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History will be Kinder to me than the Media

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For Prelims and Mains

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Former Prime Minister of India
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Polity & Governance

1. Places of Worship Act, and the legal issues in the Sambhal mosque case

Overview

Nearly a week after a district court in Sambhal ordered a survey of the Shahi Jama Masjid, the town in western Uttar Pradesh has been rocked with violence that has left at least four dead and several others injured.

The court's order came in a plea which claimed that Sambhal's Jama Masjid was built on the site of a Hindu temple. This is similar to claims made in the cases of Gyanvapi mosque in Varanasi, the Shahi Idgah in Mathura, and the Kamal-Maula mosque in Madhya Pradesh's Dhar.

The claims in all of these disputes essentially seek to change the religious character of a place of worship, something that is prohibited by the Place of Worship Act, 1991.

What did the court order say? Why did it spark protests in Sambhal?

On November 19, Aditya Singh, civil judge (senior division), of the District And Sessions Court of Sambhal at Chandausi allowed an application filed by advocate Hari Shankar Jain and others, including a local mahant, claiming the right to access the mosque. The petitioners allege that the mosque was built in 1526 by Mughal emperor Babur after demolishing a Hindu temple that stood there.

Within hours of the plea being filed, the court issued an order appointing an advocate commissioner to carry out an initial survey at the mosque. The first survey was carried out on the very same day. The court also ordered that a report of the survey be filed before it by November 29.

A second leg of the survey took place on November 24. This led to protests breaking out in Sambhal, and the police subsequently opening fire.

While the mosque's managing committee was consulted for the survey, the court's order seeking a survey report by November 29 was passed ex-parte, that is, without hearing both parties.

Sambhal's Jama Masjid is a "protected monument", having been notified on December 22, 1920 under the Ancient Monuments Preservation Act, 1904. It has also been declared as a Monument of National importance, and figures on the website of the Archaeological Survey of India in the list of centrally protected monuments.

**What does the law say about the petitioners' claim?**

A civil suit filed by the petitioners is essentially a case for the court to determine the title of the property in question. In a civil suit, averments made by the petitioners are to be prima facie

accepted. The Code of Civil Procedure bars a strict scrutiny of the claims made in a civil suit at the initial stage. Petitioners are called upon to bring evidence to the table only once the plea is accepted.

However, when it comes to a place of worship, such a suit would be barred under the Places of Worship Act, 1991.

That said, in both the Gyanvapi and Mathura cases, district courts have accepted the civil suits filed by Hindu petitioners as "maintainable", meaning that they are valid cases for determination, despite the 1991 Act. The courts have essentially ruled that these cases fall beyond the purview of the 1991 Act.

What does the Places of Worship Act, 1991 say?

Places of Worship Act prohibits conversion of religious character of a place of worship as it was on Aug 15, 1947.
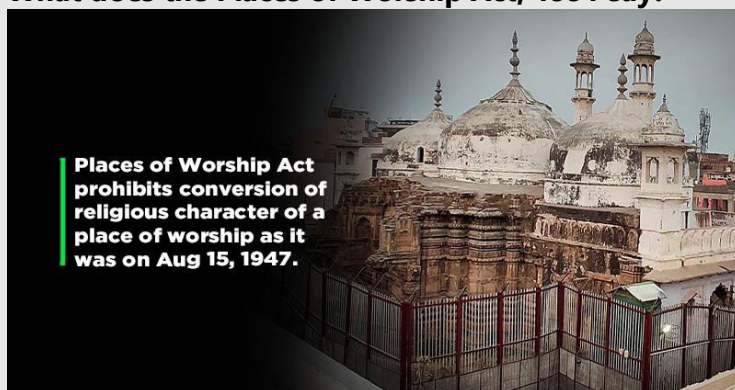
The Places of Worship Act states that the religious character of any place of worship as it existed on August 15, 1947, must be maintained.

The long title describes it as "An Act to prohibit conversion of any place of worship and to provide for the maintenance of the religious character of any place of worship as it existed on the 15th day of August, 1947, and for matters connected therewith or incidental thereto."

Section 3 of the Act bars the conversion, in full or part, of a place of worship of any religious denomination into a place of worship of a different religious denomination — or even a different segment of the same religious denomination.

