turned approver in the CBI case and got bail. In July 2023, Arora was arrested by the ED, but he became an approver in the ED case as well.

In its reply to Singh's plea for bail in Delhi High Court on January 30 this year, the ED had said: "... It is evident that Sanjay Singh was involved in creating a special purpose vehicle (M/s Aralias Hospitality Pvt Ltd) to launder the proceeds of crime that would have been generated from the business arising out of the policy changes as conspired by him and his co-conspirators... Singh was then involved in acquiring, possessing, concealing, dissipating and using proceeds of crime generated from the Delhi liquor scam pertaining to the policy period of 2021-2022."

### **What did courts say about the allegations against Singh before this?**

On December 22, 2023, Special Judge M K Nagpal, while dismissing Singh's bail plea, had said: "...This court is of prima facie view that the case against (the) applicant is genuine and the said evidence and material shows (the) involvement of (the) applicant in the commission of the alleged offence of money laundering because he is shown to have been, directly or indirectly, involved in the process or activities connected with proceeds of crime."

On February 7 this year, Delhi High Court refused Singh bail, saying "prima facie, it is clear that...(Singh) was part of the preparation of the old excise policy and thereafter, the new excise policy was made to suit the co-accused(s) who were to pay kickbacks to the present applicant (Singh) and co-accused(s) and the party concerned, from the profit so generated due to excise policy".

The court had said there were "specific statements that Rs 2 crore was paid to Sarvesh Mishra for Sanjay Singh at his official residence in lieu of the new excise policy made to suit them and generate profit for them... The role at this stage of the applicant (Singh) cannot completely be ruled out."

Relevance: GS Prelims & Mains Paper II; Governance

Source: Indian Express

## **3. Recording Religion of Parents during birth registration process**

### **Why in News?**

The Union Ministry of Home Affairs has introduced Model Rules mandating the separate recording of the religion of both parents during the birth registration process.

The rules have been introduced under Registration of Births and Deaths (Amendment) Act, 2023 which came into force from October 1, 2023.

### **Implication of Amendment**

The amendment paved the way for digital birth certificates, a single document that can be used for admission to educational institutions, applications for driving licences, government jobs, passports, or Aadhaar, voter enrollment, and marriage registration.



The amendment was made to the 1969 Act. The law allows the Registrar General of India to establish a national and state-level database of birth and death registrations. As per the amended law, chief registrars (appointed by states) and registrars (appointed by states for local area jurisdiction) will be obligated to share data on registered births and deaths with the national database.

The Act also empowers the citizens of the country aggrieved by any action or order of the registrar or district registrar to appeal to the district registrar or chief registrar, respectively. Such an appeal must be made within 30 days from receipt of such action. Following this, the district registrar or the chief registrar must give their decision within 90 days from the date of appeal.

## National database

**All reported births and deaths are to be digitally registered through the Centre's portal for the Civil Registration System**

- The database may be made available to other authorities preparing or maintaining other databases such as electoral rolls or ration cards

- Information from digital certificate can be used for purposes such as admission to an educational institution or appointment to government posts



- Data is used by the govt. for socio-economic planning and to evaluate the effectiveness of social sector programmes

### National Population Register

The centralised database will update the National Population Register (NPR), ration cards, property registration and electoral rolls. The NPR has a database of 1,190 million residents. The NPR is the first step to creating the National Register of Citizens (NRC), as per the Citizenship Act.

It will be made compulsory for the states to register births and deaths on the Centre's Civil Registration System (CRS) portal and share data with the Registrar General of India (RGI). The Act authorises the government to "collect Aadhaar numbers of parents and informants, if available, in case of birth registration".

Currently, either parent voluntarily provides the Aadhaar number for a newborn's birth certificate generated through the CRS.

Relevance: GS Prelims & Mains Paper II; Governance

Source: The Hindu

#### 4. CAA Rules allow dual citizenship: pleas in SC

##### Why in News?

The Rules of the Citizenship (Amendment) Act do not require foreign applicants to effectively renounce the citizenship of their native country, creating a possibility for dual citizenship which is directly violative of the Citizenship Act, petitioners have argued in the Supreme Court.

Written submissions filed by the petitioners ahead of the April 9 hearing of their plea to stay the CAA Rules said that Section 9 of the Citizenship Act of 1955 and Article 9 of the Constitution both clearly and explicitly prohibit the acquisition of dual citizenship.

##### Other questions raised

1. The petitioners noted that a presumption of religious persecution is inherent in the CAA. The Union government views the law as a succour for refugees who fled persecution from the target countries with state religions.

But only a "selected group" of such migrants are eligible for the benefits of CAA, the petitioners said. Excluded refugee groups continue to remain illegal migrants, barred from seeking Indian citizenship under any mode.

2. "Even while including Pakistan in the list of countries, it fails to extend protection to [the] Ahmadiyya community which is one of the most persecuted groups in Pakistan. It similarly excludes rationalists, atheists and agnostic persons who do not profess any religion," the petitioners submitted.

3. Refugees from Myanmar are excluded, though the country was a part of British India till 1935 and though the International Court of Justice had found that genocide was perpetrated there against Muslim Rohingya refugees who are presently, due to persecution, living in India under abject conditions under threat of deportation. Similarly, the CAA and its Rules exclude Sri Lanka.

4. While the Statement of Objects and Reasons of CAA mentions 'Partition' and 'undivided India' as the reason for the selection of non-Muslims as a protected class of refugees, the CAA included Afghanistan which was not a part of undivided India.

# Fundamental question

The Supreme Court is scheduled to hear the pleas against the CAA and related rules on April 9

■ Petitioners say rules overlook the fact that effective renunciation of citizenship is a prerequisite for citizenship in cases where the nationality of another country is clearly

attributable to the applicant

■ They ask why only a selected group of migrants are eligible

■ They see 'fundamental flaw' in claim that CAA and its rules will help persecuted minorities



Relevance: GS Prelims & Mains Paper II; Polity  
Source: The Hindu

## 5. Right against climate change a distinct fundamental and human right, SC judgment

### Why in News?

The Supreme Court has recognised a much-felt, but less articulated right against the adverse effects of climate change as a distinct fundamental right in the Constitution.

### Views of Supreme Court

"It is yet to be articulated that the people have a right against the adverse effects of climate change. This is perhaps because this right and the right to a clean environment are two sides of the same coin. As the havoc caused by climate change increases year-by-year, it becomes necessary to articulate this as a distinct right. It is recognised by Articles 14 (right to equality) and 21 (right to life)," the Supreme Court observed in a judgment released on April 6.

The judgment came in a case connected with the survival of the endangered Great Indian Bustard species.

### Climate change and human rights

Linking the right against climate change to Articles 21 and 14, Chief Justice Chandrachud said the rights to life and equality cannot be fully realised without a clean, stable environment.



The court also highlighted the interconnection between climate change and various human rights, including the right to health, indigenous rights, gender equality, and the right to development

The judgment noted that the right to a healthy environment, safe from the ill-effects of climate change, was a “fundamental human right”.

Relevance: GS Prelims & Mains Paper II; Governance

Source: The Hindu

## 6. The citizen's 'climate rights'

### Why in News?

The Supreme Court has ruled that people have a “right to be free from the adverse effects of climate change”, which should be recognised by Articles 14 and 21 of the Constitution.

The judgment by a three-judge Bench headed by Chief Justice of India (CJI) D Y Chandrachud, was delivered on March 21 in a case relating to the conservation of the critically endangered Great Indian Bustard (GIB).



The Bench noted that the intersection of climate change and human rights has been put into sharp focus in recent years, underscoring the imperative for states to address climate impacts through the lens of rights.

### What was the case before SC?

The apex court's ruling came in a writ petition filed by retired government official and conservationist M K Ranjitsinh, seeking protection for the GIB and the Lesser Florican, which are on the verge of extinction.

The plea sought, among other things, the framing and implementation of an emergency response plan for the protection and recovery of the GIB —

including directions for installation of bird diverters, an embargo on the sanction of new

projects and renewal of leases of existing projects, and dismantling power lines, wind turbines, and solar panels in and around critical habitats.

### **Appeal for modification of 2021 order**

In the hearing held in March, the apex court was considering an appeal for the modification of its April 19, 2021 order, which imposed restrictions on the setting up of overhead transmission lines in a territory of about 99,000 sq km in the GIB habitat in Rajasthan and Gujarat.

The Ministry of Power, the Ministry of Environment, Forest and Climate Change, and the Ministry of New and Renewable Energy had filed the application to modify the 2021 order on grounds that it had adverse implications for India's power sector, and that undergrounding power lines was not possible.

The three ministries also cited India's commitments on transition to non-fossil fuel energy sources vis-à-vis the Paris climate treaty as one of the key grounds for seeking a modification of the 2021 order.

### **What did the SC say?**

The apex court modified its April 2021 order giving directions for underground high-voltage and low-voltage power lines, and directed experts to assess the feasibility of undergrounding power lines in specific areas after considering factors such as terrain, population density, and infrastructure requirements.

The ruling acknowledged that its earlier directions, "besides not being feasible to implement, would also not result in achieving its stated purpose, i.e., the conservation of the GIB". In essence, the ruling put the apex court's stamp of approval on the Union's affidavit on steps "for the conservation and protection" of the GIB.

However, the court also made several other observations on climate change, and on litigation in other jurisdictions.

### **How have the Courts interpreted Article 21 earlier?**

The SC has historically acknowledged Article 21 as the heart of the fundamental rights in the Constitution. The SC has said that the right to life is not just mere existence, but that it includes all rights that make it a meaningful and dignified existence for an individual.

In the 1980s, the SC read the right to a clean environment as part of Article 21. A bundle of rights — including the right to education, the right to shelter (in the context of slum dwellers), the right to clean air, the right to livelihood (in the context of hawkers), and the right to medical care — have all been included under the umbrella of Article 21.

However, these "new" rights cannot be immediately materialised or exercised by a citizen. Despite the plethora of environmental rights cases, clean air is still a pressing concern. Such rights are actualised only when policies are framed and legislation enacted.

### **Then, what is the benefit of recognizing rights under Article 21?**

Their express recognition as fundamental rights helps in two key aspects. First, as a nudge to Parliament to take note of these issues and second, by making constitutional courts an avenue for citizens to litigate these issues in future.

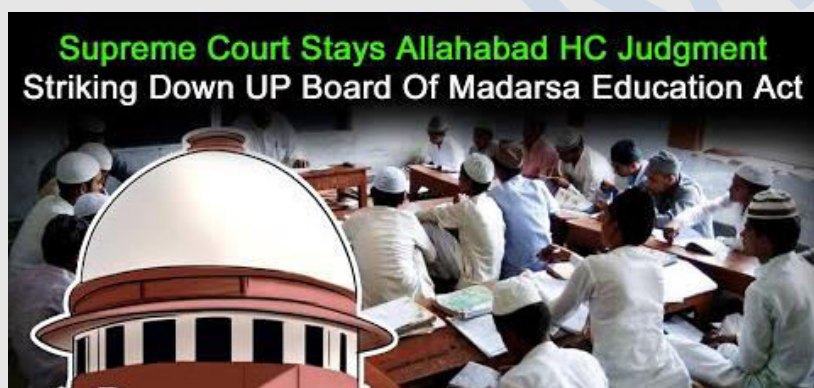
While dwelling on India's international commitments to mitigate the impact of greenhouse gas emissions, the apex court also noted that despite many regulations and policies to address the adverse effects of climate change, there was no single legislation relating to climate change and attendant concerns.

However, the absence of such legislation, the Bench said, did not mean that Indians do not have a "right against adverse effects of climate change".

Relevance: GS Prelims & Mains Paper II; Governance

Source: Indian Express

### **7. Why did the Supreme Court stay a ruling of the Allahabad High Court on the U.P. Board of Madrasa Education Act 2004? What was the aftermath of the U.P.'s government's survey on madrasas?**



#### **Why in News?**

This past week, the Supreme Court stayed a ruling of the Allahabad High Court on the U.P. Board of Madrasa Education Act 2004 calling it an infringement of the fundamental rights guaranteed under the Constitution. The top court

also found the High Court's ruling to be against the principles of secularism. The decision gave massive relief to around 17 lakh students of the State's 16,000 recognised madrasas.

#### **What happened?**

Earlier, the High Court had dubbed the U.P. Board of Madrasa Education Act "unconstitutional" and asked for immediate closure of the madrasas. It called for the relocation and integration of the madrasa students with regular schools. The Supreme Court called the High Court's ruling "not warranted" and imposed a stay on the relocation.

The three-judge Supreme Court Bench, headed by Chief Justice D.Y. Chandrachud, scrutinised the provisions of the Act and made it clear that "the object and purpose of the statutory board which is constituted under the Act is regulatory in nature." The apex court did not agree with the High Court's ruling on educational institutions funded by the State being prohibited from imparting religious instruction. The Bench cited a 2002 judgment clarifying the term "religious

instruction.” The judges felt that striking down the 2004 Act was not the solution towards making a provision for secular education alongside religious instruction.

### **Why are madrasas in the spotlight?**

Uttar Pradesh has around 25,000 madrasas of which 16,500 are recognised by the U.P. Madrasa Education Board. Only 560 madrasas receive grants from the government though there have been complaints in recent years of delayed payment and arrears in salaries. The irregular madrasas are usually strapped for resources and manage to provide only elementary learning. The latest case in the Supreme Court is in continuation of a long trail of madrasas being the focus of attention. In 2022, the U.P. Government ordered a survey of the State’s madrasas to find out the number of unrecognised or illegal madrasas.

Though the findings of the complete survey were not made public, the State government caused a ripple in Muslim education circles when in October 2023, irregular madrasas operating in the western U.P. township of Muzaffarnagar were ordered to be closed within 24 hours. The Basic Education Department issued a notice to these educational institutions stating that unregistered madrasas operating in Muzaffarnagar would be subject to a daily penalty of ₹10,000 if they were not able to submit relevant documents within three days of the notice.

The move upset minority organisations, with the Jamiat Ulama-i-Hind calling the move discriminatory. “These madrasas provide free education to around 10,000 students. They will not have the resources to pay the fine. The order seems targeted at a particular community,” a Jamiat official had then said. Around the same time, a Special Investigation Team (SIT) was formed to investigate the sources of the madrasas’ alleged foreign funding. The SIT claimed that the madrasas had received over ₹100 crore from abroad over the past three years though evidence was not shared with the public.

### **What next?**

Madrasas have been under the spotlight since the Yogi Adityanath government was first sworn in 2017. At the time, the government had instructed madrasas to hoist the national flag and sing the national anthem on Independence Day. The circular issued by the U.P. Madrasa Shiksha Parishad also asked these schools to videograph and photograph the Independence Day function as evidence. The order upset many madrasas who claimed it called into question their patriotism.

Meanwhile, the Supreme Court Bench on the U.P. Board Madrasa Education Act case has asked the State to file its counter affidavit before May 31. It has also given the appellants time till June 30 to respond to the State’s views. It will hear the arguments in the second week of July.

Relevance: GS Prelims & Mains Paper II; Governance

Source: The Hindu

## **8. Why Supreme Court’s curative petition relief for Delhi Metro is significant**


### **Why in News?**



The Supreme Court ruled that the Delhi Metro Rail Corporation (DMRC) will not have to pay nearly Rs 8,000 crore to the Delhi Airport Metro Express Private Limited (DAMEPL), an Anil-Ambani owned Reliance Infrastructure company, which was awarded by a 2017 arbitral award. The ruling overturned the Supreme Court's September 2021 judgment that upheld the arbitral award. A month after the 2021 judgment, the court had dismissed a plea seeking a review — the final step in the appeal process after which a ruling of the highest court attains finality.

The court has now exercised its "extraordinary powers" in a curative writ petition to correct a "fundamental error" in its judgment.

**JOURNEY OF THE DISPUTE**



Reliance-led consortium had won the bid to operate the Airport Metro. *File*

<b>2008:</b> DAMEPL wins 30-year build, operate, transfer contract	<b>MAR 2018:</b> Single judge Delhi HC Bench refuses to interfere with arbitral award.
<b>FEB 2011:</b> Line becomes operational	<b>JAN 2019:</b> Two-judge Bench of the HC sets aside the arbitral award
<b>APR 2012:</b> DAMEPL seeks to delay payment to DMRC	<b>SEPT 2021:</b> Two-judge SC Bench restores arbitral award
<b>OCT 2012:</b> DAMEPL formally initiates termination of agreement	<b>NOV 2021:</b> SC dismisses review petition against its judgment
<b>JUNE 2013:</b> Arbitration proceedings begin	<b>AUG 2022:</b> Centre files curative petition
<b>MAY 2017:</b> Arbitration panel decides in favour of DAMEPL	<b>APR 2024:</b> SC restores 2019 HC ruling

### History of the case

In 2008, the DMRC entered into a public-private partnership with DAMEPL, a consortium led by Reliance Infrastructure Ltd, for the construction, operation, and maintenance of the Delhi Airport Metro Express. While DMRC acquired the land and bore the cost of construction, the consortium was to design, install, and commission the railway systems in two years. Thereafter, until 2038, DAMEPL was to maintain the line and manage its operations, while paying a "concession fee" to DMRC.

However, a year after the line became operational, the consortium asked DMRC if it

could defer payment of the concession fee. Among the reasons cited were delays in providing access to the stations by DMRC, and that retail activity had not picked up on the line. This triggered a dispute between the consortium and the Union Ministry of Urban Development.

Subsequently, barely a year into its operations, the line was shut following a complaint from DAMEPL that it was "unsafe to operate". The consortium triggered a termination of its agreement alleging there were technical problems in the civil structure of the Metro corridor, for which DMRC was responsible as per the agreement.

Before operations were finally handed over to DMRC in June 2013, DAMEPL and DMRC made a joint application before the Commissioner of Metro Railway Safety for reopening the line. While the line started functioning again, the government and Reliance began a battle before an arbitration tribunal for losses due to cancellation of the agreement.

### **Rulings of courts**

In 2017, the panel of three arbitrators decided in favour of Reliance and ordered DMRC to pay nearly Rs 8,000 crore. This included termination payment of Rs 2,782.33 crore, interest to the tune of 11%, bank guarantees, and expenses incurred in operating the Metro for a few months between the decision to terminate the agreement and the date on which operations were handed over to DMRC.

When the consortium sought to enforce the award, DMRC moved the Delhi High Court. A single judge Bench of the HC refused to interfere with the award, and directed DMRC to deposit 75% of the award in an escrow account.

The government then moved an appeal before a two-judge (division) Bench of the High Court. In 2019, the division Bench overturned the arbitral award, ruling in favour of DMRC. The Bench held that the tribunal had not considered some key facts, and had left some ambiguity in interpreting when the termination of the agreement took place.

This led DAMEPL to approach the Supreme Court against the High Court verdict. The SC heard the case, and in September 2021 reversed the HC verdict. A Bench comprising Justices L Nageswara Rao and S Ravindra Bhat underlined that courts must exercise restraint when interfering with arbitral awards.

This is crucial, since arbitration is an institutionalised alternative form of dispute resolution. It is devised and regulated by a 1996 statute to ensure speedy disposal of cases, especially commercial matters which suffer due to delays in the judicial system. The legislation and a plethora of SC judgments underline this aspect of minimum judicial interference with arbitral awards.

In November 2021, the SC dismissed a review petition against its judgment. Almost eight months later, DMRC filed a curative writ petition, the last resort to correct a judgment of the Supreme Court.

### **Curative jurisdiction**

A curative writ petition as a layer of appeal against a Supreme Court decision is not prescribed in the Constitution. It is a judicial innovation, designed for correcting “grave injustices” in a ruling of the country’s top court.

The SC first articulated the concept of a curative writ in *Rupa Ashok Hurra vs Ashok Hurra* (2002). If there was a significant miscarriage of justice due to a final decision of the Supreme Court, could the court still correct it? On one hand was the issue of finality and closure to a case, and on the other hand was the substantive question of rendering justice in its true sense. In answering this question, the SC said that its “concern for rendering justice in a cause is not less important than the principle of finality of its judgment”.

However, curative writs are sparingly used. There are narrow, mostly procedural grounds that permit the filing of a curative writ. A claim must be made that principles of natural justice were not followed — for example, that a party was not heard, or that a judge was biased, or had a

conflict of interest. These petitions need to be approved by a senior advocate designated by the court.

Curative writs are filed mostly in death penalty cases. The SC in the Yakub Memon case (2015) and the Delhi gang rape convicts case (2020) dismissed curative writs challenging death sentences. In 2023, in the Bhopal gas tragedy case, the SC refused to exercise its curative powers to enhance the compensation provided to victims that was deemed grossly inadequate.

### **After the judgment**

The restoration of the 2019 position means that DMRC does not have to pay the arbitral award. About Rs 2,600 crore that DMRC had deposited with the High Court in an escrow account will be restored.

Allowing a curative petition at the government's instance almost two and a half years after its final verdict marks a significant moment in the way the court has exercised its vast powers. Lawmakers often argue for judicial restraint, especially with regard to the exercise of powers that the court has given to itself by going beyond the letter of the Constitution. While the government had high stakes in this case, such exercise of the curative jurisdiction could have a bearing on investor confidence.

Relevance: GS Prelims & Mains Paper II; Governance

Source: Indian Express

## **9. New FDTL rules: Why DGCA has asked airlines to indicate their implementation timelines**

### **Why in News?**

Aviation safety regulator Directorate General of Civil Aviation (DGCA) has written to Indian airlines, asking when they would be in position to implement the new Flight Duty Time Limitation (FDTL) rules, which include measures for stress management and fatigue among pilots.

It follows a hearing in the Delhi High Court earlier this month, where the DGCA was asked to indicate the tentative date for the new regulations' implementation.

Initially supposed to be enforced from June 1, the rules were deferred due to stiff resistance from airlines. The DGCA has been asked to indicate the likely implementation date in the next hearing.

### **What's behind the deferment of new FDTL rules?**

DGCA on March 26 deferred the planned June 1 implementation of new FDTL rules. The aviation safety regulator announced the postponement without mentioning a new implementation timeline. It allowed carriers to continue following the existing rules until their own schemes are approved, in line with the new FDTL rules.



Airlines had been voicing concerns that implementing the new rules — aimed at better fatigue management through changes like longer weekly rest periods and fewer night landings as compared to the current norms — would result in a requirement of around 20-25 per cent more pilots. They argued that hiring, training, and releasing pilots for duty takes several months.

The FIA had said that carriers would have to cut capacity by 15-20 per cent if the new rules, notified in January, were implemented from June 1. In February, the Federation of Indian Airlines (FIA), which comprises IndiGo, Air India, and SpiceJet, had written to the DGCA seeking postponement of the new rules by a year.

### **Why are pilots dissatisfied?**

While the deferment was a win for the airlines, it left a large number of pilots and their associations dissatisfied. What seemed to have added to their discontent was the flexibility given to airlines, with the regulator not even mentioning a fresh deadline to comply with the new rules.

Flight crew fatigue and exhaustion are seen as major factors contributing to human errors in aircraft operations and can lead to catastrophic accidents. Also, fatigue and exhaustion can be dangerous for the health of the crew.

The DGCA had, in fact, cited a few incidents of pilot deaths ostensibly due to exhaustion while pushing airlines to adhere to the new regulations from June 1.

Across airlines, pilots have been expressing concerns over growing fatigue and stress as a result of being stretched to their limits in terms of flying hours, haphazard and ill-planned rostering, and unusually high crew utilisation levels.

This is because carriers are competing to rapidly expand their networks. Some of these issues were among the reasons behind numerous Vistara pilots calling in sick last week, leading to network-wide cancellations and delays.

### **What do the new FDTL rules say?**

As per the new rules, among other changes, mandatory weekly rest period for pilots shall increase to 48 hours from the current 36. Their night flying would also come down through a combination of extension of definition of “night” by an hour and curtailing the number of night landings allowed to be made by the same crew.

Complying with these rules would require airlines to either hire and train more pilots or scale back operations. Airline officials lament that a hard deadline that gives only a few months to the carriers would impact their operations and business.

Those in favour of expeditious implementation argue that airlines had enough time until June 1, as the new rules were notified early January. Further, they say the carriers were sounded out much before that by the DGCA through the consultative process.

Relevance: GS Prelims & Mains Paper II; Governance

Source: Indian Express

## 10. What is Pashmina March? Why has Sonam Wangchuk suspended it again?

### Why in News?

Two days after he announced "Pashmina March 2" by a "small number of people" for a "week to 10 days" beginning April 17, climate activist Sonam Wangchuk has announced that "Ladakh's Pashmina March" has been "suspended again".

Wangchuk, who held a protest fast for 21 days in March seeking protection for the fragile ecology and local culture of Ladakh, had first announced a Pashmina March to Changthang on the border with China on April 7, but had subsequently called it off citing the "risk of potential violence".



### Who is Wangchuk, and why is he protesting?

Wangchuk is an environmentalist, scientist, and innovator from Leh, who has raised concerns around ecological issues in Ladakh for the last three decades. Over the years, he has been the recipient of a large number of honours in India and abroad, including the Ramon Magsaysay Award in 2018.

On March 6, two days after talks between the Union Ministry of Home Affairs (MHA) and a High Powered Committee (HPC) from Ladakh reached an impasse, Wangchuk, along with some others, began a protest fast in Leh.

For 21 days, he survived only on water and salt, and slept outdoors in below-freezing-point temperatures. Wangchuk is demanding the inclusion of Ladakh in the Sixth Schedule of the Constitution, which provides for special provisions for the administration of tribal areas in Assam, Meghalaya, Tripura, and Mizoram, to help protect the fragile environment and culture of the Union Territory.

### **What is the Pashmina March that Wangchuk wants to hold?**

The Pashmina March is intended to spotlight the loss of grazing pastures for shepherds in the Leh region. According to Wangchuk, the shepherds who have traditionally reared the famed Pashmina goats for the expensive and highly sought-after wool the animals produce, have been losing pastures over the last few years.

According to Wangchuk, there are two main reasons for this. One, the loss of land to corporations (he does not name any) for setting up large industrial units or solar plants; and two, the activities of the Chinese along the Line of Actual Control (LAC).

Wangchuk says that over the last four years, shepherds have on several occasions run into Chinese soldiers who do not allow them to go beyond a certain point into the grounds where they have traditionally taken their goats to graze. These new boundaries that the Chinese have been enforcing are several kilometres inside the territories where the shepherds have for long taken their animals, he says.

Wangchuk had planned his Pashmina March along with leaders of shepherding communities and “at least 10,000 people” to show how much land had been lost following the standoff.

### **What are the other reasons for the Ladakhis’ protests in and outside the region?**

Immediately after the constitutional changes of August 2019 by which the special status of Jammu and Kashmir was revoked and the erstwhile state was split into two UTs, there was happiness in Leh since the region had been demanding UT status and separation from the administrative set up of J&K.

However, as the new set-up under the Lieutenant Governor began to take shape in Ladakh, Ladakhis began to feel the loss of significant powers of the autonomous hill development councils, and the shortage of jobs after being delinked from the J&K recruitment boards. Wangchuk’s protests have added the issues of land loss due to the Chinese aggression and apprehensions of a corporate takeover to this existing disquiet.

### **What is the High Powered Committee (HPC) involved in the negotiations on these issues?**

In Kargil district, which has almost always aligned itself with J&K, protests began almost immediately after the changes of August 5, 2019. After the unhappiness in Leh too took root,

both these regions of Ladakh came together to form two pressure groups — Apex Body Leh (ABL) and Kargil Democratic Alliance (KDA). Both ABL and KDA are joint platforms of social, political, and religious bodies in Leh and Kargil, and enjoy a lot of support from the people of the region.

The HPC was constituted by the MHA to address the concerns of Ladakhis after their protests began to echo in Jammu and eventually in New Delhi. Spearheaded by the ABL and KDA, Ladakhis sought protections for their land, jobs, and culture, and sought to elect their own representatives as a full state.

After more than 10 months of back-channel negotiations, in November 2023, the MHA issued an order constituting the 15-member HPC, chaired by MoS for Home Nityanand Rai. The HPC was supposed to discuss measures to protect Ladakh's "unique culture and language", considering its geographical location and strategic importance. Its mandate included "ensuring the protection of land and employment for the people of Ladakh".

### **What happens now?**

To stop the April 7 Pashmina March, the Ladakh administration imposed Section 144 CrPC and put curbs on the Internet. Wangchuk alleged that some people were detained overnight, and called off the march.

On April 14, Wangchuk announced a second attempt at the Pashmina March. However, this too has been suspended, allegedly after "pressure from the administration". Wangchuk has said that permission was given for only a single day's march, and only as far the Indian Army allows.

Relevance: GS Prelims & Mains Paper II; Governance

Source: Indian express

## **11. What is the Bhojshala-Kamal Maula complex dispute?**

### **Why in News?**

On March 22, the 13th century Bhojshala-Kamal Maula complex in Madhya Pradesh's Dhar district became the latest site for a "scientific survey" by the Archaeological Survey of India (ASI). The action followed the Madhya Pradesh High Court ruling which had, on March 11, ordered the ASI to conduct a survey of the premises within six weeks. The complex is contested by Hindus and Muslims as the Vagdevi temple and Kamal Maula Masjid, respectively.

### **What has the Supreme Court said?**

Even as a 15-member ASI team along with the district administration and local police began the survey of the entire complex, the Supreme Court issued a word of caution on April 1. The Bench said no physical excavation that would alter the character of the premises should be carried out. The court's cautionary note followed the mosque's appeal against the High Court

order. The top court also ordered that no further action should be taken on the outcome of the excavation without its permission.

### What has been the status quo?



The Bhojshala-Kamal Maula temple-mosque compound has had a truce for the past 20 years. Following an arrangement in 2003, Hindus perform puja here on Tuesday while Muslims perform namaaz on Friday. Despite the occasional hiccup, the system worked fine until recently when a little-known outfit by the name of 'Hindu Front for Justice' petitioned the High Court, claiming the complex was a temple built in 1034 and the mosque here was constructed during the reign of Sultanate king, Alauddin Khalji in the 13th century by "destroying and dismantling ancient structures of previously constructed Hindu temples". Dhar itself has been a city of prominence during the time of the Paramaras, the Marathas and the Delhi Sultanate.

The Muslims, however, claim no existing place of worship was demolished by Maula Kamaluddin Chishti, a sufi, after whom the mosque was named. He was a disciple of Nizamuddin Auliya and is said to have migrated to Dhar in 1291. He preached here for around 40 years. His tomb, built next to the mosque inside the complex here, is frequented by people of both faiths. They claim too that the ASI mentioned the Kamal Maula mosque in its records in 1902, and allege that the controversy began the same year when Kanshi Ram Lele, an education officer, found Sanskrit shlokas written on the floor of the mosque, and concluded it was the mythical Bhojshala.

Relevance: GS Prelims & Mains Paper II; Governance

Source: The Hindu

## 12. The story of indelible ink, used in Indian elections since decades, and who makes it

### Why in News?

With the first phase of voting for the 2024 Lok Sabha elections beginning on April 19, the classic symbol of Indian polls is visible everywhere – a left hand with only its index finger extended, marked by a purple-black indelible ink.





Mysore Paints & Varnish Ltd., a Karnataka Government Undertaking which is the sole manufacturer of the ink in India, told that around 26.5 lakh phials or small bottles (with a capacity of 10 ml each) will be made for this election cycle.

Devised to prevent a person from casting more than one vote, the ink has been used in Indian elections for decades. The India-manufactured has also travelled to other parts of the world to be used in other elections.

### **Been in use for decades, with little change**

Today, once a voter has her credentials checked at the polling booth, and before she casts her vote by pressing a button on the Electronic Voting Machine (EVM), the indelible ink is applied on her finger. This has been the case for decades, though the mode of voting has changed.

The Representation of the People Act (RoPA) of 1951 mentions the ink. Section 61 states that rules may be made under the Act "for the marking with indelible ink of the thumb or any other finger of every elector who applies for a ballot paper or ballot papers for the purpose of voting at a polling station before delivery of such paper or papers to him."

Why papers? Because before EVMs, ballot papers existed at polling stations. They contained the list of contesting candidates alongside their party symbols and names. Voters had to mark their preference on the paper and then drop it in ballot boxes to vote.

Before being given the ballot paper, a voter's index finger would be marked with the ink. The RoPA also speaks of rules being enacted "for prohibiting the delivery of any ballot paper" if a person already has a mark "on his thumb or any other finger..."

A report of the Election Commission of India (ECI) on the very first general elections (1951-52) said the ink was then applied with a glass rod. "That the ink proved quite satisfactory is evidenced by the fact that it is being used at many Local Bodies' elections as well," it said.

### **What makes the ink indelible?**

Indelible ink contains silver nitrate. It is a colourless compound which becomes visible when exposed to ultraviolet light, including sunlight.

The higher silver nitrate's concentration, say around 20 percent, the higher will be the ink's quality. For up to 72 hours after application it can remain resistant to soap, liquids, home-cleansing, detergents, etc.

### **Who makes the indelible ink for Indian elections?**

The indelible ink was first manufactured at the ECI's request by the government's Council of Scientific & Industrial Research (CSIR).

The MyGov website says, "It was to counter the challenge of fraudulent voting" that research work on formulating the ink began in the 1950s by scientists in the erstwhile Chemical Division. It was later patented by the National Research Development Corporation (NRDC), New Delhi. Mysore Paints & Varnish Ltd. has been licensed to manufacture the ink and has been in the business since 1962. Earlier called Mysore Lac & Paint Works Ltd, it was established in 1937 by Nalwadi Krishnaraja Wodeyar, then the Maharaja of Mysore.

Currently, the indelible ink is "exported to more than 25 countries that include Canada, Ghana, Nigeria, Mongolia, Malaysia, Nepal, South Africa and the Maldives."

However, the procedure of application can differ in each election. "For example, in Cambodia and the Maldives, voters need to dip his/her finger into the ink while in Burkina Faso the ink is applied with a brush, and nozzles are used for its use in Turkey".

Relevance: GS Prelims & Mains Paper II; Governance

Source: Indian Express

### 13. Why are sugary processed foods harmful?

#### Why in News?

Over the past week, the spotlight has returned on high sugar content in flavoured malt-based milk powders and baby food. Government authorities are warning against branding such items as "healthy" and have called out the allegedly misleading promotion and marketing tactics while loading products with added sugar.

#### Why is it problematic to label malt-based, sugary milk products as 'health' drinks?

On analysing the product in question, (a drink like Bournvita, for example,) it is observed that it contains 86.7g of carbohydrates per 100g, of which 49.8g is sugar content. Of the total sugars, 37.4g is sucrose or added sugar. For every recommended per serve of 20g chocolate powder, the consumer is downing nearly 10g of total sugar.

Apart from added sugar, the process of malting, which involves germinating cereals, drying, roasting and powdering them, also produces sugar. Malting was a process originally used to produce single malt whiskey, and is also used in making malt-based milk beverages.

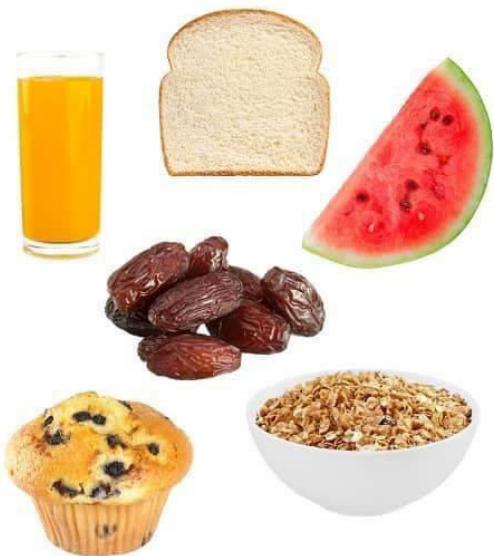

Once you germinate a grain, the starch in the grain breaks down to sugar by the action of a group of enzymes called amylase. When you roast it, it develops a nice flavour as that sugar gets caramelised. Maltose is nothing but two units of glucose, a form of sugar, bonded together. Apart from added sugar, the chocolate powder contains maltodextrin, liquid glucose, maltose generated from malting process of cereals and so on.

#### What is FSSAI's stand on sugar content?

In its Food Safety and Standards (Advertising and Claims) Regulations 2018, the FSSAI said that only if total sugar is less than 5g per 100g in a product, it can claim to be 'low on sugar.' Any product which is 'low on sugar,' can potentially be 'healthy.' But when products do not



fulfil this requirement, and still advertise or market their products as 'health drinks,' it is problematic. This is because if a child, for instance, takes four servings of this so-called drink, he or she will end up consuming 40 grams of sugar, which is higher than the World Health Organization's advised threshold of consuming 25 grams or six teaspoons of sugar per day. In Indian households, one often adds extra teaspoons of sugar to a chocolate-powder drink too.

<h1>HIGH</h1> <h2>BLOOD SUGAR FOODS</h2>	<h1>LOW</h1> <h2>BLOOD SUGAR FOODS</h2>
	
<p>Glycemic index score &gt;70 Cause energy spikes + crashes High blood sugar leads to diabetes</p>	<p>Glycemic index score &lt;15 Longer lasting energy Reduce disease risk</p>

### What is the controversy over baby food?

A closer look at the ingredients of Wheat Apple Cherry baby cereal for kids from eight months up to 24 months marketed by Nestlé under the brand name Cerelac in India reveals that it contains 24 grams per 100 grams of total sugars derived from milk solids, maltodextrin, dextrose and so on.

For a one to two year old child, the company recommends feeding twelve scoops or 100 grams of baby food every day. This means the baby consumes 24 grams of sugar each day. This is a harmful practice, say experts. A baby is only familiar with the taste of breast milk. Lactose, which is a naturally occurring form of sugar, is less sweet. When a child is shifted from breast milk to complementary foods, extra sugar is being fed. Extra sugar in a young baby's diet creates unnecessary pressure on the baby's pancreas, leading to production of excess insulin which may lead to diabetes and obesity in future. Addition of ingredients like maltodextrin to improve flavour and texture is harmful as the white starchy powder of maltodextrin has a higher glycemic index (GI) than table sugar. GI is a measure of how quickly a food causes blood sugar to rise. The excess sugar gets converted into triglycerides, a form of fat which gets stored in liver leading to fatty liver and insulin resistance that causes diabetes.

An estimated 101.3 million people in India could be diabetic, a study co-published by the Indian Council of Medical Research stated.

### **Will an FSSAI probe be enough to curb the practice of misleading labels?**

In September 2022, the FSSAI put out a draft notification which stated that high fat, sugar, salt (HFSS) food means a processed food product which has high levels of saturated fat or total sugar or sodium.

The draft notification was released to explain what a HFSS food would consist of and how to warn consumers against it on front-of-the-pack labelling of the food packet or beverage bottle. It implied that if a product derives more than 10% of total energy (kcal) from sugar and/or saturated fat, then the product was high on fat and/or sugar.

However, the FSSAI has kept the regulation open-ended on whether companies need to declare fat, sugar and salt content on the front of the pack or not. It has also batted for 'health rating stars,' and not warning labels.

"Warning labels are upfront and inform the consumers if a product is high on fat, salt or sugar. Health stars can be misleading. A consumer does not have the time or knowledge to calculate if a product is high on sugar, based on the FSSAI's definition," said an expert.

### **What is the way forward?**

According to Food Safety and Standards (Foods for Infant Nutrition) Regulations, 2019, sugar is allowed in milk cereal-based complementary food. The regulation says that lactose and glucose polymers shall be preferred carbohydrates for food and infant nutrition. Sucrose and/or fructose shall not be added, unless needed as a carbohydrate source, and provided the sum of these does not exceed 20% of total carbohydrate. The regulation permits sugar, hence the regulation needs to be re-looked.

Hence, the first step, would be to bring about a comprehensive regulation to clearly define what is 'healthy,' and 'unhealthy,' which encompasses all beverages and food products. The underlying problem is marketing and pushing it to unsuspecting consumers.

A Hindustan Unilever Limited annual report of 2022 states that the company partnered with the Zilla Parishad of Pune in the midday meal programme to add Horlicks, cited as a 'health food drink,' to existing take-home rations, which were planned to be provided to children across 4,600 anganwadi centres covering 1.45 lakh children aged between three and six.

Also, under the Infant Milk Substitutes Act, infant foods cannot be promoted via advertisements. However, rules are flouted, and social media influencers often promote baby food.

Relevance: GS Prelims & Mains Paper II; Governance

Source: The Hindu

#### **14. SC allows abortion of 30-week foetus: What is the law on abortions, and what does the court consider?**

##### **Why in News?**

The Supreme Court has allowed a 14-year-old victim of sexual assault to terminate her almost 30-week pregnancy. A Bench led by Chief Justice of India (CJI) D Y Chandrachud on Monday (April 22) said it was a "very very exceptional case where we have to protect her (the girl)".