The law, which had been a part of the Congress' 1991 election manifesto, was meant to put to bed all controversies arising out of the alleged historical "conversion" of a place of worship. While introducing it in Parliament, then Home Minister S B Chavan had said that the "enactment of this Bill will go a long way in helping restore communal amity and goodwill".

While the Act came in the light of the Babri Masjid-Ram Janmabhoomi dispute, this was specifically kept outside its purview as since the dispute was already sub-judice when the law was passed.

How have courts then allowed these title suits?
The title suits, or suits claiming access or the right to worship in Varanasi and Mathura, have essentially been allowed even as a constitutional challenge to the 1991 Act is pending before the Supreme Court.

The apex court currently has before it four separate petitions challenging the Places of Worship Act. In September 2022, a Bench headed by then Chief Justice of India UU Lalit had directed the government to file a response on its stand within two weeks. However, two years on, the Centre is yet to file its affidavit.

But a separate observation by the Supreme Court in the Gyanvapi case has allowed more room for district courts to allow such pleas.

In May 2022, Justice DY Chandrachud had said that although changing the nature of the religious place is barred under the 1991 law, the "ascertainment of a religious character of a place, as a processual instrument, may not necessarily fall foul of the provisions of Sections 3 and 4 (of the Act)…"

This essentially means that an inquiry into what the nature of the place of worship was on August 15, 1947 can be allowed, even if that nature cannot be subsequently changed.

Both in the Mathura and Gyanvapi cases, the Masjid side has challenged this interpretation of the Places of Worship Act. The Supreme Court is yet to hear final arguments to decide this preliminary issue of whether the 1991 Act bars even the filing of such a plea, or just the final change of the nature of worship.

In the Sambhal case, things have moved very fast. The district court is yet to even pass an order on the maintainability of the civil suit. The survey order came at the first instance, before a preliminary finding was reached that the Hindu side had a maintainable claim. The order was implemented before the parties had an opportunity to challenge it before the High Court.

Relevance: GS Prelims & Mains Paper II; Governance
Source: Indian Express

2. How 'socialist' and 'secular' were inserted in the Preamble, why SC ruled they will stay

Introduction

SC dismisses petitions challenging insertion of "socialist" and "secular" in the Preamble via 42nd Constitutional Amendment

Almost exactly 75 years since the Constitution of India was adopted, the Supreme Court recently upheld the insertion of the words 'socialist' and 'secular' in the Preamble of the founding document.

Through the Constitution (Forty-Second Amendment) Act, 1976 (42nd Amendment), Parliament during the Emergency enacted a sweeping series of amendments to the Constitution, one of which was labelling India a "SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC".

Though the Supreme Court has curbed some of the more controversial changes introduced through the 42nd amendment, it refused to interfere with the phrasing of the Preamble.

How did the Preamble as we know it today come into existence? And why did the court refuse to consider the challenges to how it is phrased?

History of the original Preamble
The preamble of the Constitution serves as a statement clarifying the guiding principles and purpose behind the Constitution of India. When the Constitution first came into force on January 26, 1950, the Preamble stated:

WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a SOVEREIGN DEMOCRATIC REPUBLIC and to secure to all its citizens:

JUSTICE, social, economic and political;
LIBERTY of thought, expression, belief, faith and worship;
EQUALITY of status and of opportunity;
and to promote among them all
FRATERNITY assuring the dignity of the individual and the unity and integrity of the Nation;

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949, do HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.

The phrasing of the Preamble can be traced back to the first week of the Constituent Assembly debates on December 13, 1946. On this date, Prime Minister Jawaharlal Nehru introduced the Objectives Resolution — a unanimously adopted 8-point "pledge" that provided the guiding principles for the drafting of the Constitution. Among other things, it declared the intent of the Constituent Assembly to proclaim India as an "Independent Sovereign Republic" and guaranteed equality before the law and safeguards for minorities.

During the debates, early attempts were made to introduce the concept of socialism into the Preamble of the Constitution. In October 1949, Constituent Assembly member Hasrat Mohani moved an amendment for the Preamble to instead begin with "We, The People of India, having solemnly resolved to constitute India into a Union of Indian Socialistic Republics to be called U. I. S.R. on the lines of U. S. S. R.". However, this amendment was negatived and the Preamble as we know it was adopted later that day.