#### **SC Allows Minor Rape Survivor To Abort 30-Week Pregnancy**

A Bench noted that a report submitted by the dean of a municipal hospital in Mumbai on the case had "clearly opined that the continuation of the pregnancy against the will of the minor may impact negatively on the physical and mental well-being of a minor who is barely 14 years old".

Is it unusual for courts to allow an abortion this late into a pregnancy? Under what circumstances is termination allowed?

##### **What is India's law on abortion?**

The Medical Termination of Pregnancy Act, 1971 (MTP Act) allows the termination of pregnancy under the following circumstances.

Upto 20 weeks, termination is allowed on the advice of one doctor. In case of a pregnancy of 20-24 weeks, abortion is allowed as an exception, but only under certain categories, after two registered medical practitioners have evaluated the right to seek termination.

Section 3B of the Rules under the MTP Act lists seven categories of forced pregnancies, including rape in case of minors or sexual assault; women with disabilities; or when there is a change in marital status of women during pregnancy.

After 24 weeks of pregnancy, the law requires that a medical board be set up in "approved facilities", which may "allow or deny termination of pregnancy" only if there is substantial foetal abnormality.

### **Has the court allowed termination beyond this period?**

Yes, it has, in certain cases. On February 1 this year, the Supreme Court refused to allow a 26-year-old woman to terminate her 32-week pregnancy after the Delhi High Court first allowed the abortion and then recalled its order following a plea by the Centre to consider protecting the right to life of the unborn baby.

On October 16, 2023, a three-judge Bench led by the CJI had rejected a married woman's plea to abort her third pregnancy who had pleaded that it was unplanned, and that she did not have the resources or the mental frame to support the child.

Earlier, on August 21, 2023, a Bench headed by Justice Nagarathna had held a special sitting on a Saturday (when the court is shut) to allow termination of pregnancy of a rape survivor whose pregnancy was at 27 weeks and three days.

There are also instances in which a court has overruled the decision of the medical board to allow termination. In 'Bhatou Boro v. State of Assam' (2017), Gauhati High Court overruled the medical board's refusal to give an opinion for termination of pregnancy of over 26 weeks of a minor rape survivor.

### **Is there a question of 'foetal viability' in abortion in India, and do the rights of an unborn child matter in the same way as in many jurisdictions abroad?**

Last year, the CJI-led Bench made observations saying both that the rights of a woman "must trump" when it comes to abortion, and that there was a need to "balance out the rights of the unborn child".

While courts have read the MTP Act liberally, the test of "foetal viability" as a benchmark to allow abortion is new in India. The landmark 1973 US Supreme Court verdict in 'Roe v Wade' that made abortion a constitutional right allowed abortion up to the point of foetal viability, that is, the time after which a foetus can survive outside the womb.

Foetal viability in 1973 was pegged at 28 weeks (7 months), which is now with scientific advancement lower at 23-24 weeks (6 months). It has been argued, therefore, that foetal viability is an arbitrary standard.

### **Criticism of Indian law**

The criticism of India's law is that the decision to terminate after 20 weeks is shifted to doctors and not the woman. While this aspect is not challenged in court, frequent cases of women approaching the court at the eleventh hour point to a legislative gap.

The Indian legal framework on reproductive rights tilts to the side of the woman's autonomy to decide and choose more than towards the rights of the unborn child.

Relevance: GS Prelims & Mains Paper II; Governance

Source: Indian express

## **15. The story of Doordarshan's iconic logo, now in controversy over its colour**

### **Why in News?**

The change in the colour of Doordarshan's logo from ruby red to saffron last week triggered criticism from opposition parties who accused the public broadcaster of adopting a colour closely associated with the ruling BJP, especially because the change was made in the middle of the election process.



Doordarshan (DD) said the change was only one of visual aesthetic, and officials pointed out that when the broadcaster went all-colour in the early 1980s, the logo was saffron on a green background.

This is the story of the evolution of the DD logo from its black and white days to the bright saffron of today.



### DD's early days

An experimental broadcast started on September 15, 1959, using a small transmitter and a makeshift studio. Daily transmission began in 1965 as part of All India Radio. The TV service was extended to Mumbai and Amritsar in 1972, and to seven other states in 1975.

In those days of black and white transmission, the first logo, the 'DD Eye' as it was called, was colour-agnostic too. It was only during the 1982 Asian Games in Delhi that the logo went colour — orange or saffron against a dark green background, which was perhaps a nod to the colours of the National Flag.

The signature Doordarshan tune was composed by sitar virtuoso Pandit Ravi Shankar and the master shehnai player Ustad Ali Ahmed Hussain Khan, and was aired for the first time on April 1, 1976. Both the tune and logo went on to achieve iconic status with the audience.

### The original 'Eye'

The original 'Eye' logo was designed by Devashis Bhattacharyya of the National Institute of Design (NID). The logo was picked by Prime Minister Indira Gandhi (who was also Minister for Information & Broadcasting) in the early 1970s out of a few design options.

Relevance: GS Prelims & Mains Paper II; Governance

Source: Indian Express

## 16. Why was the BJP candidate declared winner in Surat?



### Why in News?

The BJP's candidate from the Surat Lok Sabha constituency in Gujarat has been declared elected unopposed. This follows the rejection of the nomination paper of the candidate set up by the Congress party and the withdrawal of nominations by other candidates.

### What is the law for nomination?

Section 33 of the Representation of the People Act, 1951 (RP Act) contains the requirements for a valid nomination. As per the RP Act, an elector above 25 years of age can contest Lok Sabha election from any constituency in India. The proposer(s) of the candidate should however be elector(s) from that respective constituency where the nomination is being filed. In case of a recognised party (national or State), the candidate needs to have one proposer. Candidates set up by unrecognised parties and independents need to be subscribed by ten

proposers. A candidate can file up to four nomination papers with different set of proposers. This is to enable the acceptance of nomination of a candidate even if one set of nomination paper is in order.

Section 36 of the RP Act sets out the law with respect to the scrutiny of nomination papers by the Returning Officer (RO). It provides that the RO shall not reject any nomination for a defect that is not of a substantial character. However, it specifies that signature of the candidate or proposer found not genuine is a ground for rejection.

### **What is the current issue?**

In the present case, the candidate of the Congress party for the Surat constituency, Nilesh Kumbhani had filed three sets of nomination papers. The proposers for these three nomination papers were his brother-in-law, nephew and business partner. A BJP worker objected to Mr. Kumbhani's nomination alleging that the signatures of his proposers were not genuine. The RO also received affidavits from the proposers claiming that they had not signed the nomination papers of the candidate. He sought reply/clarification from the candidate within a day on the objections raised. As the proposers could not be produced before the RO within the stipulated time for scrutiny, all three sets of nomination papers were rejected.

The election rules allow for a substitute candidate to be fielded by a political party. The nomination of this substitute candidate would be accepted if the nomination of the original candidate is rejected. In this case, the Congress party had fielded Suresh Padsala as its substitute candidate. However, the nomination paper of the substitute candidate was also rejected for the same reason, that is of the proposer's signature not being genuine. The other nominations were either rejected or withdrawn paving the way for BJP candidate Mukesh Dalal to be declared winner.

### **What is the legal recourse?**

There have been at least 35 candidates who have been elected unopposed to the Lok Sabha. Majority of them were in the first two decades after independence with the last being in 2012. In the instant case, however, the Congress party has alleged that the proposers were coerced to backtrack on their signatures. It has approached the Election Commission (EC) seeking to set aside the decision of the RO and restart the election process.

However, it is unlikely that the EC would act on this request as Article 329(b) of the Constitution read with RP Act provides that no election shall be called into question except by an election petition before the concerned High Court. One of the grounds on which such an election petition can be filed is improper rejection of nomination papers. Hence, the legal recourse available is to file an election petition in the Gujarat High Court.

The RP Act provides that High Courts shall endeavour to conclude such trials within six months, which has mostly not been followed in the past. Speedy disposal of election petitions would be a step in the right direction.

**Relevance: GS Prelims & Mains Paper II; Governance**



## 17. What is Art 244A, the constitutional promise of autonomy that is driving the election narrative at a tribal seat in Assam?

### Why in News?

In Assam's tribal-majority Diphu Lok Sabha constituency, candidates of all parties have promised the implementation of Article 244A of the Constitution to create an autonomous 'state within a state'.

This, in fact, has been the primary election promise in Diphu for decades. What is Article 244A of the Constitution, and why is it important in this constituency?

### Where is Diphu, and what is the social profile of this Lok Sabha constituency?

Diphu is the most sparsely populated of Assam's 14 Lok Sabha constituencies, with just 8.9 lakh voters. It is reserved for Scheduled Tribes (STs), and covers six legislative Assembly segments in three tribal-majority hill districts of Assam: Karbi Anglong, West Karbi Anglong, and Dima Hasao.



These three districts are administered under the provisions of the Sixth Schedule of the Constitution, which describes the "Provisions as to the Administration of Tribal Areas in the States of Assam, Meghalaya, Tripura and Mizoram".

These areas come under two autonomous councils: the Karbi Anglong Autonomous Council (KAAC) and the North Cachar Hills Autonomous Council. Voters at the seat belong to various

communities: Karbi, the third largest tribe in the state, Dimas, Hmar, Kuki, Rengma Naga, Zeme Naga, Bodo, Garo, Assamese, Bengali, Bihari, Gorkha, etc.

However, the seat has been represented by members of the Karbi community since 1977. Currently, all Assembly segments under the Diphu seat are with the BJP.

### **What is Article 244 A of the Constitution?**

Article 244 A was inserted by The Constitution (Twenty-second Amendment) Act, 1969, which enabled Parliament to pass an Act to "form within the State of Assam an autonomous State comprising (whether wholly or in part) all or any of... [certain specified] tribal areas", including Karbi Anglong.

This autonomous state would have its own Legislature or Council of Ministers or both. This provision goes a step further than the provisions under the Sixth Schedule, which are already in place in these areas.

The autonomous councils under the Sixth Schedule have elected representatives for more decentralised governance of these tribal areas, but they have limited legislative powers, do not have control over law and order, and have only limited financial powers.

### **244A. Formation of an autonomous State comprising certain tribal areas in Assam and creation of local Legislature or Council of Ministers or both therefor**

(1) Notwithstanding anything in this Constitution, Parliament may, by law, form within the State of Assam an autonomous State comprising (whether wholly or in part) all or any of the tribal areas and create therefor—

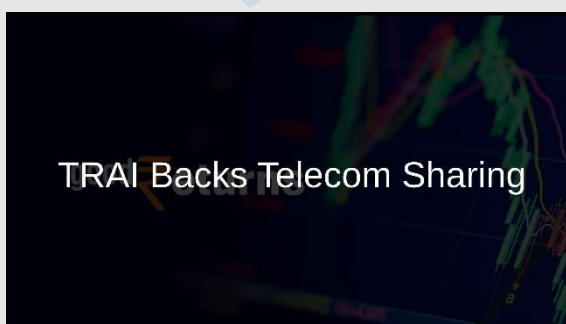
(a) a body, whether elected or partly nominated and partly elected, to function as a Legislature for the autonomous State, or

(b) a Council of Ministers, or both with such constitution, powers and functions, in each case, as may be specified in the law.

Relevance: GS Prelims & Mains Paper II; Governance

Source: Indian express

## **18. TRAI Advocates Both Passive and Active Infrastructure Sharing in Telecom**



### **Why in News?**

Telecom Regulatory Authority of India (TRAI) has released recommendations on Telecommunication Infrastructure Sharing, Spectrum Sharing, and Spectrum Leasing. The recommendations, released by the TRAI recently, address several critical aspects of telecom operations in India.

## **Telecom Infrastructure Sharing**

TRAI noted that the newly enacted Telecommunications Act of 2023 provides that the Central Government may permit the sharing, trading, leasing, and surrender of assigned spectrum, subject to the terms and conditions, including applicable fees or charges, as may be prescribed.

### **Salient features of TRAI Recommendations:**

**1. Infrastructure Sharing:** TRAI proposes allowing telecom service providers to share both passive and active infrastructure elements, including towers, electrical equipment, dark fiber, and duct space. This move aims to enhance efficiency and reduce costs across the industry.

#### **What are Active and Passive Telecom Infrastructure Networks?**

Active networks are those that are constantly sending and receiving data, while passive networks are those that only receive data. Passive networks are used for applications where data does not need to be sent immediately, such as downloading files or streaming video.

**2. Universal Service Obligation Fund (USOF) Projects:** TRAI suggests mandating the sharing of passive infrastructure laid under USOF projects with at least two other telecom service providers. This step aims to extend telecommunication coverage in underserved areas and ensure more effective use of government-funded infrastructure.

#### **What is Universal Service Obligation Fund (USOF)?**

Theodore Vail, the President of AT&T, first used the term 'Universal Service' in the company annual report in 1990. He described 'Universal Service' by writing that the telephone system should be universal, interdependent and intercommunicating, affording opportunity for any subscriber to any exchange to communicate with any other subscriber of any other exchange.

In India, the New Telecom Policy 1999, provided that the resources for meeting the Universal Service Obligation (USO) would be raised through a 'Universal Access Levy' (UAL), which would be a percentage of the revenue earned by the operators under various licences.

The Universal Service Obligation (USO) Fund was established with fundamental objective of providing access to "Basic" telegraph services (including mobile services, broadband connectivity and ICT infrastructure creation) to people in remote and rural areas at affordable and reasonable prices.

The Universal Service Obligation (USO) Fund is headed by the Administrator, USO Fund who is appointed by the Central Government, for the administration of the fund. It is an attached office of the Department of Telecommunications (DoT), Ministry of Communications.

**3. Roaming Mandate in Remote Areas:** Telecom operators receiving government funding (full or partial) under USOF (or Digital Bharat Nidhi) for network infrastructure in remote areas are required to allow roaming to other operators in those areas initially for a period of three years. This measure aims to improve connectivity in remote and far-flung regions.

**4. Inter-Band Spectrum Sharing:** TRAI recommends permitting inter-band spectrum sharing among access service providers, potentially through common radio access networks. This move seeks to optimize spectrum usage and enhance service quality.

**5. Leasing of Access Spectrum:** TRAI suggests permitting the leasing of access spectrum among service providers, enabling more flexible and efficient use of spectrum resources.

Conclusion

These recommendations aim to promote efficient resource utilization, enhance service quality, and extend coverage to underserved areas. By allowing spectrum leasing, inter-band spectrum sharing, and infrastructure sharing, TRAI seeks to foster a more competitive and robust telecom ecosystem in India.

Relevance: GS Prelims & Mains Paper II; Governance

Source: PIB

## 19. Case before Supreme Court: Can Govt redistribute privately owned property?

### Why in News?

As wealth distribution dominates news headlines in India, the Supreme Court (SC) began hearing an unrelated case about whether the government can acquire and redistribute privately owned properties if they are deemed as “material resources of the community” — as mentioned in Article 39(b) of the Constitution.



### Important minority opinion

Falling under Part IV of the Constitution titled “Directive Principles of State Policy” (DPSP), Article 39(b) places an obligation on the state to create policy towards securing “the ownership and control of the material resources of the community are so distributed as best to subserve the common good”. DPSP are meant to be guiding

principles for the enactment of laws, but are not directly enforceable in any court of law.

Since 1977, the apex court has weighed in on the interpretation of Article 39(b) on multiple occasions — most notably, in *State of Karnataka v Shri Ranganatha Reddy* (1977). This case saw a seven-judge Bench, by a 4:3 majority, holding that privately owned resources did not fall within the ambit of “material resources of the community”.

However, it was Justice Krishna Iyer’s minority opinion which would become influential in years to come. Justice Iyer had held that privately owned resources must also be considered material resources of the community. “Every thing of value or use in the material world is material resource and the individual being a member of the community his resources are part of those

of the community. To exclude ownership of private resources from the coils of Article 39(b) is to cipherise (make hidden) its very purpose of redistribution the socialist way," he said.

### **SC affirms Justice Iyer's opinion**

This interpretation of Article 39(b) was later affirmed by a five-judge Bench in *Sanjeev Coke Manufacturing Company v Bharat Coking Coal* (1983), where the court upheld central legislation that nationalised coal mines and their respective coke oven plants relying on what Justice Iyer had ruled. It held that the provision "takes within its stride the transformation of wealth from private-ownership into public ownership and is not confined to that which is already public-owned".

This judgment did not mention that Justice Iyer's opinion was in the minority. Nor did it mention that the majority specifically distanced themselves from it.

### **Cessed properties dispute**

The case currently before the SC arose out of a challenge to the 1986 amendment to the Maharashtra Housing and Area Development Act, 1976 (MHADA) by owners of 'cessed' properties in Mumbai.

MHADA was enacted in 1976 to address a major problem in the city — old, dilapidated buildings housing (poor) tenants despite becoming increasingly unsafe. MHADA imposed a cess on the buildings' occupants, which would be paid to the Mumbai Building Repair and Reconstruction Board (MBRRB) to oversee repair and restoration projects.

In 1986, invoking Article 39(b), Section 1A was inserted to MHADA to execute plans for acquiring lands and buildings, in order to transfer them to "needy persons" and the "occupiers of such lands or buildings". The amendment also inserted Chapter VIII-A to the legislation, which contains provisions allowing the state government to acquire cessed buildings (and the land they are built on) if 70% of the occupants make such a request.

### **Over three decades with SC**

The Property Owners' Association in Mumbai challenged Chapter VIII-A of the MHADA at the Bombay High Court claiming that the provisions violate the property owners' Right to Equality under Article 14 of the Constitution. The court, however, held that laws enacted in furtherance of DPSP could not be challenged on the grounds that they violated the right to equality, as per Article 31C of the Constitution ("Saving of laws giving effect to certain directive principles"). The Association appealed the decision in the SC in December 1992. In the apex court, the central question became whether "material resources of the community" as per Article 39(b) includes privately owned resources — which would include cessed buildings. In March 2001, a five-judge Bench heard the case and referred it to a larger Bench.

In February 2002, a seven-judge Bench took note of Justice Iyer's interpretation, and stated "we have some difficulty in sharing the broad view that material resources of the community under Article 39(b) covers what is privately owned," and referred the challenge to Chapter VIII-A of the MHADA to a nine-judge Bench — which is now hearing the matter.



Relevance: GS Prelims & Mains Paper II; Governance

Source: Indian express

## 20. Why does the Centre want to modify the 2G spectrum verdict?

### Why in News?

More than a decade after the Supreme Court cancelled 122 telecom licenses in the landmark 2G spectrum scam judgment, the Union government has moved an application to allocate spectrum administratively, bypassing auctions. An administrative allocation would give the government control over the selection of operators. Recently, Attorney General R. Venkataramani, appearing for the Centre made a plea for urgent listing of the application before Chief Justice of India D.Y. Chandrachud. The development comes a month after the Delhi High Court admitted the CBI's appeal against the acquittal of former Union Telecom Minister A. Raja and other high-profile politicians in the scam.

### What is the 2G spectrum scam?

The alleged 2G spectrum allocation scam is said to have originated in 2008 when the then Congress-led United Progressive Alliance (UPA) government sold 122 2G licences on a first-come-first-serve (FCFS) basis to specific telecom operators. In its charge sheet filed in April 2011, the CBI alleged that there was a loss of ₹ 30,984 crore to the exchequer as a result of discrepancies in the allocation process.

In the meantime, the Centre for Public Interest Litigation and Subramanian Swamy filed petitions in the top Court alleging a ₹70,000 crore scam in the grant of telecom licenses in 2008. In February 2012, a division Bench of the Supreme Court cancelled the licenses while cautioning that an FCFS basis for the allocation of scarce natural resources can be prone to misuse.

Advocating for competitive auctions instead, the Court said, "In our view, a duly publicised auction conducted fairly and impartially is perhaps the best method for discharging this burden and the methods like first-come-first-served when used for alienation of natural resources/public property are likely to be misused by unscrupulous people who are only interested in garnering maximum financial benefit and have no respect for the constitutional ethos and values." It emphasised that the burden lies on the State to ensure that the "non-discriminatory method" of the auction is adopted "by giving wide publicity so that all eligible persons can participate in the process".

### What is the Centre's plea?

In its plea, the Centre has pointed out that the assignment of spectrum is required to discharge sovereign and public interest functions such as security, safety, and disaster preparedness. The Centre elaborated that administrative allocation is required when demand is lower than supply or for space communication. In such cases, it would be "more optimal and efficient for

spectrum to be shared by multiple players, rather than being broken up into smaller blocks for the sole purpose of exclusive assignment”, it said.

The Court was apprised that following its 2012 ruling, the administrative assignment of non-commercial spectrum has been on a purely interim basis, subject to the government’s final decision on pricing and policy. However, it was now time to “firm up a spectrum assignment framework in suitable cases to best subserve the common good”, the government said.

### **What is the significance of the new telecom law?**

The Telecommunications Act, 2023, passed by the Parliament last year empowers the government to assign spectrum for telecommunication through administrative processes other than auction for entities listed in the First Schedule. These include entities engaged in national security, defence, and law enforcement as well as Global Mobile Personal Communication by Satellites such as Space X, and Bharti Airtel-backed OneWeb. The government can also assign part of a spectrum that has already been assigned to one or more additional entities, known as secondary assignees, and even terminate assignments where a spectrum or a part of it has remained underutilised for insufficient reasons.

Relevance: GS Prelims & Mains Paper II; Governance

Source: The Hindu

## **21. Supreme Court VVPAT judgment: What has changed — and not changed?**

### **Why in News?**

The Supreme Court recently rejected a plea for 100% verification of Voter Verifiable Paper Audit Trail (VVPAT) slips with the Electronic Voting Machine (EVM) count.

The Supreme Court undertook three pleas: that we should return to the paper ballot system, that the printed slips on the VVPAT machine should be given to voters to verify and put in the ballot box for counting, and there should be 100% counting of VVPAT slips in addition to electronic counting. The Supreme Court rejected all of them after referring to the protocol in place, technical aspects and data which is on record.

### **What remains unchanged**

For the voter, the SC judgment has brought in absolutely no change. Voting will continue to take place using EVMs, with 100% of the machines attached to a VVPAT unit.

Moreover, as per the existing provisions, VVPAT slips of five randomly selected Assembly constituencies or segments would be counted to verify with the count of the EVMs. The petitioner, the Association for Democratic Reforms, had sought 100% counting of VVPAT slips.

### **What has changed**

While not much has changed for the Election Commission (EC) in terms of how it organises polling, the apex court directed the EC to adopt some new procedures post-polls.



In a first, the court gave directions to the EC to seal and store the symbol loading units (SLUs) for 45 days after declaration of results. SLUs are memory units that are first connected to a computer to load election symbols onto it, and then used to enter symbols of the candidates on the VVPAT machines. These SLUs are to be opened, examined and dealt with in the same way as EVMs.

According to EC sources, one to two SLUs are used to load symbols onto VVPATs per Assembly constituency. These will now be stored for 45 days in case there are any election petitions regarding them, sources said.

Moreover, the SC has enabled candidates to seek verification of the EVMs — again a first. Candidates coming second or third can ask for a verification of the burnt memory semi-controllers in 5% of EVMs per Assembly segment of each Parliamentary constituency. This verification will be done after a written request is made by the candidate and would be carried out by a team of engineers of the EVM manufacturers.

According to the judgment, candidates or representatives can identify EVMs by the polling station or serial number. The request for verification has to be made within seven days of the declaration of results, and candidates will have to bear the expenses, which would be refunded in case the EVM is found to be tampered with, the court said.

### **Other suggestion made by SC**

Apart from these two directions, the court said that the EC may “examine” the suggestion that VVPAT slips can be counted using a counting machine, rather than by humans. VVPAT slips could have a barcode printed on them, making it easier for machine counting, it was suggested during the hearing.

The court said since this was a technical aspect that would require evaluation, it had refrained from commenting either way.

Relevance: GS Prelims & Mains Paper II; Governance

Source: Indian express

## **22. Repolls, voided polls, adjournments: What EC can do in case normal polling process is disrupted**

### **Why in News?**

The Election Commission of India (EC), under Sections 58(2) and 58A(2) of the Representation of People Act, 1951 (RPA), declared void the poll in 11 polling stations of Manipur, and 8

polling stations of Arunachal Pradesh. Repolls were conducted on April 22 and April 24 respectively.

Elections were also adjourned in Madhya Pradesh's Betul Lok Sabha constituency due to the death of a candidate. The polling, originally scheduled on April 26, will now be held on May 7. India's election laws provide a framework for handling situations where the normal polling process is disrupted for any reason, including damage to EVMs, booth-capturing, natural disasters, or a candidate's death. The provisions for repolls, adjournments, and the voiding of polls ensure that the democratic process remains fair, transparent, and uninterrupted.

### **Intentional destruction, taking away of EVMs**

Under Section 58 of the RPA ('Fresh poll in the case of destruction, etc., of ballot boxes'), the EC can declare the poll at a polling station to be void if:

- a. an unauthorised person has unlawfully taken away any EVM;
- b. any EVM has been accidentally or intentionally destroyed, or lost, or damaged, or tampered with; or
- c. a mechanical failure develops in any EVM during the recording of votes.



In such cases, the Returning Officer (RO) immediately informs the EC and the Chief Electoral Officer of the state about the relevant facts and material circumstances, after considering which, the EC can declare the poll void and formally fix the date and time for a new poll.

The contesting candidates or their election agents are then informed, in writing. A notice is also posted in public places along with an announcement by the beat of the drum in the polling area to inform the voters. All electors will be allowed to vote at the fresh poll. During the repoll, the voters' left middle fingers are inked to distinguish between the mark made during the original poll (on their left forefinger).

### **Booth capturing**

Booth-capturing, defined in Section 135A of the RPA, includes all or any of the following activities by any person or persons:

- a. seizure of a polling station, affecting the conduct of elections;
- b. taking possession of a polling station, allowing only his or their supporters to vote;
- c. intimidating or threatening any elector and preventing him from going to the polling station;
- d. seizure of a counting place affecting the counting of votes;
- e. involvement of any person in government service in any of the above activities.

Booth capturing is punishable for a term of not less than one year, which may extend to three years for lay people, and not less than three years, extending to five years for government servants.

Under Section 58A ('Adjournment of poll or countermanding of election on the ground of booth capturing') in case booth capturing has taken place at a polling Station, the Presiding Officer of a polling station immediately closes the Control Unit of EVM and detaches the Ballot Unit(s) from the Control Unit under Rule 49X of the Conduct of Election Rules, 1961.

He then informs the RO, who reports the full facts to the EC through the fastest means of communication. The EC, based on the material facts, may

- a. declare the poll at that polling station to be void and direct a fresh poll on a new date; or
- b. countermand the election in the constituency in case booth capturing has taken place in a large number of polling stations, or if it has affected the counting of votes.

### **Natural disasters, other disruptions to polling**

The Presiding Officer of a polling station can adjourn the poll at a polling station under section 57(1) of the Representation of the People Act, 1951, in case of:

- a. a natural calamity like a flood, a severe storm;
- b. non-receipt or loss or damage to essential polling materials like EVM, electoral roll etc;
- c. interruption or obstruction due to any riot or, open violence;
- d. non-arrival of the polling party due to obstruction or any other serious difficulty; or
- e. non-commencement of the poll within two hours from the scheduled time due to malfunctioning of EVM, or any other reason.

After seeking the EC's approval on the date and hours, the adjourned poll will recommence from the stage at which it was left immediately before the adjournment. Contesting candidates or their agents are informed, and only electors who have not already voted before the poll was adjourned are permitted to vote.

### **Death of a candidate**

As per Section 52 of RPA, amended in 1996, the poll shall be adjourned only in case of the death of a recognised political party's candidate. A "recognised political party" refers to either a recognised national party, or party recognised as a state party in the state concerned, for which the EC reserves a symbol under the Election Symbols (Reservation and Allotment) Order.



The above provision applies if the candidate with a valid nomination dies at any time after 11.00 a.m. on the last date for making nominations, until the commencement of the poll. The RO reports the fact to the EC and orders the adjournment of the poll to a date to be notified later by the Commission.

The EC then calls upon the concerned political party to nominate another candidate for the said election in place of the deceased candidate. The political party must make the nomination within seven days. If the list of contesting candidates has already been published before the adjournment of the poll, a fresh list of contesting candidates is prepared and published, including the name of the candidate nominated in place of the deceased candidate.

In Betul, the candidate's death occurred one day after the last day for withdrawing candidature. Therefore, the polls were adjourned. However, in the Moradabad Lok Sabha constituency, the candidate died after voting, in which case a by-election will be held if he emerges as the winner of the seat after counting.

Relevance: GS Prelims & Mains Paper II; Governance

Source: Indian Express

### **23. When is a candidate elected unopposed?**

#### **Why in News?**

On April 22, the ruling Bharatiya Janata Party opened its tally in the Lok Sabha when its nominee for the Surat constituency in the western State of Gujarat, Mukesh Dalal, was elected unopposed. This followed the rejection of the nomination papers of the Congress candidates [main and substitute nominees] the previous day and the withdrawal of other nominees. This means Gujarat's second largest city will not go to the polls on May 7.

#### **How is a candidate declared elected before polling?**

Section 53 (3) of the Representation of the People Act, 1951 deals with the procedure in uncontested elections. According to this proviso, if the number of such candidates is less than the number of seats to be filled, the returning officer (RO) shall forthwith declare all such candidates to be elected. In this regard, the RO's actions are governed by Section 33 of the Act which pertains to the presentation of nomination papers and requirements for a valid nomination.

Sub-section 4 says: "On the presentation of a nomination paper, the returning officer shall satisfy himself that the names and electoral roll numbers of the candidate and his proposer as entered in the nomination paper are the same as those entered in the electoral rolls..." In the given instance, three proposers of the Congress' candidate for Surat, Nilesh Kumbhani, claimed in an affidavit to the district election officer (DEO), Sourabh Pardhi, that they had not signed his nomination form. They did not also turn up before the DEO on April 21 to support the candidate's nomination form.



Besides, the Handbook for Returning Officers (Edition 2) issued by the Election Commission (EC) in August 2023, in the chapter titled uncontested election, states that "if in any constituency, there is only one contesting candidate, that candidate should be declared to have been duly elected immediately after the last hour for withdrawal of candidature. In that event, a poll is not necessary." It also says that "all those candidates, who are returned as uncontested and [who] have criminal antecedents, must publicise the details in the prescribed format as per timeline."

Relevance: GS Prelims & Mains Paper II; Governance

Source: The Hindu

## 24. What is the scope for negative voting in the election system?

### Introduction



There is ample scope in the system. While the NOTA (none of the above) option has been in force since 2013, the Conduct of Election Rules, 1961, allows electors to decide not to vote through Rule 49-O. A remark to the effect that the elector has decided not to record his or her vote would have to be made in the "remarks column" against the entry relating to the elector in the Register of Voters by the presiding officer, after which the signature or thumb impression of the elector would have to be obtained against such a remark.

### NOTA on EVM

The option of NOTA, introduced through the Supreme Court's intervention, has been available on electronic voting machines (EVMs) since November 2013. This became a reality in the wake of a verdict given by a Bench of the Supreme Court in September 2013, while allowing a petition filed by the People's Union for Civil Liberties. The then CJI, who wrote the judgment, said: "Giving right to a voter not to vote for any candidate while protecting his right of secrecy is extremely important in a democracy. Such an option gives the voter the right to express his disapproval of the kind of candidates being put up by the parties." He expressed the hope that "gradually, there will be a systemic change and the parties will be forced to accept the will of the people and field candidates who are known for their integrity."

### Difference between Rule 49-O and NOTA option

There is a difference between an elector exercising Rule 49-O and one using the NOTA option. In the case of the former, the likelihood of such an elector compromising his or her secrecy is high, as there is a procedure to be followed manually at a polling booth. However, in the case of the latter, there is no such issue.



But, according to the Handbook for ROs, the NOTA votes are not to be taken into account for calculating the total valid votes polled for the return of the security deposit. The EC's stand has been that the person getting the largest number of votes in any constituency will still be declared the winner, regardless of the number of NOTA votes.

But, with respect to local bodies' polls, the situation is different, at least in Maharashtra. Through an order in November 2018, the Maharashtra State Election Commission said that NOTA would be regarded as a fictional electoral candidate for the polls to urban local bodies, and wherever NOTA gets the highest votes, the Commission would go for re-poll.

### **What are the developments post NOTA?**

There have been instances wherein votes obtained by political parties were lower than the NOTA votes. But, a section of activists and constitutional experts has been critical, calling NOTA a "toothless tiger" with no implications on the results, despite the fact that NOTA was reported to have netted over 1.29 crore votes in the State Assembly elections and the Lok Sabha elections combined in the last five years.

Relevance: GS Prelims & Mains Paper II; Governance

Source: The Hindu

### 1. Story of Katchatheevu island

#### Why in News?

BJP has once again attacked the Congress about its decision to “callously give away” the island of Katchatheevu. What is the story of the island?

#### Where is the island of Katchatheevu?

Katchatheevu is a 285-acre uninhabited speck in the Palk Strait, between India and Sri Lanka. It is no more than 1.6 km in length and slightly over 300 m wide at its broadest point. It lies northeast of Rameswaram, about 33 km from the Indian coast. It is about 62 km southwest of Jaffna, at the northern tip of Sri Lanka, and 24 km away from the inhabited Delft Island, belonging to Sri Lanka.



The only structure on the island is an early 20th-century Catholic shrine – St Anthony’s church. During an annual festival, Christian priests from both India and Sri Lanka conduct the service,

with devotees from both India and Sri Lanka making the pilgrimage. In 2023, 2,500 Indians made the journey to Katchatheevu from Rameswaram for the festival.

Katchatheevu is not suited for permanent settlement as there is no source of drinking water on the island.

### **What is the island's history?**

Being the product of a 14-century volcanic eruption, Katchatheevu is relatively new in the geological timescale.

In the early mediaeval period, it was controlled by the Jaffna kingdom of Sri Lanka. In the 17th century, control passed to the Ramnad zamindari based out of Ramanathapuram, about 55 km northwest of Rameswaram.

It became part of the Madras Presidency during the British Raj. But in 1921, both India and Sri Lanka, at the time British colonies, claimed Katchatheevu in order to determine fishing boundaries. A survey marked Katchatheevu in Sri Lanka, but a British delegation from India challenged this, citing ownership of the island by the Ramnad kingdom. This dispute was not settled until 1974.

### **What is the agreement now?**

In 1974, Indira Gandhi made attempts to settle the maritime border between India and Sri Lanka, once and for all.

As a part of this settlement, known as the 'Indo-Sri Lankan Maritime agreement', Indira Gandhi 'ceded' Katchatheevu to Sri Lanka. At the time, she thought the island had little strategic value and that ceasing India's claim over the island would deepen its ties with its southern neighbour.

Moreover, as per the agreement, Indian fishermen were still allowed to access Katchatheevu "hitherto". Unfortunately, the issue of fishing rights was not ironed out by the agreement. Sri Lanka interpreted Indian fishermen's right to access Katchatheevu to be limited to "rest, drying nets and for visit to the Catholic shrine without visa".

Another agreement in 1976, during the period of Emergency in India, barred either country from fishing in the other's Exclusive Economic Zone. Again, Katchatheevu lay right at the edge of the EEZs of either country, retaining a degree of uncertainty with regards to fishing rights.

### **How did the Sri Lankan Civil War impact Katchatheevu?**

However, between 1983 and 2009, the border dispute remained on the back burner as a bloody civil war raged in Sri Lanka.

With the Sri Lankan naval forces preoccupied with their task of cutting off supply lines of the LTTE based out of Jaffna, incursions by Indian fishermen well into Sri Lankan waters were commonplace. Bigger Indian trawlers were especially resented as they would not only tend to overfish but also damage Sri Lankan fishing nets and boats.



In 2009, the war with the LTTE ended, and things dramatically changed. Colombo beefed up its maritime defences, and turned focus to Indian fishermen. Facing a depletion of marine resources on the Indian side, they would frequently enter Sri Lankan waters as they had been doing for years, but finally began facing consequences.

Till date, the Sri Lankan navy routinely arrests Indian fishermen and there have been many allegations of custodial torture and death. The demand for Katchatheevu is revived each time such an incident happens.

### **What is Tamil Nadu's position on Katchatheevu?**

Katchatheevu was "given away" to Sri Lanka without consulting the Tamil Nadu state assembly. At the time itself, there were vehement protests against Indira Gandhi's move, citing the historical control of the Ramnad zamindari over the island and traditional fishing rights of Indian Tamil fishermen.

In 1991, in the aftermath of India's disastrous intervention in the Sri Lankan Civil War, the Tamil Nadu Assembly again sought retrieval of Katchatheevu and restoration of fishing rights of Tamil fishermen. Since then, Katchatheevu has time and again come up in Tamil politics.

In 2008, then AIADMK supremo, the late J Jayalalitha, filed a petition in court saying Katchatheevu could not be ceded to another country without a constitutional amendment. The petition argued the 1974 agreement had affected traditional fishing rights and livelihoods of Indian fishermen.

After becoming chief minister in 2011, she moved a resolution in the State Assembly and, in 2012, went to the Supreme Court asking her petition be expedited in the wake of increasing arrests of Indian fishermen by Sri Lanka.

Last year, Tamil Nadu Chief Minister and DMK leader MK Stalin wrote a letter to PM Modi ahead of Sri Lankan Prime Minister Ranil Wickremesinghe's visit to India, asking the PM to discuss key issues, including the matter of Katchatheevu.

"The transfer of Katchatheevu to Sri Lanka, by the Union government, without the state government's consent, has deprived Tamil Nadu fishermen's rights and adversely impacted their livelihoods," the letter said, referring to the Tamil Nadu government's protests in 1974.

As previously reported, Stalin also mentioned the attempts by former chief minister M Karunanidhi, including an appeal to the then PM in 2006, for the retrieval of Katchatheevu in order to create "congenial conditions for Tamil Nadu fishermen to lead a peaceful life". However, the Union government's position on Katchatheevu has largely remained unchanged. It has argued that since the island had always been under dispute, "no territory belonging to India was ceded nor sovereignty relinquished."

While the BJP, especially the party's Tamil Nadu unit, has been vocal in its demand for retrieving Katchatheevu for India, even the Narendra Modi government has done little to actually act on Tamil politicians' demands – there is little it can do.

As then Attorney General Mukul Rohtagi had told the Supreme Court in 2014: "Katchatheevu went to Sri Lanka by an agreement in 1974... How can it be taken back today? If you want Katchatheevu back, you will have to go to war to get it back."

Relevance: GS Prelims & Mains Paper II; Bilateral Relations

Source: Indian Express

## **2. Katchatheevu and Wadge Bank: the story of two India-Sri Lanka agreements from a half century ago**

### **Why in News?**

Weeks before voting for the Lok Sabha election in Tamil Nadu, the BJP has reignited the decades-old Katchatheevu issue, accusing the Indira Gandhi government of "callously giving away", as the Prime Minister said in a post on social media, the island to Sri Lanka.

Did India indeed "cede" Katchatheevu island to Sri Lanka in 1974? What happened two years later, in 1976, when India signed a second agreement with Sri Lanka?