These attempts were not confined to the Preamble. Earlier, in November 1948, Constituent Assembly member Professor K T Shah moved an amendment to Article 1(1) of the Constitution. Shah suggested that what is now "India, that is Bharat, shall be a Union of States", should instead say "India, that is Bharat, shall be a Secular, Federalist, Socialist Union of States". The motion was eventually negatived, but not before Assembly member H V Kamath also noted that the words secular and socialist "should find a place, if at all, only in the Preamble".

'Socialist' and 'secular' introduced

In the midst of the Emergency while the Indira Gandhi government was curbing civil liberties and jailing political opponents, Parliament enacted the 42nd Amendment. Often referred to as a 'mini-constitution' because of the sheer number of changes introduced, the 42nd Amendment greatly expanded the powers of the Centre.

Among a host of measures, it sought to immunise future amendments to the Constitution from being challenged in court by amending Article 368 (on the power and procedure to amend the Constitution) so long as the policies were implemented to give effect to any of the broad principles in Part IV of the the Constitution (Article 36-51).

The Preamble was not spared from these sweeping changes. The Amendment stated "for the words "SOVEREIGN DEMOCRATIC REPUBLIC" the words "SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC" shall be substituted". This change was meant to "spell out expressly the high ideals of socialism, secularism and the integrity of the nation".

The Supreme Court struck down the aforementioned vast powers given to the Centre and Parliament in the case of Minerva Mills v. Union of India (1980), and the 43rd & 44th amendments further reversed several amendments. However, the amendment to the text of the Preamble remained, only to be challenged 44 years later in 2020.

The challenge to the Preamble
In July 2020, a Supreme Court advocate by the name of Dr. Balram Singh filed a petition challenging the inclusion of the words 'socialist' and 'secular' in the Preamble of the Constitution. Later, former Law Minister Subramaniam Swamy and advocate Ashwini Kumar Upadhyay also filed petitions with similar challenges. They argued that the word 'secular' was deliberately excluded from the Constitution by its framers and that the word 'socialist' tied the Centre's hands when creating economic policies.

However, the court in a short 7-page order rejected these arguments, with Justices Sanjiv Khanna and P V Sanjay Kumar noting that "the flaws and weaknesses in the arguments are obvious and manifest."

When the Constitution was being drafted, the court noted that the meaning of the word secular was "considered imprecise" as some scholars had interpreted secularism as being opposed to religion. With time though, the court held that "India has developed its own interpretation of secularism, wherein the State neither supports any religion nor penalises the profession and practice of any faith". The ideals espoused in the Preamble — fraternity, equality, individual dignity and liberty among others — "reflect this secular ethos", the court held.

Similarly, the court held that the word 'socialism' has also evolved to have a unique meaning in India. It held that socialism refers to "(the) principle of economic and social justice, wherein the State ensures that no citizen is disadvantaged due to economic or social circumstances" and does not necessitate restrictions on the private sector which has "flourished, expanded,

and grown over the years, contributing significantly to the upliftment of marginalized and underprivileged sections in different ways".

The court also found that "The additions to the Preamble have not restricted or impeded legislations or policies pursued by elected governments, provided such actions did not infringe upon fundamental and constitutional rights or the basic structure of the Constitution" and held that there was no justification for challenging the 42nd amendment nearly 44 years after its enactment.

3. How undergraduate students could soon complete college degrees within longer or shorter durations

Overview

UGC approves new "Accelerated" and "Extended" degree programmes for undergraduates

Undergraduate students will soon have flexibility in completing their programmes in less or more time than the standard three or four years, following a recent decision by the University Grants Commission (UGC).

Whether students opt for an 'accelerated' or 'extended' timeline, they will earn the same degree as those on the standard track, provided they fulfil all academic requirements. Higher education institutions can offer these options starting with the 2025-26 academic session.

What are 'Accelerated Degree Programmes' (ADPs) and 'Extended Degree Programmes' (EDPs)?
At the end of the first or second semester, but not beyond, undergraduate students will be allowed to opt for an ADP or an EDP. Students enrolled under an ADP will follow the same curriculum and must earn the same number of credits as required for a three- or four-year UG programme. However, they can complete their programme sooner by earning additional credits starting from the semester they choose the ADP.

Under this scheme, a three-year UG programme can be completed in five semesters instead of the standard six (shortened by a maximum of one semester), while a four-year UG programme can be completed in six or seven semesters (shortened by a maximum of two semesters) rather than eight.

On the other hand, students who choose the EDP will be allowed to earn fewer credits per semester compared to the standard programme, allowing them to take longer to complete their course. Their course duration can be extended by a maximum of two semesters.

What is the objective behind ADP and EDP, and who may benefit from it?
UGC Chairman M Jagadesh Kumar said the National Credit Framework allows students to complete UG courses in accelerated or extended programmes to accommodate "diverse academic needs and cognitive abilities".

How will they be implemented?
The UGC's recently approved Standard Operating Procedure (SOP) calls for higher education institutions to set up a committee to scrutinise the applications they receive for ADP and EDP at the end of the first or second semester and select students accordingly. According to the SOP, the committee will evaluate the "credit-completing potential" of the student based on their performance in the first or second semester. An institution can earmark up to 10% of the sanctioned intake for ADP students.

The committee will also decide the minimum number of credits a student must earn in each semester under the ADP and the EDP, considering the UGC's Curriculum and Credit Framework for Undergraduate Programmes.

Relevance: GS Prelims; Governance
Source: Indian Express

4. V-P Jagdeep Dhankhar refuses Rule 267 notice in Rajya Sabha again: The 'Brahmastra' now allowed sparingly

Introduction
On day one of the Budget Session, Opposition MPs in the Rajya Sabha gave notices under Rule 267 seeking a discussion on the contentious order by some district administrations in Uttar Pradesh asking shops along the Kanwar Yatra route to display names of their owners and staff.

Vice-President Jagdeep Dhankhar, the Chairman of the Rajya Sabha, rejected the notices, saying they were "neither in conformity to requirements of Rule 267 nor to directions given by the Chair".

Rule 267
Rule 267, included in the Rules of Procedure and Conduct of Business in the Council of States, and invoked by the Opposition to raise "urgent matters" says: "Any member, may, with the consent of the Chairman, move that any rule may be suspended in its application to a motion related to the business listed before the Council of that day and if the motion is carried, the rule in question shall be suspended for the time being: Provided further that this rule shall not apply where specific provision already exists for suspension of a rule under a particular chapter of the Rules."

Over the last couple of years, the rule has emerged as a constant point of friction between the Opposition and the Rajya Sabha presiding officers under the Narendra Modi government.
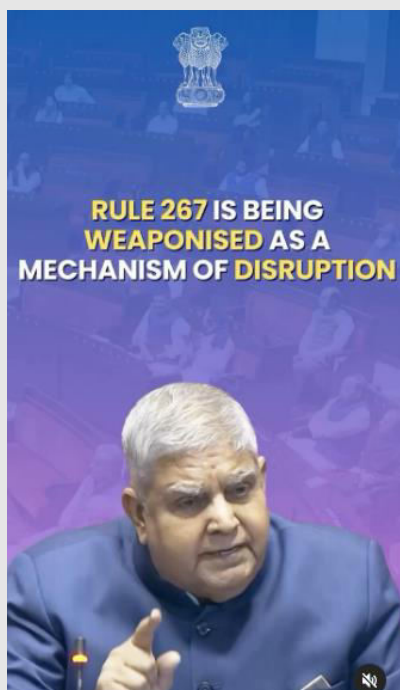
Dhankhar and Opposition

The opening day of the 2023 Monsoon Session in the Rajya Sabha was disrupted after the government and Opposition differed on the format of the discussion on the Manipur situation. While the government agreed to a short-duration discussion, the Opposition insisted that PM Modi make a suo motu statement followed by a discussion, with suspension of all business under Rule 267.

Criticism against Opposition

There is also criticism that the Opposition has been trying to use Rule 267 as equivalent to the adjournment motion in Lok Sabha. Through an adjournment motion, scheduled business can be set aside by allowing an MP to urge the Speaker to adjourn the House's business "to discuss a definite matter of urgent public importance". The Speaker has to decide whether to allow the MP to move the motion. It results in the House dropping its scheduled list of business to discuss this urgent matter.