### **But first, what is Katchatheevu island?**

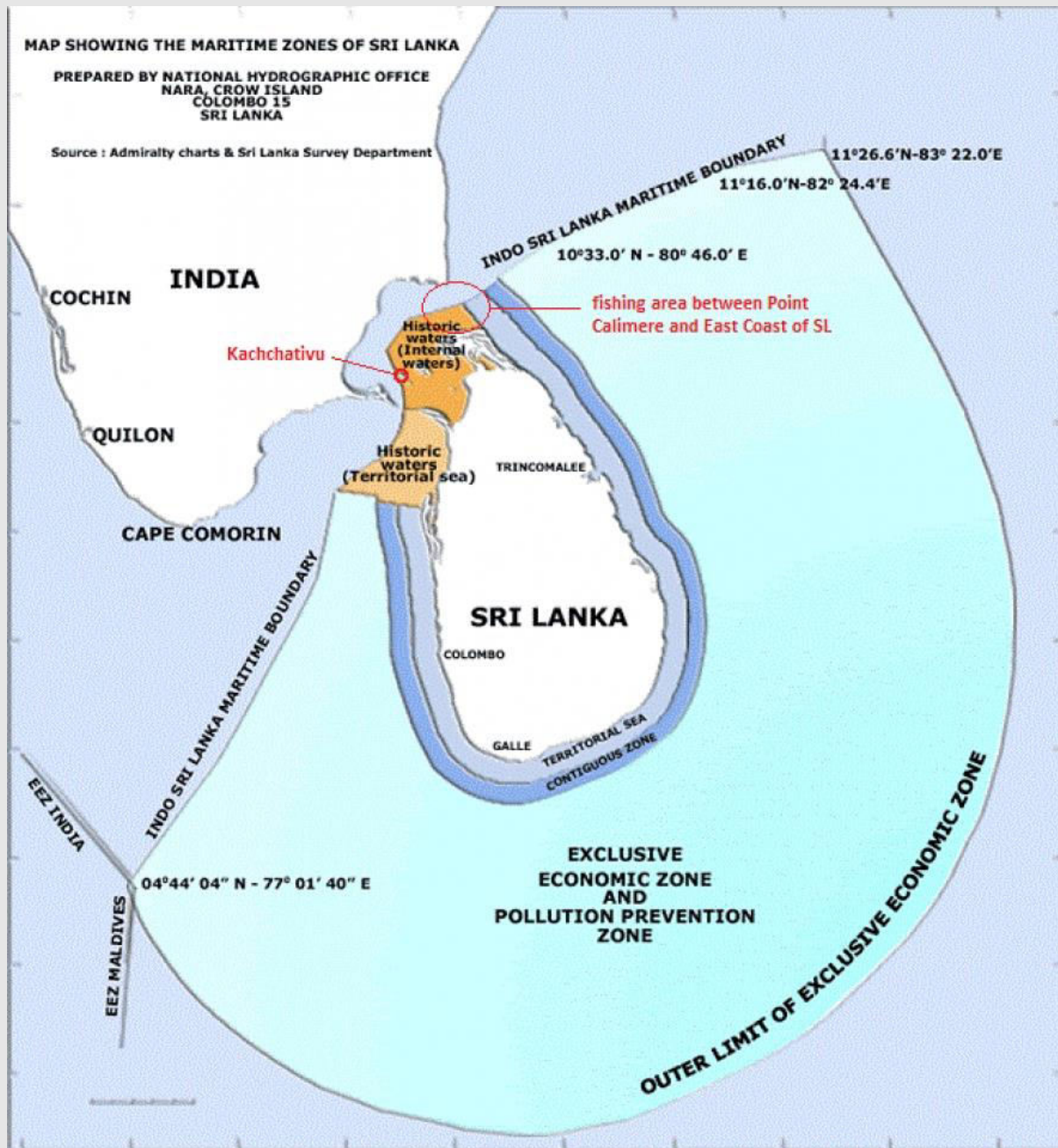
Katchatheevu is a 285-acre patch in the sea within the maritime boundary line of Sri Lanka, located 33 km off the Indian coast to the northeast of Rameswaram in Tamil Nadu, and southwest of Sri Lanka's Delft Island. The tiny, barren island which, according to some official reports, was created following a 14th-century volcanic eruption, is 1.6 km in length and just 300 metres wide at its widest point.

The island was under the control of the kingdom of the Ramanad Raja, a zamindari from 1795 to 1803 in Ramanathapuram in the Madras Presidency during British rule. The 120-year-old St Anthony's Church on the island attracts devotees from India and Sri Lanka for an annual festival.

### **What happened to the Island in 1974?**

India and Sri Lanka had been claiming Katchatheevu since at least 1921, after a survey placed the island within Sri Lanka's boundaries. This was contested by a British Indian delegation that cited the Ramanad kingdom's ownership of the island. The dispute could not be settled, and continued in the years after Independence.

In 1974, when Indira was Prime Minister, the two governments signed — on June 26 in Colombo and June 28 in New Delhi — an agreement by which the island went to Sri Lanka, but Indian fishermen were given "access to Katchatheevu for rest, for drying of nets and for the annual St Anthony's festival".



Indian fishermen and pilgrims will enjoy access to visit Katchatheevu as hitherto, and will not be required by Sri Lanka to obtain travel documents or visas for these purposes, the agreement said. The agreement did not specify the fishing rights of Indian fishermen.

### Reaction of State government

According to information obtained by Tamil Nadu BJP chief K Annamalai under The RTI Act, 2005, the DMK government in Tamil Nadu led by M Karunanidhi at the time silently acquiesced to the Centre's decision to sign the agreement. The RTI reply quoted from the minutes of a meeting between then External Affairs Minister Kewal Singh and Karunanidhi at Fort St. George in Chennai a month before the transfer of the island. According to Annamalai, Karunanidhi was

“party to this decision”, and had only asked if it was possible to “postpone the decision by two years”.

Tamil Nadu Assembly records, however, show that Chief Minister Karunanidhi had attempted to move a resolution in the House in 1974 against the Katchatheevu agreement, but the opposition AIADMK had refused to go along.

### **And what happened in 1976?**

In June 1975, Indira Gandhi imposed the Emergency, and Karunanidhi’s government was dismissed in January 1976. Thereafter, several letters were exchanged between the foreign secretaries of India and Sri Lanka, and a set of executive orders were issued on the Katchatheevu issue.

The negotiations and the orders essentially settled the maritime boundary between India and Sri Lanka by giving sovereign rights over a maritime patch called ‘Wadge Bank’ near Kanyakumari to India. The Wadge Bank lies to the south of Kanyakumari, and has been identified by the Fishery Survey of India as a 4,000-sq-mile area bound by 76°.30’ E to 78°.00’ E longitude and 7°.00’ N to 8° 20’ N latitude. It is one of the world’s richest fishing grounds, and in a much more strategic part of the sea than the island of Katchatheevu. This area near Kanyakumari has been significant for fishermen from Tamil Nadu and Kerala for more than four decades.

An agreement reached between the two countries in March 1976 said “the Wadge Bank...lies within the exclusive economic zone of India, and India shall have sovereign rights over the area and its resources” and “the fishing vessels of Sri Lanka and persons on board these vessels shall not engage in fishing in the Wadge Bank”.



However, “at the request of the Government of Sri Lanka and as a gesture of goodwill”, India agreed that Sri Lankan boats licensed by India could fish in the Wadge Bank for three years “from the date of establishment by India of its exclusive economic zone”. But no more than six



Sri Lankan fishing vessels were allowed, and their catch in the Wadge Bank could not exceed 2,000 tonnes in any year.

The agreement also said that if India “decided to explore the Wadge Bank for petroleum and other mineral resources” during the three-year period, the Sri Lankan boats “shall terminate fishing activity... in these zones with effect from the date of commencement of exploration”.

### **What happened after the 1974 and 1976 agreements?**

The focus in the 1970s was on settling competing claims over territorial boundaries, which led to agreements that gave Katchatheevu to Sri Lanka and the resource-rich Wadge Bank to India.

In the 1990s, the Palk Strait to the east of the Wadge Bank saw a proliferation of efficient bottom-trawl fishing trawlers on the Indian side. The Sri Lankan military was battling the Liberation Tigers of Tamil Eelam (LTTE) at the time, and its navy had no major presence in the sea region. Indian fishing boats would routinely enter Sri Lankan waters for fishing during this time.

In 1991, when J Jayalalithaa was in her first term as Chief Minister, the Tamil Nadu Assembly sought the retrieval of Katchatheevu and restoration of traditional fishing rights for Indian Tamil fishermen. But the demand could not be followed up with Sri Lanka due to the civil war in that country.

The situation changed after the war ended in 2009. Even as Indian fishermen continued to enter Sri Lankan waters due to the depletion of marine resources on the Indian side, the Sri Lankan navy began to carry out arrests, and destroyed hundreds of fishing boats for violating the maritime boundary. This provoked a renewed wave of demands from political parties in Tamil Nadu, including the DMK and AIADMK, to retrieve Katchatheevu.

### **And how did the matter reach the Supreme Court?**

In 2008, Jayalalithaa filed a petition in the Supreme Court claiming Katchatheevu belonged to India, and could not be ceded to another country without a Constitutional amendment. She argued that the 1974 agreement affected the traditional fishing rights and livelihood options of Indian fishermen.

After becoming Chief Minister in 2011, Jayalalithaa moved a resolution in the state Assembly raising the same demand. In 2012, amid increasing incidents of arrests of Indian fishermen in Sri Lankan waters, she again moved the Supreme Court to expedite her petition.

In August 2014, then Attorney General Mukul Rohatgi told the Supreme Court that the matter was closed, and it would require “war” to get the island back. “Katchatheevu went to Sri Lanka by an agreement in 1974. It was ceded and now acts as a boundary. How can it be taken back today? If you want Katchatheevu back, you will have to go to war to get it back,” he said. The petition remains pending in the Supreme Court.

**Relevance: GS Prelims & Mains Paper II; Bilateral Relations**



### 3. What is 'Havana syndrome', linked to a Russian intelligence unit?

#### **Why in News?**

The Kremlin recently dismissed a joint media investigation which found evidence that a Russian military intelligence unit might be responsible for the mysterious health condition known as 'Havana syndrome' that affected US diplomats and spies across the world.

#### **But first, what is Havana syndrome?**

Havana syndrome refers to a set of mental health symptoms that are said to be experienced by United States intelligence and embassy officials in various countries. Generally, the word 'syndrome' simply means a set of symptoms. It does not mean a unique medical condition, but rather a set of symptoms that are usually experienced together whose origins may be difficult to confirm.

Havana syndrome typically involves symptoms such as hearing certain sounds without any outside noise, nausea, vertigo and headaches, memory loss, and balance issues.

As the name suggests, it traces its roots to Cuba (Havana is capital of Cuba) in late 2016. This was about a year after the US opened its embassy in the capital city of Havana after ties between the two countries were normalised in 2015. Some US intelligence officials and members of the staff at the embassy began experiencing sudden bursts of pressure in their brains followed by persistent headaches, feelings of disorientation and insomnia.

#### **What did the investigation find?**

The investigation claims that members of a Russian military intelligence unit, called 29155, could have targeted the brains of US officials by using "directed energy" weapons. The 29155 unit, which has been operational for more than a decade, has been previously accused of carrying out foreign assassination, subversion, and sabotage.

#### **Where has Havana syndrome been reported?**

Since the Cuban incident, American intelligence and foreign affairs officials posted in various countries have reported symptoms of the syndrome.

## What is Havana syndrome?

The medical mystery named for the Cuban city where U.S. diplomats first experienced sudden, debilitating symptoms in 2016 has been reported by Americans serving in several other countries.

Acute symptoms (often occurring suddenly) may include:

Loud sounds (sometimes described as chirping, clicking or screeching) and pain in one or both ears; many felt the sensations came from a particular direction or were felt when in a specific location

Tinnitus, hearing loss

Intense pressure or vibration inside the head

Difficulty with memory or concentration

Visual disturbances

Nausea

Unsteady gait, loss of balance, vertigo/dizziness

Chronic symptoms (can last weeks, months or longer) may include:

Headache

Impaired concentration, memory loss

Insomnia

Depression

Impaired balance

No definitive cause has been found, but scientific studies have noted many of the acute symptoms are consistent with exposure to directed radio frequency (RF) energy. One theory posits the use of RF energy by a U.S. adversary as a weapon or a tool of espionage.

Source: National Academy of Sciences

AP

According to US media reports, in the past few years, its officials have reported more than 130 such experiences across the world including at Moscow in Russia, Poland, Georgia, Taiwan, Colombia, Kyrgyzstan, Uzbekistan, and Austria, among others.

A New York Times report from 2021 said US Vice-President Kamala Harris was delayed for three hours as she was about to fly to Hanoi, Vietnam, after a US official in Vietnam reported the symptoms.

In India, the first such case was reported in the same year, when a US intelligence officer travelling to New Delhi with CIA director William Burns reported symptoms of Havana Syndrome.

## What are the causes of Havana syndrome?

No one is sure. After the Havana incident, there was a suspicion that the syndrome was a "sonic attack", which was carried out by Cuba — a country that had been hostile to the US for over five decades.

However, further study by scientists in the US and medical examination of the victims began to suggest that they may have been subjected to high-powered microwaves that either damaged or interfered with the nervous system. It was said to have built pressure inside the brain that generated the feeling of a sound being heard.

Relevance: GS Prelims & Mains Paper II; Bilateral Relations

Source: Indian Express

## 4. NATO at 75

### Why in News?

Secretary General Jens Stoltenberg said "NATO is bigger, stronger, and more united than ever." With 32 member-states – the most it has ever had – that may be true in one regard. However, the grouping also faces significant challenges. Its expansion is believed to be a key factor behind Russia's 2022 invasion of Ukraine and the continued conflict.

### Why was NATO established?

NATO is a Western security alliance founded on April 4, 1949, with 12 founding members – Belgium, Canada, Denmark, France, Iceland, Italy, Luxembourg, the Netherlands, Norway, Portugal, the United Kingdom and the United States.

They signed the Washington Treaty, which gets its power from Article 51 of the United Nations Charter, "which reaffirms the inherent right of independent states to individual or collective defence."

At the very heart of the alliance is the concept of "collective security" – an attack on any of the members is seen as an attack on all of them and demands collective action. This was deemed necessary in 1949 amid the Cold War rivalry between the then USSR and the US, over ideological and economic superiority.

Article 5 of the Washington Treaty, on collective security, was added "to counter the risk that the Soviet Union would seek to extend its control of Eastern Europe to other parts of the continent." The USSR also aimed to shore up allies and in 1955, the Warsaw Pact was constituted as an alliance of socialist countries.

However, it doesn't necessitate direct military intervention constituting all members. The scale of action is dependent on each member country "as it deems necessary". The only time the article has been invoked so far was following the September 11, 2001 attacks on the US. NATO forces were sent to Afghanistan and deployed for nearly 20 years.

### Who are NATO's members today?

Apart from the original 12, members include Greece and Turkey (1952); West Germany (1955; later as Germany); Spain (1982); the Czech Republic, Hungary, and Poland (1999); Bulgaria, Estonia, Latvia, Lithuania, Romania, Slovakia, and Slovenia (2004); Albania and Croatia (2009); Montenegro (2017); North Macedonia (2020); Finland (2023); and Sweden (2024).

There was a wave of new entrants in 1999, a few years after the Soviet Union disintegrated in 1991. Concerns were raised then about the alliance possibly becoming obsolete, given its original purpose of establishment no longer existed.

### Why NATO is still surviving?

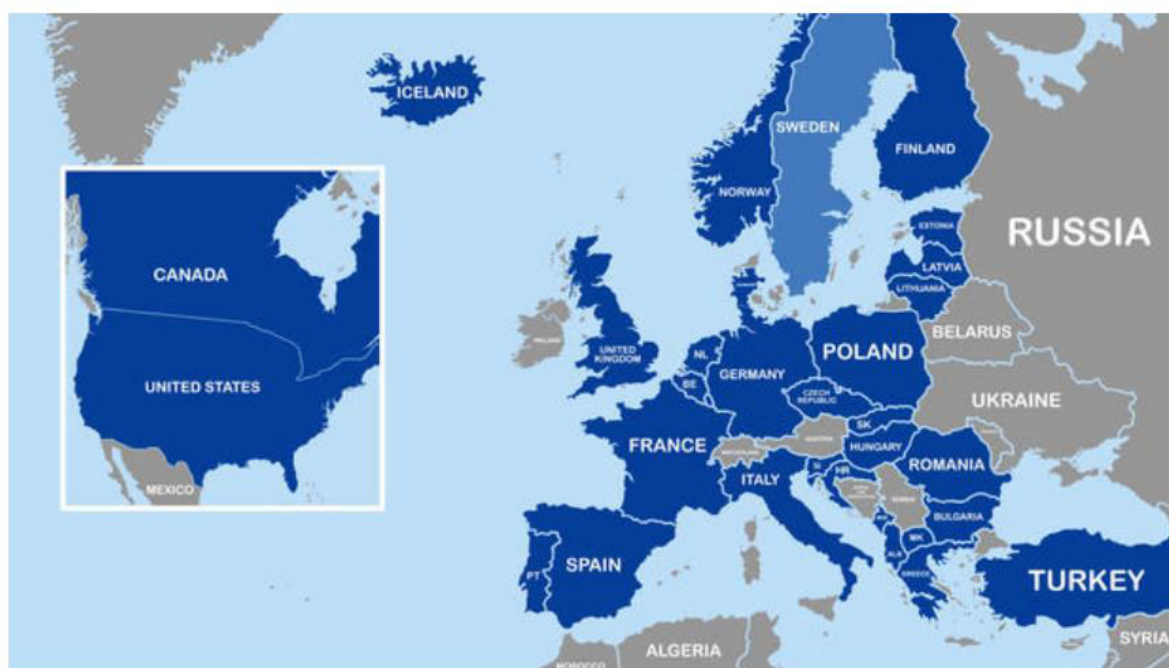
US political science professor John S Duffield, who wrote on 'NATO's Functions after the Cold War' (published in the Political Science Quarterly journal in the mid-1990s) argued there were three reasons why NATO survived.

First, he said "NATO still serves to secure its members against a number of actual or potential dangers emanating from outside their territory," meaning even beyond Russia. Today, China has emerged as a power which NATO countries often compete with not just in economic terms, but also in the form of various ideological and strategic differences.

Second, he credits "NATO's capacity for institutional adaptation", and how it has played a role in "containing and controlling militarised conflicts in Central and Eastern Europe" by "actively promoting stability within the former Soviet bloc."

Above all, he wrote, "NATO pessimists overlooked the valuable intra-alliance functions that the alliance has always performed and that remain relevant after the cold war. Most importantly, NATO has helped stabilize Western Europe, whose states had often been bitter rivals in the past."

### Map of NATO countries



NATO has 31 member countries, highlighted in dark blue, and is expected to have Sweden, in light blue, join the alliance.

Relevance: GS Prelims & Mains Paper II; International Organisations

Source: Indian Express

### 5. India's Position on UNHRC Resolution Regarding Gaza Ceasefire

## **Why in News?**

India recently made a notable decision regarding a resolution at the United Nations Human Rights Council (UNHRC) concerning the conflict in Gaza.

## **India's Abstention**

India chose to abstain from voting on a resolution calling for an immediate ceasefire in Gaza and the implementation of an arms embargo on Israel. This resolution was adopted by the 47-member Council.

## **Reasoning Behind Abstention**

- India's decision to abstain aligns with its previous stance on HRC resolutions focusing on "accountability."
- While India refrained from supporting this specific resolution, it did vote in favor of three other resolutions criticizing Israel for human rights violations against Palestinians, addressing Israel's occupation of Syrian Golan, and advocating for Palestinian self-determination.

## **Resolution Details**

- All four resolutions were introduced by Pakistan on behalf of the Organisation for Islamic Cooperation.
- The abstention from voting was in line with India's previous actions on similar resolutions and its vote at the UNGA in October 2023.
- The HRC resolution failed to condemn Hamas while condemning Israel's actions, including the killing of Palestinians, blockade of food supplies, and civilian displacement in Gaza.

## **International Response**

- The resolution faced opposition from the U.S., Germany, and four other countries.
- India was among 13 countries that abstained, alongside France and Japan, while 28 members voted in favor, including Bangladesh, China, Maldives, the UAE, and Indonesia.

## **India's Supportive Votes**

- India supported three other resolutions concerning the rights of the Palestinian people to self-determination, human rights in the occupied Syrian Golan, and Israeli settlements in occupied territories.

## **Ministry of External Affairs' Stance**

The Ministry of External Affairs did not provide an official explanation for India's abstention from the vote. However, the decision is believed to be consistent with past actions and reflects India's nuanced approach to the complex situation in the Middle East.

## **About UNHRC**

The United Nations Human Rights Council (UNHRC) is a United Nations body whose mission is to promote and protect human rights around the world. The Council has 47 members elected for staggered three-year terms on a regional group basis. The headquarters of the Council are at the United Nations Office at Geneva in Switzerland.

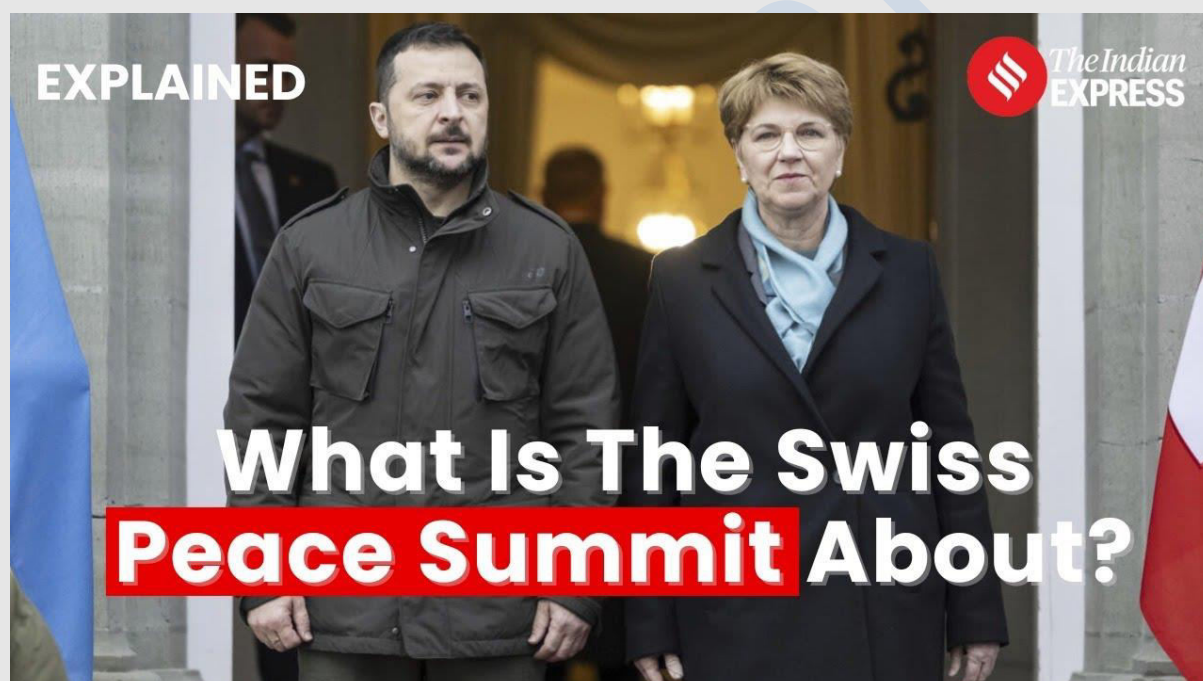


## 6. Switzerland's peace bid amid Russia-Ukraine war

### Why in News?

With the Russia-Ukraine war in its third year, Switzerland will host a peace conference at Bürgenstock on June 15-16, immediately after the June 13-15 G7 Summit in Italy.

Switzerland wants India to participate in the conference, to which some 120 countries will be invited at the level of Heads of State/ Government. It remains to be seen whether US President Joe Biden will be able to take time out in the middle of his re-election campaign, or whether Russia's President Vladimir Putin and China's President Xi Jinping, who have announced a "friendship without limits", will attend.



### Background of conference

Switzerland has taken the initiative at the request of Ukraine's President Volodymyr Zelenskyy. The idea is to "provide a platform for a high-level dialogue on ways to achieve a comprehensive, just and lasting peace for Ukraine based on international law and the UN Charter," the Swiss government said.

Switzerland had earlier hosted a Ukraine Recovery Conference (URC) at Lugano in July 2022, and a National Security Advisors Meeting in Davos at the beginning of this year.

### Swiss history of mediation

Neutrality is a foundational principle of Switzerland's foreign policy. It has had a tradition of being the protecting power since the 19th century. It acted as the protecting power during the two World Wars, and held nearly 200 protective power mandates during World War II.

Switzerland represented India's interests in Pakistan and Pakistan's in India between 1971 and 1976. Over the last two decades, Switzerland has been the protecting power between Saudi Arabia and Iran, the US and Iran, Russia and Georgia, and other pairs of mutually hostile governments.

The country also has a history of hosting negotiations or mediating in conflicts. It hosted talks between the government in Colombo and the Liberation Tigers of Tamil Eelam in 2006, and took initiatives for peace in Nepal, and the Middle East.

During the Russia-Ukraine war, however, Switzerland has leaned towards Ukraine, and has joined the Western sanctions regime against Russia.

### **India's position**

Since the outbreak of the war in February 2022, India has walked a diplomatic tightrope between Russia and Ukraine. It did not explicitly condemn the invasion, but it did call for an international probe into the Bucha massacre and expressed concern over nuclear threats issued by Russian leaders. India abstained from voting against Russia in several resolutions at the UN Security Council.

In September 2022, Prime Minister Narendra Modi told Putin that "this is not the era of war" — a formulation that found an echo at the G20 Summit statement in Bali in November 2022. At the G20 Summit in New Delhi in September 2023, India was able to forge a consensus, and get a joint declaration to which both the US-led West and Russia, backed by China, agreed.

Modi has had at least five phone conversations with Putin and at least four with Zelenskyy since the beginning of the war. He has also met both leaders in person on the sidelines of multilateral summits.

During their telephone conversation last month, the Ukrainian President thanked India for its support for his country's sovereignty, and said it would be important for Kyiv to see New Delhi attend the peace conference in Switzerland.

The Indian government has pitched itself as being supportive of any peace process, and is willing to play a role. New Delhi believes that it has the credibility of being a non-partisan player in the world.

"From the beginning of the Ukraine conflict, India has been emphasising on dialogue and diplomacy. India is ready to contribute to any peace process," Modi has said.

For New Delhi, which aspires to be a permanent member of the UN Security Council, the conference presents an opportunity to shape the conversation at the global high table. It has

positioned itself as a voice of the Global South, and had conveyed the impact of the war on the world's developing and less-developed countries to the world's major economies during last year's G20 summit.

The G7 Summit and the Switzerland conference will be held days after the results of the Lok Sabha elections are known on June 4.

Relevance: GS Prelims & Mains Paper II; International Issues

Source: Indian Express

## 7. What is the 'axis of resistance'

### Why in News?

US President Joe Biden on Friday said he expected Iran to attack Israel "sooner than later" — a move in retaliation for the strike, widely believed to be carried out by Israel, on the Iranian embassy in Damascus, Syria, which took place almost two weeks ago, killing seven Iranian military officers.

The breakout of a state-against-state war between Iran and Israel would further escalate the ongoing conflict in the Middle West, which began after Hamas, a Palestinian militant group, attacked Israel on October 7, 2023.

Sources told that the retaliation could include attacks carried out both by Iranian forces, and proxy groups around the region. These proxy groups include Hamas, Lebanon's Hezbollah, Yemen's Houthis, and the Islamic Resistance in Iraq. Together, they call themselves the "axis of resistance". Notably, the Syrian government is also part of the coalition.

### The name

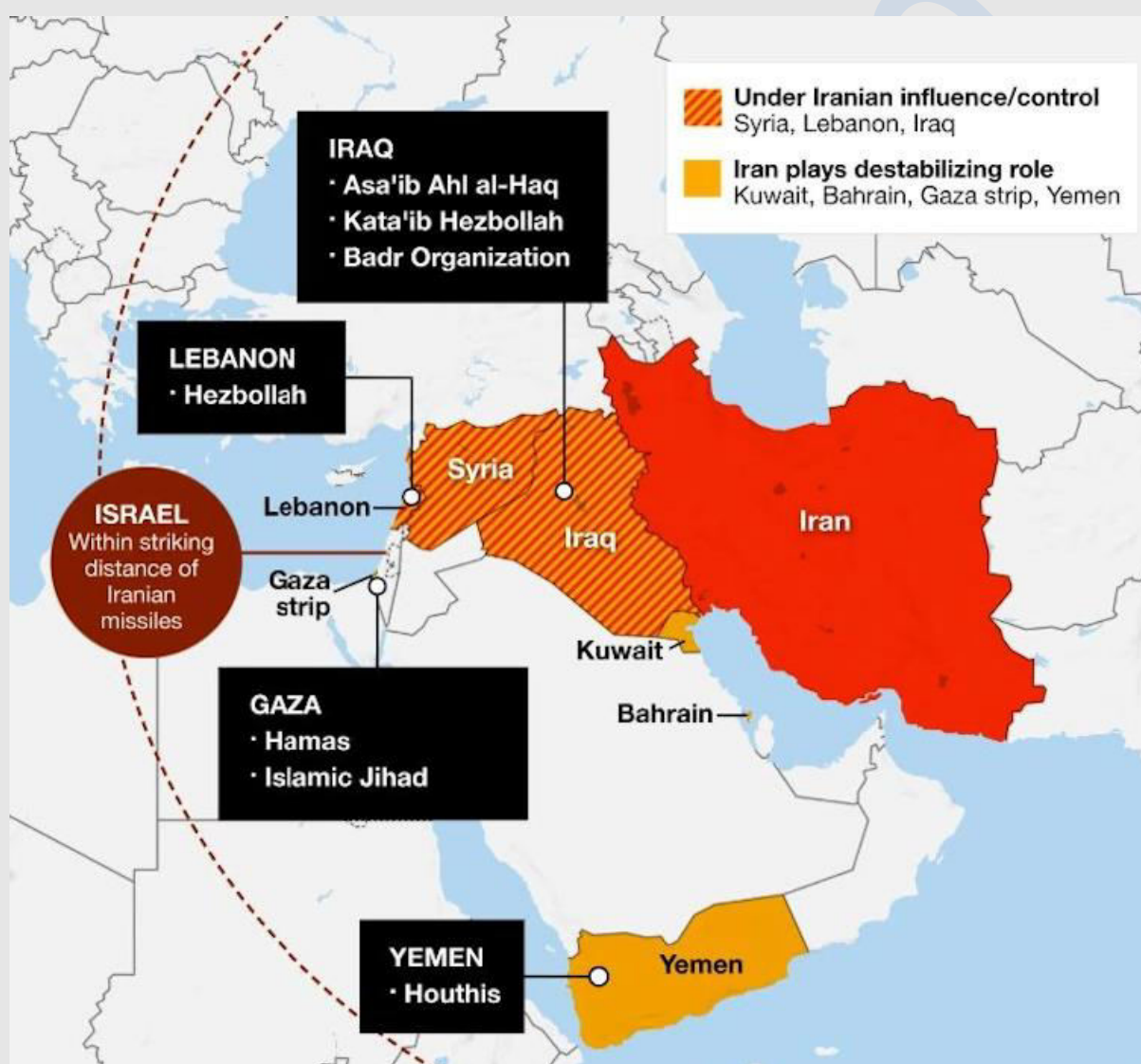
The Axis of Resistance (Persian: Mehvar-e Moqāvemāt; Arabic: Miḥwar al-Muqāwamah) is an informal Iranian-led political and military coalition in West Asia and North Africa. It most notably includes the Syrian government, the Lebanese political party and militant group Hezbollah, the Yemeni political and military organization Ansar Allah (the Houthi movement), and a variety of Palestinian militant groups.

Despite the alliance members' differing ideologies, they are all unified by their declared objectives of opposing the regional influence of the Western countries; Israel; the Arab countries of the Persian Gulf; and, specifically in the case of the Shia–Sunni divide, certain Sunni Islamists who are perceived as posing a threat to the Iranian ideology of Shia Islamism.

The growing political and military influence of the Iranian government throughout the region has played a role in fuelling a number of wars throughout the Arab world, particularly in the context of the Iran–Israel proxy conflict and the Iran–Saudi Arabia proxy conflict, and has thus been cited as one of the main factors driving Arab–Israeli normalization; the equally informal Arab–Israeli alliance emerged between Israel and a number of Arab countries around 2019 in order to address their concerns regarding security threats from Iran or Iranian proxies.

## Reach

Ali Khamenei, who has served as the Supreme Leader of Iran since 1989, has repeatedly defined the Islamic Republic government as a "resistance government" (i.e., against Western and Israeli influence). Though the Axis of Resistance operates primarily in the Middle East, the Iranian government has attempted to export the alliance's ideology at a global level; Iran and Iran-aligned proxies have attacked Jewish, Israeli, and American organizations abroad. During a meeting with Cuban president Miguel Díaz-Canel in December 2023, Khamenei formally called on the people of Cuba to form a similar coalition against the "bullying" of the United States and other Western countries.



Relevance: GS Prelims & Mains Paper II; International Relations

Source: Indian Express and Others

## 8. A short history of Iran-Israel ties and why they soured after 1979

### Why in News?

Iran has said that its April 12 attacks on Israel were in response to Israeli war jets targeting an Iranian consulate in Syria earlier this month, leading to the death of its senior military commanders.

While drones and missiles were fired at Israel, no significant casualties have been reported so far. Iran has claimed to have caused damage to one Israeli military facility.

Concerns have been raised ever since the Hamas attack in Israel on October 7, 2023, and the subsequent attacks in the Red Sea by Yemen's Houthis, that a wider regional conflict could happen in the Middle East, with the two powers at the centre of it. However, their relationship has not always been as fraught as it is today. Iran was one of the first countries in the region to recognise Israel after its formation in 1948. It was only after 1979 that their diplomatic ties ended.



### Pre-1979 Iran-Israel ties

In 1948, the opposition of Arab states to Israel led to the first Arab-Israeli war. Iran was not a part of that conflict, and after Israel won, it established ties with the Jewish state. It was the second Muslim-majority country to do so after Turkey.

The Pahlavi dynasty, under the Shah Mohammad Reza Pahlavi, ruled Iran then. It had US support, as did Israel, and the two countries maintained ties with each other, with Iran also selling oil to Israel amid its economic boycott by Arab states.



### **The 1979 revolution**

A religious state was established in Iran after the Shah was overthrown in the 1979 Islamic Revolution. The regime's view of Israel changed, and it was seen as an occupier of Palestinian land.

Israel's Iranian Supreme Leader Ayatollah Khomeini termed Israel "Little Satan" and the United States the "Great Satan", seeing the two as parties interfering in the region. Iran also sought to grow its presence in the region, challenging the two major powers Saudi Arabia and Israel – both of whom were US allies.

### **A Shadow War after 1979**

As a result, the ties between the countries worsened. While Israel and Iran have never engaged in direct military confrontation, both have attempted to inflict damage on the other through proxies and limited strategic attacks.

Israel has attacked Iranian nuclear facilities from time to time. In the early 2010s, it targeted several facilities and nuclear scientists in a bid to prevent it from developing nuclear weapons. In 2010, the US and Israel are believed to have developed Stuxnet, a malicious computer virus. Used to attack a uranium enrichment facility at Iran's Natanz nuclear site, it was the "first publicly known cyberattack on industrial machinery".

Iran, meanwhile, is seen as responsible for funding and supporting several militant groups in the region that are anti-Israel and anti-US, such as Hezbollah in Lebanon and Hamas in the Gaza Strip.

This support was why concerns of a widening conflict or a confrontation have been raised in the last few months. Along with how Iran, its proxies and Israel react in the various situations that have unfolded, a significant factor is the US reaction.

President Joe Biden has been largely supportive of longtime ally Israel's "right to defend" itself, even in the face of global and domestic criticism over the thousands of civilian deaths in the Gaza Strip. With the US presidential elections due this year, he would not want to be seen involving the country in the conflict far away from home, while also keeping its commitments to Israel. The tightrope-walking has, therefore, added to the uncertainty.

Relevance: GS Prelims & Mains Paper II; Bilateral Relations

Source: Indian Express

## **9. As Iran attacks Israel, four key questions on what is happening, why it matters**

### **1. What's happened so far?**

Iran has launched an aerial attack on Israel using "more than 300 threats" including cruise and ballistic missiles, rockets, and explosive drones, the Israel Defence Forces (IDF) said.

Iran said the attacks were a response to the Israeli air strikes on its diplomatic premises in Damascus, Syria, on April 2, in which 13 people, including a senior Iranian military general, were killed. Iran's Supreme Leader Ayatollah Ali Khamenei had vowed revenge.



## 2. What kind of damage has Iran's attack on Israel caused?

No significant damage had been reported during the first few hours of the crisis. Israeli air defences, supported by American, British, and Jordanian forces, intercepted the "vast majority" of the missiles and drones above Jordan, Iraq, and Syria, before they could reach Israel, the Israel Defence Forces (IDF) said.

There is considerable geographical distance between Iran and Israel, which a missile could take between 15 minutes to about 2 hours to traverse, depending on its speed.

The attacks that began on April 13 night were launched, besides Iran, from Iraq, Syria, and Yemen, the United States Department of Defence said. Iran maintains a military presence in

several conflict-ridden countries in this region, and militias backed, funded, and armed by Iran control territory in these countries.

### **3. Why is Iran's attack significant?**

Although Iran and Israel have a long history of bitter conflict and covert military actions against each other, this is the first time Iran has launched a direct attack of this scale aimed at targets within Israel.

Although Iran has said that following its attacks on Saturday night, "the matter [of the Israeli attack on Iranian premises in Damascus] can be deemed concluded", the Israeli response remains to be seen.

### **4. What has the United States said?**

President Joe Biden has condemned the attacks by Iran and reaffirmed the United States' "ironclad commitment" to the security of Israel. Biden said he would convene a meeting of the G7 to "coordinate a united diplomatic response" to Iran's attack.

The escalation increases Biden's problems in the Middle East as his re-election battle at home picks up pace. With the war in Gaza continuing, the US has its task cut out.

Relevance: GS Prelims & Mains Paper II; International Relations

Source: Indian Express

## **10. India's stakes in Iran-Israel conflict — and why it does not want tensions to escalate**

### **Why in News?**

Iran's retaliatory attack on Israel with drones and missile which caused immediate concern in New Delhi. The Ministry of External Affairs quickly issued a statement expressing India's "serious concern" at the escalation of hostilities, and called for "immediate de-escalation".

The Ministry of External Affairs is closely monitoring the evolving situation and the Indian embassies in the region are in close touch with the Indian community.

### **An escalation had been expected.**

As the war clouds hovered over West Asia, New Delhi advised Indians to not travel to Iran and Israel till further notice, "in view of the prevailing situation in the region". "All those who are currently residing in Iran or Israel are requested to get in touch with Indian Embassies there and register themselves," the MEA advisory said.

### **From 2020 to 2024, there is a pattern to Iranian retaliation.**

The Iranian attack was in response to the suspected Israeli strike on April 1 on an Iranian consular building in Syria's Damascus that killed 12 people, including a senior general. It follows a playbook from four years ago. American intelligence officials had warned on April 12 that Iran could carry out reprisal attacks in the next 48 hours.

In January 2020, when former Quds Force chief Qassem Soleimani was killed, Tehran responded days later by firing ballistic missiles at US forces stationed at al-Asad Air Base in western Iraq.

At that time, Iran had attacked two bases in Iraq that housed American troops with a barrage of missiles, fulfilling Tehran's promise to retaliate for the killing of the top Iranian commander.



Cut to April 2024. Iran fired scores of drones, cruise missiles and ballistic missiles — with the vast majority intercepted outside Israel's borders. He said warplanes intercepted over 10 cruise missiles alone, also outside Israeli airspace.

However, handful of missiles landed in Israel. Rescuers said a 7-year-old girl in a Bedouin Arab town was seriously wounded in southern Israel, apparently in a missile strike. A missile struck an army base, causing light damage but no injuries.

**The Iran attacks have the potential to push India to a difficult spot. Here's why.**

A potential response by Israel threatens to escalate the situation and expand the conflict. This is a big worry for New Delhi, which has already flagged the possible expansion of the conflict. India has strategic ties with both Iran and Israel — and for decades, it has been able to balance between the two sides. But if the conflict widens, it would be difficult for it to maintain an ambivalent position.



India has a very deep strategic relationship with Israel, especially in the context of defence and security partnership. In the last decade or so, it has grown and has been made public — unlike in the past. This has led to India lending support to Israel in the first few hours of the October 7 terrorist attacks by Hamas.

The two sides have strong concerns about extremism and terrorism, as both have suffered during the 26/11 Mumbai terror attacks. Israel has also emerged as a major defence supplier, along with the US, France and Russia, and New Delhi remembers that it has stepped up to help during times of crisis, including the Kargil war in 1999.

At the same time, India has managed to maintain a strategic relationship with Iran, as Tehran has been one of the major suppliers of crude — which has suffered setbacks due to sanctions. Besides, both countries have shared concerns on terrorism emanating from Pakistan and Afghanistan.

The two countries have similar concerns on Taliban's treatment of minorities and the lack of an inclusive and representative government in Kabul.

Chabahar is another strategic economic project, which acts as a gateway to Afghanistan and Central Asia — since Pakistan denies land transit to Indian goods.

In the context of such deep ties with both Israel and Iran, New Delhi has difficulty in choosing sides.

**There have been a few difficult moments in the past too.**

The Israel-Iran tension has spilt over to India a few times — much to New Delhi's discomfiture. The one major case was the February 2012 attack on an Israeli diplomat's wife in New Delhi, and it was alleged that Tehran was behind the attack.

In recent years, there have been diplomatic verbal face-offs between the Israeli ambassador and the Iranian embassy in Delhi. In 2021, after Israel envoy Naor Gilon called Iran "the biggest destabilizer" in the Middle East, the Iranian embassy in New Delhi called Gilon's comments "the childish remarks" of an "evil-minded Zionist envoy," and Israel a "terror house" and a "selfish and bloodthirsty regime."

New Delhi has always asked the two sides to calm down and maintain restraint in a "friendly third country".

**An escalation between the two countries has direct and tangible consequences for India.**

For New Delhi, a potential escalation as a result of the tension means an impact on mainly three accounts: its people, its economic interests and strategic needs.

Firstly, while there are about 18,000 Indians in Israel and about 5,000-10,000 Indians in Iran, about 90 lakh people are living and working in the Gulf and West Asia region. Any conflict that expands will end up posing a risk to the Indian community that is based in the region.



Secondly, India's economic interests are tied to energy security — the West Asia region contributes to India's 80 per cent of oil supplies, which a potential conflict will impact. India has been able to minimise the impact of oil prices due to the Russia-Ukraine war by buying Russian oil at discounted prices, but this conflict will have an adverse impact on energy prices.

Thirdly, India has invested in a strategic relationship with major Arab countries, Iran, and Israel. New Delhi sees the region as its extended neighbourhood, and it has been working with all sides in the turbulent region to push for the India-Middle-East-Europe Economic corridor, which has strategic as well as economic benefits for Delhi. A conflict has the potential to unravel the consensus that has been built around the peace in the otherwise combustible region.

India's position that there should be "immediate de-escalation" and "step back from violence" and "return to the path of diplomacy" is, therefore, crucial to its national interest.

Relevance: GS Prelims & Mains Paper II; Bilateral Relations

Source: Indian Express

### 11. A year after fighting broke out in Sudan, what is the state of the conflict?

#### Why in News?

Sudan has faced conflict for a year now. Just a few years ago, Sudan seemed on the precipice of peace and change, after the three decades-long regime of dictator Omar al-Bashir was ousted from power.



However, fighting broke out in the country last year among rival groups who are vying for power. Recently the Indian Embassy in capital Khartoum issued a notice to Indians to take

“utmost precautions.” Several Indian workers, particularly from the Hakki Pikki tribal community from Karnataka, are in Sudan. Today, Sudan is close to a famine and around 25 million – half the total population – are in need of assistance.

### **Why is Sudan at war?**

Sudan is seeing violence and fighting among groups amid an attempt to transition its polity from an autocracy.

In 2019, military generals ousted Omar al-Bashir amid a popular uprising. People within the country and major powers were critical of his rule on account of corruption, rising costs of living towards the late 2010s, and repression of social groups.

Between the years 1992-1996, Sudan also played host to Osama Bin Laden who had heavily invested in the country's infrastructure at the time. The US then declared Sudan as a “state sponsor of terrorism” in 1993 and the United Nations imposed sanctions on it the next year.

After his regime was toppled in 2019, civilian groups and the military decided to share power and an agreement to the effect was signed. Abdalla Hamdok was appointed the Prime Minister until elections were held.

However, a military coup under General Abdel Fattah al-Burhan and General Mohamed Hamdan Dagalo, head of the paramilitary Rapid Support Forces (RSF), took place in 2021.

The RSF was founded by the former dictatorial ruler Omar al-Bashir as an Arab counterinsurgency militia. Bashir wanted to crush a rebellion in the region of Darfur that began more than 20 years ago due to the political and economic marginalisation of the local population.

The military coalition assured elections will take place and blamed the civilian groups for causing instability due to infighting. Critics believe that the military was reluctant to give up power to civilian leaders, having long played a role in Sudan's political and economic affairs.

In April 2023, Burhan and Dagalo's rift over the RSF's role in Sudan came to the fore.

### **What is the situation in Sudan now?**

The army is believed to have made several advances of late, having claimed territory in Khartoum recently. Saudi Arabia and the United States led talks in Jeddah last year “to try to reach a truce between Sudan's army and the paramilitary Rapid Support Forces (RSF), but the negotiations faltered amid competing international peace initiatives.”

More than 14,700 people have been killed in the war, according to Amnesty International. Nearly 9 million people have been forced to flee their homes either to safer areas inside Sudan or to neighboring countries, according to the United Nations. This also poses a challenge to the larger region.

## 12. What is Israel's multi-layered air defence system, which helped thwart Iran's attacks?

### Why in News?

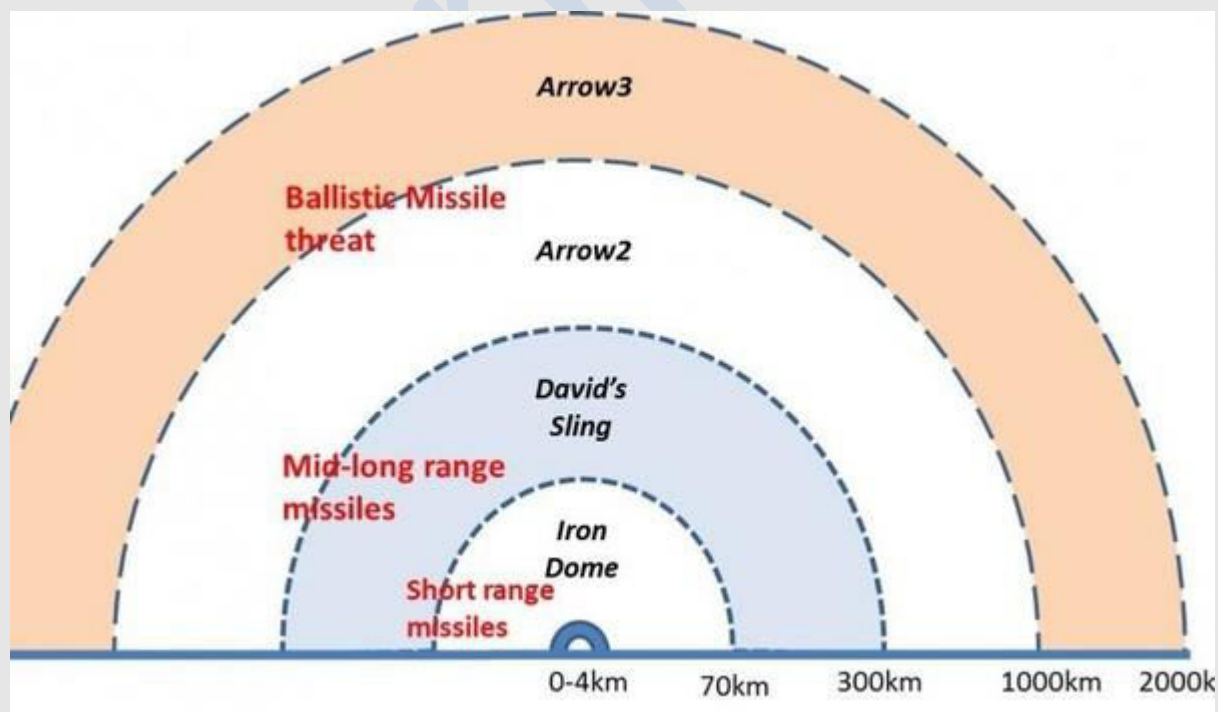
Israel's multi-layered air defence system has defended the country from a major attack, with Iran recently launching over 300 armed drones and long-range missiles launched towards it.

The Israeli Defence Force (IDF) said the Iranian attack was thwarted and only a few missiles landed in its territory, causing minimal damage to an airbase in southern Israel and injuring a child. Iran had launched the attack in retaliation to an Israeli strike on its consulate in Damascus, Syria, earlier this month, killing several Iranian military commanders.

The IDF added that the Israeli air defence system intercepted 99 percent of the incoming projectiles from Iran.

### How does the Israeli air defence system work?

Israel's air defence system is meant to provide multi-layered defences against a range of aerial threats, which includes aircraft, cruise and ballistic missiles as well as unmanned aerial vehicles (UAVs). While cruise missiles fly at a low distance from the ground, ballistic missiles follow a parabolic trajectory.



### What are the components of Israel's defence system?

**The Arrow system** is a family of anti-ballistic missiles, capable of intercepting long-range missiles. Developed in collaboration with the US, Arrow-2 can intercept ballistic missiles within the atmosphere.

**Arrow-3** has the capability of intercepting missiles outside the Earth's atmosphere and it was employed to intercept long-range missiles launched by the Houthi militia in Yemen. The Houthis are believed to be backed by Iran.

**The David's Sling (or Stunner)** is Israel's medium-range air defence system, which can intercept cruise missiles, ballistic missiles, and aircraft. With a range of 300 kilometres, it also has an advanced phased-array radar for easier detection.

**The Iron Dome** is Israel's indigenous short-range air defence system which can intercept rockets, artillery shells, and mortar bombs. With a 70 kilometre range, it has been effectively shooting down short-range threats such as rockets launched by Hamas.

**The US-made Patriot PAC-2 and PAC-3** are air defence systems that can intercept a range of missiles and target aircraft and drones. Counted as among the oldest air defence systems, they were employed during the First Gulf War in 1991 for intercepting Scud missiles launched by Iraq.

**The F-16 and F-35 fighter jets** play a major role in air defence, being equipped with air-to-air missiles.

Additionally, Israel is developing the Iron Beam to intercept incoming threats with laser technology. It is yet to be fully operational.

Relevance: GS Prelims & Mains Paper II; International Relations

Source: Indian Express

### **13. Where India's trade with Israel and Iran stands, and whether regional tensions could impact it**

#### **Why in News?**

Iran's attack on Israel earlier this week has sparked tensions in the Middle East and beyond. India, which has friendly ties with both the countries, has expressed "serious concerns" about escalation of hostilities.

An escalation could also worry traders in the region. How does India trade with these two countries? And what could be the impact of renewed regional tensions on the Indian economy?

**First, India-Israel trade has doubled in the last five years.**

India established diplomatic relations with Israel in 1992. Since then, trade between two countries has been rising significantly, from around \$200 million in 1992 (comprising primarily of diamonds), to \$10.7 billion (excluding defence) in the Financial Year 2022-23.



A sharp rise has happened in the last four years, when trade doubled — from \$5.56 billion in 2018-19 to \$10.7 billion in 2022-23.

In 2022-23, India's exports to Israel were worth \$8.45 billion, while New Delhi's imports from Israel stood at \$2.3 billion, leaving a trade surplus of \$6.13 billion in India's favour.

India is Israel's second largest trading partner in Asia and the seventh largest globally.

### **What are the main components of India's trade with Israel?**

Based on India's 8-digit Harmonized System code, under which trade items are classified, the most valued items exported by India to Israel included diesel, diamonds, aviation turbine fuel, radar apparatus, Basmati rice, T-shirts, and wheat.

Two items, diesel and diamonds, accounted for 78 per cent of total exports during 2022-23. On the other hand, India imported items such as space equipment, diamonds, potassium chloride, mechanical appliances, turbo jets, and printed circuits.

### **Value of India-Iran trade came down in the last five years.**

In 2022-23, India's bilateral trade with Iran was \$2.33 billion. India's trade with Iran has seen a contraction in recent years, before an uptick in the FY 2022-23. It increased by 21.77 per cent — from \$1.94 billion in 2021-22 to \$2.33 billion in 2022-23.

However, in the three preceding years (2019-20, 2020-21 and 2021-22) it saw a contraction in the wake of US sanctions on Tehran. Trade with Iran dwindled from the high of \$17 billion in 2018-19 to \$4.77 billion in 2019-20, and further to \$2.11 billion in 2020-21.

Of the \$2.33 billion trade in 2022-23, India's exports to Iran accounted for \$1.66 billion, while New Delhi's imports from Tehran stood at just \$0.67 billion, leaving a trade surplus of about \$1 billion.

### **Israel and Iran do not have significant FDI in India**

As far as Foreign Direct Investment (FDI) is concerned, Israel is not a very significant source of investment for India.

As far as investment ties with Iran are concerned, India is developing the first phase of the Shahid Beheshti Port at Chabahar, for improving India's connectivity and trade ties with the Middle East and Central Asia.



### How could Middle East tensions impact the Indian economy?

According to the think tank Global Trade Research Initiative (GTRI), there is unlikely to be any rise in petrol prices in India as a result of ongoing tensions in the Middle East.

The ongoing conflict is unlikely to disrupt crude oil and gas production significantly since major producers like the USA, Russia, and North Sea operators are not in the conflict zone, and Saudi Arabia has not been directly involved.

Although, there could be some impact due to tensions in the Red Sea, which lies at the crucial trade route connecting Europe and Asia. Roughly 12 percent of global trade is dependent on this route.

Since November 2023, Yemen-based militants called the Houthis have fired at some ships passing through this region. They say it is in opposition to Israel's military action in the Gaza Strip, while Israel accuses Iran of backing the Houthis.

Shipping disruptions in the Red Sea, which have forced longer routes around Cape of Good Hope for trade with Europe and North America's east coast, might lead to higher oil and gas prices. In India, the impact on consumers may be minimal as the government could offset price increases by reducing taxes.

Relevance: GS Prelims & Mains Paper II; International Relations

Source: Indian Express

### 14. Maldives ex-President Yameen acquitted: Case against him, context of domestic politics

#### Why in News?

The High Court of Maldives, the country's second highest judicial body, overturned the conviction and 11-year prison sentence of former president Abdulla Yameen Abdul Gayoom recently, and ordered a retrial.

Yameen had been fined \$5 million, and sentenced to seven years in jail on money laundering charges, with another four year sentence added after he was found guilty of bribery in connection to the same case.



#### The corruption case against Yameen

Yameen was indicted in the Maldives Marketing and Public Relations Corporation (MMPRC) scandal, where over \$90 million was embezzled from the MMPRC, a government body, to cover election costs and broker deals for votes in the country's Parliament.

This scandal was uncovered in 2016 during an Al Jazeera investigation, which also found that leases for at least 50 Maldivian islands were obtained by private companies without due process. The investigation implicated Yameen, the Maldives president at the time, several lawmakers, and Maldivian officials linked to Yameen.

In the 2018 presidential election, Yameen was defeated by the joint opposition candidate Ibrahim Mohamed Solih of the Maldivian Democratic Party (MDP). The new government immediately began graft proceedings against Yameen, and in December 2018, three months after the elections, the Maldives High Court ordered the seizure of assets worth \$6.5 million belonging to Yameen.

In December 2022, the Maldives Criminal Court sentenced Yameen to 11 years in prison, and fined him \$5 million after finding him guilty of corruption and money laundering for charges related to receiving kickbacks. He began serving his sentence in Maafushi Prison, but moved to home confinement in October 2023.

Now, the High Court has ruled that Yameen's trial was unfair, and thus acquitted him, while ordering a lower court to restart proceedings against him.

### **Context of Maldives' domestic politics**

Due to his convictions, Yameen was unable to contest in the 2023 presidential elections in Maldives, among the most contentious in the nation's recent democratic history. His party Progressive Party of the Maldives (PPM), however, fielded the eventual winner Mohamed Muizzu as its candidate.

PPM, which was in the principle Opposition during Solih's reign, won the elections on the back of Muizzu's massive 'India Out' campaign calling for the exit of Indian military personnel stationed in the Maldives, as well as a general distancing from New Delhi. While Yameen was not contesting, this campaign was very much a continuation of his policies from 2013-18, when he openly courted Saudi Arabia and China, and was hostile to New Delhi. 'India Out' campaigners even used Yameen's photos on the ground and on social media, eventually, Yameen himself came out in support of the campaign.

And after taking office, Muizzu immediately acted on the 'India Out' campaign, committing to a 'Maldives First' policy that prioritises national interests and sovereignty. A number of developments since have greatly strained Maldives' relations with New Delhi.

Relevance: GS Prelims & Mains Paper II; Bilateral Relations

Source: Indian Express

## **15. Attack and retaliation, anger and restraint: Connecting the dots in the Iran-Israel hostility**

### **Why in News?**

Israel conducted a strike on Iran recently. This was in retaliation to Iran's drone and missile barrage of April 13, which was itself a response to the Israeli attack on an Iranian diplomatic building in Syria in which a top general was killed.

Reports suggested that a military base near Isfahan, the western Iranian city around which a lot of the Iranian nuclear production capability is concentrated, was hit on April 19. But no nuclear-related facilities were damaged, the global nuclear watchdog International Atomic Energy Agency (IAEA) said.



Israel did not claim responsibility for the attack. And Iran, after some reports by the semi-official Fars news agency about explosions in Isfahan, released pictures of a peaceful and picturesque city with its lush green gardens, scintillating architecture, and brilliant blue skies.

### **Since then, there has been silence on both sides. What is happening?**

Thus far, and no further — for now. The muted response by both sides reflected the desire to not raise the rhetoric at this time. It does appear that Israel calibrated the strike carefully — no major casualties have been reported. But Iran remains cautious, and on alert.

After the attack on Israel, Iran's President Ebrahim Raisi had warned that the "tiniest invasion" by Israel would bring a "massive and harsh" response. He said this while addressing Iran's annual Army parade, the venue for which was changed to the Army barracks in north Tehran from its usual location on a highway on the southern outskirts of the capital as a precautionary measure. This suggested that Tehran was preparing for a possible strike by Israel.

### **The Americans likely restrained Israel.**

It does appear from analysis and reporting on the subject that Netanyahu had wanted to respond to the Iranian attack, but US President Joe Biden had asked him to just "take the win"

— which was the fact that Israel was able to thwart 99 per cent of the over 300 drones and missiles launched by Tehran.

Analysts have flagged Netanyahu's abiding interest in prolonging the war and dragging the US into a conflict with Tehran. However, Biden has so far resisted, especially because a desperate battle for the White House looms, and many young Democratic voters are said to be extremely upset with the US support to Israel on the Gaza war.

### **India would not want an escalation of the situation.**

New Delhi has reached out to both Israel and Iran, and has counselled restraint. Within hours of the Iranian attack on April 13, India had expressed "serious concern" at the escalation of hostilities and called for "immediate de-escalation". After the Israeli strike of April 19, India did not issue a reaction.

External Affairs Minister S Jaishankar has discussed the situation with both Iran's Foreign Minister Hossein Amir-Abdollahian and Israel's Foreign Minister Israel Katz. In his conversation with the Iranian minister, he "stressed the importance of avoiding escalation, exercising restraint and returning to diplomacy", and with the Israeli minister, he shared India's concern and "discussed the larger regional situation".

The ability to connect with both countries within a day of the April 13 attacks is a valuable asset, but whether India is able to leverage its neutral stance to influence the two countries' position in a shadow war is a separate question.

Relevance: GS Prelims & Mains Paper II; International Relations

Source: Indian express

## **16. Why fentanyl, reportedly the biggest killer of Americans aged 18-49, figured in Antony Blinken's China visit**

### **Why in News?**

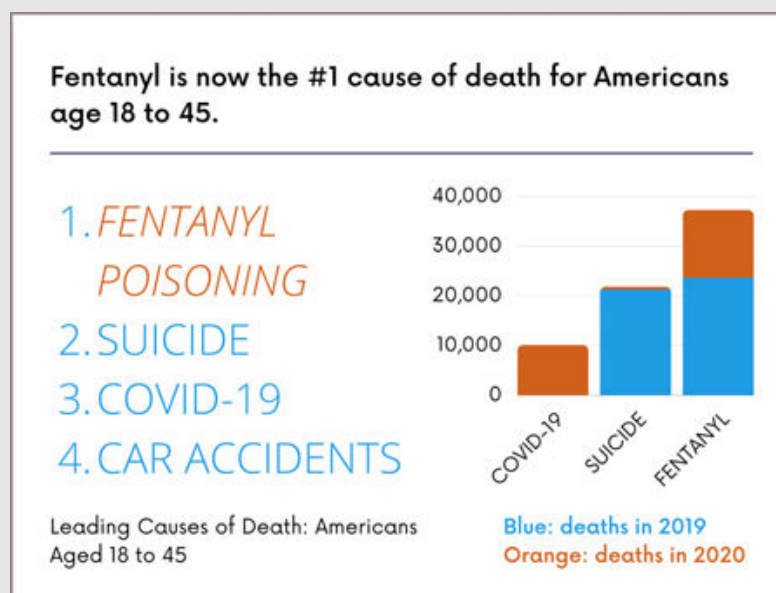
US Secretary of State Anthony Blinken's three-day visit to China concluded recently, after a meeting with Chinese President Xi Jinping. Apart from talks on Ukraine, Taiwan, and China's "dangerous actions" in the South China Sea, Blinken also spoke about the production and export of "synthetic opioid precursors", specifically the drug fentanyl, during the visit.

Blinken said that fentanyl synthetic opioids is the leading killer of Americans between the ages of 18 and 49.

### **What is the scale of the United States' opioid epidemic?**

Opioids are a class of drugs that "derive from, or mimic, natural substances found in the opium poppy plant. They produce a variety of effects, including pain relief and euphoria, and are highly addictive. Some common opioids include oxycodone, morphine, codeine, heroin, and fentanyl.

According to the US Drug Enforcement Administration (DEA), Fentanyl is a potent synthetic opioid drug approved by the Food and Drug Administration for use as an analgesic [for pain relief]. It is approximately 100 times more potent than morphine and 50 times more potent than heroin as an analgesic. But overdoses can cause “stupor, changes in pupil size, clammy skin, cyanosis [blue skin], coma, and respiratory failure leading to death.



Users feel opioids’ impact immediately, and it wears off as quickly — making users need it regularly. Often, people who initially start using prescription opioid-based painkillers get addicted.

The US has been witnessing what many have called an “opioid epidemic”. According to the US Centers for Disease Control and Prevention, “the number of people who died from a drug overdose in 2021 was over six times the number

in 1999. Over 75% of the nearly 107,000 drug overdose deaths in 2021 involved an opioid”.

### What is China’s role in the opioid epidemic?

The US saw a spike in synthetic opioid-related deaths after 2013, largely due to the rapid proliferation of illicitly manufactured fentanyl, and fentanyl analogues like acetyl fentanyl and carfentanil. It has even been found that inexpensive fentanyl is increasingly cut into other drugs, often without the buyers’ knowledge.

The US has primarily blamed two countries for the trafficking of fentanyl — Mexico and China.

### Need for US-China cooperation

The US understands that dealing with the fentanyl crisis at home needs cooperation with China. Both governments have made occasional progress on the matter.

In 2019, China announced it would add fentanyl-related substances to a list of controlled narcotic drugs.

However, given the deterioration of the US-China relations following the Covid-19 pandemic, trade wars, and tensions over Taiwan and the South China Sea, cooperation on this front has been adversely impacted.

**Relevance: GS Prelims & Mains Paper II; Bilateral Relations**



Source: Indian Express

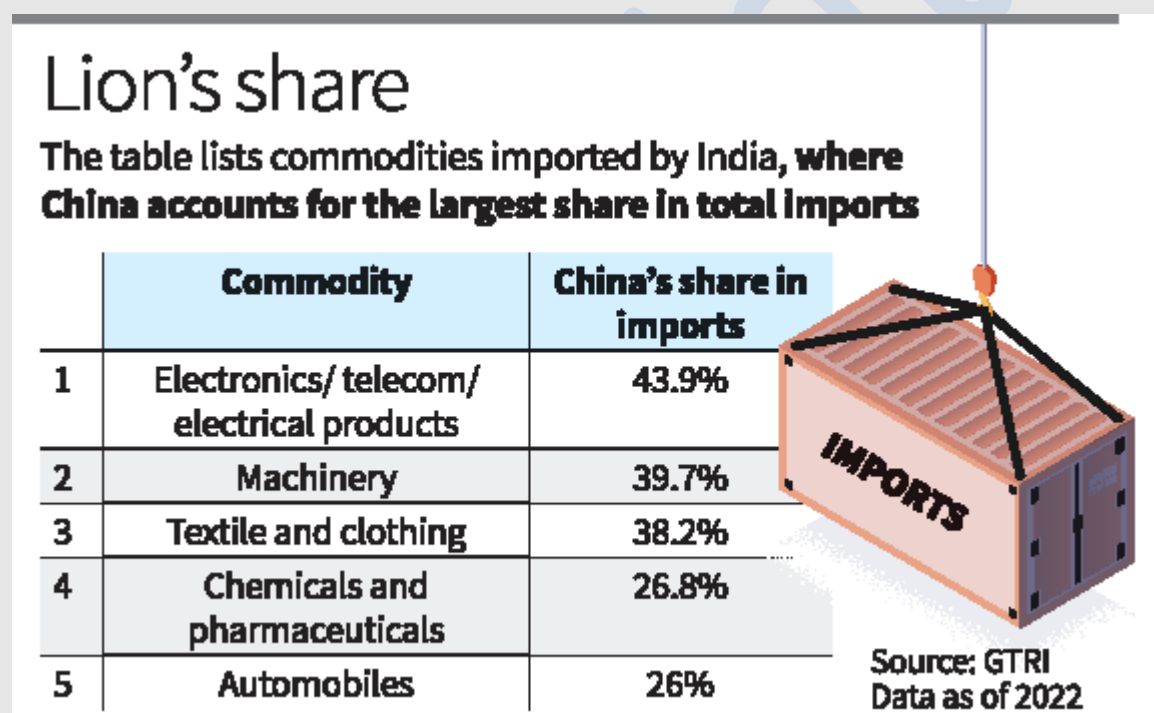
## 17. India's imports from China rise to \$101 billion while exports stagnate

### Imports from China

India's imports from China crossed \$101 billion in 2023-24 from about \$70 billion in 2018-19, and the country's share of India's industrial goods imports has risen from 21% to 30% over 15 years, says a report by the Global Trade Research Initiative (GTRI) which reckoned that Chinese imports will rise sharply in coming years.

China is the top supplier in eight major industrial sectors, including machinery, chemicals, pharmaceuticals, and textiles.

India's total merchandise imports stood at \$677.2 billion in 2023-24, of which 15% or \$101.8 billion worth goods were sourced from China.



### Stagnating exports

Between 2018-19 and 2023-24, India's exports to China have stagnated around \$16 billion annually while imports have surged, resulting in a cumulative trade deficit exceeding \$387 billion over six years.

### Concern for India

Growing trade deficit with China is a cause of concern. The strategic implications of this dependency are 'profound' and affect not only economic but national security dimensions.

Relevance: GS Prelims & Mains Paper II; Bilateral Relations  
Source: The Hindu

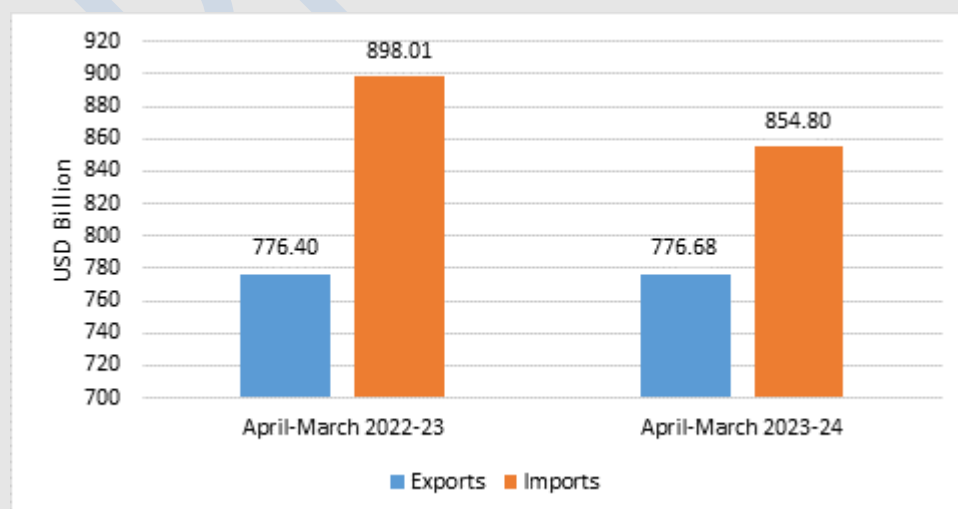
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## Economics

**1. Exports estimated to reach USD 776.68 Billion in FY 2023-24 as compared to USD 776.40 Billion in FY 2022-23**

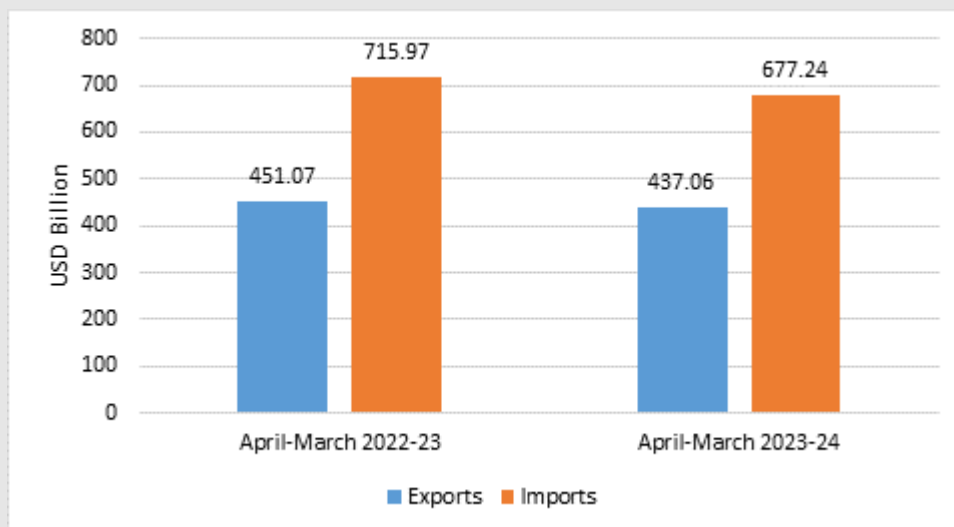
**Overall Trade: Trade during FY 2023-24 (April-March)\***

		2023-24 (USD Billion)	2022-23 (USD Billion)
<b>Merchandise</b>	Exports	437.06	451.07
	Imports	677.24	715.97
<b>Services*</b>	Exports	339.62	325.33
	Imports	177.56	182.05
<b>Overall Trade (Merchandise+ Services)*</b>	Exports	776.68	776.40
	Imports	854.80	898.01
	Trade Balance	-78.12	-121.62



### Merchandise Trade

- Merchandise exports for the period FY 2023-24 (April-March) were USD 437.06 Billion as against USD 451.07 Billion during FY 2022-23 (April-March).
- Merchandise imports for the period FY 2023-24 (April-March) were USD 677.24 Billion as against USD 715.97 Billion during FY 2022-23 (April-March).
- The merchandise trade deficit for FY 2023-24 (April-March) was estimated at USD 240.17 Billion as against USD 264.90 Billion during FY 2022-23 (April-March).



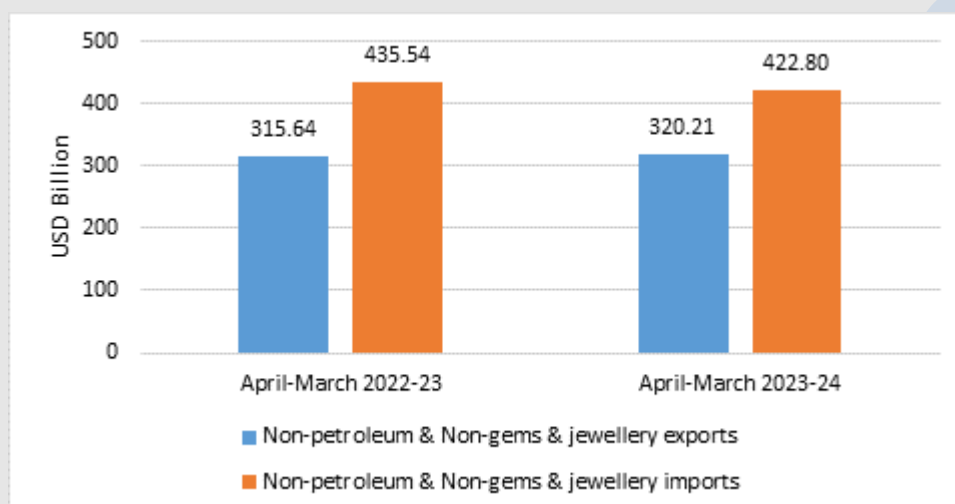
### Trade excluding Petroleum and Gems & Jewellery

- Non-petroleum and non-gems & jewellery exports during FY 2023-24 (April-March) was USD 320.21 Billion, as compared to USD 315.64 Billion in FY 2022-23 (April-March).
- Non-petroleum, non-gems & jewellery (gold, silver & precious metals) imports were USD 422.80 Billion in FY 2023-24 (April-March) as compared to USD 435.54 Billion in FY 2022-23 (April-March).

	2023-24 (USD Billion)	2022-23 (USD Billion)
Non- petroleum exports	352.92	353.60
Non- petroleum imports	497.62	506.55

Non-petroleum & Non Gems & Jewellery exports	320.21	315.64
Non-petroleum & Non Gems & Jewellery imports	422.80	435.54

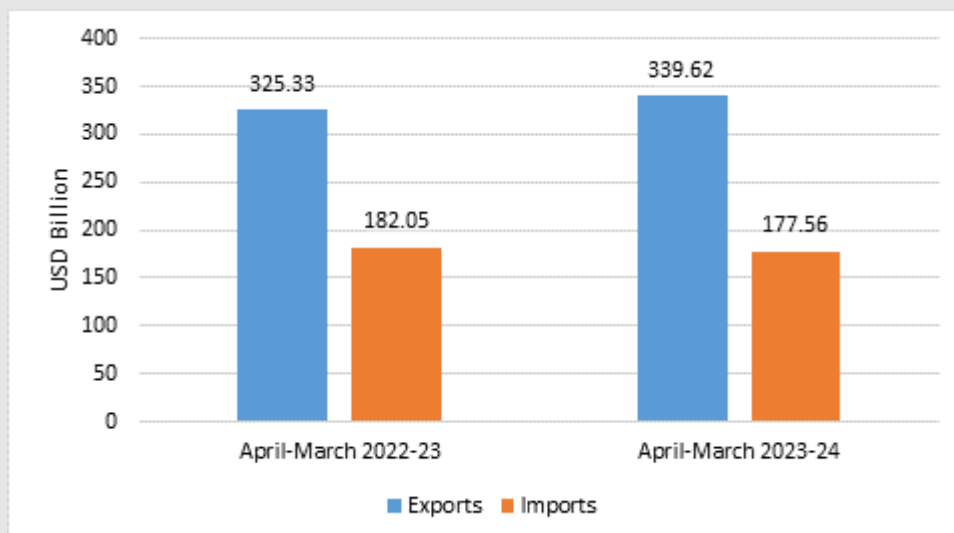
Note: Gems & Jewellery Imports include Gold, Silver & Pearls, precious & Semi-precious stones.



### Services Trade

- The estimated value of services export for FY 2023-24 (April-March)\* is USD 339.62 Billion as compared to USD 325.33 Billion in FY 2022-23 (April-March).
- The estimated value of services imports for FY 2023-24 (April-March)\* is USD 177.56 Billion as compared to USD 182.05 Billion in FY 2022-23 (April-March).
- The services trade surplus for FY 2023-24 (April-March)\* is estimated at USD 162.05 Billion as against USD 143.28 Billion in FY 2022-23 (April-March).





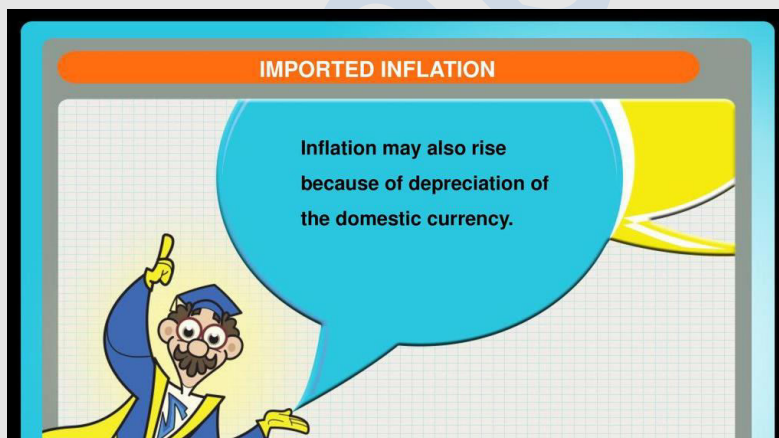
Relevance: GS Prelims & Mains Paper III; Economics

Source: PIB

## 2. Imported inflation: how import costs can increase the prices of goods and services

### Why in News?

Imported inflation refers to the rise in the prices of goods and services in a country that is caused by an increase in the price or the cost of imports into the country. It is believed that a rise in input costs pushes producers to raise the price they charge from their local customers, thus boosting inflation.



### A fall in the rupee

A depreciation in the value of a country's currency is generally seen as the most important reason behind imported inflation in an economy. This is because when a country's currency depreciates, people in the country will have to shell out more of their local currency to purchase the necessary foreign currency

required to buy any foreign goods or services, which in turn means that they will effectively be paying more for anything that they import.

The Asian Development Bank recently warned that India could face imported inflation as the rupee could depreciate amid the rise in interest rates in the West. A rise in interest rates in the West tends to cause the currencies of developing countries to depreciate against western currencies, which in turns can lead to higher import costs for these countries.

### **Costly imports**

A rise in import costs even without depreciation in the value of a country's currency is also believed to lead to import inflation. So a rise in international crude oil prices due to fall in oil output, for instance, is expected to cause prices to rise across an economy which imports oil to produce goods and services. The idea of imported inflation, it should be noted, is simply a variant of cost-push inflation which states that a rise in the cost of inputs can lead to an inflation in the prices of final goods and services.

Relevance: GS Prelims & Mains Paper III; Economics

Source: The Hindu

### **3. What is CDP-SURAKSHA, govt's new digital platform to disburse subsidies to horticulture farmers?**

#### **Why in News?**

The BJP-led government has come up with a new platform to disburse subsidies to horticulture farmers under the Cluster Development Programme (CDP) — the Centre's initiative to promote horticulture crops. The platform is known as CDP-SURAKSHA.

The move seeks to push the growth of India's horticulture sector, which contributes nearly one-third to the agriculture gross value addition (GVA), making a substantial contribution to the Indian economy. The total production of horticulture crops has also spiked in recent years. While in 2010-11, it stood at 240.53 million tonnes, the number rose to 334.60 million tonnes in 2020-21.

#### **What is the CDP-SURAKSHA?**

The CDP-SURAKSHA is essentially a digital platform. SURAKSHA stands for "System for Unified Resource Allocation, Knowledge, and Secure Horticulture Assistance." The platform will allow an instant disbursal of subsidies to farmers in their bank account by utilising the e-RUPI voucher from the National Payments Corporation of India (NPCI).

The CDP-SURAKSHA has features such as database integration with PM-KISAN, cloud-based server space from NIC, UIDAI validation, eRUPI integration, local government directory (LGD), content management system, geotagging, and geo-fencing.



### **How does the CDP-SURAKSHA work?**

The platform allows access to farmers, vendors, implementing agencies (IA), and cluster development agencies (CDAs), and officials of the National Horticulture Board (NHB).

A farmer can login using their mobile number and place an order for planting material such as seeds, seedlings, and plants based on their requirement.

Once the demand has been raised by the farmer, the system will ask them to contribute their share of the cost of planting material. The subsidy amount paid by the government will appear on the screen automatically.

After the farmer pays their contribution, an e-RUPI voucher will be generated. This voucher will then be received by a vendor, who will provide the required planting material to the farmer.

Once the ordered planting material is delivered to the farmer, they have to verify the delivery through geo-tagged photos and videos of their field. It is only after the verification that the IA will release the money to the vendor for the e-RUPI voucher. The vendor will be required to upload an invoice of the payment on the portal.

The IA will collect all the documents and share them with the CDA for subsidy release, then only the subsidy will be released to the IA.

However, the farmer, who raised the demand for the plant material using the platform, can avail of the subsidy at the first stage only.

### **What is e-RUPI?**

The CDP-SURAKSHA platform uses e-RUPI vouchers from the NPCI. The voucher is a one-time payment mechanism that can be redeemed without a card, digital payments app or internet banking access, at the merchants accepting e-RUPI. According to the NPCI, the e-RUPI can be

shared with the beneficiaries for a specific purpose or activity by organisations or government via SMS or QR code.

### **How is the new system different from the old one?**

In the old system, a farmer had to buy planting materials on their own. They would then have to approach the officials concerned for the release of the subsidy.

The CDP-SURAKSHA platform, however, will provide subsidies to farmers upfront, at the time of purchasing the planting material. Vendors, who will supply planting materials to farmers, will receive their payment only after farmers verify the delivery of their orders.

### **What is the Cluster Development Program (CDP)?**

The CDP is a component of the central sector scheme of NHB. It is aimed at leveraging “the geographical specialisation of horticulture clusters and promoting integrated and market-led development of pre-production, production, post-harvest, logistics, branding, and marketing activities.”

So far, 55 horticulture clusters have been identified, out of which 12 have been selected for the pilot. These clusters are in different stages of development. Four more clusters — a floriculture cluster in West Bengal, coconut clusters in Kerala and Tamil Nadu, and white onion clusters in Gujarat — are also in the pipeline. Each cluster will have an implementing agency and a cluster development agency (CDA).

Relevance: GS Prelims & Mains Paper III; Economics

Source: Indian Express

## **4. Special import policy for EV makers if they invest in India**

### **Import at concessional duty allowed**

Electric passenger car sales have been strong in India, albeit on a tiny base. The government has rolled out a policy tailored for Tesla to import 8,000 electric cars annually into India at a sharply reduced 15% duty. Analysts project that around 5% of all automobiles in India will be EVs by 2030 — up from the 2% currently, but much lower than the government’s target of 30%.