Evolution of Rule 267

When Rule 267 was framed, it stated, "Any member may, with the consent of the Chairman, move that any rule may be suspended in its application to a particular motion before the Council and if the motion is carried the rule in question shall be suspended for the time being." However, in 2000, under the A B Vajpayee-led NDA government, the Rules Committee of the Rajya Sabha had amended this Rule, noting that MPs were using Rule 267 to "seek discussion either on a matter not listed in the agenda for the particular day or on a subject that has not yet been admitted". The committee had recommended an amendment to tighten Rule 267 only to allow the suspension of a Rule for a matter "related to the business listed before the Council of that day".

It had also added a proviso that if an existing procedure allowed suspending Rules (like suspension of Question Hour), an MP could not use 267. So now 267 can be used only to suspend a Rule, and only to take up matters that are already in the list of business.

Relevance: GS Prelims & Mains Paper II; Governance
Source: Indian Express

5. Electronic tracking of undertrials on bail: benefits and challenges

Overview

Recently, President Droupadi Murmu released a report titled "Prisons in India: Mapping Prison Manuals and Measures for Reformation and Decongestion". The report, authored by the Supreme Court's Centre for Research and Planning, suggests a variety of measures to address overcrowding in prisons, including a section titled "Electronic Tracking of Prisoners".

Though the court itself in July held in strong terms that bail conditions that allow the police to track the movement of an accused would violate the right to privacy, the report and other authorities, including the Law Commission of India and the Parliamentary Standing Committee on Home Affairs, suggest that tracking would be beneficial with the right guardrails.

What are the benefits to electronic tracking, and what are the challenges?

A cost-effective alternative to incarceration
According to statistics by the National Crime Records Bureau (NCRB), prisons in India suffer from significant overpopulation with a 131.4% occupancy rate as of December 2022 — 5,73,220 inmates in comparison to a total capacity of 4,36,266 in jails across India. In addition, 75.8% of prisoners in India are undertrials. The Prisons in India report suggests that electronic monitoring "could prove to be a cost-effective method to decongest jails in India".

The report cites statistics from Odisha where the state government spends roughly Rs 1 lakh annually on a single undertrial prisoner. A tracker "would cost around Rs 10,000 to 15,000", the report says. In 2023, a Parliamentary Standing Committee on Home Affairs submitted a report titled "Prisons – Conditions, Infrastructure and Reforms", which spoke about the potential benefits of electronic tracking using ankle or bracelet trackers.

It states, "Through the use of these kinds of trackers, administrative machinery or human resources staff involved in keeping track of prisoners who are out on bail can be reduced and it could be a cost-effective method for keeping track of such prisoner without the involvement of large administrative staff strength".

Lessons from the US: the drawbacks of electronic monitoring
However, some studies claim that electronic monitoring simply amounts to incarceration by a different name, often referred to as 'e-carceration'. In the United States of America, where electronic monitoring and movement restrictions for persons on parole or in the pre-trial stage is a widespread practice, the American Civil Liberties Union (ACLU) published a report titled "Rethinking Electronic Monitoring: A Harm Reduction Guide".

In the report, they claim that "EM serves as an extension of the carceral crisis, expanding the punitive power of jails and prisons beyond their traditional physical walls as a system of "e-carceration"...overuse of government surveillance can create oppressive, criminalizing environments, especially for communities of color".

A broad comparison can be drawn with India where, like communities of colour in the US, people from Scheduled Castes, Scheduled Tribes and Other Backward Classes backgrounds are overrepresented in prison populations. The latest NCRB data shows that 68.4% of prisoners belong to SC, ST and OBC communities.

There is also the question of who will bear the costs when it comes to electronic monitoring. The Supreme Court's report suggests that it would be the government, but in jurisdictions such as the US (which has been cited as an example in the court's report), the costs are often borne by the individual being monitored and include daily charges of $3-$35 along with $100-$200 in setup charges according to the non-profit Electronic Frontier Foundation.

There is also the possibility of stigma that comes with visible ankle or bracelet devices, a concern acknowledged by the Prisons in India report, stating "Some individuals may resist wearing tracking devices due to concerns about social stigma or a perception of invasive surveillance".
The ACLU in a piece titled "Three People Share How Ankle Monitoring Devices Fail, Harm, and Stigmatize" note that "the stigma, social isolation, and stress that results from being monitored exacerbates depression and anxiety for wearers".