### **Promise by Tesla of investment**

Tesla setting up a manufacturing facility could be the ‘Apple moment’ for India’s auto sector. The success of ramping up cell phone assembly by Apple suppliers in India, riding on production-linked incentives, is seen as a landmark in India’s bid to move up the assembly value chain for handphones. The tariff policy break for Tesla is consistent with the government’s approach to tap marquee brands and sectoral flagbearers: Apple in electronics manufacturing, Micron for semiconductor chips, and Tesla in EVs.

### **India’s new EV policy**

The Centre's new EV policy, which effectively lowered import duties to 15% from 100% on car models costing over \$35,000 if its manufacturer promised to invest \$500 million in setting up a local factory, marks a part reversal of the domestic manufacturing policy push, given that the duty cuts are aimed at enabling a carmaker to import fully built cars.



Also, the waiver is specifically for models of electric cars with combined cost, insurance, freight prices of \$35,000 or more — a landed cost of more than Rs 35 lakh, a segment that does not generally qualify for a tax sop.

While the import numbers may be limited to 8,000 units annually, the new policy does allow Tesla to test out the “market potential” before taking a full-scale plunge into manufacturing. The policy comes after the Centre turned down Tesla's demand for upfront import duty cuts less than 24 months ago.

Relevance: GS Prelims & Mains Paper III; Economics

Source: Indian express

## 5. Policy for Global EV Makers

### Why in News?

The Union government on March 15 approved a policy to promote India as a manufacturing hub for Electric Vehicles (EVs). The minimum investment cap has been set at ₹4,150 crore.

### What does the policy stipulate?

The policy broadly clears the path for global EV makers like Tesla and Chinese EV maker BYD to foray into the Indian markets. The central goal of this policy is to enable transitioning to localised production in a commercially viable manner and plan as per local market conditions



and demand. The most significant provision is the reduction of import duty on electric vehicles imported as a Completely Built Unit (CBU) with a minimum cost, insurance and freight (CIF) value of \$35,000 to 15% (for a five-year period) from the present 70%-100%.



This is provided the maker sets up a manufacturing unit within three years. The policy also stipulates that a total duty of ₹6,484 crore or an amount proportional to the investment made — whichever is lower— would be waived on the total number of EVs imported. It must be noted that, a maximum of 40,000 EVs can be imported under the scheme at not more than 8,000 units a year, provided the minimum investment made is \$500 million. Another important aspect of the scheme is localisation targets. Manufacturers have three years to set up their manufacturing facilities in India. They are expected to attain 25% localisation by the third year of incentivised operation and 50% by the fifth year. Should the localisation targets not be achieved, and if the minimum investment criteria as defined under the scheme is not

meet, the bank guarantees of the manufacturers would be revoked.

### What about domestic players?

Tata Motors had opposed the Tesla proposal. It argued that lowering duties would hit the domestic industry and "the investment climate will get vitiated." However, many experts have pointed out that most Indian players are leading in the segments below ₹29 lakh as of now, and hence this policy benefit (from 15% import duty) will likely be for Original Equipment Manufacturers (OEMs) catering to consumers in the higher end of the market.

### How does it cater to Indian markets?

While penetration in the two-and three-wheeler segment has been significant, passenger vehicles have seen only a 2.2% contribution thus far. This is mainly due to lack of proper charging infrastructure, range anxiety, and limited number of products in the affordable range due to limited localisation. The Confederation of Indian Industry (CII) in a July 2023 report had observed that India may require at least 13 lakh charging stations by 2030 to support "aggressive EV uptake."

Relevance: GS Prelims & Mains Paper III; Economics

Source: The Hindu

## 6. Net direct tax collections in 2023-24

### Why in News?

India's net direct tax collections grew 17.7% in 2023-24 to hit ₹19.58 lakh crore, thanks to a surge in personal income tax whose share of the tax kitty rose to 53.3% from 50.06% in the previous year while corporate taxes' contribution dipped to 46.5% from 49.6%.

BOOST TO ECONOMY			
Collection	2022-23	2021-22	Increase
Direct tax	₹16.61L cr	₹14.12L cr	17.63%
Gross revenue	₹19.68L cr	₹16.36L cr	20.33%
Corporate tax	₹10L cr	₹8.59L cr	16.91%
Personal IT	₹9.6L cr	₹7.73L cr	24.23%

Personal income tax (PIT) and Securities transaction tax (STT) receipts also grew at almost double the pace of corporate taxes last year.

### Securities Transaction Tax

Securities Transaction Tax is a tax payable in India on the value of securities transacted through a recognized stock exchange. As of 2016, it is 0.1% for delivery based equity trading.

Relevance: GS Prelims & Mains Paper III; Economics

Source: The Hindu

## 7. Former FTX CEO Sam Bankman-Fried has been sentenced to 25 years in prison for orchestrating one of the largest financial frauds in history, involving at least \$8 billion of customer funds

### Why in News?

Sam Bankman-Fried, the former CEO of the collapsed cryptocurrency exchange FTX, was sentenced to 25 years in prison on March 28, having been found guilty of multiple counts of fraud in 2023 after the spectacular crash of his crypto exchange and business.

### What are the full terms of the sentence?

When he was sentenced to 25 years in prison and three years of supervised release, Bankman-Fried accepted that FTX customers had suffered and that such an acknowledgment was "missing" from what he had spoken about during the trial. He also expressed regret about the way he treated his former colleagues.

Bankman-Fried, a former billionaire, will also have to give up around \$11 billion as part of the sentence.

During the legal proceedings, it was established that customers lost at least \$8 billion, though this figure may vary due to the volatile nature of cryptocurrencies' prices.

The judge authorised the government to use the funds recovered through the forfeiture process to compensate victims. Bankman-Fried's lawyer is planning to appeal.



### **What were the charges against Sam Bankman-Fried?**

FTX collapsed in late 2022 as customers panicked about the health of the exchange and tried to rapidly pull billions of dollars, triggering a liquidity crisis. It was later established that Bankman-Fried misused customer funds to prop up Alameda Research, a cryptocurrency trading firm. Bankman-Fried was arrested in the Bahamas a month later and was brought back to the U.S. to face trial.

### **How will the sentencing affect the crypto market?**

Bankman-Fried's high-profile arrest, his disgraced return to the U.S., and the dramatic court proceedings where his own former colleagues and even a romantic partner testified against him, made headlines worldwide.

His chaotic testimony and uncooperative behaviour stunned even the judge and did not help to turn public opinion in his favour.

The cryptocurrency market itself seemed largely unaffected by the news of the sentencing, as top coins Bitcoin (BTC) and Ether (ETH) did not dramatically spike or fall in the past few days. While FTX's token is still trading, it is worth less than \$2, when compared to its all-time-high of \$85.02.

Bitcoin this year marked a new all-time-high in price and crossed the \$70,000 threshold, injecting the sector with optimism after around two years of depressed prices and a reputational crisis.

The 25-year-long prison sentence serves as a reminder to crypto entrepreneurs everywhere that U.S. regulators can strike quickly when it comes to the fintech sector. The greatest loss, however, is usually borne by risk-taking investors.

Relevance: GS Prelims & Mains Paper III; Economics

Source: The Hindu

## 8. What is bank capital? What is the Basel III Endgame?

### Why in News?

Bank capital is a measure of bank shareholders' investment in the business. In contrast to deposits or money a bank has borrowed, capital does not have to be paid back. A bank that has sufficient capital can cover customers' deposits even if the loans it has made aren't repaid or if its investments drop in value. In other words, it is a cushion or buffer that protects a bank from insolvency—and, thus, reduces the risk that a bank failure triggers system-wide financial instability. As the chart below illustrates, capital is the difference between a bank's assets (left) and its liabilities (right).

### Who decides how much capital banks must hold?

Banks decide for themselves, but regulators all over the world require banks to hold a certain amount of capital—calculated as a percentage of their assets—so they are less likely to fail, seek a government rescue, or trigger a financial crisis.

If a bank has too little capital, managers may be tempted to take imprudent risks because their shareholders have little to lose if things go wrong and will profit handsomely if things go well. Because capital bears more risk, capital is more expensive for banks than raising funds by taking deposits or borrowing money. So banks want to have just enough capital to satisfy regulators, credit rating agencies, creditors, and shareholders, but no more. In general, the more capital a bank has to have, the lower its profits. Because banks are required to have a set amount of capital for every loan or security they hold, requiring them to hold more capital can make them charge more for some loans.

How much more is a subject of debate. But if banks have too little capital to absorb the risks they take, they can, in bad times, trigger economy-wide financial instability. It is clear now that many big banks had too little capital going into the Global Financial Crisis in 2007. Since then, U.S. regulators have increased the minimum amount of capital that banks are required to have. Regulators are now proposing further increases in required capital (known as the "Basel III Endgame"), to the dismay of many big banks who are lobbying aggressively against the proposal.



### **What is the Basel Committee?**

The Basel Committee on Banking Supervision—so named because it meets in Basel, Switzerland—was established in 1974 to enhance financial stability by improving the quality of bank supervision. It is the primary global standard-setter for the prudential regulation of banks, but it has no legal authority to impose the minimum standards to which the Committee agrees. Adopting rules is the responsibility of the governments of the 26 countries (plus the European Union and Hong Kong) who comprise the committee. The U.S. is represented on the Basel Committee by the Federal Reserve Board in Washington, the New York Federal Reserve Bank, the Office of the Comptroller of the Currency (OCC), and the Federal Deposit Insurance Corporation (FDIC).

### **What is the Basel III Endgame?**

Basel III is a set of measures developed by the Basel Committee in the years following the global financial crisis of 2007-09. The measures, rolled out over several years, aim to strengthen the regulation, supervision, and risk management of banks. The final set of rules has been dubbed the "Basel III Endgame." These rules focus on the amount of capital that banks must have against the riskiness of their business. In July 2023, the Federal reserve published for comment proposed changes to bank capital rules in the U.S. that are intended to be aligned with the Basel III standards.

### **What are U.S. regulators proposing?**

Regulators say the net effect of the proposal would be to increase the required highest-grade capital (essentially shareholders' equity plus retained profits) by about 16% on average, with a bigger increase imposed on the biggest banks. Put differently, the largest banks would have to hold an additional 2 percentage points of capital, or an additional \$2 of capital for every \$100 of risk-weighted assets. The proposal would change both the numerator and the denominator in the capital/risk-weighted assets calculation.

Among the major changes, the regulators would:

- Apply the stiffest risk-based capital approach to more banks, those with \$100 billion or more of assets, up from the current threshold of \$700 billion.
- Reduce the ability of banks to use their own models for calculating capital requirements for loans and instead require them to use a standard measure.

Relevance: GS Prelims & Mains Paper III; Economics

Source: Miscellaneous

## **9. What is the Approved Models and Manufacturers of Solar Photovoltaic Modules Order?**

### **Why in News?**

To incentivise India's solar module manufacturing industry, the Ministry of New and Renewable Energy (MNRE) has brought into effect from April 1 an executive order, The Approved Models and Manufacturers of Solar Photovoltaic Modules (Requirements for Compulsory Registration) Order, 2019.



### **What is the context of the executive order?**

This order was first issued by the MNRE in 2019 and requires makers of solar modules to voluntarily submit to an inspection of their manufacturing facilities by the National Institute of Solar Energy, a Ministry-affiliated body. Being on the list as an 'approved' manufacturing facility certifies a company as a legitimate manufacturer of solar panels and not a mere importer or assembler. This became necessary because India's solar industry, its claim of indigenouslyness notwithstanding, is heavily reliant on imports of cheaper and comparable-quality solar modules from China.

Modules are multiple solar panels joined together. Solar panels are an assembly of solar cells. Despite being among the top manufacturers in the world and a commitment to scale solar installation four-fold by 2030, local production of these cells and modules is much below demand. India also has limited capacity to make the raw material of a cell — ingots, wafers — and is dependent on imported cells.

### **Why is India reliant on imports?**

The creation of such a list was also aimed at restricting imports from China, which controls nearly 80% of the global supply, with the downturn in diplomatic relations between the countries also being a factor. 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 COVID-19 affected this trajectory. The difficulty is that meeting the targets require many more solar panels and component cells than India's domestic industry can supply.

### **If the list is voluntary why pay to be on it?**

The major advantage of being on the list is eligibility to compete for tenders issued by the government for its flagship solar energy programmes. This includes among others the recently announced PM Surya Ghar Muft Bijli Yojana. The scheme envisages subsidising rooftop solar installations for nearly one crore households in the country involving an estimated subsidy of ₹75,000 crore. However, only domestic manufacturers, certified as part of the Approved Models and Manufacturers (AMM) list, would be eligible. There is also another scheme called the PM KUSUM (Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyaan) that aims to provide solar pumpsets and rural electrification. For manufacturers to be eligible to provide components under this scheme, they have to be certified as genuine local manufacturers.

The government also has a ₹24,000 crore scheme, called the Production Linked Incentive Scheme, that is targetted at incentivising domestic manufacture of solar panels and their components. Eligibility for this scheme too requires one to be a bona fide local manufacturer. So far, 14 major companies have become eligible for incentives to manufacture solar modules worth 48 GW. However, these restrictions apply only to fresh projects and plants and facilities commissioned before March 2024 can rely on imported modules.

### **Is India's manufacturing capacity adequate?**

Last year was a fortunate year for Indians in the solar business. China which supplies over 80% of solar components globally saw a curb in orders from the U.S. on the grounds that the former relied on “forced labour” by Uiyghur Muslims in the Xinjiang province. Europe too scaled back imports from China and a beneficiary of this was India which exported nearly \$1 billion worth of modules in six months of 2023-24. However, reports suggest that the U.S. might roll back duties on China and this could again mean uncertainty for the future of Indian exports. It is estimated that nearly half of India’s solar modules are imported from China and the demand-supply mismatch is expected to persist. The government, however, has claimed that beginning this year, there will be a significant rise in manufacturing capacity. While the list of certified manufacturers on the AMM list has grown to 82 according to the MNRE, there is yet no list of such manufacturers of solar cells, implying that India is still far away from achieving a comfortable degree of self-reliance.

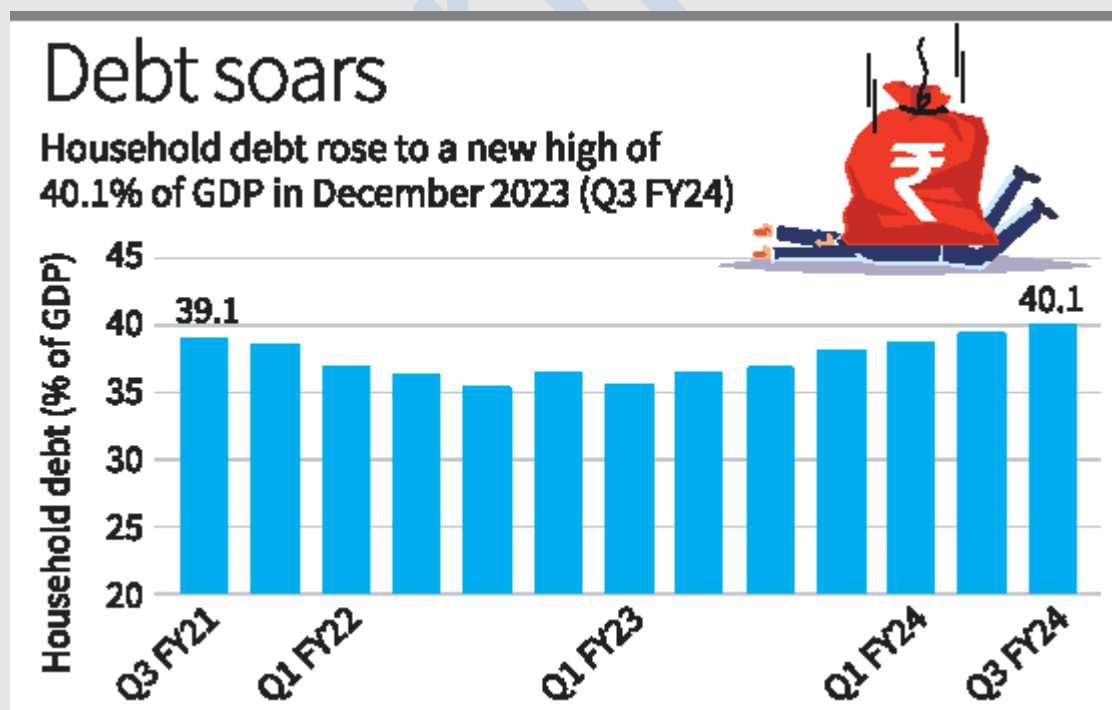
Relevance: GS Prelims & Mains Paper III; Economics

Source: The Hindu

## 10. Households’ debt surged to new high by Dec. 2023

### Overall findings

In what may be construed as a sign of rising financial distress, India’s household debt levels are reckoned to have touched an all-time high of 40% of Gross Domestic Product (GDP) by December 2023, while net financial savings had likely dropped to their lowest level at around 5% of GDP, as per a research report from leading financial services firm Motilal Oswal.



In September 2023, the Reserve Bank of India (RBI) estimated that households' net financial savings had dropped to 5.1% of GDP in 2022-23, a 47-year low, and weaker than the average of 7.6% of GDP recorded between 2011-12 and 2019-20.

### **Composition of debt**

Research from the financial services firm suggest that household debt has risen to approximately 40% of GDP as of December 2023, reaching a new high. Based on banks' data, it is clear that unsecured personal loans continue to grow at the fastest pace within household debt, followed by secured debt, agricultural loans, and business loans.

Relevance: GS Prelims & Mains Paper III; Economics

Source: The Hindu

## **11. Why text of amended tax treaty with Mauritius triggered stock sell-offs**

### **Why in News?**

India has signed a protocol amending its tax treaty with Mauritius with an aim to plug treaty abuse for tax evasion and avoidance. The text of the amended treaty, however, has raised concerns of greater scrutiny on investments, and led to a sell-off in stock markets by Foreign Portfolio Investors (FPIs).

### **Introduction of the Principal Purpose Test**

India and Mauritius signed a protocol at Port Louis in March amending the Double Taxation Avoidance Agreement (DTAA) between the two nations.

## **INDIA AMENDS DOUBLE TAXATION AVOIDANCE AGREEMENT (DTAA) WITH MAURITIUS**

- **India-Mauritius Tax Treaty To Incorporate 'Principal Purpose Test' (PPT)**
- **PPT To Determine If Primary Purpose Of Tax Arrangement Was To Obtain Treaty Benefit**
- **Treaty Benefit May Be Denied To Transactions That Fail PPT**

The amended pact includes the Principal Purpose Test (PPT), which is in line with the global efforts against treaty abuse. The PPT essentially implies that the tax benefits under the treaty will not be applicable if it is established that obtaining that duty benefit was the principal purpose of any transaction or arrangement.

The recent amendment reflects India's intent to align with global efforts against treaty abuse, under the Base Erosion and Profit Shifting (BEPS) framework — an international framework to combat tax avoidance by multinational enterprises using base erosion and profit shifting tools

i.e “shifting” profits from higher tax to lower tax jurisdictions. Though India is yet to make any announcements regarding Pillar Two amendments (a minimum 15% corporate tax on income) in its domestic tax laws, experts said it is anticipated this may be announced in the July 2024 budget, after the general elections.

### **Impact of the amended treaty**

Investors are apprehensive that this will result in greater scrutiny of the capital gains tax levy and exemption, as the PPT will be applicable to past investments where investors have not made an exit yet.

The DTAA was a major reason for a large number of FPIs and foreign entities to route their investments in India through Mauritius, as there was no capital gains tax on sale/transfer of shares.

Mauritius remains India’s fourth largest source of FPI investments, after the US, Singapore, and Luxembourg. FPI investment from Mauritius stood at Rs 4.19 lakh crore at the end of March 2024, which is 6 per cent of the total FPI investment of Rs 69.54 lakh crore in India.

Relevance: GS Prelims & Mains Paper III; Economics

Source: Indian Express

## **12. IRDAI removes age bar for buying health insurance**

### **Why in News?**

The Insurance Regulatory and Development Authority of India (IRDAI) has removed the age limit for purchasing health insurance policies, with effect from April 1.

**Towards inclusivity**

**What does the latest IRDAI directive say**

- 1) Health insurance providers must develop specialised policies catering to senior citizens, and establish dedicated channels for addressing their claims and grievances**
- 2) Companies are encouraged to develop tailored products to meet specific age-related requirements**

### **Wider coverage**

Earlier, there was an age limit of 65 years to buy new health insurance policies. The IRDAI's latest move is aimed at bringing in extended health benefits to senior citizens, and caters to diverse demographic groups, including children and maternity needs.

The IRDAI directive mandates health insurance providers to develop specialised policies catering to senior citizens, and to establish dedicated channels for addressing their claims and grievances.

Companies are also encouraged to develop tailored products to meet specific age-related requirements, fostering a more inclusive healthcare ecosystem.

### **Benefit of move**

The recent decision to lift the age restriction on insurance coverage is a significant advancement. Now, with the removal of this restriction, even the elderly can access cashless insurance benefits, though premiums for this demographic may be higher.

This change will greatly benefit those in need of medical insurance, including children, maternity cases, and senior citizens, ensuring a healthier life for many.

### **About IRDAI**

The IRDAI is an autonomous and statutory body responsible for managing and regulating India's insurance and reinsurance industry.

Relevance: GS Prelims & Mains Paper III; Economics

Source: The Hindu

## **13. Health insurance for all ages**

### **Why in News?**

Senior citizens, even if they are 80 or 90 years old, will now be able to buy health insurance, irrespective of existing medical conditions. This is a huge relief for all Indians above the age of 65.

The insurance regulator, Insurance Regulatory and Development Authority of India (IRDAI), has asked insurance companies to offer their usual health policies to everyone, including senior citizens, students, and children.

### **What is the new health insurance provision, and how will it help?**

The regulator has told insurers to "design products specifically for senior citizens, students, children, maternity and any other group as specified by the Competent Authority (IRDAI)".

India is a predominantly young country currently, but the share of the population above the age of 60 is projected to reach 20% by 2050. Following the IRDAI instruction, companies can build new products or enhance existing products offering comprehensive coverage to the



entire family, including parents, instead of the current approach of restrictive offering for senior citizens.



#### **What was the age limit for health coverage until now?**

IRDAI norms put the ceiling for buying health insurance at age 65. Thereafter, insurance cover came with tougher conditions, including compulsory pre-insurance health check-ups, and no cover for pre-existing ailments. This is because susceptibility to illnesses increases after a certain age, regardless of how healthy an individual customer may be.

Also, premiums increased with age, so customers older than 50 were forced to make do with limited cover, and accept the removal of certain insurance riders.

#### **What issues could possibly arise in the implementation of IRDAI's idea?**

Insurers may not be enthusiastic about catering to the 65-plus age bracket, and even if they do, the terms and conditions of such insurance policies may not be favourable to the customer. A 70-year-old individual who may now have the opportunity to buy health insurance for the first time, will likely encounter stringent terms, exclusions, and possibly high premiums. Since people in the 65-plus age group often have pre-existing conditions, insurers will carefully evaluate the profitability, sustainability, and scalability of their policies for this demographic.

Relevance: GS Prelims & Mains Paper III; Economics

Source: Indian express

**1. What are the concerns about the Global Biodiversity Framework which aims to increase areas under forest cover, inland water, coastal and marine areas to at least 30% of the world's terrestrial area? What is the situation in India?**

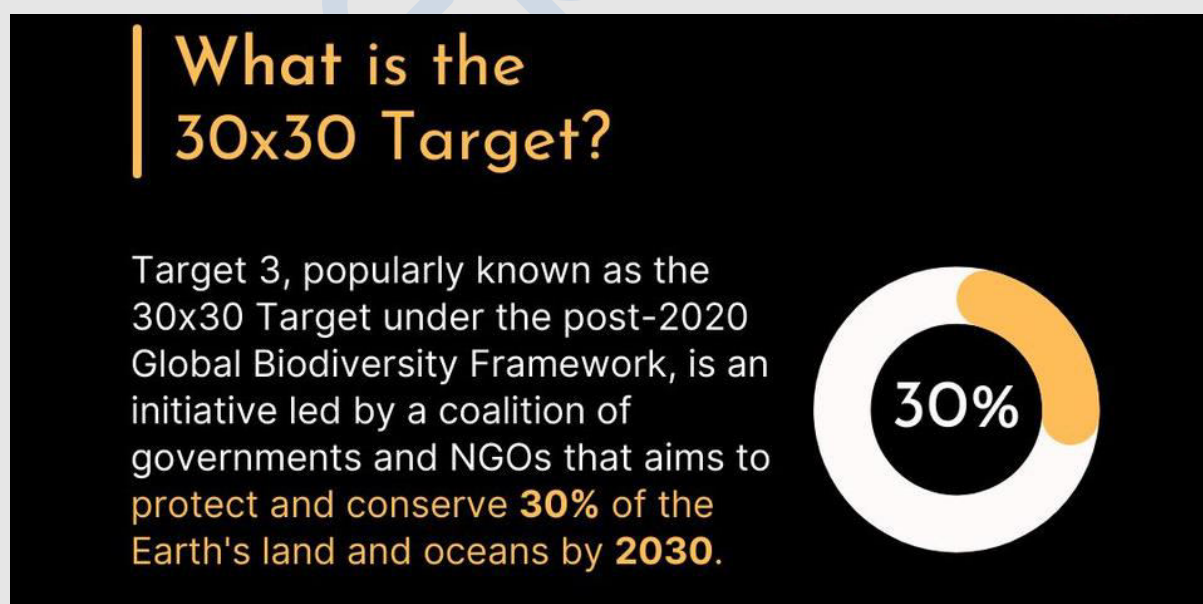
### Why in News?

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. 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. Participating at the event, New Delhi-based rights activist 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.

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, Activists pointed out.

### **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. 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?**

An activist 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 Protected Areas as nature has largely been protected because of their special relations with the forests and their denizens.

Secondly, 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.

Relevance: GS Prelims & Mains Paper III; Environment

Source: Indian Express

## **2. Why Supreme Court barred unregulated soil extraction for linear projects**

### **Why in News?**

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.

### **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”. It also said that grant of exemption was a policy matter that did not warrant judicial interference.

### **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 SC said**

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.

Also, 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.

### **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.

\* 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.

Relevance: GS Prelims & Mains Paper III; Environment

Source: The Indian express

### 3. Green, Grey and Blue Hydrogen

#### Why in News?

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. Hydrogen is expected to be used widely in the transportation sector in the coming years.

#### 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 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.



## THE COLOURS OF HYDROGEN

**GREY** hydrogen constitutes the bulk of India's production currently. It is extracted from hydrocarbons (fossil fuels and natural gas), and carbon dioxide is the byproduct of consumption.

**BLUE** hydrogen is also sourced from fossil fuels, but byproducts such as

carbon monoxide and carbon dioxide are captured and stored, so it is better than grey hydrogen.

**GREEN HYDROGEN** is an 'end-to-end' green fuel. Electricity generated from renewable sources such as wind or solar is used to electrolyse water. Byproducts are water or water vapour.

The many colours of Hydrogen.

Relevance: GS Prelims & Mains Paper III; Environment

Source: Indian Express

### 4. States identify thousands of hectares of 'degraded' forest land to be offered for earning green credits

#### What is Green Credit Programme?

Few weeks ago, Union Environment Ministry announced the rules for its Green Credit Programme (GCP).

Under the scheme, registered and approved entities can pay to finance afforestation projects in specific tracts of degraded forest and wasteland. The actual afforestation will be carried out by State forest departments.

Two years after planting — and following an evaluation by the International Council of Forestry Research and Education (ICFRE), an autonomous body of the Environment Ministry — each planted tree could be worth one 'green credit'.

#### Offset obligations

These green credits can then be used by companies which have diverted forest land for non-forest purposes and razed thousands of trees to offset some of their obligations under India's compensatory afforestation laws.

These laws oblige any industry or institution that is permitted to raze forest and use that land for non-forestry purposes, to provide an equivalent amount of non-forest land to forest authorities and pay them to afforest that land.

The condition is that such land be as close as possible to the forest tracts which have been razed. However, if such land is unavailable, twice the amount of 'degraded' forest land may also be made available for compensatory afforestation.

Additionally, companies must also compensate for the value of the forest ecosystem, called the 'net present value'.

### Challenges in fulfilling offset obligations

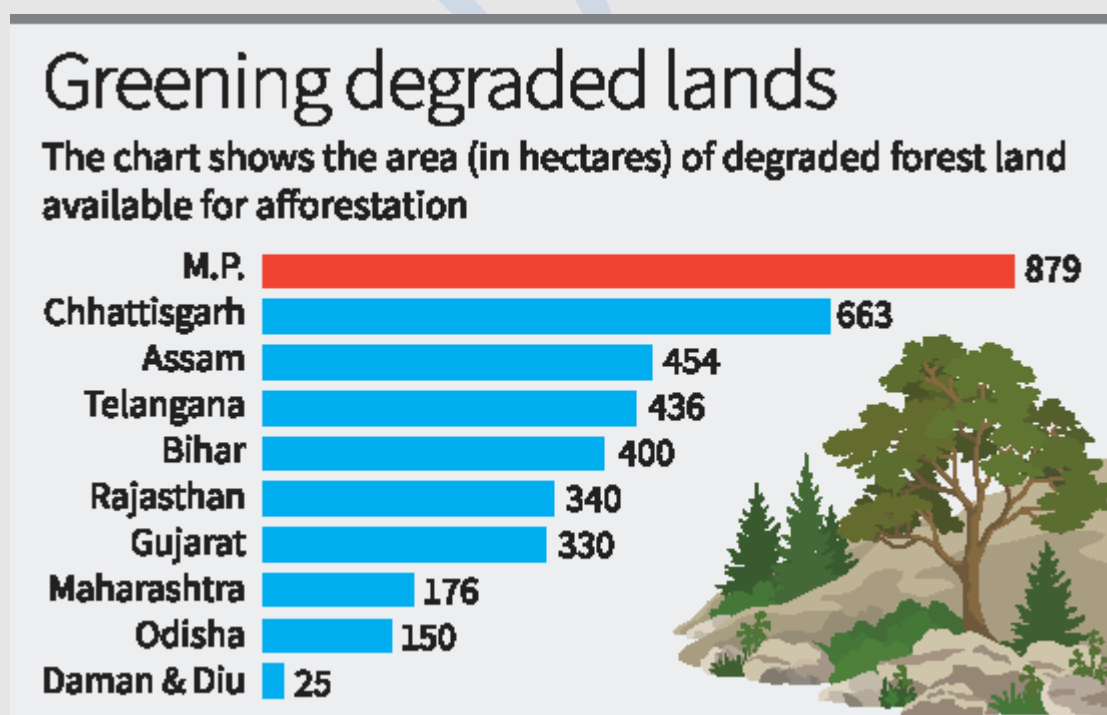
In several States including Chhattisgarh and Madhya Pradesh where large tracts have been historically diverted for mining, getting contiguous non-forest land for compensatory afforestation is challenging.

In fact, the Compensatory Afforestation Fund, whose corpus comes from the environmental compensation money paid by companies and which is to be used by States for afforestation, has thousands of crores of unspent money, simply because suitable land for regenerating forests, revenue or degraded, is unavailable.

### Land identification by States

10 States have identified parcels of degraded forest land, totalling about 3,853 hectares, that will be available for individuals, groups, public and private sector units to earn — and potentially trade — green credits.

Chhattisgarh and Madhya Pradesh alone account for up to 40% of the forest land made available.



## 5. Swiss women win landmark climate change case: Why is it significant?

### Why in News?

# ELDERLY SWISS WOMEN WIN 'HISTORIC' CLIMATE CASE



Recently, Europe's highest human rights court sided with a group of 2,000 Swiss women — all over the age of 64 — who had sued their government for violating their human rights by failing to do enough to combat the adverse effects of climate change.

The landmark ruling by the European Court of Human Rights (ECHR) could influence how courts across Europe and beyond deal with the cases in which petitioners argue that climate change involves human rights violations. It could also embolden more communities to sue their governments for not taking adequate steps to mitigate the effects of climate change. Notably, the verdict has come just days after the Supreme Court of India expanded the scope of Articles 14 (right to equality) and 21 (protection of life and personal liberty), saying people have a "right to be free from the adverse effects of climate change".

### What was the case?

The case was brought against Switzerland by Klima Seniorinnen Schweiz (Association of Senior Women for Climate Protection Switzerland), a group of women climate activists all above the age of 64, in November 2016. The women claimed that the Swiss government's inadequate climate policies violate their right to life and other guarantees under the European Convention on Human Rights. The convention is an international agreement to protect human rights and political freedoms in Europe.

The petitioners built their case by partly relying on their medical vulnerability as senior citizens to extreme heat caused by climate change. They cited the reports by the Intergovernmental Panel on Climate Change (IPCC) — a United Nations body which assesses the science related to climate change.

The reports “show that the Swiss population of senior women — especially those over 75 — are more prone to heat-related medical problems like ‘dehydration, hyperthermia, fatigue, loss of consciousness, heat cramps and heat strokes’. As a result, the case was filed only by senior women, although they acknowledged that older men, people with diseases, and small children also suffer from heat waves and other climate effects.

### **What did the court say?**

The ECHR noted that Article 8 of the convention, “encompasses a right for individuals to effective protection by the state authorities from the serious adverse effects of climate change on their lives, health, well-being and quality of life.”

The Swiss government, however, violated the law as it not only did not enact adequate laws to combat climate change impacts but also failed to meet greenhouse gas (GHG) emission goals, according to the court.

### **Why is the ruling significant?**

The Swiss government is now obliged to update its climate change policies but the ECHR cannot tell authorities what kind of policies to implement.

Nonetheless, the judgment could have far-reaching implications. The ECHR’s verdict is applicable in 46 member states, including all the European Union (EU), plus the United Kingdom (UK) and various other non-EU countries. This means that any climate and human rights case brought before a judge in Europe’s national courts will now have to consider ECHR’s judgment in whatever decision they make. It may also encourage citizens and communities to file similar cases in countries that are party to the European Convention on Human Rights.

Relevance: GS Prelims & Mains Paper III; Environment

Source: Indian Express

## **6. What’s behind heavy rainfall in Dubai**

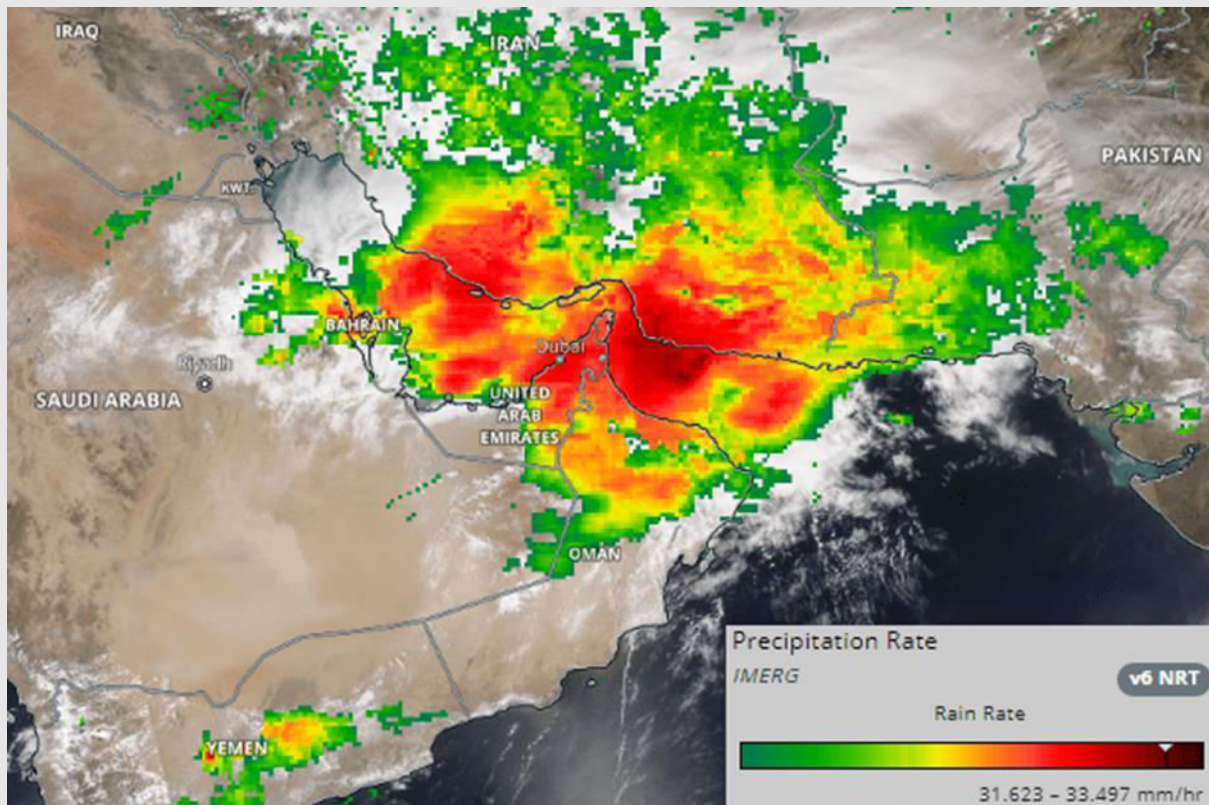
### **Why in News?**

The United Arab Emirates (UAE) recorded the heaviest rain ever after a severe thunderstorm hit the country on April 15 late night, killing at least one person, causing damage to homes and businesses, and bringing air travel to a standstill in Dubai.

According to the state-run news agency, the rain was “a historic weather event” that surpassed “anything documented since the start of data collection in 1949” — that was before the UAE was established in 1971.

Heavy rains are unusual in the UAE, which is an arid, Arabian Peninsula country. However, they occasionally occur in the region during cooler winter months.





### What happened?

The thunderstorms had dumped more than 142 millimetres (mm) of rain onto the desert city of Dubai in less than 24 hours. Usually, the city witnesses this much rain in a year and a half. An average year sees 94.7 millimetres of rain at Dubai International Airport — the world's second busiest airport, which recorded more than 80 million visitors in 2023.

Across Dubai, homes were flooded and vehicles were abandoned on roadways. Popular shopping centres like Dubai Mall and Mall of the Emirates were also flooded. Tanker trucks were sent onto the streets and highways to pump out the water.

### What led to the heavy rains?

The primary reason for these heavy rains was a storm system, which was passing through the Arabian peninsula and moving across the Gulf of Oman.

According to a different report by the AP, rains could have been exacerbated by cloud seeding, a process of spraying salt mixtures in clouds that would result in condensation of the cloud and eventually cause rainfall.

### Is climate change responsible for the event?

Some experts have suggested that the soaring global temperatures could also be behind the event. Higher temperatures cause evaporation of water not only from land but also oceans and other water bodies, meaning a warmer atmosphere holds more moisture. Studies have found that for every 1 degree Celsius rise in average temperature, the atmosphere can hold



about 7% more moisture. This makes storms more dangerous as it leads to an increase in precipitation intensity, duration and/or frequency, which ultimately can cause severe flooding.

Studies based in India's Thar desert and Australia's desert regions have shown that climate change could lead to more rainfall in these areas.

While the average global temperature on the Earth has increased by at least 1.1 degree Celsius since 1850, the UAE has witnessed an increase of almost 1.5 degree Celsius in the past 60 years. The increase in temperatures is mainly caused by the rise of heat-trapping greenhouse gas (GHG) emissions since the Industrial Revolution.

However, it is extremely difficult to attribute any particular extreme weather event to climate change. It is because there are multiple factors, like patterns of natural climate variability, such as El Niño and La Niña, that contribute to such events.

Relevance: GS Prelims & Mains Paper III; Environment

Source: Indian Express

## **7. What does the 2023 'State of the Climate in Asia' report say? What does it mean for India?**

### **Why in News?**

Asia has warmed faster than the global average since 1960, the World Meteorological Organization's 2023 'State of the Climate in Asia' report said. It also reiterated that 2023 was the warmest on record around the world. The climate report also noted an "alarming gap" between climate projections and the ability of Asian countries to adapt to and mitigate climate change and its impacts.

### **What toll did heat exact on Asia?**

More than 2,000 people were killed and more than nine million were affected by extreme climate events across Asia in 2023. More than 80% of these events were related to storms and floods. The report also recorded several parts experiencing severe heat waves, leading to multiple fatalities, but acknowledged that heat-related mortality is widely under-reported. In India, severe heat waves in April and June killed around 110 people. A prolonged heat wave engulfed large parts of South and South-East Asia in April and May, affecting areas from Bangladesh and eastern India to southern China.

### **How did floods and storms affect Asia?**

Tropical cyclone Mocha, which affected Myanmar and Bangladesh in May 2023, was the strongest cyclone in the Bay of Bengal in the last decade. Shortly after, floods, landslides, and lightning killed around 600 people across India, Pakistan, and Nepal in June and July 2023. In India, floods and landslides in August 2023, primarily in Himachal Pradesh and Uttarakhand, killed at least 25. Lightning accounted for 1,200 deaths around India through the year.

### **How well can Asia spot a coming disaster?**

An early-warning system is an integrated process that monitors, predicts, and forecasts hazards. It also includes activities related to risk-assessment, communications, and preparedness that allow individuals, communities, governments, businesses, etc. to take timely action to mitigate risks.

## EXTREME WEATHER EVENTS IN INDIA LAST YR

■ <b>APRIL-JUNE:</b> Severe heatwave, 110 people dead from heatstroke.	■ <b>OCTOBER:</b> Glacial lake outburst flood in Sikkim; 40 deaths
■ <b>AUGUST:</b> Floods in Himachal, Uttarakhand; 25 deaths, agri, infra damaged.	■ <b>DECEMBER:</b> Cyclone Michuung makes landfall in Andhra; 22 deaths

Thanks to such systems, for example, authorities in Bangladesh had a day's head-start to prepare for cyclone Mocha and take anticipatory action in Cox's Bazar, which allowed local communities to better survive its landfall. Twenty-one Asian countries reported the status of their early warning systems to the UN. According to the UN Office for Disaster Risk Reduction, the average composite score for the availability of and access to multi-hazard early warning systems was 0.46 out of 1 in Asia; 0.58 for preparedness to respond; and 0.50 for observation and forecasting.

To compare, the world scored 0.35, 0.78, and 0.33, respectively, on average on these counts. Warning and dissemination was the strongest area under the framework for Asia while risk knowledge was the weakest. According to the report, fewer than half of all Asian countries have the tools to mitigate climate change impact.

### What do these findings mean for India?

Extreme climate events are rising globally, including in India. But with improved preparedness, we can minimise the damage. India used early warnings when cyclone Mocha, one of the strongest in the Bay of Bengal, was about to hit. Earlier, similar cyclones have killed thousands of people.

While India has historically demonstrated commendable resilience in responding to floods, storms, and droughts, the new and escalating challenges posed by climate change — such as unprecedented heatwaves, the retreat of glaciers, and rising sea levels — reveal that our preparedness is alarmingly inadequate.

These emerging threats require urgent attention and a strategic overhaul of our current policies and adaptation strategies. It is crucial that we empower our communities with the necessary resources and policies to effectively combat these evolving climatic adversities.

Relevance: GS Prelims & Mains Paper III; Environment

Source: The Hindu

### **8. Fourth global mass coral bleaching triggered: What are corals and why are they important?**

#### **Why in News?**

The fourth global mass coral bleaching event has been triggered by extraordinary ocean temperatures, the US National Oceanic and Atmospheric Administration (NOAA) said recently. This could have serious consequences for ocean life and millions of people who rely on reefs for food, jobs, and coastal defence.

Since mid-March 2023, the average sea surface temperature (SST) has been abnormally high. In March this year, it reached a record monthly high of 21.07 degree Celsius, according to the EU Copernicus Climate Change Service (C3S). The primary reason behind the soaring temperatures is the rising emissions of heat-trapping greenhouse gases (GHGs) such as carbon dioxide and methane in the atmosphere. Nearly 90% of the extra heat trapped by GHGs has been absorbed by the oceans — that is why they have become so warm.

#### **But first, what are corals and coral reefs?**

Corals are essentially animals, which are sessile, meaning they permanently attach themselves to the ocean floor. They use their tiny tentacle-like hands to catch food from the water and sweep into their mouth. Each individual coral animal is known as a polyp and it lives in groups of hundreds to thousands of genetically identical polyps that form a 'colony'.



A variety of corals form an outcrop on Flynn Reef, part of the Great Barrier Reef near Cairns, Queensland, Australia, in 2010.

Corals are largely classified as either hard coral or soft coral. It is the hard corals that are the architects of coral reefs — complex three-dimensional structures built up over thousands of years. “Unlike soft corals, hard corals have stony skeletons made out of limestone that are produced by coral polyps. When polyps die, their skeletons are left behind and used as foundations for new polyps.

Coral reefs, also referred to as “rainforests of the sea”, have existed on the Earth for nearly 450 million years. Australia’s Great Barrier Reef is the largest in the world, stretching across 2,028 kilometres.

### **What is the significance of corals?**

Coral reefs have a crucial role in marine ecosystems. Thousands of marine species can be found living on one reef. For instance, “the Great Barrier Reef contains over 400 coral species, 1,500 fish species, 4,000 mollusc species and six of the world’s seven sea turtle species”. Research has shown that there could be millions of undiscovered species of organisms living in and around reefs.

These massive structures also provide economic goods and services worth about \$375 billion each year. More than 500 million people across the world depend on coral reefs for food, income and coastal protection from storms and floods. Coral reefs can absorb up to 97% of the energy from waves, storms, and floods, which prevents loss of life, property damage, and soil erosion. Therefore, the absence of coral reefs would not only result in severe ramifications for marine life but also for humans.

### **What is coral bleaching?**

Most corals contain algae called zooxanthellae — they are plant-like organisms — in their tissues. Corals and zooxanthellae have a symbiotic relationship. While corals provide zooxanthellae a safe place to live, zooxanthellae provide oxygen and organic products of photosynthesis that help corals to grow and thrive. Zooxanthellae also give bright and unique colours to corals.

Corals are very sensitive to light and temperature and even a small change in their living conditions can stress them. When stressed, they expel zooxanthellae and turn entirely white. This is called coral bleaching.

Coral bleaching doesn’t immediately lead to the death of corals. They rather go under more stress and are subject to mortality. Coral bleaching reduces the reproductivity of corals and makes them more vulnerable to fatal diseases. If the bleaching is not too severe, corals have been known to recover.

Global mass bleaching of coral reefs is when significant coral bleaching is confirmed in the Atlantic, Indian and Pacific oceans, according to a report published by The Conversation. Such

events are a relatively new phenomenon. The first one took place in 1998 in which 20% of the world's reef areas suffered bleaching-level heat stress. The next two global bleaching events occurred in 2010 (35% of reefs affected) and between 2014 and 2017 (56% of reefs affected).



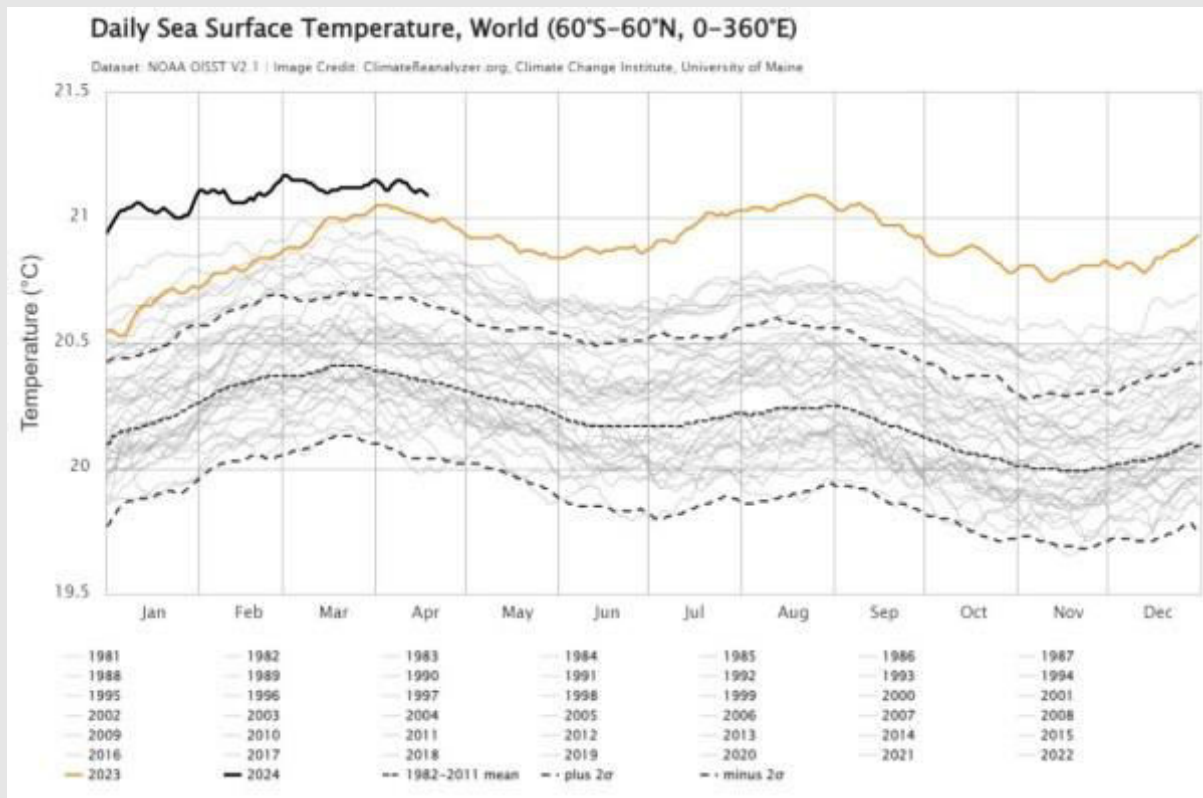
### What is happening right now?

NOAA has confirmed that the fourth global bleaching event is currently underway. Nearly 54 countries, territories and local economies — from Florida, the US, Saudi Arabia to Fiji — have confirmed bleaching. The Great Barrier Reef is witnessing its most severe bleaching event. About a third of the reefs surveyed by air showed prevalence of very high or extreme bleaching.

In total, more than 54% of the world's coral area has experienced bleaching-level heat stress in the past year, and that number is increasing by about 1% per week.

The key driver behind the current event is higher ocean temperatures. However, the situation has been exacerbated by El Niño, a weather pattern which is associated with warmer oceans. Given that El Niño is weakening and a cooler La Niña may set in by the end of the year, the event may not last for very long.





Credit: Climate Analyser

### What can be the impact of the event?

With global temperatures soaring, such events are expected to become more frequent and longer. As a result, the world may lose the vast majority of its coral reefs at 1.5 degree Celsius of warming, and virtually all at 2 degree, according to a 2018 report by the Intergovernmental Panel on Climate Change (IPCC) — a United Nations body which assesses the science related to climate change. Currently, the average global temperature of the Earth has increased by at least 1.1 degree Celsius since 1850.

To curb global warming to no more than 1.5 degree Celsius, countries need to bring GHG emissions to a net zero by 2050, according to the Paris Agreement. The goal, however, is unlikely to be achieved as record levels of GHG emissions have continued to be emitted into the atmosphere.

Relevance: GS Prelims & Mains Paper III; Environment

Source: Indian express

## 9. Global plastic treaty talks

### Why in News?

Global leaders will gather in Canada's capital this week to discuss progress in drafting a first-ever global treaty to rein in soaring plastic pollution by the end of the year.

The hoped-for treaty, due to be agreed at the end of this year, could be the most significant deal relating to climate-warming emissions and environmental protection since the 2015 Paris Agreement, which got 195 parties to agree to keep global temperatures from rising beyond 1.5C.

But negotiators have a tough task in Ottawa, with countries divided over how ambitious the treaty should be.



### **Why are we having plastic treaty talks?**

At the U.N. Environmental Assembly in 2022, the world's nations agreed to develop a legally binding agreement by the end of 2024 to address the world's plastic pollution crisis.

The treaty is meant to address plastics through their entire lifecycle – from when they are produced, to how they are used and then disposed of.

### **What's the problem with plastics?**

While plastic waste has become a global menace polluting landscapes and waterways, producing plastics involves releasing greenhouse gas emissions. The plastic industry now accounts for 5% of global carbon emissions, which could grow to 20% by 2050 if current trends continue.

Plastic production is on track to triple by 2060 – unless the treaty sets production limits, as some have proposed. Most virgin plastic is derived from petroleum.

### **What is the challenge in ottawa?**

This week's talks are set to be the biggest yet, with some 3,500 people registered to attend including lobbyists, business leaders, lawmakers, scientists and environmental non-profits. But countries have become divided on the issues.

At the Nairobi talks in November, the draft treaty under review ballooned from 30 pages to 70 as some countries insisted on including their objections to more ambitious measures like production limits and phase-outs.

Countries are now under pressure to find common ground before the final negotiations are held in December in Busan, South Korea.

### **What do countries want in the treaty?**

Many plastic and petrochemical-producing countries including Saudi Arabia, Iran and China – known collectively as the group of Like-Minded Countries – have opposed mentioning production limits.

They blocked other countries from formally working on proposed treaty language calling for production caps, chemical disclosures or reduction schedules.

Meanwhile, the 60-nation “High-Ambition Coalition”, which includes EU countries, island nations and Japan, wants to end plastic pollution by 2040.

Backed by some environment groups, this coalition has called for common, legally binding provisions to “restrain and reduce the production and consumption of primary plastic polymers to sustainable levels.” They also are proposing measures such as phasing out “problematic” single-use plastics and banning certain chemical additives that could carry health risks.

The U.S. says it also wants to end plastic pollution by 2040. But unlike the High-Ambition Coalition, it wants countries to set their own plans for doing so, and to detail those plans in pledges sent regularly to the United Nations.

#### **What does the petrochemical industry want?**

The trade group Global Partners for Plastics Circularity represents major petrochemical producers including members of the American Chemistry Council and Plastics Europe. The group argues that production caps would lead to higher prices for consumers, and that the treaty should address plastics only after they are made.

These companies want to focus on encouraging the reuse or recycling of plastics, including deploying technology that can turn plastic into fuel, though a previous Reuters investigation found enormous obstacles in this method.

In terms of transparency about chemicals used in production, the group says companies should be allowed to disclose those chemicals voluntarily.

#### **What do corporate brands want?**

More than 200 consumer-facing companies including Unilever, PepsiCo and Walmart have joined the so-called Business Coalition for a Plastics Treaty.

Like the petrochemical industry, these companies that rely on plastic packaging for their products have been a major presence in the plastics negotiations. But they support a treaty that includes production caps, use “restrictions and phase-outs, reuse policies, product design requirements, extended producer responsibility, and waste management.”

Relevance: GS Prelims & Mains Paper III; Environment

Source: Indian express

### 1. OpenAI's new Voice Engine clones human speech: How this poses a danger, what the company claims

#### Why in News?



OpenAI, the company behind AI chatbot ChatGPT, introduced that can replicate any voice in any language by simply using a brief audio sample. Known as Voice Engine, it lets users upload a 15-second audio sample and uses it to generate audio in the same voice and manner of speaking.

For example, if you upload a man's voice sample and add a text prompt saying, "Make him sing the American national anthem," the model will analyse the sample and create an output in his voice. It can also produce audio clips of the same speaker in another language.

However, the company has yet to release it for public use, reportedly over safety issues.

#### What is OpenAI's new Voice Engine?

Simply, Voice Engine is a text-to-audio tool that can generate new audio using a voice sample, based on a user's written prompt. Voice Engine is also capable of replicating voices across languages.

#### 3 reasons why Voice Engine is groundbreaking

According to OpenAI, it can prove helpful in the following ways:

**1. Providing reading assistance:** This feature makes non-readers and children learn or understand languages through natural-sounding, emotive voices representing a variety of speakers.

**2. Translating content:** For professionals and content creators, this could be the most useful feature of the Voice Engine as it allows them to reach wider audiences. Crucially, it retains the accent and tonal nuances of the original user even while translating the audio content. This adds to the realism of the output.

**3. Supporting people who are non-verbal, helping patients recover their voice:** Among the listed use cases, Voice Engine is claimed to be beneficial for non-verbal individuals since it offers personalised, non-robotic voices. This will enable those with disabilities or learning needs to communicate easily and consistently, even in multilingual contexts.

### **Why is Voice Engine seen as potentially dangerous?**

There have been numerous instances where AI voice cloning has been used to dupe people. These AI tools use deep learning algorithms to analyse voice samples to create speech. Owing to refinement in models over time, they generate realistic voices, making them dangerous tools.

This year, over 60 nations (including India) will go into elections. Deepfakes and AI cloning tools are already being used by malicious actors, who assume the identities of popular figures to sway political sentiments.

The new Voice Engine is likely to get many companies to rush to update their platforms, even while the new technology's risks are apparent. The absence of legal regulations around such powerful technologies is of concern.

Relevance: GS Prelims & Mains Paper III; Science & Technology

Source: Indian Express

## **2. What is the technology behind manufacturing a semiconductor chip?**

### **Why in News?**

Semiconductor chip manufacturing capabilities are currently limited to very few regions in the world. With supply chain disruptions during the pandemic and recent geopolitical tensions, many companies and countries, including India, have realised the importance of investing in chip manufacturing infrastructure.

The TATA group has partnered with Taiwan's Powerchip Semiconductor Manufacturing Corporation (PSMC) to set-up a 300mm wafer fabrication plant in Gujarat. It will roll out its first 28nm chip in 2026. Two assembly and test plants in Gujarat and Assam have also been recently approved by the Government of India.



### **What is a semiconductor chip? How is it manufactured?**

A semiconductor has properties between a conductor (which conducts electricity) and an insulator (which does not). In its purest form a semiconductor is a very weak conductor of electricity. However, its electrical properties can be changed by adding small amounts of certain substances called 'dopants'. By taking a pure semiconductor and carefully injecting certain parts with specific dopants, complex circuits can be 'printed' on the semiconductor.

The process is crudely analogous to creating an intricate work of art on a paper or a wall, by using a bunch of stencils and spray paints of different colours. The stencils are called 'masks' in the industry and the paint is analogous to the dopant.

### **What is a transistor?**

The transistor, one of the earliest electronic components to be built using a semiconductor, is an extremely versatile device. In its most popular form it can function as an electronic switch. A typical semiconductor chip can have millions/billions of these interconnected switches that work together to perform various logical and computational operations.

A transistor can also function as an amplifier (to amplify the weak signal received by your cell phone) and is an integral part of circuits that generate and process high frequency signals (such as those required in wireless communication technologies). Today all these different avatars of the transistor are routinely packed into a single semiconductor chip (such as the WiFi chip in your mobile).

The transistor demonstrated how a single device could be built out of a piece of a semiconductor. 'Printing' multiple devices onto a single piece of a semiconductor to create entire circuits was the next leap.

### **What is fabrication technology?**

Technology has progressed at a relentless pace since the semiconductor chip was first conceptualised more than six decades ago. Newer manufacturing technologies have been introduced at a regular cadence. The level of miniaturisation of the semiconductor has increased by orders of magnitude. Sticking with the stencil analogy this is mainly due to the stencils being able to etch smaller and more intricate patterns. There have been equally impressive gains in the switching capability of the transistors. They are able to switch on-and-off faster (more computations per second) and with lesser power consumption (longer battery life and lesser heat dissipation).

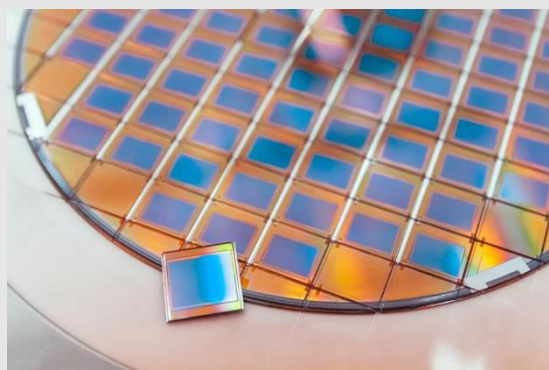
The industry has used labels like '45nm', '28nm' and '16nm' to introduce each new manufacturing technology. 'nm' is short for nano-meter and refers to an extremely small unit of length equal to one billionth of a meter. These numbers convey the level of miniaturisation that is achievable using a particular technology (so smaller is better).

Though not always accurate, you can think of this number as representing the dimensions of single transistor. While traditionally electronic circuits have been laid out flat on the semiconductor, researchers are increasingly looking to capitalise on the third dimension

(height). As the length and breadth of a transistor switch decreases, increasing its height can help ensure reliable performance. Stacking entire circuits on top of one another is another way to continue to shrink semiconductor chip sizes.

### **What is known as a wafer?**

A semiconductor chip is manufactured much like a postage stamp. A sheet of stamps is printed on a piece of paper and then each individual stamp is cut out. Similarly, an array (typically 300-400) of chips are printed on a circular piece of semiconductor (called a wafer in industry parlance). This is then diced to create individual chips. A larger wafer size allows more chips to be printed on a single wafer which makes chip production faster and cheaper. Wafer sizes used in the industry have constantly been increasing. The current state of art is 300mm which is approximately 12 inches (this refers to the diameter of the wafer). Efforts are ongoing to move to a 450mm wafer size. While moving to a larger wafer size has its technical challenges and capital expenses, it has proven to be economical in the long run.



Once the wafer has been diced into chips, each individual chip has to be packaged in a protective covering. Tiny wires have to be routed from the device to the boundary of the package. Some of these wires supply power, while other are used for feeding in and reading out signals and data. A chip also has to be tested — this includes verifying its functionality and stress testing (subjecting the chip to high temperature and voltages) — to ensure reliability during its

lifetime. All this is performed in an assembly and test plant.

Relevance: GS Prelims & Mains Paper III; Science & Technology

Source: The Hindu

## **3. What a new 3-D map of universe hints about the nature of dark energy**

### **Why in News?**

That the universe is expanding has been known for close to a century, thanks to the observations by the American astronomer Edwin Hubble in 1929. More recently, in the late 1990s, scientists found that this expansion was happening at an accelerated rate — that is, not only was the universe expanding, it was expanding at an increasingly faster pace.

The accelerated rate of expansion meant some other ingredient — an invisible energy — was at work too. Since scientists did not have any clue about what this could be, they called it “dark energy”.

Since then, scientists have not got any closer to shedding new light on the hypothesis — even though dark energy must be accounting for nearly 70% of the universe.

### **The DESI experiment**

The results, announced recently, have come from observations of the Dark Energy Spectroscopic Instrument (DESI), a unique piece of equipment with 5,000 robotic 'eyes', each one of which can separately capture and process light coming from a galaxy. This gives DESI, mounted on the Nicholas W Mayall 4-meter Telescope at the Kitt Peak National Observatory in Arizona, US, the capability to observe 5,000 galaxies at the same time.

DESI has been operating for three years, and is scheduled to continue for at least another two years. Data from the first year of DESI observations — during which light from 6 million galaxies, some of which existed as far back as 11 billion years ago, was captured — have now been used to create the most comprehensive three-dimensional evolutionary map of the universe till date.



**Nicholas W Mayall 4-meter Telescope**

It is considered a three-dimensional map because scientists have been able to measure the distances between these galaxies to a very high level of precision. Some of these galaxies existed billions of years ago at great distances from us. Lights originating from those galaxies are reaching us only now. These 6 million galaxies together produce a very good evolutionary picture of the universe.

This has, in turn, allowed scientists to work out the expansion rate of the universe through different times in history. Using the first year's observational data, the DESI collaboration has

calculated that the speed of expansion of the universe is increasing at the rate of 68.5 km per second after every 3.26 million light years of expansion.

### **Dark energy intensity**

More interestingly, through these precise measurements, the scientists have found that some of the calculated values are not consistent with current well-established theoretical models, which otherwise describe the universe very well.

These theoretical models suggest that the energy density of dark energy, or the amount of dark energy contained in any volume of space, remains constant even under expansion. So, while the space itself expands, the energy density in the expanded space does not go down. In these theoretical models, a change in energy density would make the universe unstable. The results of DESI, however, suggest that there are changes in energy density.

The initial hints have excited the scientific community. If change in energy density is confirmed, it could lead to a complete unravelling of our current understanding of the universe. It would be the first glimpse into the nature of dark energy, and could lead to entirely new physics. Right now, we know nothing about the nature of dark energy. Some scientists have speculated that it might be a new invisible field, like an electric, or a magnetic, or a gravitational field. There is also speculation about dark energy being a new particle.

Relevance: GS Prelims & Mains Paper III; Science & Technology

Source: Indian Express

## **4. How and why US wants to establish a time standard for the Moon**



### **Why in News?**

Last week, the US White House officially directed the National Aeronautics and Space Administration (NASA) to create a time standard for the Moon, which different international bodies and private companies can use to coordinate their activities on the lunar surface.

### **But first, how does Earth's time standard work?**

Most of the clocks and time zones — a geographical region which uses the same standard time — of the world are based on Coordinated Universal Time (UTC), which is set by the International Bureau of Weights and Measures in Paris, France. UTC is essentially internationally agreed upon standard for world time.

It is tracked by a weighted average of more than 400 atomic clocks placed in different parts of the globe. Atomic clocks measure time in terms of the resonant frequencies — the natural



frequency of an object where it tends to vibrate at a higher amplitude — of atoms such as cesium-133. In atomic time, a second is defined as the period in which a caesium atom vibrates 9,192,631,770 times. As the vibration rates at which atoms absorb energy are highly stable and ultra-accurate, atomic clocks make for an excellent device for gauging the passage of time.

To obtain their local time, countries need to subtract or add a certain number of hours from UTC depending on how many time zones they are away from 0 degree longitude meridian, also known as the Greenwich meridian. If a country lies on the west of the Greenwich meridian, it has to subtract from the UTC, and if a country is located on the east of the meridian, it has to add.

### **Why do we need a time standard for the Moon?**

UTC, however, cannot be used to determine time on the Moon. That is because time on the Moon flows differently than it does on the Earth.

A fundamental aspect of nature in the Universe is that time is not absolute. That seems crazy to us on Earth as our experience of time is that it just constantly ticks by. But if you travelled to the Moon, your clock would be ticking slightly faster than if you had stayed on the Earth. This is a consequence of [Albert] Einstein's Theory of General Relativity which tells us that gravity bends space and time. As there is less gravity on the Moon, time ticks slightly faster there relative to the time on the Earth.

In other words, for someone on the Moon, an Earth-based clock will appear to lose on average 58.7 microseconds per Earth day with "additional periodic variations".

The discrepancy may seem small but it can create problems for situations such as a spacecraft seeking to dock on the Moon, data transferring at a specific time, communication, and navigation.

Currently, handlers of each lunar mission use their own timescale that is linked to UTC. "Take the example of two spacecraft, NASA's Lunar Reconnaissance Orbiter (LRO) and ISRO's Chandrayaan 2 Orbiter, which orbit the Moon in roughly the same kinds of polar orbits that have some overlap. To ensure that they do not collide with each other — the probability of this happening is quite low but it can happen — the mission control teams of the two orbiters talk to each other, and they synchronise their mission operations standard with each other.

The approach can work for a handful of independent lunar missions, but issues will arise once there are multiple spacecraft working together at the same time — a situation which is bound to become a reality in the near future.

Several countries, including India, are looking to populate the Moon in the following years. While NASA's Artemis program aims to send astronauts back to the lunar surface no earlier than September 2026, China has announced plans to land its astronauts by 2030, and India intends to arrive by 2040. There are also proposals to build a long-term human outpost on the Moon. Therefore, there is a need for a unified lunar time standard.



### **How will a lunar time standard be established?**

The specifics for creating a time standard for the Moon are not clear yet. Like on the Earth, atomic clocks can be deployed on the lunar surface to set a time standard. There will be a need to place at least three atomic clocks on the lunar surface that will tick at the Moon's natural pace, and whose output will be combined by an algorithm to generate a more accurate virtual timepiece.

Relevance: GS Prelims & Mains Paper III; Science & Technology

Source: Indian Express

## **5. What is GPT-4 Vision and how can it help you interpret images, charts?**

### **Why in News?**

Following its launch, OpenAI's ChatGPT has evolved by leaps and bounds — now churning text is not the only function, it can also create images from natural language prompts, thanks to the integration of DALL-E.

While image generation is one thing, there could be times when one wants to decipher an image of an old pamphlet, or a page from a book. Manually analysing the image may be difficult and time-consuming, and this is where GPT-4 Vision comes in handy.

### **What is GPT-4 Vision?**

GPT-4 with Vision, also referred to as GPT-4V, allows users to instruct GPT-4 to analyse image inputs. GPT-4 Vision has been considered OpenAI's step forward towards making its chatbot multimodal — an AI model with a combination of image, text, and audio as inputs. It allows users to upload an image as input and ask a question about it. This task is known as visual question answering (VQA). GPT-4 Vision is a Large Multimodal Model or LMM, which is essentially a model that is capable of taking information in multiple modalities like text and images or text and audio and generating responses based on it. It is not the first and only LMM. There are many others such as CogVLM, LLaVA, Kosmos-2, etc. LMMs are also known as Multimodal Large Language Models (MLLMs).



Please write an Instagram caption for this.



"Nature's delicate dance: where dew meets wings. 🦋💧 #NatureBeauty #ButterflyWhispers"



Please expand it to 100 words.



"In the heart of nature, there's a delicate dance that often goes unnoticed. Here, a butterfly rests, its wings kissed by the morning dew, capturing a brief moment of serenity. Each droplet reflects the world around it, while the intricate patterns on the butterfly's wings tell tales of evolution and survival. This is a reminder of how even the smallest moments can hold immense beauty and wonder. Let's pause, appreciate, and find inspiration in these fleeting interactions. 🦋💧 #NatureBeauty #ButterflyWhispers #MomentOfTranquility #DewKissedWings"



Regenerate

Send a message



ChatGPT may produce inaccurate information about people, places, or facts. [ChatGPT September 25 Version](#)

Relevance: GS Prelims; Science & Technology

Source: Indian Express

**6. Physicist Peter Higgs passes away: What is the 'God particle', which he had theorised in 1960s?**

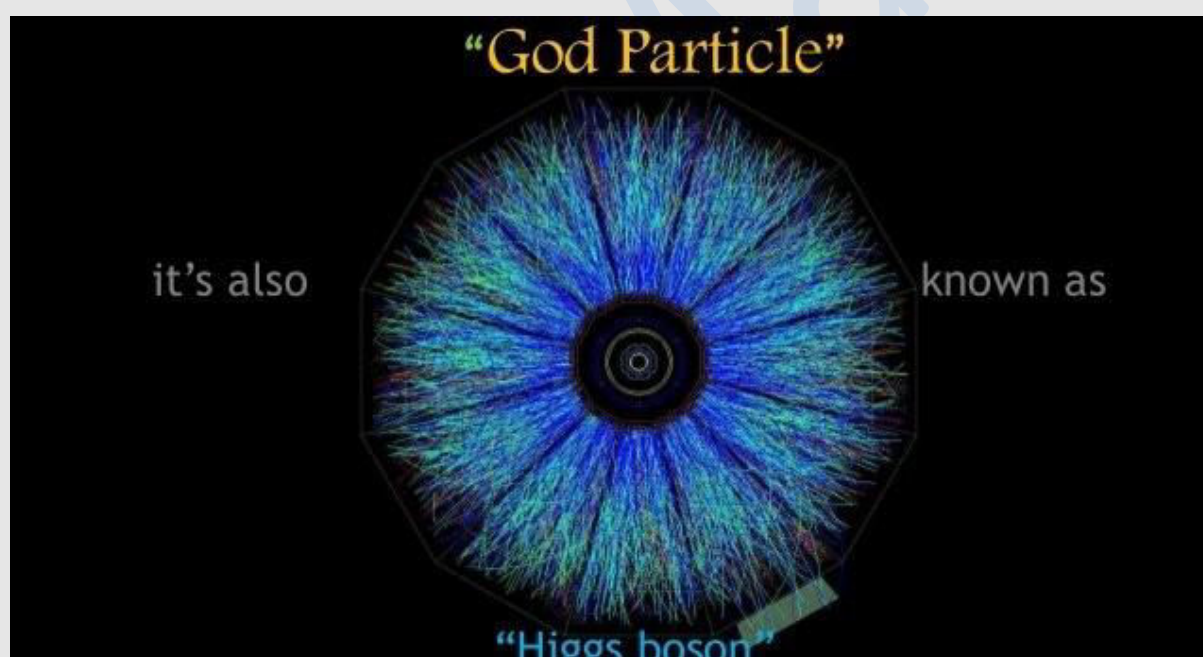
**Why in News?**

It required nearly 50 years, and the world's biggest and most complex machine, to detect the Higgs boson in 2012. An elementary particle like electrons, quark, photons or neutrinos, the Higgs boson, is known to impart mass to every other particle. Its existence was predicted in the 1960s, but it was found only in 2012 through elaborate experiments carried out at the Large Hadron Collider, located on the border of France and Switzerland.

The man, after whom the particle is named, Peter Higgs, died recently at the age of 94.

### **Why is the Higgs boson called the 'God particle'?**

Much of the hype surrounding the Higgs boson amongst the common people comes from the fact that it got dubbed as the 'God particle'. The expression was first used by Nobel Prize winning physicist Leon Lederman, who wrote a book by that title in the 1990s about the continuing search for the Higgs boson. Lederman wanted to call his book 'The Goddamn Particle' to describe the elusive nature of the Higgs boson, but was persuaded by the publishers to go in for the God particle, a name that stuck. Many scientists detest that expression, mainly because the particle acquired religious connotations in some circles because of that name.



### **Why does the Higgs boson matter?**

The big significance of the Higgs boson is that it is the particle that is supposed to account for the mass of every other fundamental particle. It was discovered in the 1950s and 1960s, through the works of several physicists, that the mass is not intrinsic to matter. Strange though it might seem, particles like electrons or protons do not have mass within themselves. Higgs, and these other scientists, came up with the idea of a all-pervasive field, named the Higgs field, just like there is an electric field, or a magnetic field or a gravitational field.

It is the interaction of the particles with this field that lends them the mass. Greater the interaction, larger is the mass. Different particles interact with this Higgs field in different ways, and that is what gives them different masses. A photon, which is a light particle, does not interact with this field at all, and is thus massless. There are other particles that are massless as well. But particles like electrons and protons, do interact, and have masses. The Higgs boson itself interacts with this field, and thus has mass.

The concept of Higgs field and Higgs particle is not very intuitive, but these are fundamental to our current understanding of the way nature works. The main fame for the Higgs boson came from its elusive nature. Scientists kept frantically searching for it for more than four decades but could not find it. One of the main science objectives of the LHC, which is the world's biggest particle accelerator and cost about US\$ 9 billion to build, was to find the Higgs boson. It did, within the first four years of its operations, and that remains one of its crowning glories till now.

Relevance: GS Prelims; Science & Technology

Source: Indian Express

## 7. Microsoft unveils Phi-3-mini based on Small Language Model

### Why in News?

A few days after Meta unveiled its Llama 3 Large Language Model (LLM), Microsoft recently unveiled the latest version of its 'lightweight' AI model – the Phi-3-Mini. Microsoft has described the Phi-3 as a family of open AI models that are the most capable and cost-effective small language models (SLMs) available.

What exactly are language models, and how does an SLM differ from an LLM? Are there any benefits of employing an SLM for developing AI applications? We explain.

### What is Phi-3-mini?

Phi-3-Mini is believed to be first among the three small models that Microsoft is planning to release. It has reportedly outperformed models of the same size and the next size up across a variety of benchmarks, in areas like language, reasoning, coding, and maths.

### Language Models

Essentially, language models are the backbone of AI applications like ChatGPT, Claude, Gemini, etc. These models are trained on existing data to solve common language problems such as text classification, answering questions, text generation, document summarisation, etc.

The 'Large' in LLMs has two meanings — the enormous size of training data; and the parameter count. In the field of Machine Learning, where machines are equipped to learn things themselves without being instructed, parameters are the memories and knowledge that a machine has learned during its model training. They define the skill of the model in solving a specific problem.

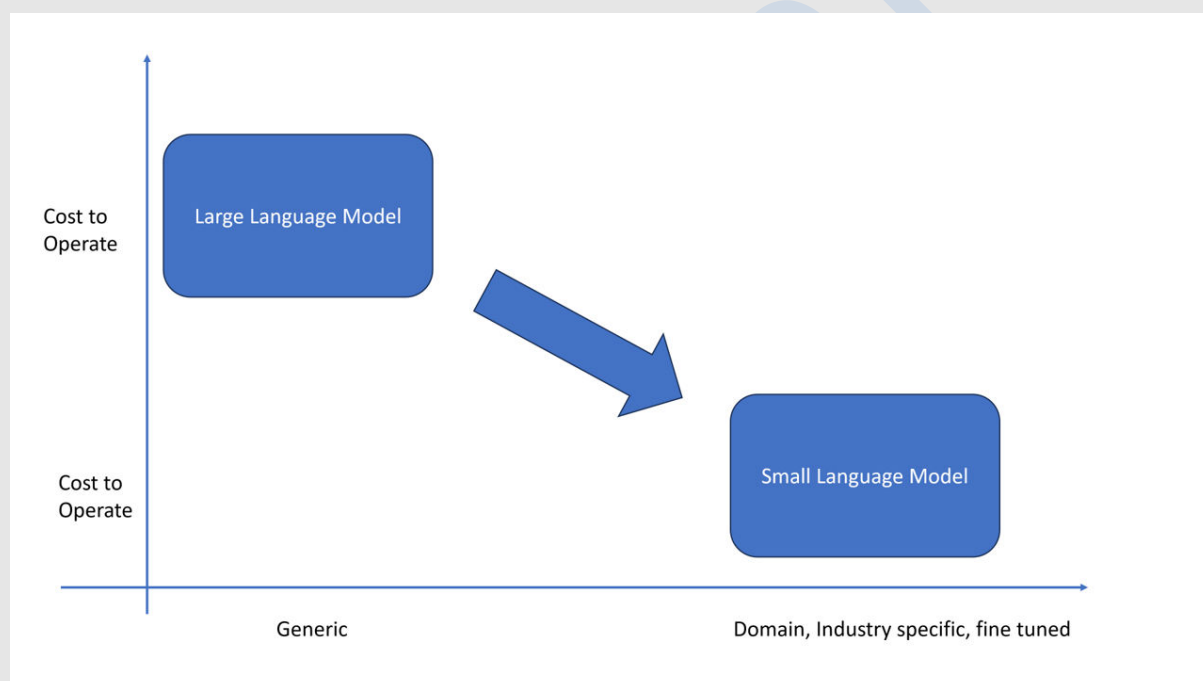
### What's new in Microsoft's Phi-3-mini?

The latest model from Microsoft expands the selection of high-quality language models available to customers, offering more practical choices as they build generative AI applications. Phi-3-mini, a 3.8B language model, is available on AI development platforms such as Microsoft Azure AI Studio, HuggingFace, and Ollama.

The amount of conversation that an AI can read and write at any given time is called the context window, and is measured in something called tokens. According to Microsoft, Phi-3-mini is available in two variants, one with 4K context-length, and another with 128K tokens.

### How is Phi-3-mini different from LLMs?

Phi-3-mini is an SLM. Simply, SLMs are more streamlined versions of large language models. When compared to LLMs, smaller AI models are also cost-effective to develop and operate, and they perform better on smaller devices like laptops and smartphones.



While LLMs are trained on massive general data, SLMs stand out with their specialisation. Through fine-tuning, SLMs can be customised for specific tasks and achieve accuracy and efficiency in doing them. Most SLMs undergo targeted training, demanding considerably less computing power and energy compared to LLMs.

SLMs also differ when it comes to inference speed and latency. Their compact size allows for quicker processing. Their cost makes them appealing to smaller organisations and research groups.

Relevance: GS Prelims & Mains Paper III; Science & Technology

Source: Indian Express



## 8. ISRO's 'zero orbital debris' milestone



Orbital threat: With the rise in the number of satellites in orbit around the earth, space debris has become a pressing issue.

### Introduction

Space debris has emerged as a significant concern with the proliferation of satellites orbiting Earth. ISRO's recent PSLV-C58/XPoSat mission marks a milestone in addressing this issue by practically eliminating orbital debris.

The Indian Space Research Organisation (ISRO) has said its PSLV-C58/XPoSat mission has practically left zero debris in earth orbit. The space agency explained that the last stage of the Polar Satellite Launch vehicle (PSLV) used in the mission was transformed into a kind of orbital station — called the PSLV Orbital Experimental Module-3 (POEM-3) — before it was left to re-enter the earth's atmosphere instead of floating in orbit once its mission was completed.

Thus, the Polar Satellite Launch Vehicle Orbital Experimental Module (POEM) repurposes the spent fourth stage of a PSLV rocket as an orbital platform. An orbital platform or station is a space station, generally constructed for one purpose, that orbits a celestial body such as a planet, asteroid, or star.

ISRO said that after it completed the primary mission of injecting all satellites into their target orbits, the fourth stage of the PSLV was transformed into the POEM-3. It was subsequently de-orbited from 650 km to 350 km, rendering it more susceptible to being pulled towards the earth and burning up in the atmosphere.