Privacy and electronic tracking
On July 8, a Bench of Justices Abhay S Oka and Ujjal Bhuyan struck down an unusual bail condition imposed by the Delhi High Court on two foreign nationals booked for offences under the Narcotic Drugs and Psychotropic Substances Act, 1985. The Delhi HC granted bail to the accused persons and ordered that they must "drop a PIN on the google map to ensure that their location is available to the Investigation Officer of the case".

The court held that such a condition would violate the fundamental right to privacy under Article 21, stating that "The investigating agency cannot be permitted to continuously peep into the private life of the accused enlarged on bail". The court then deleted this bail condition. The Parliamentary Standing Committee in 2023, while advocating for the cost benefits of electronic monitoring, noted that such measures must only be taken with the consent of the inmate in question. "At the same time, it must be ensured that to avoid any kind of human rights violation this scheme or method should be used on voluntary basis after procuring the consent of inmates".

The 268th Law Commission report acknowledges the "grave and significant impact on constitutional rights" that such a measure might have. It suggests that such monitoring "must be used only in grave and heinous crimes, where the accused person has a prior conviction in similar offences" and states that criminal legislations should be amended accordingly.

6. SC mandates prior sanction to prosecute public servants under PMLA: What this means, its implications

Overview
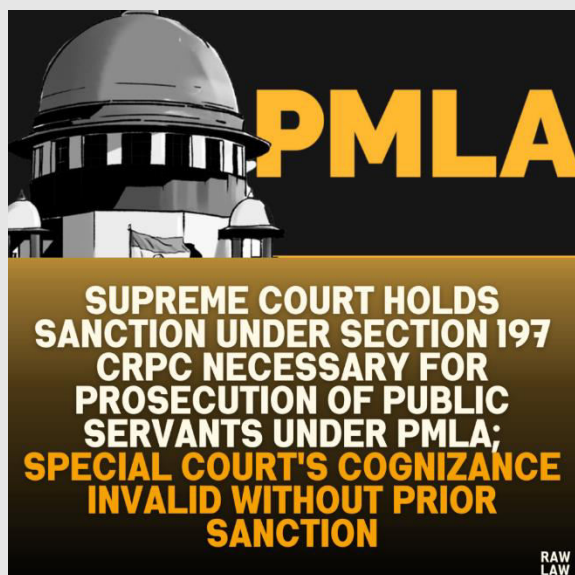
Citing as precedent a recent ruling by the Supreme Court, Delhi Chief Minister Arvind Kejriwal and Congress MP P Chidambaram moved the Delhi High Court seeking a stay of their respective trials. While Chidambaram's trial in the Aircel-Maxis case was stayed on November 20, the High Court is still hearing Kejriwal's plea regarding the excise policy scam.

The SC ruling being cited as precedent came on November 6, and for the very first time mandated that the Enforcement Directorate (ED) obtain prior sanction to prosecute public servants on money laundering charges.

What is the prior sanction provision?

Section 197 of the Code of Criminal Procedure, 1973, (CrPC) bars courts from taking cognisance of offences alleged to have been committed by a judge, a magistrate, or a public servant who was "acting or purporting to act in the discharge of his official duty" while committing the alleged offence, unless prior or "previous" sanction has been given by the government. An identical requirement can be found under Section 218 of the Bharatiya Nagarik Suraksha Sanhita, 2023 (BNSS) as well.

This provision is meant to shield public servants from unnecessary prosecution. However, the explanation to the provision clarifies that "no sanction shall be required" when public servants are accused of certain crimes against women (such as rape, sexual harrassment, stalking, and voyeurism), and other serious crimes such as human trafficking.

Several rulings on the provision have held that the provision does not extend its protective cover to every act or omission of a public servant while in service. It applies only to those acts or omissions which are done by public servants while discharging their official duties. For instance, in the case of Devinder Singh v. State of Punjab (2016), the SC held that "Protection of sanction is an assurance to an honest and sincere officer to perform his duty honestly and to the best of his ability to further public duty. However, authority cannot be camouflaged to commit crime."

What does the recent SC verdict say?