### **POEM-3's Success**

POEM-3, deployed during the PSLV C-58 mission, achieved significant milestones, hosting various experiments and completing 400 orbits.

### **Significance**

ISRO's initiative holds significance amidst the growing threat of space debris, which jeopardizes space assets and poses risks to operational satellites.

### **Debris Management Efforts**

The escalation of space debris presents challenges to space agencies, necessitating concerted efforts to mitigate risks and prevent collisions.

Agencies like ISRO are taking proactive measures to mitigate space debris risks, emphasizing the need for international cooperation and adherence to mitigation guidelines.

Relevance: GS Prelims & Mains Paper III; Science & technology

Source: Indian Express

## **9. WHO Global hepatitis report and findings for India**

### **Why in News?**

According to the World Health Organisation's (WHO's) Global Hepatitis Report 2024, India has among the highest burdens of viral hepatitis — tied with tuberculosis (TB) as the second largest infectious killer globally — in the world. Covid-19 was the number one infectious killer, according to the report which used data from 2022.

Globally, an estimated 1.3 million people died of viral hepatitis in 2022 (as compared to 1.1 million in 2019), even as its incidence — number of new cases in a year — went down to 2.2 million in 2022 (as compared to 2.5 million in 2019). Even more concerning is the fact that diagnosis and treatment for viral hepatitis remained extremely low.

### **What is viral hepatitis?**

There are five hepatitis viruses that cause liver disease in humans. Hepatitis A and E are transmitted through contaminated food and water, and result in weeks-long symptoms such as fever, abdominal pain, jaundice (yellowing of skin), dark urine, and pale stools.

The WHO report, however, pertains to the blood-borne hepatitis B (hep B) and hepatitis C (hep C) viruses. Some of these viruses may result in short-term infections which resolve on their own. But others can lead to chronic life-long disease, cause cirrhosis (permanent scarring of the liver, making it less efficient), and increase the risk of liver cancer.

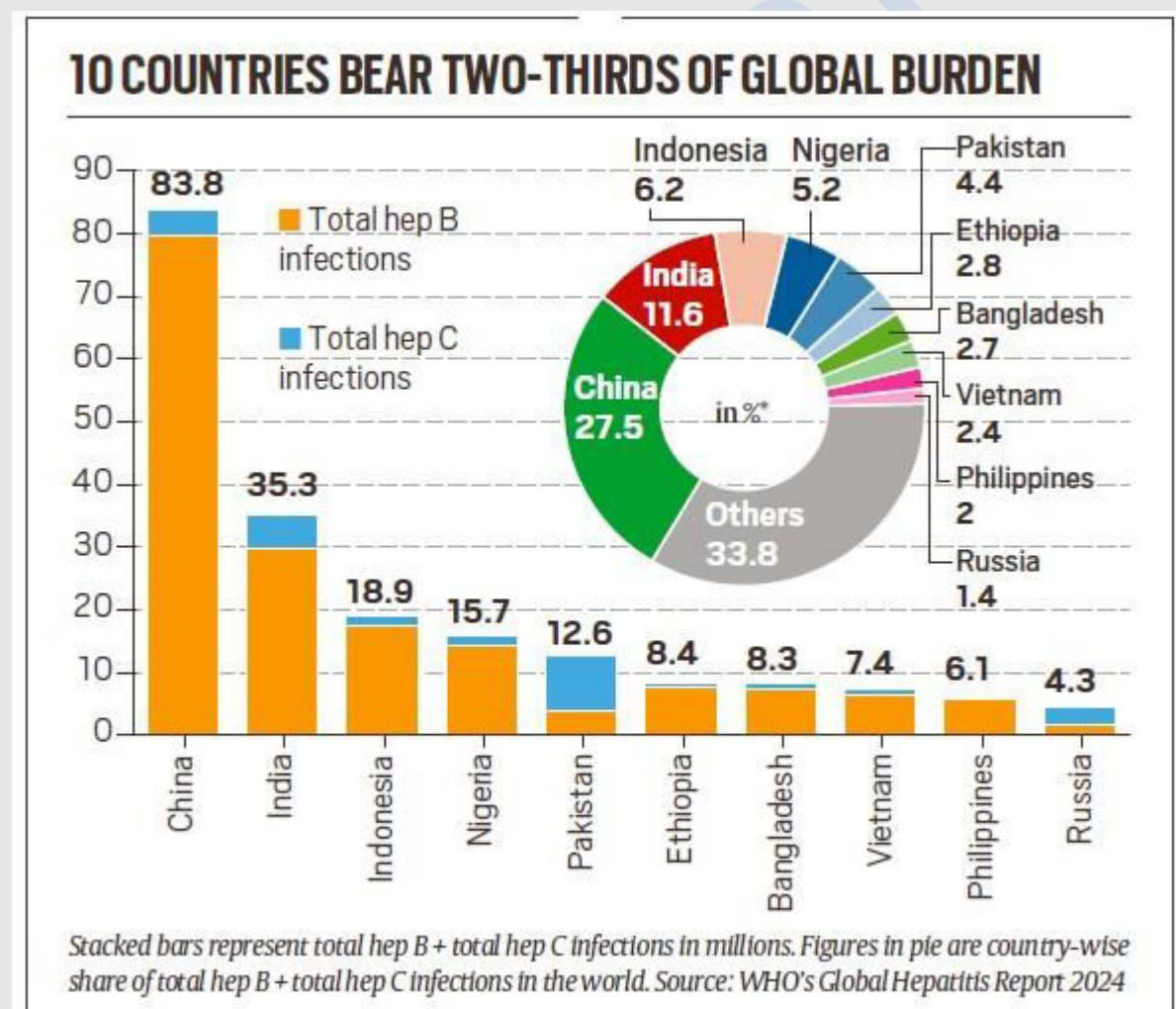
Hep B can be prevented by vaccination, while hep C can be cured with medication. The report does not consider hepatitis D that can only infect those who are already infected with hep B. It can thus be prevented by vaccinating against hep B.

### What does the report say about India?

India has the world's second highest prevalence of viral hepatitis cases, accounting for over 11% of the global burden, the report found.

Globally, of the 254 million people living with hep B in 2022, India accounted for 29 million cases, second only to China (79 million cases). Of the 50 million people living with hep C in the world, India accounted for 5.5 million cases, just behind Pakistan's 8.8 million cases. The diagnosis of viral hepatitis also remained abysmally low. According to the report, only 2.4% hep B cases and about 28% hep C cases were diagnosed.

This is despite there existing a national programme that offers free diagnosis and treatment for hep B and C. Though the programme was launched in 2018, its reach remains limited.



### What is driving up viral hepatitis cases in India?

Viral hepatitis can be transmitted through contaminated blood transfusions, or through contaminated needles.

India's hep B cases are driven up by mother-to-child transmission. Almost 90% of hep B cases in India are transmitted from mother to child, because most blood banks now provide safe blood, and needle-stick transmission in healthcare workers is limited because almost everyone is vaccinated.

With regard to hep C, the WHO report says that India is one of 10 countries where 80% infections are among injection drug users.

### **What are the challenges in dealing with viral hepatitis?**

There are more challenges to controlling hep B (than C). At least three things have to be ensured. "First, all newborns will have to be fully vaccinated against hep B. Second, adults who have not been immunised should also be given the shot. And all those who are diagnosed with the infection should be put on treatment.

The hep B vaccine was rolled out for children in 2007-08, under the government's universal immunisation programme. But a 2019 study found that its coverage varied between 41% and 62%. The 2018 National Viral Hepatitis Control Programme also makes provisions for vaccination of people at high risk of contracting hep B, such as healthcare workers.

With regard to hep C, just making medicines available is half the battle won. The available treatment can cure hep C, and has a good efficacy of 80% to 90%. Unlike hep B, for which medicines have to be taken for life, the treatment for hep C goes on for a shorter duration [12 to 24 weeks].

### **How does India's response to viral hepatitis compare with that to TB?**

Crucially, despite the infection killing almost as many people as TB, it does not receive nearly as much attention. Globally, treatment coverage for TB was estimated to be around 70% in 2022, but the coverage for hep B and C was only 3% and 20% respectively.

In India, the numbers of deaths due to viral hepatitis aren't comparable to TB, which killed an estimated 3.31 lakh people in 2022, but the disparity in treatment coverage remained stark. The report found that none of the diagnosed patients received treatment for hep B, while just 21% received treatment for hep C. In comparison, 95% of those diagnosed with TB in India were put on therapy.

Shortage of drugs is not the problem. According to the report, India has among the cheapest drugs and diagnostics available. For example, the cost of a rapid diagnostic test for hep B in India, at \$0.09, was the lowest among the countries that reported the figure. Similarly, the cost of a rapid diagnostic test for hep C was only \$0.21 in India, again the lowest among countries that reported the figure.



In India, the TDF treatment for hep B is also available for lower than the global benchmark price of \$ 2.40 per month. Moreover, a 12-week course to cure hep C, for which the global benchmark price is \$60, is available for cheaper in India. In fact, several Indian drug makers manufacture generic versions of these medicines.

Relevance: GS Prelims; Science

Source: Indian Express

## 10. Indian BrahMos missiles delivered to the Philippines: The missile's significance

### Why in News?

India's BrahMos supersonic cruise missiles were delivered to the Philippines recently, as part of a \$375 million deal signed by the two countries in 2022.

BrahMos Aerospace Private Limited (BAPL), a joint venture company of India's Defence Research and Development Organisation (DRDO), had signed a contract with the Philippines on January 28, 2022, for supply of Shore Based Anti-Ship Missile System.



### How BrahMos came about

In the early 1980s, the Integrated Guided Missile Development Programme, conceived and led by Dr A P J Abdul Kalam, started developing a range of indigenous missiles including Prithvi, Agni, Trishul, Akash and Nag, with a wide spectrum of capabilities and ranges.

In the early 1990s, India's strategic leadership felt the need for cruise missiles — guided missiles that traverse the majority of their flight path at almost constant speed and deliver large warheads over long distances with high precision. The need was felt primarily following the use of cruise missiles in the 1991 Gulf War.

An Inter-Governmental Agreement was signed with Russia in Moscow in 1998 by Dr Kalam, who headed the DRDO, and N V Mikhailov, Russia's then Deputy Defence Minister.



This led to the formation of BrahMos Aerospace, a joint venture between DRDO and Russian Space company NPO Mashinostroyeniya (NPOM), the Indian side holding 50.5% and the Russians 49.5%. It was named after two rivers in India and Russia respectively – the Brahmaputra and the Moskva.

In 1999, work on development of missiles began in labs of DRDO and NPOM after BrahMos Aerospace received funds from the two governments. The first successful test in 2001 was conducted from a specially designed land-based launcher.

### **Strategic significance of BrahMos**

BrahMos is a two-stage missile with a solid propellant booster engine. Its first stage brings the missile to supersonic speed (meaning faster than sound) and then gets separated. The liquid ramjet or the second stage then takes the missile closer to three times the speed of sound in cruise phase.

The missile has a very low radar signature, making it stealthy, and can achieve a variety of trajectories. The 'fire and forget' type missile can achieve a cruising altitude of 15 km and a terminal altitude as low as 10 m to hit the target.

Cruise missiles such as BrahMos, called "standoff range weapons", are fired from a range far enough to allow the attacker to evade defensive counter-fire. These are in the arsenal of most major militaries in the world.

With missiles made available for export, the platform is also seen as a key asset in defence diplomacy.

Relevance: GS Prelims & Mains Paper III; Science & Technology

Source: Indian Express

## **11. Gopi Thotakura to be the first Indian space tourist: What is space tourism?**

### **Why in News?**

Entrepreneur and pilot Gopi Thotakura is set to become the first Indian to venture into space as a tourist on the NS-25 mission of Blue Origin — a company founded by Jeff Bezos, who is also the founder of Amazon.

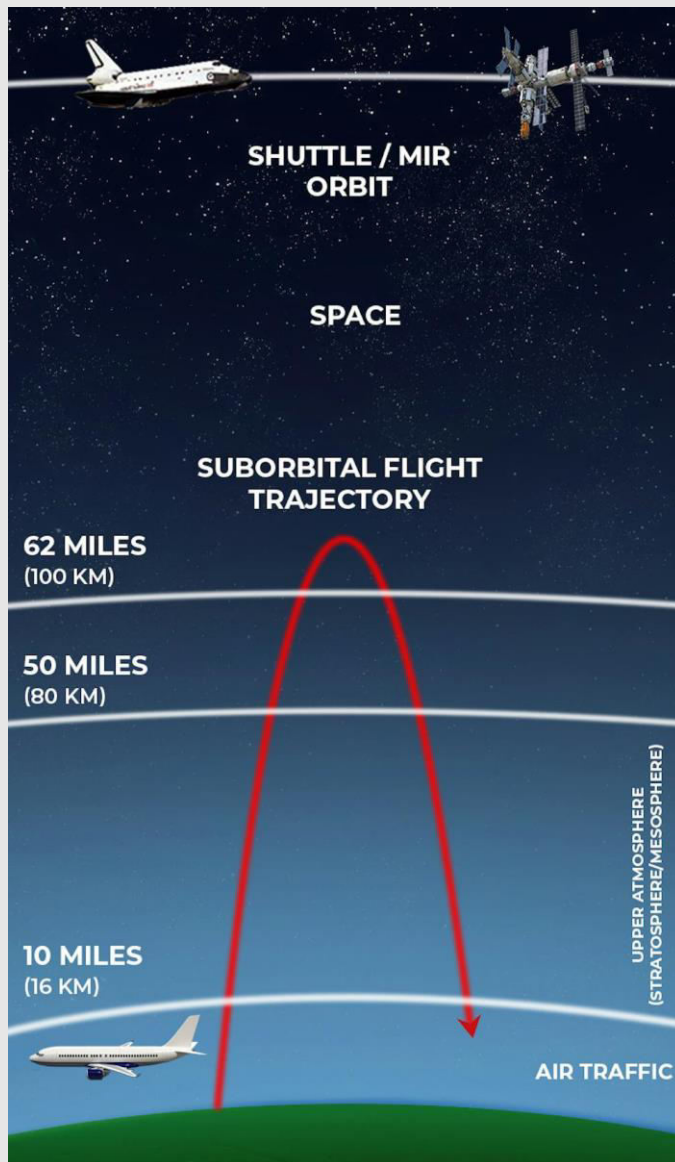
Thotakura has been selected as one of the six crew members for the mission, whose launch date is yet to be announced. If the mission is successful, Thotakura would be the second Indian to go into space. The first one was Wing Commander Rakesh Sharma, who flew to the Salyut 7 space station on a Soviet spacecraft in 1984.

### **Who is Gopi Thotakura?**

A graduate of the US-based Embry-Riddle Aeronautical University, Thotakura flies jets commercially. He is also a co-founder of Preserve Life Corp — a global centre for holistic wellness and applied health located near Hartsfield-Jackson Atlanta International Airport.

### What is space tourism?

Space tourism is essentially a section of the aviation sector which seeks to provide tourists with the opportunity to become astronauts and experience space travel for recreational, leisure, or business purposes.



There are two main types of space tourism, sub-orbital and orbital. The sub-orbital spacecraft takes passengers just beyond the Kármán line — it lies nearly 100 kilometres above our heads and is considered to be the boundary between Earth's atmosphere and outer space. The passengers get to spend a few minutes in outer space and then come back to Earth.

The NS-25 mission, which Thotakura is a part of, is a sub-orbital mission. Thotakura and his other crew members will be taken to outer space via New Shepard, a fully reusable sub-orbital launch vehicle developed specifically for space tourism by Blue Origin.

The orbital spacecraft, on the other hand, takes passengers much further than the Kármán line. Usually, passengers can spend from a couple of days to more than a week at an altitude of nearly 1.3 million feet.

In September 2021, Space X's Falcon 9 took four passengers to an altitude of 160 km where they spent three days orbiting the Earth.

### What are the challenges?

Currently, space tourism is expensive. A passenger generally has to pay at least a million dollars to reach outer space. This amount is out of reach for almost everyone.

Moreover, several studies have pointed out that space tourism may lead to environmental damage as rockets emit gaseous and solid chemicals directly into the upper atmosphere.

A 2022 study done by researchers University College London (UCL), the University of Cambridge and the Massachusetts Institute of Technology (MIT) found that the soot emissions from rocket launches are far more effective at warming the atmosphere compared to other sources.

Safety is also a concern when it comes to space tourism. Despite high safety standards, a total of 676 people have flown into space and 19 of them have died, as of November 2023. This means that approximately 3% of astronauts died during their space flight which is quite a high fatality rate.

Relevance: GS Prelims & Mains Paper III; Science & Technology

Source: Indian Express

## 12. Llama 3, Meta's most sophisticated and capable large language model

### Why in News?

Meta recently introduced its most capable Large Language Model (LLM), the Meta Llama 3. The company also introduced an image generator, which updates pictures in real-time even as the user types out the prompt. Meta will be integrating its latest model into its proprietary virtual assistant — Meta AI.

Meta is pitching its latest models as the most sophisticated AI models, steering way ahead of its peers such as Google, Mistral, etc., in terms of performance and capabilities. The updated Meta AI assistant will be integrated into Facebook, Instagram, WhatsApp, Messenger, and a standalone website much like OpenAI's ChatGPT.

### What is Llama 3?

Llama or Large Language Model Meta AI is a family of LLMs introduced by Meta AI in February 2023. Meta released Llama 2 in July last year.

### What Does Large Language Model (LLM) Mean?

A large language model (LLM) is a type of machine learning model that can perform a variety of natural language processing (NLP) tasks such as generating and classifying text, answering questions in a conversational manner, and translating text from one language to another. The label "large" refers to the number of values (parameters) the language model can change autonomously as it learns. Some of the most successful LLMs have hundreds of billions of parameters.

LLMs are trained with immense amounts of data and use self-supervised learning to predict the next token in a sentence, given the surrounding context. The process is repeated over and over until the model reaches an acceptable level of accuracy.

Once an LLM has been trained, it can be fine-tuned for a wide range of NLP tasks, including:

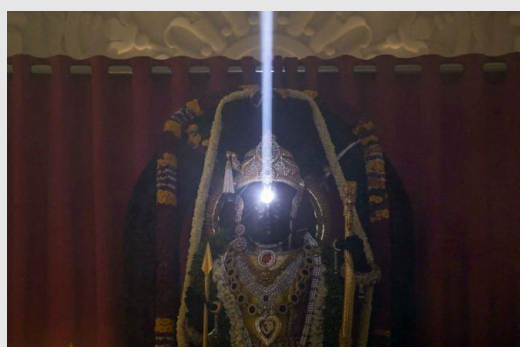
- Building conversational chatbots like ChatGPT.
- Generating text for product descriptions, blog posts and articles.

- Answering frequently asked questions (FAQs) and routing customer inquiries to the most appropriate human.
- Analyzing customer feedback from email, social media posts and product reviews.
- Translating business content into different languages.
- Classifying and categorizing large amounts of text data for more efficient processing and analysis.

Relevance: GS Prelims & Mains Paper III; Science & Technology

Source: Indian Express

### 13. How a beam of sunlight was directed on Lord Ram's forehead in Ayodhya temple



#### Why in News?

A three-minute-long Surya Tilak ceremony — where a beam of sunlight was projected onto the forehead of Lord Ram's idol in Ayodhya's newly-built Ram temple, marking the occasion of Ram Navami.

This was achieved using a special mirror-lens arrangement, designed by astronomers at the Indian Institute of Astrophysics (IIA), Bengaluru, that has been installed in the building by a team from

the Central Building Research Institute, Roorkee.

#### What is the science behind Ram Lalla's Surya Tilak.

##### Step 1: Predict the Sun's position (each year)

When following the Gregorian calendar, the date of Ram Navami (the Hindu festival celebrating the birth of Lord Ram) varies each year. This is because the Gregorian calendar is a solar calendar (based on Earth's revolution around the Sun — one revolution equals to one year), while the Hindu calendar is a lunar calendar (based on the Moon's revolution around Earth — one revolution equals to one month). A solar year has roughly 365 days, whereas a lunar year is roughly 354 days long.

Given that the IIA team's brief was to channelise the sun's rays such that they fall on the Ram idol's forehead on Ram Navami, its first task was to calculate the position of the Sun in the sky on that day in any given year.

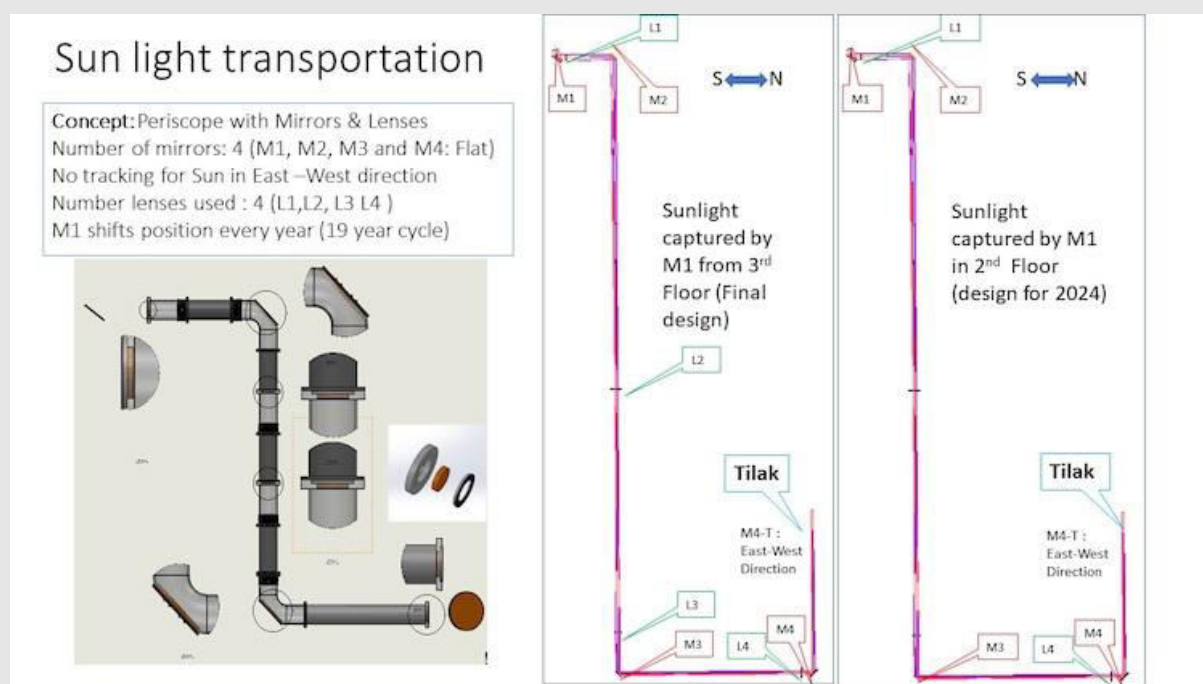
##### Step 2: To channelise the Sun's rays

After astronomers estimated where the Sun will be in the sky, their second task was to channelise the sunbeam "in a manner that it will fall on the idol's forehead for a certain amount of time.

The IIA team, which began designing the apparatus three years ago, proposed a four-mirror-and-four-lens array for this purpose. The first mirror, responsible for receiving the sunlight, has to be positioned at an angle along the path of the sun rays.

The light will then be reflected to three other mirrors, and will pass through four lenses until it is of the desired intensity, and will be directed to the idol's forehead. The mirrors directed the beams while the lenses made them converge to the required intensity.

Given that the sun's position vis-à-vis the first mirror will vary each year, a specially designed 19-gear system was built to make requisite adjustments.



How the system works

The number 19 was chosen to correspond to the Metonic cycle — a period of 19 years in which there are 235 lunar months, after which the Moon's phases recur on the same days of the solar year. This means that every 19 years, the system will effectively reset, and the cycle will then begin again.

### Not the final setup

The glass tube set-up, housing the lenses and mirrors, runs from the third floor of the temple, all the way to the sanctum sanctorum. This huge set-up requires precision handling, and a clean environment to operate. The IIA team was especially concerned about the final mirror positioned inside the sanctum sanctorum, where general activity and havans can lead to soot and dust gathering.

Since the construction of the temple is yet to be complete, the installation of the final system has not yet taken place. For the temple's first Ram Navami celebration, a modified version of the system, having four mirrors and two lenses, was deployed from the second floor of the temple building.

**Relevance:** GS Prelims; Science



PrepMate

### 1. What is Kallakkadal, which has flooded houses in Kerala's coastal areas?

#### Why in News?

Hundreds of houses have been flooded in several coastal areas of Kerala due to high sea waves, also known as swell waves. 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.

#### 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. 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.

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 — gives 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 also move to the Tamil Nadu coast. It has alerted people in coastal areas vulnerable to sea erosion to take precautionary steps and ensure the safety of fishing vessels.

Relevance: GS Prelims & Mains Paper III; Disaster Management

Source: The Indian express

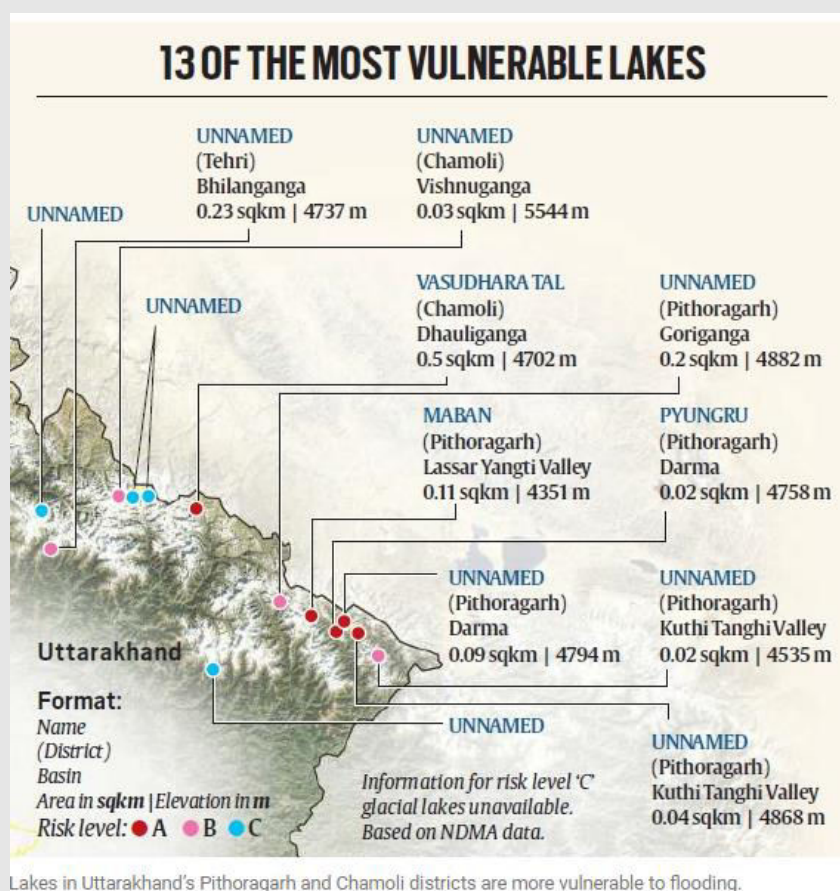
## **2. Why Uttarakhand govt wants to evaluate the risk of Glacial Lake Outburst Floods**

### **Why in News?**

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.



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.

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.

#### 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.

Relevance: GS Prelims & Mains Paper III; Disaster Management

Source: Indian Express

### 3. Large gatherings, political or not, must be avoided in summer

#### Why in News?

With the advent of summer, the India Meteorological Department (IMD) has warned that more heatwaves are likely than last year. Andhra Pradesh, Gujarat and Maharashtra are expected to be particularly vulnerable.

#### What are Heatwaves?

Heatwave days are defined as when day temperatures in a place are at least 4.5° C above normal or greater than 45° C on two consecutive days. For several years on the trot now, the IMD has been forecasting hotter summers.

#### What is the reason to worry?

This year, the weather agency's warnings are more portentous as millions are expected to queue up outside polling stations in India over several afternoons in April and May. Last April, at a mid-day, open-air public, political function in Navi Mumbai, 12 people died due to dehydration and 600 had to be hospitalised. Some of the speakers in fact congratulated the crowd for 'braving' the heat before the disaster unfolded.

This highlights the degree of disregard that the governmental machinery accords to the public-health impacts of heatwaves. This election year, for instance, the Election Commission of India had already issued an advisory to its State electoral officers — ahead of the IMD's public heat warnings — to prepare for the polls amid blistering heat.

The trouble is that these advisories are too generic. There is a perfunctory note to provide for oral rehydration supplements and mothers to avoid bringing children with them to the polling



booths. There is no requirement that polling stations prioritise cooling beyond the confines of the rooms where the officers are seated.

There has been, for many years, a suggestion, even by prominent politicians, for elections to be held in the relatively more clement months of February-March or October-November but it is one that loses traction almost immediately after the polls. India's size and logistical challenges have seen the electoral process innovate and adopt measures such as multi-phase polling and even the use of electronic ballots. With temperature records collapsing every year and the links between heatwaves, climate and health becoming even more explicit, it is time that the electoral process mulls over creative ways to account for the crisis.

Relevance: GS Prelims & Mains Paper III; Disaster Management

Source: The Hindu

#### **4. Anti-Maoist operations status report: What is the significance of Apr 16 encounter?**

##### **Why in News?**

At least 29 Maoists were killed in a gunfight with security forces deep in the forests of Kanker district in southern Chhattisgarh on April 16.

The operation is among the biggest successes for security forces in a single operation against Maoists. What does it say about the current status and nature of the Maoist challenge in Chhattisgarh and the country as a whole?

##### **In what ways is this encounter significant for the security forces?**

The successful operation marks the entry of security forces inside Abujhmad, a vast swathe of forest land in the geographical heart of India. A security vacuum has persisted in Abujhmad for more than three decades now, allowing the Maoists to make this sprawling area into an almost impenetrable stronghold.

At an operational level, this encounter has ensured that the Maoists' Partapur area committee, which has been accused of carrying out several deadly attacks on both security forces and civilians, including the killing of a BSF jawan in an improvised explosive device (IED) blast during the Chhattisgarh Assembly elections last year and the blowing up of vehicles deployed to build roads in the area, has been all but wiped out.

##### **What is the significance of the area in which this operation took place?**

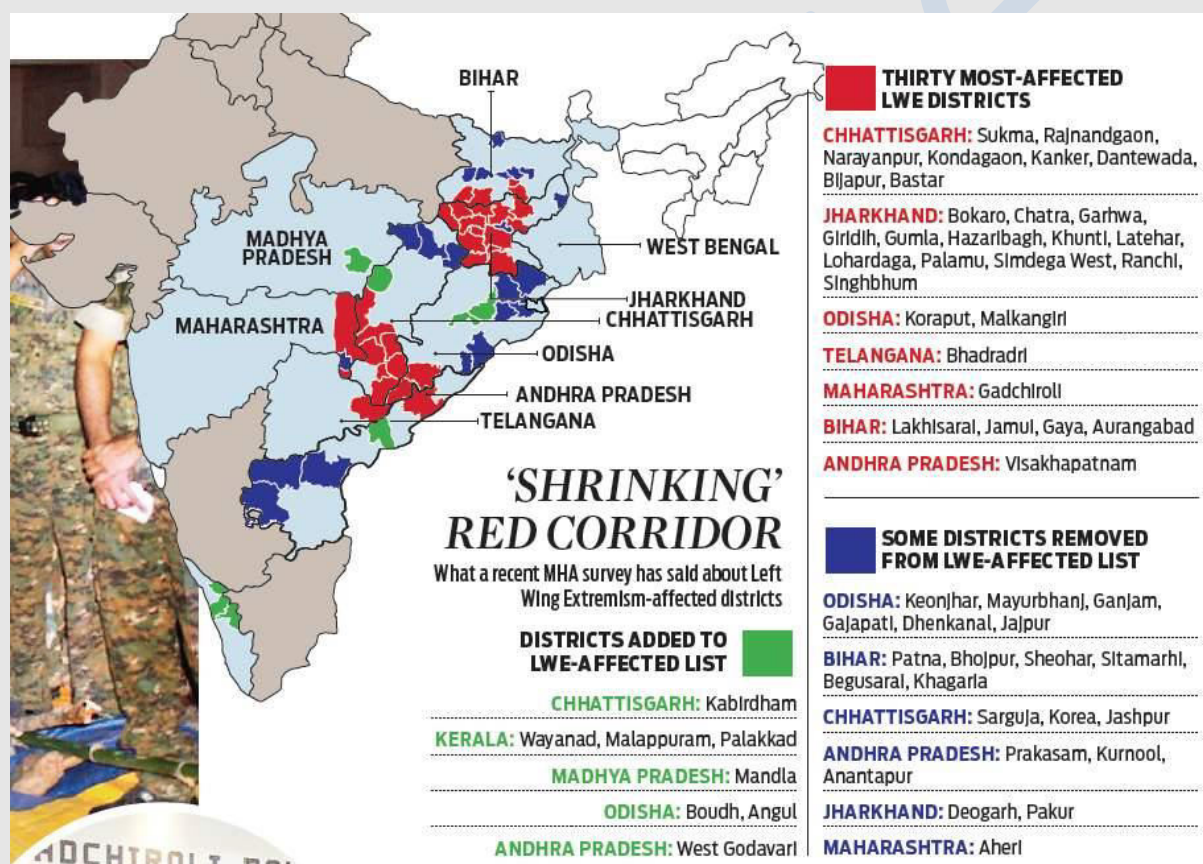
The hills and forests of Abujhmad, literally the "unknown hills", sprawl over an area of about 4,000 sq km in the Bastar region of southern Chhattisgarh, mainly covering the districts of Narayanpur, Bijapur, and Dantewada, immediately to the south of Kanker.

The difficult terrain, the absence of road infrastructure, and presence of the armed rebels has ensured that 90% of this area that is bigger in size than the state of Goa, remains unsurveyed by the government.

These jungles, including parts of the Indravati National Park in Bijapur district, are used both as a safe haven and a transit corridor by Maoists to travel between Maharashtra (to the west), Andhra Pradesh (to the south), Telangana (to the southwest), and Odisha (to the east) via Chhattisgarh's Sukma district.

### What is the nature and magnitude of the Maoist threat currently in Chhattisgarh?

Since the BJP came to power in the state last year, a few new police camps have been set up on the two main entry points to Abujhmad, from Kanker in the north and Narayanpur in the east. Police have also crossed the Kotri river, a tributary of the Indravati-Godavari, and established a base camp in Abujhmad. This made the present operation possible, an official said.



According to a PTI report quoting data from the Home Ministry, the number of Left Wing Extremism (LWE) affected districts was 38 as of March 2024. The highest number of LWE-affected districts are in Chhattisgarh (15), followed by Odisha (7), Jharkhand (5), Madhya Pradesh (3), Kerala, Telangana, and Maharashtra (2 each), and West Bengal and Andhra Pradesh (1 each).

### What does Tuesday's successful operation signal for the anti-Naxal strategy of the security forces going forward?

Two of the Bastar region's biggest encounters against Maoists since 2006 have taken place this month. Before recent encounter in Kanker, 13 alleged Maoists were killed in Bijapur district

on April 1. A total 79 Maoists have been killed so far this year; in 2019, 65 Maoists were killed in the entire year.

**And what does the success of the operation mean for the Maoists in this region?**

The security forces have sought to send a clear message to the rebels: give up your weapons and surrender, or be prepared to be killed. That said, the Maoists still control a large area, and retain the capability and ammunition to launch a big attack.

Relevance: GS Prelims & Mains Paper III; Internal Security

Source: Indian Express

**5. How ISRO used satellite remote-sensing to analyse glacial lakes in Himalayas**

**Why in News?**

Earlier this week, the Indian Space Research Organisation (ISRO) released satellite-data-based analysis on expansion of glacial lakes in the catchments of Indian Himalayan river basins. This is the latest among a clutch of studies on glacial lakes that have highlighted the risks of glacial lake outburst floods (GLOFs), and their impact on infrastructure and settlements downstream of such lakes.

**What did ISRO's analysis reveal?**

ISRO's analysis looked at satellite data archives spanning the past four decades to assess changes in the glaciated environment. Long-term satellite imagery covering the catchments of Indian Himalayan river basins — spread over India, Nepal, Tibet, and Bhutan — is available from 1984 onwards, till 2023. ISRO's data has indicated significant expansion in the size of glacial lakes.

Of the 2,431 lakes larger than 10 hectares (identified during 2016-17), 676 glacial lakes had expanded significantly since 1984. Of these 676 lakes, 601 lakes had more than doubled in size, 10 lakes had grown between 1.5 to 2 times, and 65 lakes had grown 1.5 times.

ISRO said that 130 of the 676 lakes are situated in India, in the Indus (65), Ganga (7), and Brahmaputra (58) river basins. These lakes have expanded as glaciers are retreating at an ever faster rate due to global warming.

**How are glacial lakes formed?**

The movement of glaciers causes erosion and creates depressions in the surrounding topography. When they retreat, meltwater starts to accumulate in such depressions, giving birth to glacier lakes.



### **How can the risks posed by glacial lakes be mitigated?**

In 2023, a study published in the Journal of Geophysical Research examined the risks posed by Ghepan Gath lake — located at an elevation of 4,068 m in Himachal Pradesh — to Sissu in Lahaul valley, and modelled the impacts of lowering the water levels in the lake.

It found that lowering of the lake levels by 10 to 30 m significantly reduces the impacts on Sissu town, though not completely eliminating the risks posed by a GLOM event.

One way to syphon off lake water is by using long High Density Polyethylene (HDPE) pipes. In 2016, members of the Sikkim State Disaster Management Authority and Sikkim's Department of Science and Technology and Climate Change, among others, used this method to reduce water levels in Sikkim's South Lhonak Lake.

Relevance: GS Prelims & Mains Paper III; Disaster Management

Source: Indian Express

### **6. Bambi Bucket, being used by an IAF helicopter to fight Nainital forest fires?**

#### **Why in News?**

Indian Air Force's MI 17 V5 helicopter was deployed recently to extinguish the raging forest fires in Nainital district, Uttarakhand. The helicopter used a "Bambi Bucket", also known as helicopter bucket or a helibucket, to collect water from Bhimtal lake, located near Nainital, and poured it over the burning forests.

#### **What is a Bambi Bucket?**

Bambi Bucket is a specialised aerial firefighting tool which has been in use since the 1980s. It is essentially a lightweight collapsible container that releases water from underneath a helicopter to targeted areas. The water is released by using a pilot-controlled valve.



One of its key features is that it can be quickly and easily filled. The bucket can be filled from various sources, including lakes and swimming pools, which allows firefighters to swiftly refill it and return to the target area.



### **How was the Bambi Bucket invented?**

The Bambi Bucket was invented by Don Arney, a Canadian business, in 1982. Arney came up with the idea after he realised that the aerial firefighting water buckets in use at the time were not efficient and had a high failure rate.

These water buckets were generally made of "solid fibreglass, plastic, or canvas with metal frames" and were "too rigid to fit inside the aircraft" and had to be "trucked to fire sites or flown in on the hook of a helicopter thereby slowing the aircraft down," according to the National Inventors Hall of Fame's website. Another issue was that the water dropped from these containers used to get dispersed into a spray thereby reducing impact.

Bambi Bucket does not have these limitations. One, it can be stored within the helicopter until development. Two, it discharges a solid column of water, "resulting in a more accurate and

effective water dump, less evaporation on the descent, and greater impact force.

Relevance: GS Prelims & Mains Paper III; Disaster Management

Source: Indian Express

## **7. Uttarakhand forest fire: How are forest fires caused and how frequent are they in India?**

### **Why in News?**

Amid forest fires in Uttarakhand's Nainital district, the Indian Air Force was engaged in firefighting operations. The Nainital, Haldwani and Ramnagar forest divisions were worst affected.



While the exact cause of these fires is unknown so far, here is a quick recall of the potential causes of forest fires in general, and the factors that impact their frequency and intensity.



### **How frequent are forest fires in India?**

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

According to experts, three factors cause the spread of forest fires — fuel load, oxygen

and temperature. Dry leaves are fuel for forest fires. The Forest Survey of India (FSI) website states that nearly 36 per cent of India's forests are prone to frequent fires.

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

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

### **What are some of the causes behind forest fires?**

Most fires are believed to be man-made, due to changes in agriculture and unchecked land-use patterns.

The forest department has previously cited four causes of wildfires in Uttarakhand – deliberate fires by locals, carelessness, farming-related activities and natural reasons. According to a government report, locals set forests on fire for the growth of good quality grass, to cover up illegal cutting of trees, for poaching, etc. Friction of electricity cables with dry leaves also triggers wildfires, as does lightning.

Notably, setting a forest on fire is a punishable offence under the Indian Penal Code. A forest official said several cases have been lodged but the accused remain unidentified in most such cases.

### **How are forest fires prevented and doused?**

The Ministry of Environment, Forest and Climate Change (MoEFCC) lists the following methods to prevent and control a forest fire: construction of watch towers for early detection; deployment of fire watchers; involvement of local communities, and the creation and maintenance of fire lines.

According to the National Disaster Management Authority (NDMA) website, two types of fire lines are in practice – Kachha or covered fire lines and Pucca or open fire lines. In Kachha fire lines, the undergrowth and shrubs are removed while trees are retained to decrease the fuel load.

The Pucca fire lines are clear felled areas separating a forest/compartment/block from another to control the spread of potential fires.

Relevance: GS Prelims & Mains Paper III; Disaster Management

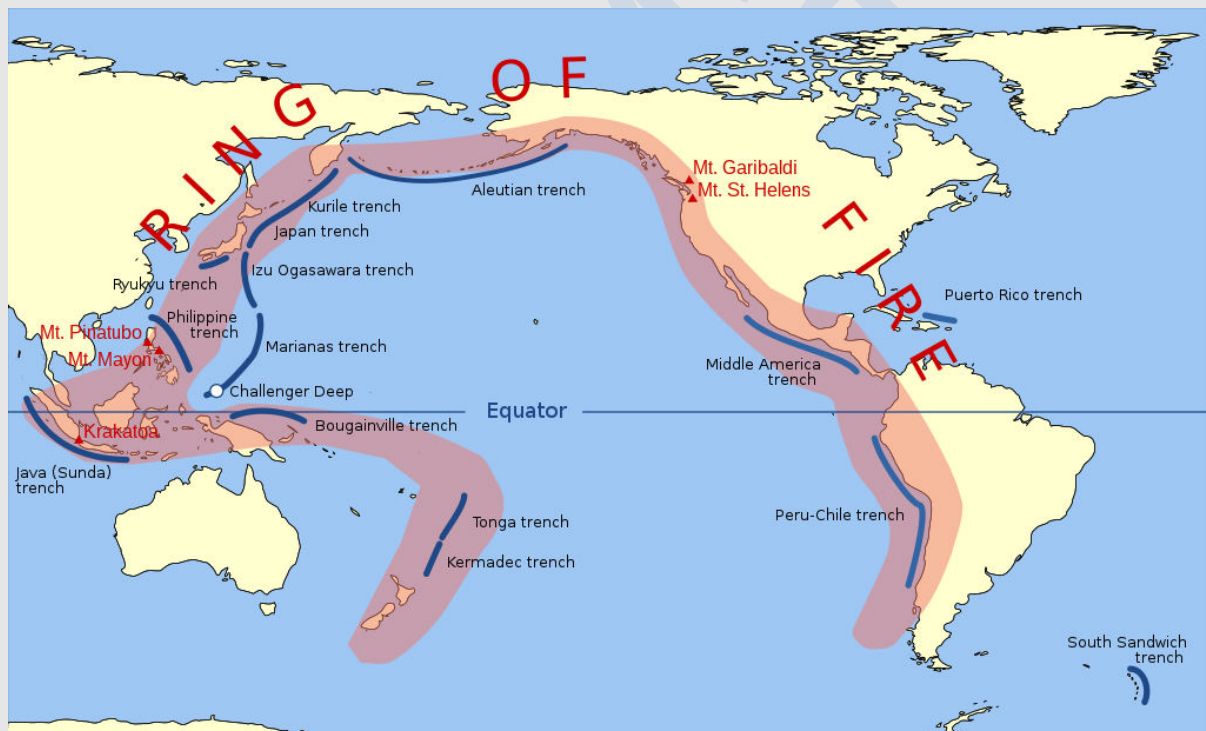
Source: Indian Express

### 1. Massive earthquake hits Taiwan: What is the Ring of Fire?

#### Why in News?

Nine people died and more than 800 got injured in Taiwan after the island was hit by its biggest earthquake in at least 25 years on 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.

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.



#### Ring of Fire (Also known as Circum-Pacific belt)

Ring of fire is long horse shoe shaped region in Pacific Ocean. It is almost 40,000 km long. This region lies on margins of various tectonic plates and is highly seismic. Due to convergence or divergence of various tectonic plates, many volcanoes erupt in this region. With eruption of volcanoes and subduction of plate boundaries, many earthquakes also originate from this region. This region is home to more than 75% of world's volcanoes and almost 90% of world's earthquakes.

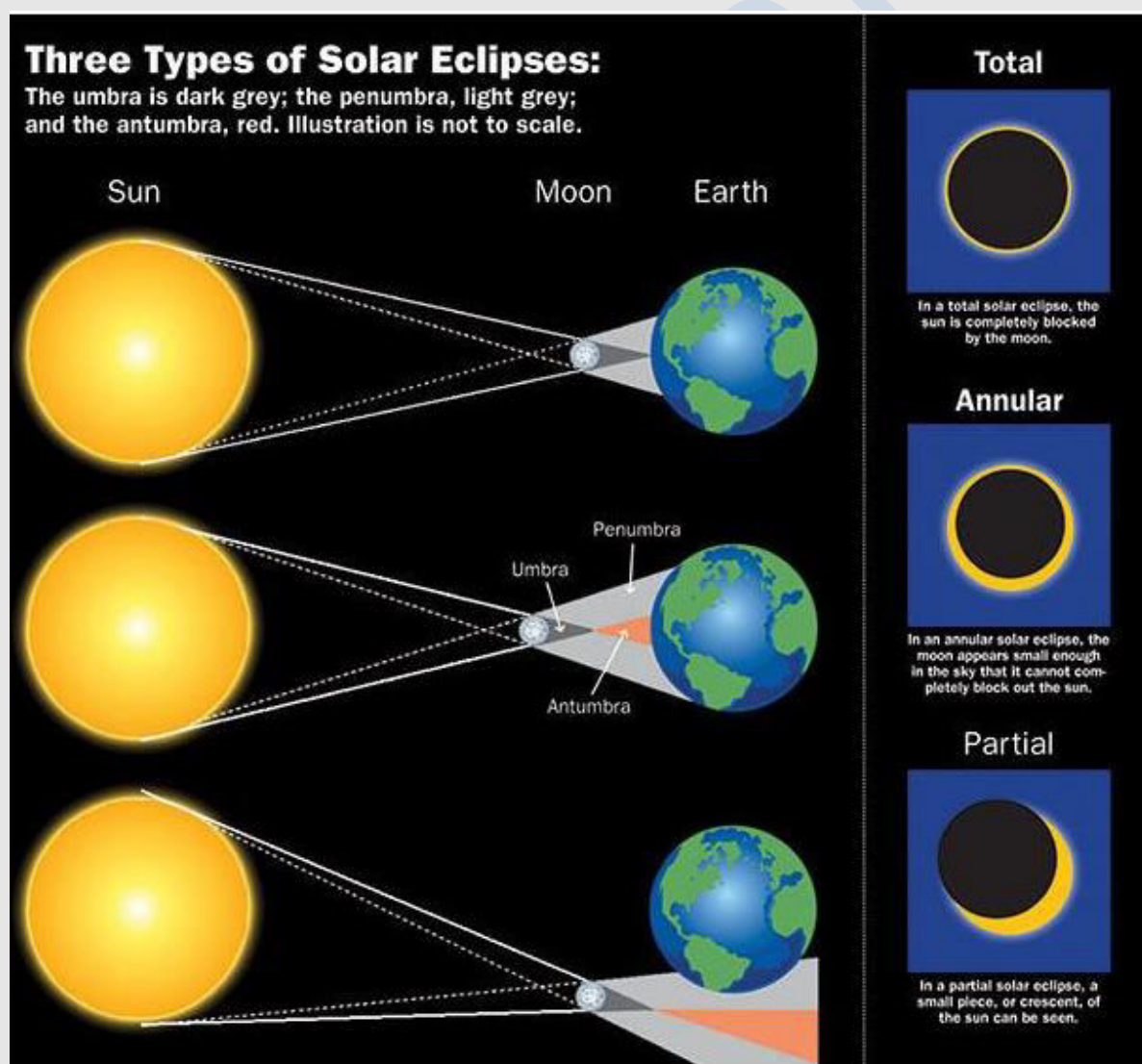
Because of frequent explosion of volcanoes, this region is known as Ring of Fire. Major Archipelago and world's deepest oceanic trenches are also in this region. For Example, Mariana Trench or Challenger deep, Java trench and others are found in this region. Similarly, Philippines Archipelago and Indonesian Archipelago are also found in this region.

Relevance: GS Prelims & Mains Paper I; Geography

Source: The Indian express

## 2. What makes today's total solar eclipse so rare?

On April 8, a total solar eclipse will cross North America, passing over Mexico, the United States, and Canada. This type of solar eclipse is a rare event for any particular spot. According to Royal Museums Greenwich, once a place on Earth witnesses a total solar eclipse, it will be about 400 years before that part sees the next one.



### **But first, what is a solar eclipse?**

A solar eclipse takes place when the Moon moves in the middle of Earth and the Sun. The Moon blocks the light of the Sun, either fully or partially, which casts a huge shadow on some parts of the world.

There are four different types of solar eclipses, including total solar eclipse, annual solar eclipse, partial solar eclipse, and hybrid solar eclipse.

When the Moon blocks the Sun entirely, the areas in the centre of the Moon's shadow at the time witness a total solar eclipse. The sky darkens and people who are in the path of a total solar eclipse can get a glimpse of the Sun's corona — the outer atmosphere — which is usually not visible due to the bright face of the Sun.

When the Moon passes in front of the Sun but is at or near the farthest point from Earth, an annular solar eclipse occurs. In this scenario, the Moon covers the Sun in such a way that only the periphery of the Sun remains visible — looking like a ring of fire.

A partial solar eclipse takes place when the Moon blocks just a part of the Sun, giving it a crescent shape. During both partial and annular eclipses, the regions outside the area covered by the Moon's umbra — the middle and the darkest part of the lunar shadow — will see a partial solar eclipse. Partial solar eclipse is the most common type of solar eclipse.

A hybrid solar eclipse — the rarest type of solar eclipse — is witnessed when an eclipse shifts between annular and total as the shadow of the Moon moves across the globe. In this case, some parts of the world see a total solar eclipse, while others observe an annular solar eclipse.

### **How often does a solar eclipse take place?**

A solar eclipse is witnessed only during the new moon — when the Moon and Sun are aligned on the same side of Earth. A new moon occurs about 29.5 days because that is how long it takes the Moon to orbit Earth. This, however, does not mean that a solar eclipse happens every month. It takes place only between two to five times annually.

### **But why?**

It is because the Moon does not orbit Earth in the same plane as the Earth orbits the Sun. In fact, the Moon is tilted by about five degrees with respect to Earth. As a result, most of the time when the Moon is in between the Sun and Earth, its shadow is either too high or too low to fall on the Earth.

### **Why is a total solar eclipse so rare?**

While there can be between two and five solar eclipses every year, total eclipses only happen about once every 18 months or so. As mentioned before, a particular spot-on Earth witnesses a total solar eclipse only once in 400 years.

This is because a total eclipse is only visible if one is standing in the umbra — the other part of the shadow is called the penumbra, which is not as dark as the umbra. The umbral shadow



is very small, covering only a small part of Earth. In fact, the entire path of the umbral shadow during a solar eclipse will only cover less than one per cent of the globe. This is why only very few people will get to see a total eclipse at a time.

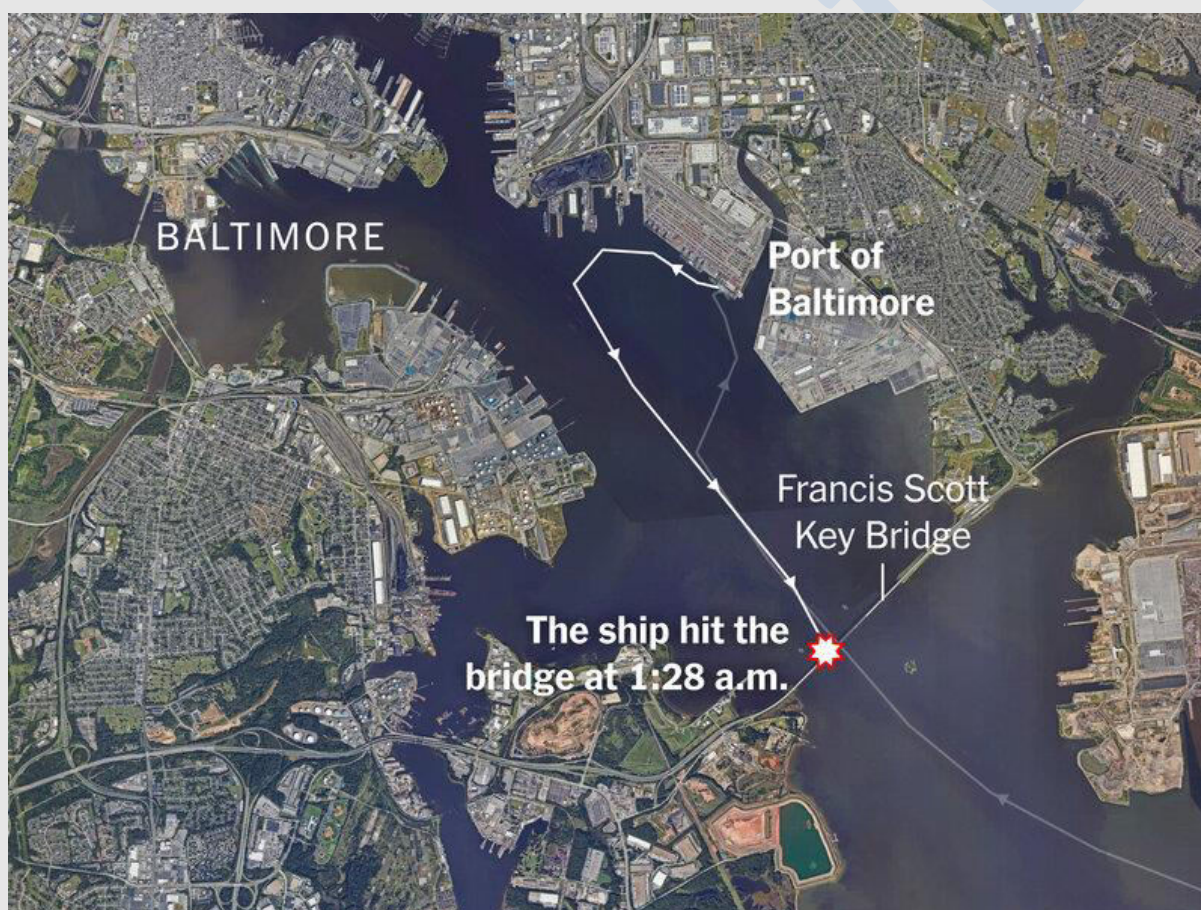
Relevance: GS Prelims & Mains Paper I; Geography

Source: Indian Express

### 3. What would be the impact of the Baltimore bridge collapse?

#### Why in News?

The collapse of the Francis Scott Key Bridge on March 26 has put a spotlight on the Port of Baltimore, one of the busiest harbours in the U.S., which paused shipping and immediately halted all vessel traffic in and out.

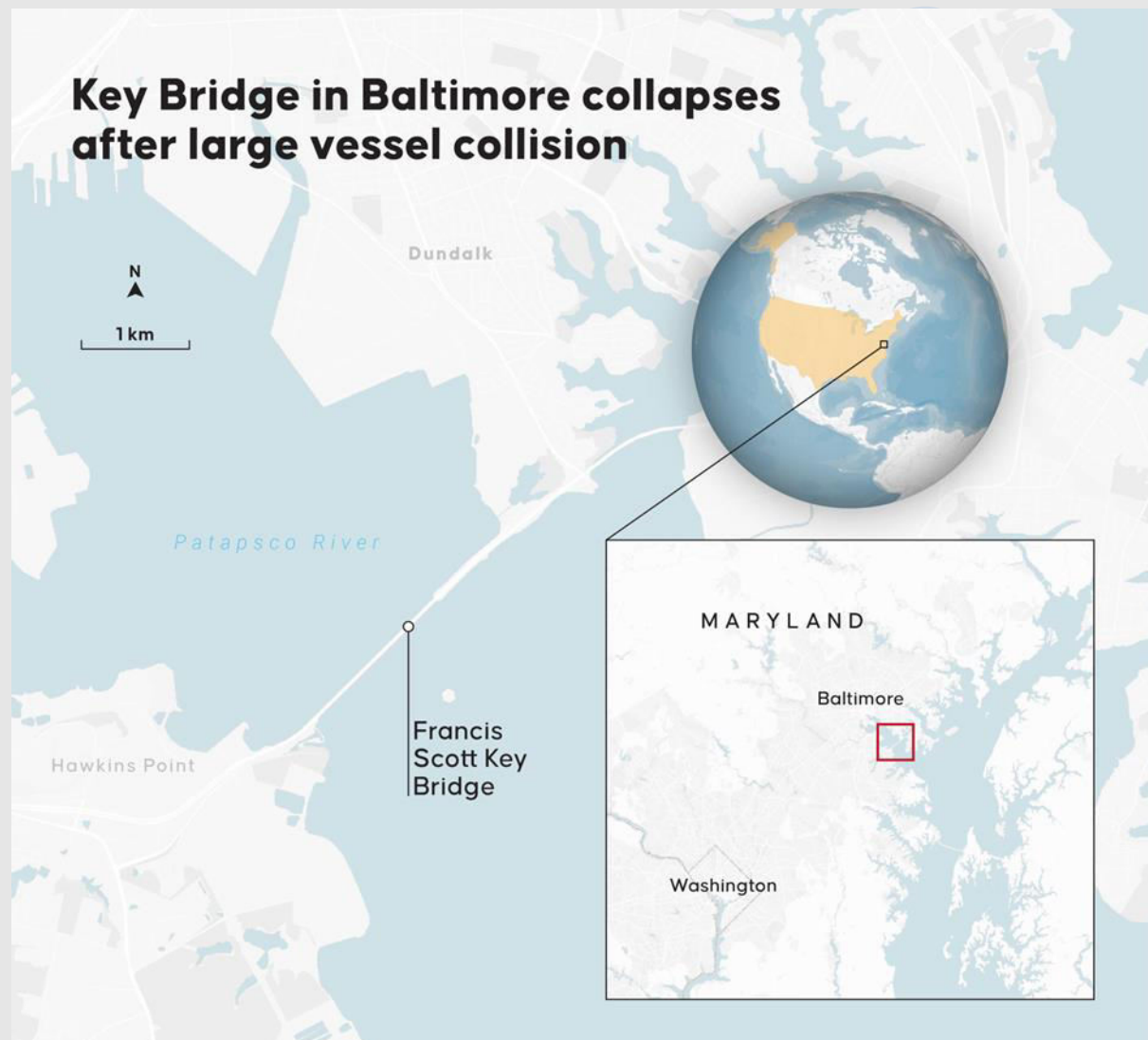


The port remained open to trucks following the incident, but the loss of maritime traffic is expected to cost \$9 million a day. The overall economic toll is likely to be higher as billions of dollars of goods are rerouted amid the prospect of supply chains being snarled for months. It will also mean a loss of tax revenue for the city and state.

Here, a supply chain and logistics expert from the University of Montana explains the short- and long-term impacts of the crash on supply chains.

### **How important is the Port of Baltimore?**

The Port of Baltimore is the ninth largest U.S. port by overall trade volume. In 2023 alone, it moved around 50 million tonnes of goods between the U.S. and other countries, much of it in large shipping containers, like those stacked on the ship that rammed into the bridge. Although it's smaller than other ports on the East Coast and in the Gulf of Mexico, it still plays a critical role in processing U.S. international trade traffic.



### **What's the short-term impact of its closure on supply chains?**

The immediate impact will be felt by the 15,000 or so workers in the port and about 1,40,000 others who depend on it. It doesn't mean they'll be laid off, but drastically less traffic would mean less work to go around. Companies and consumers should expect some delays for packages that would have otherwise been processed by the port.

**What's the long-term impact?**

The problem is that supply chains have been under stress from multiple directions lately. Houthi attacks on ships in the Red Sea and Panama Canal bottlenecks have lengthened delivery times and increased costs for companies that rely on East Coast ports. The pause in maritime traffic at the Port of Baltimore adds one more point of pressure for trade in the region.

**How does this supply chain shock compare with other recent ones?**

From a supply chain perspective, this was a freak accident. It's dramatic, it's graphic, and it forces people to pay attention to the issue. But unlike the Red Sea attacks or the impact from the COVID-19 pandemic, which have led to lingering supply chain problems, fallout from the bridge collapse will be temporary.

Relevance: GS Prelims

Source: The Hindu

**4. Mount Etna and volcanic vortex rings****Introduction**

Since last week, Mount Etna, the largest volcano in Europe, and among the world's most active and iconic volcanoes, has been sending up almost perfect rings of smoke into the air. The rings are a rare phenomenon that scientists refer to as volcanic vortex rings, which are produced roughly in the same way as the smoke rings that some cigarette smokers are able to blow out of their mouths.

**But first, the setting — what and where is Mount Etna?**



Mount Etna, sometimes referred to simply as Etna, is an active volcano on the east coast of Sicily, the largest island in the Mediterranean Sea, lying just off the toe of the Italian "boot". Etna's peak is the highest in Italy south of the Alps, and it is Europe's largest and one of the most active volcanoes.

Etna's summit has five craters, which are responsible for most of the volcano's eruptions; there are also "flank" eruptions that occur out of 300-odd vents of varying sizes along the slopes of the mountain.

Etna has been a World Heritage Site since 2013, and according to UNESCO, the volcano's eruptive history can be traced back 500,000 years.

#### **And what are volcanic vortex rings?**

Vortex rings are generated when gas, predominantly water vapour, is released rapidly through a vent in the crater. The vent that has opened up in Etna's crater is almost perfectly circular, so the rings that have been seen above the mountain are also circular.

Relevance: GS Prelims

Source: Indian Express

### **5. New shoe sizing system proposed for Indians: What is 'Bha' and the need for it?**

#### **Why in News?**

A pan-India survey on the feet sizes of Indians was recently carried out as part of a larger project for developing an Indian sizing system for footwear. Proposed to be named 'Bha' (भ) to represent Bharat, it could form the basis for manufacturing footwear in India. Upon its implementation, Bha will replace the existing UK/European and the US sizing systems.

#### **What did the survey find?**

Initially, the hypothesis was that at least five footwear sizing systems would be required for Indians to be inclusive of various ethnicities. Prior to the survey, it was thought that people from northeast India, on average, had smaller feet sizes compared to the rest of India.

A survey was conducted between December 2021 and March 2022, covering 1,01,880 people across 79 locations in five geographical zones. 3D foot scanning machines were deployed for understanding the size, dimensions and structure of an average Indian foot.

A statistical analysis of the massive data obtained from the survey concluded that a single shoe sizing system could be applied for Indians.



### **Problems with UK/European/US sizing systems**

Overall, Indians' feet were found to be wider than that of Europeans or Americans. Due to the narrow footwear available under the UK/European/US sizing systems, Indians have been wearing footwear which are a size bigger than required.

Many Indians were found to be wearing extra-long, ill-fitted and tight footwear. In the case of high-heeled women's footwear, wearing a bigger size was both inconvenient and a cause for potential injuries.

For men, shoelaces were tightened much more than ideal to ensure the shoes were not loose fitting. This affected the normal flow of blood for the wearer.

By wearing footwear not designed according to their feet's specifications, Indians have been vulnerable to injuries, shoe bites and compromised foot health – especially among elderly women and diabetics.

### **Why was the need for an Indian shoe sizing system felt?**

The British introduced UK sizes in India before Indian independence. According to it, an average Indian woman wears footwear sizes between 4 and 6, and the average man between 5 and 11.

Since there existed no data on the feet structure, size, dimensions of Indians, developing an Indian system had been difficult and was never undertaken.



With an Indian user now owning an average of 1.5 footwears each and India being the world's most populated country, it is one of the world's biggest markets and manufacturers of shoes. Industry stakeholders also said that an estimated 50 per cent of the footwear ordered online were rejected by customers. With Bha, both the users and the footwear manufacturers could benefit.

#### **What are the survey's recommendations?**

Bha proposes eight footwear sizes: I – infants (0 to 1 year), II – babies (1 to 3 years), III – small children (4 to 6 years), IV – children (7 to 11 years), V – girls (12 to 13 years), VI – boys (12 to 14 years), VII – Women (14 years and above) and VIII – Men (15 years and above).

For commercial purposes, initially manufacturing of footwears ranging in sizes III – VIII would be sufficient. Footwear manufactured as per Bha could give nearly 85 per cent of the country's population the right fitting and better comfort.

The biggest advantage of adopting Bha would be that footwear manufacturers would need to develop only eight sizes as against the present 10 sizes (English system) and seven sizes (European system). In addition, half-sizes would not be needed.

The shoe last size will have an additional 5mm foot length. The Bha system will also be wider at its girth than the footwear currently available commercially.

#### **What is the current status of Bha?**

The Chennai-based Council of Scientific and Industrial Research–Central Leather Research Institute (CSIR–CLRI) conducted the survey. It submitted its recommendations to the Department of Promotion of Industry and Internal Trade (DPIIT), which comes under the Union Ministry of Commerce. The DPIIT has forwarded them to the Bureau of Indian Standards (BIS), which is the Indian authority to implement this sizing system, for approval.

Since Bha will completely overhaul the existing sizing systems, the departments have suggested that footwear manufactured as per Bha size standards should be given to users for trial, testing and feedback. Bha is expected to be implemented sometime in 2025.

Relevance: GS Prelims & Mains Paper I; Indian Society

Source: Indian Express

### **6. Dommaraju Gukesh's victory at the Candidates chess tournament in Toronto**

#### **Why in News?**

Dommaraju Gukesh's victory at the Candidates chess tournament in Toronto ranks among India's greatest achievements in sport. Later this year, he will play China's Ding Liren for the World championship, as the youngest challenger in history.



### Challenger

In chess, unlike in most sports, the World champion has the privilege of defending his crown without playing a single game, while his challenger has to come through the gruelling Candidates tournament. The field was expectedly tough in Toronto, where the World No. 2 and No. 3, Fabiano Caruana and Hikaru Nakamura, had begun as the favourites.

Few would have imagined that a 17-year-old from Chennai would finish ahead of them. His victory further India's stature as the fastest rising country in world chess. He was not the only Indian in Toronto. There were five: three in the open section and two in the women's. And all of them did fairly well, though they lacked consistency.

### Chess tournaments in India

Gukesh had qualified for the Candidates after playing a Super Grandmaster tournament in Chennai in December. Without it, Gukesh simply would not have been able to make it to Toronto. But what is equally significant is the fact that it was India's first ever tournament of its kind. When the five-time World champion Viswanathan Anand was among the world's top players for decades, he had not got an opportunity to play even once in a tournament like that in India. The only world-class tournament in India is the one organised by Tata Steel in Kolkata, but the format is speed chess, not the classical variety employed at the Candidates and the World championship. There should be more elite tournaments in India.

Relevance: GS Prelims

Source: Indian Express

## Practice Questions

1. Consider the following statements about Katchatheevu island:

1. The island was ceded to Sri Lanka as per Indo-Sri Lankan Maritime agreement of 1974.
2. The island is un-habitated as it has no source of fresh water.
3. The only structure on the island is an early 20th-century Catholic shrine – St Anthony's church.

How many of the above statements are incorrect?

- a. Only One
- b. Only Two
- c. All Three
- d. None

2. Which of the following is the most appropriate statement in respect of mysterious health condition known as 'Havana syndrome'?

- a. As this syndrome first affected the officials of Cuba, it is called Havana syndrome.
- b. The affected officials typically exhibit symptoms such as hearing certain sounds without any outside noise.
- c. Indian health workers have also complained of this condition.
- d. This syndrome is expected to have originated from China.

3. 'Wadge Bank', fishing resource rich region, belongs to which of the following countries?

- a. Sri Lanka
- b. Pakistan
- c. Myanmar
- d. India

4. Glacial lakes in Himalayas have been formed primarily due to

- a. breaking away of glaciers
- b. formation of large glaciers
- c. melting of glaciers
- d. displacement of water by glaciers

5. Which of the following statements is the most appropriate in respect of Basel III Endgame?

- a. These are the norms agreed among European nations to regulate Artificial Intelligence.
- b. These are the predictions with scientific basis on how the life on earth can end.
- c. These are the final set of rules to strengthen risk management of banks.

d. These are the predictions about the beginning of nuclear war.

6. Consider the following statements about various types of Hydrogen fuel:

1. Green Hydrogen production involves use of renewable sources to electrolyze water.
2. Grey Hydrogen is extracted from hydrocarbons.
3. Blue Hydrogen is produced from blue green algae.

How many of the above statements are correct?

- a. Narora, Uttar Pradesh
- b. Banswara, Rajasthan
- c. Tarapur, Maharashtra
- d. Kalpakkam, Tamil Nadu

7. The citizenship amendment act 2019 which provides for easy mechanism to seek Indian citizenship to persecuted minorities, covers how many of the following minorities:

1. Tamils from Sri Lanka
2. Rohingyas from Myanmar
3. Ahmadiyya from Pakistan

- a. Only One
- b. Only Two
- c. All Three
- d. None

8. Consider the following statements about Total Solar eclipse:

1. It occurs when moon blocks the Sun entirely.
2. Sun's corona is visible during total solar eclipse.
3. It occurs on a point on earth every 29.5 days because that is how long it takes the Moon to orbit Earth.

How many of the above statements are correct?

- a. Only One
- b. Only Two
- c. All Three
- d. None

9. The port of Baltimore, recently in news for its bridge collapse, is located on the coast of

- a. Russia
- b. Mexico
- c. USA
- d. Norway

10. Dark Energy Spectroscopic Instrument (DESI), a unique piece of equipment with 5,000 robotic 'eyes', each one of which can separately capture and process light coming from a galaxy, is located in

- a. USA
- b. Australia
- c. UK
- d. Japan

11. Which of the following statements is correct in context of curative writ petition?

- a. It is mentioned in the constitution under powers of Supreme Court.
- b. It is allowed only against the orders of the High Court.
- c. It is the appeal against the final orders of the Supreme Court.
- d. It is allowed only in death penalty cases.

12. How many of the following statements are correct about God Particle, a sub-atomic particle.

- 1. It is supposed to account for the mass of every other fundamental particle.
  - 2. It is also called Higgs Boson.
  - 3. It was observed at Large hadron Collider (LHC).
- a. Only One
  - b. Only Two
  - c. All Three
  - d. None

13. Recently, the last stage of Polar Satellite Launch vehicle (PSLV) used in the mission was transformed by ISRO into a kind of orbital station — called the PSLV Orbital Experimental Module-3 (POEM-3). Why was the outcome of this transformation?

- a. The Launch vehicle could reach greater distance.
- b. The Launch vehicle could undertake multiple satellite launches at the same time.
- c. The Launch Vehicle could come back to earth.
- d. The Launch Vehicle could generate minimal space debris.

14. What is "Axis of Resistance"?

- a. Hamas led coalition to counter Israel military attack.
- b. Saudi Arabia led coalition of Sunni islamic countries to counter Shia islam proliferation.
- c. Iran led coalition of Shia islamic groups to counter West influence and Israel.
- d. International group of developing countries to secure their economic interests in global forums.



15. Consider the following statements about the five hepatitis viruses that cause liver disease in humans:

1. Hepatitis A and E are transmitted through contaminated food and water.
2. Hepatitis B and C viruses are transmitted through blood transfusion.
3. Hepatitis D that can only infect those who are already infected with Hepatitis B.

How many of the above statements are correct?

- a. Only One
- b. Only Two
- c. All Three
- d. None

16. Which of the following statements is correct about sub-orbital space tourism?

- a. It refers to space tourism in earth's orbit.
- b. It is at height of nearly 400 Kms from earth's surface.
- c. It is just above the Karman line.
- d. It is usually for a couple of days to more than a week.

17. Consider the following pairs about Israel's multi-layered air defence system:

1. Arrow system - Intercept long range missiles
2. David's Sling - Intercept Short range missiles
3. Iron Dome - Intercept Mid-range missiles

How many of the above pairs are correctly matched?

- a. Only One
- b. Only Two
- c. All Three
- d. None

18. Hindu festivals such as Ram Navami are based on

- a. Solar calendar
- b. Lunar calendar
- c. Julian Calendar
- d. Gregorian calendar

19. The Bhojshala-Kamal Maula complex claimed by both Hindus and Muslims is in state of

- a. Gujarat
- b. Maharashtra
- c. MP
- d. Rajasthan

20. Consider the following statements about the indelible ink used in elections:

1. It is imported from Malaysia.
2. It consists of Silver Nitrate.
3. It is used only in Lok Sabha and Legislative Assembly elections.

How many of the above statements are correct?

- a. Only One
- b. Only Two
- c. All Three
- d. None

21. Which of the following events does not necessarily lead to Coral Bleaching?

- a. Climate Change
- b. Increase in Coastal pollution
- c. La Nina
- d. Ocean Acidification

22. In its Food Safety and Standards (Advertising and Claims) Regulations 2018, the FSSAI said that a product can claim to be 'low on sugar', if

- a. Total sugar is less than 5g per 100g in it
- b. Total sugar is less than 20g per 100g in it
- c. Total sugar is less than 10g per 100g in it
- d. Total sugar is less than 7g per 100g in it

23. What is 'Bha'?

- a. The proposed network of satellites to provide internet-based services across India
- b. The proposed shoe numbering system to be followed for Indians
- c. The proposed single language which is combination of all indigenous languages
- d. The proposed environmental programme to reduce climate change in India.

24. Dommaraju Gukesh is associated with which of the following sports?

- a. Badminton
- b. Chess
- c. Lawn Tennis
- d. Fencing

25. The Global Plastic Treaty is expected to be concluded in current year in the month of December at

- a. Ottawa, Canada
- b. Paris, France
- c. Durban, South Africa
- d. Busan, South Korea

26. Which of the following statements is correct regarding the recent Supreme Court VVPAT Judgement?

- a. There should be 100% counting of VVPAT slips in addition to electronic counting.
- b. All the voters shall be given printed slips on the VVPAT machine in order to verify.
- c. Election Commission shall seal and store the Symbol loading units for 45 days after declaration of results.
- d. Candidates contesting elections cannot seek verification of EVMs upon losing elections.

27. Fentanyl, which has been the Number 1 cause of death for Americans between age 18 to 45 is

- a. a Covid Variant
- b. a psychological disorder
- c. a bacteria
- d. a synthetic drug

### Answer Key

1.(d)	2.(b)	3.(d)	4.(c)	5.(c)
6.(b)	7.(d)	8.(b)	9.(c)	10.(a)
11.(c)	12.(c)	13.(d)	14.(c)	15.(c)
16.(c)	17.(a)	18.(b)	19.(c)	20.(a)
21.(c)	22.(a)	23.(b)	24.(b)	25.(d)
26.(c)	27.(d)			

### Explanations

1.(d) All the Statements are correct. Thus, none of the Statements are incorrect.

2.(b) Havana syndrome typically involves symptoms such as hearing certain sounds without any outside noise, nausea, vertigo and headaches, memory loss, and balance issues.

3.(d) Wadge Bank is a 10,000 square kilometre submarine plateau, of the sea south of Kanyakumari that is rich in biodiversity and considered India's richest fishery resource. Wadge Bank, located near Cape Comorin, is home to more than 60 species of ornamental fish and other oceanic animals.

4.(c) As a glacier withdraws or melts, it leaves behind a depression that gets filled with meltwater, thereby forming a lake.

5.(c) Basel III is a set of measures developed by the Basel Committee in the years following the global financial crisis of 2007-09. The measures, rolled out over several years, aim to strengthen the regulation, supervision, and risk management of banks. The final set of rules has been dubbed the "Basel III Endgame."

6.(b) Statement 3 is incorrect. Blue Hydrogen is also sourced from fossil fuels. However, its byproducts such as carbon monoxide and carbon dioxide are captured and stored. Statements 1 and 2 are correct.

Thus, only two statements are correct.

7.(d) The citizenship amendment act 2019 does not cover any of the mentioned minorities.

8.(b) Statement 3 is incorrect: While there can be between two and five solar eclipses every year, total eclipses only happen about once every 18 months or so. Particular spot-on Earth witnesses a total solar eclipse only once in 400 years.

9.(c) The collapse of the Francis Scott Key Bridge on March 26 has put a spotlight on the Port of Baltimore, one of the busiest harbours in the U.S., which paused shipping and immediately halted all vessel traffic in and out.

10.(a) DESI, mounted on the Nicholas W Mayall 4-meter Telescope at the Kitt Peak National Observatory is in Arizona, USA.

11.(c) A curative writ petition as a layer of appeal against a Supreme Court decision is not prescribed in the Constitution. It is a judicial innovation, designed for correcting "grave injustices" in a ruling of the country's top court.

12.(c) All the given statements are correct.

13.(d) The Indian Space Research Organisation (ISRO) has said its PSLV-C58/XPoSat mission has practically left zero debris in earth orbit. The space agency explained that the last stage of the Polar Satellite Launch vehicle (PSLV) used in the mission was transformed into a kind of orbital station — called the PSLV Orbital Experimental Module-3 (POEM-3) — before it was left to re-enter the earth's atmosphere instead of floating in orbit once its mission was completed.

14.(c) The Axis of Resistance (Persian: Mehvar-e Moqâvemat; Arabic: Miḥwar al-Muqāwamah) is an informal Iranian-led political and military coalition in West Asia and North Africa. It most notably includes the Syrian government, the Lebanese political

party and militant group Hezbollah, the Yemeni political and military organization Ansar Allah (the Houthi movement), and a variety of Palestinian militant groups.

15.(c) All the given statements are correct.

16.(c) There are two main types of space tourism, sub-orbital and orbital. The sub-orbital spacecraft takes passengers just beyond the Kármán line — it lies nearly 100 kilometres above our heads and is considered to be the boundary between Earth's atmosphere and outer space. The passengers get to spend a few minutes in outer space and then come back to Earth.

17. (a) Pair 2 is incorrectly matched. David's sling is suitable for intercepting Mid-range missiles.

Pair 3 is incorrectly matched: Iron Dome is suitable for intercepting short range missiles.

Thus, Only One pair is correctly matched.

18.(b) The Hindu calendar is a lunar calendar (based on the Moon's revolution around Earth — one revolution equals to one month). A solar year has roughly 365 days, whereas a lunar year is roughly 354 days long.

19.(c) On March 22, the 13th century Bhojshala-Kamal Maula complex in Madhya Pradesh's Dhar district became the latest site for a "scientific survey" by the Archaeological Survey of India (ASI).

20. (a) Statement 1 is incorrect: Mysore Paints & Varnish Ltd., a Karnataka Government Undertaking, is the sole manufacturer of the ink in India.

Statement 2 is correct: Indelible ink contains silver nitrate. It is a colourless compound which becomes visible when exposed to ultraviolet light, including sunlight.

Statement 3 is incorrect: A report of the Election Commission of India (ECI) on the very first general elections (1951-52) said the ink was then applied with a glass rod. "That the ink proved quite satisfactory is evidenced by the fact that it is being used at many Local Bodies' elections as well," it said.

21. (c) The key driver behind the current event is higher ocean temperatures. However, the situation has been exacerbated by El Niño, a weather pattern which is associated with warmer oceans. Given that El Niño is weakening and a cooler La Niña may set in by the end of the year, the event may not last for very long.

22.(a) In its Food Safety and Standards (Advertising and Claims) Regulations 2018, the



FSSAI said that only if total sugar is less than 5g per 100g in a product, it can claim to be 'low on sugar.'

23. (b) A pan-India survey on the feet sizes of Indians was recently carried out as part of a larger project for developing an Indian sizing system for footwear. Proposed to be named 'Bha' (भ) to represent Bharat, it could form the basis for manufacturing footwear in India. Upon its implementation, Bha will replace the existing UK/European and the US sizing systems.

24.(b) Dommaraju Gukesh's victory at the Candidates chess tournament in Toronto ranks among India's greatest achievements in sport. Later this year, he will play China's Ding Liren for the World championship, as the youngest challenger in history.

25.(d) The Global Plastic treaty is likely to be finalised in December, 2024 at Busan, South Korea.

26.(c) The court gave directions to the EC to seal and store the symbol loading units (SLUs) for 45 days after declaration of results. SLUs are memory units that are first connected to a computer to load election symbols onto it, and then used to enter symbols of the candidates on the VVPAT machines. These SLUs are to be opened, examined and dealt with in the same way as EVMs.

27(d) According to the US Drug Enforcement Administration (DEA), Fentanyl is a potent synthetic opioid drug approved by the Food and Drug Administration for use as an analgesic [for pain relief]. It is approximately 100 times more potent than morphine and 50 times more potent than heroin as an analgesic. But overdoses can cause "stupor, changes in pupil size, clammy skin, cyanosis [blue skin], coma, and respiratory failure leading to death.