On November 6, the apex court held that Section 197(1) of the CrPC will apply to alleged offences under the Prevention of Money Laundering Act (PMLA) too. A Bench comprising Justices A S Oka and Augustine George Masih delivered the verdict in a case involving IAS officers Bibhu Prasad Acharya and Adityanath Das, both of whom are facing money laundering charges, in a case that also implicates former Andhra Pradesh Chief Minister Jagan Mohan Reddy.

In a short, 18-page decision, the SC essentially upheld an January 2019 order by the Telangana High Court which set aside the trial court's order taking cognisance of the case. The challenge was on the ground that both of them were public servants and, therefore, it was necessary to obtain prior sanction under Section 197(1) of the CrPC before they could be prosecuted.

The SC noted that although there is no specific provision in the PMLA that states prior sanction is not required, it did not find "any provision therein which is inconsistent with the provisions of Section 197(1) of CrPC". The Bench referred to Section 65 of PMLA which makes the provisions of the CrPC applicable to all proceedings under the PMLA, unless they are inconsistent with the PMLA provisions.

The SC also recorded that the accused were public servants, and that there was a connection between their duties and alleged criminal acts, thus satisfying both conditions for requirement of prior sanction under CrPC section 197(1).

The SC's judgement has now been cited by public servants such as Congress MP and former finance minister P Chidambaram and former Delhi CM Arvind Kejriwal before the Delhi HC to challenge the cognisance taken by trial court of ED chargesheets in the absence of prior prosecution sanction by the central agency. In Chidambaram's case the prosecution complaints against him were filed in 2018, and the trial court took cognisance in 2021.

Is prior sanction required in other kinds of cases?
Apart from the requirement under CrPC section 197(1), the Prevention of Corruption Act (PCA) also provides for the requirement of prior sanction to prosecute for offences alleged under PCA against public servants.

Section 19(1) of PCA contains a requirement for prior sanction from the government before the court can take cognizance of certain offenses against public officials such as accepting bribes (Section 7) or receiving undue advantage without paying sufficient consideration in return (Section 11). This sanction, in most cases, must be obtained by the police or the investigating agency. Further, the public servant must be given an opportunity to be heard by the government before allowing the prosecution to go ahead.

In 2018, the PCA was amended to expand the situations where prior sanction is necessary to prosecute public officials. Under the new Section 17A of the PCA, any recommendation or decision made by a public official "in discharge of his official functions or duties" cannot be investigated without the "previous approval' of the government. Following a split verdict in

January, a case is pending at the SC to decide if this section applies to cases filed before Section 17A was introduced in 2018.

Notably, with former CM Arvind Kejriwal challenging the cognisance of an ED chargesheet in the liquor policy excise case before Delhi HC on grounds of absence of prior prosecution sanction, one of the arguments put forth has been that for the very same allegations against him, the Central Bureau of Investigation (CBI) had filed the chargesheet against him "only after applying for Sanction u/s 19 of the PC Act, which clearly shows that the facts of the present matter also required the sanction to be obtained."

How will the requirement of prior sanction impact ED cases involving public servants?
While complaints and the investigation under PMLA will hold, cognisance of chargesheets accusing public servants of money laundering purportedly while in discharge of their duty, by the trial court can go away.

In effect, this can mean that an accused public servant, even if convicted by the trial court, can argue during an appeal that the offences alleged were in discharge of their duty, and that the trial took place without obtaining prior sanction from the government. If this argument is accepted, it can result in the court setting aside the conviction.

In P K Pradhan v. State of Sikkim (2001), the SC held that the argument that prior sanction under Section 197 was not obtained can be raised by the accused at any time during a trial, or even after conviction. However, the accused public servant must establish that his alleged act was in the course of the performance of his official duty.

As the SC held in the Bibhu Prasad Acharya judgement, "there is no embargo on considering the plea of absence of sanction, after cognizance is taken by the Special Court of the offences punishable under Section 4 of the PMLA."

Relevance: GS Prelims & Mains Paper II; Governance
Source: Indian Express

7. How Oilfields Amendment Bill aims to delink petroleum, mineral oil production from mining activities

Overview
To encourage domestic production of petroleum and other mineral oils, along with private investment in these sectors to reduce import dependence, the Rajya Sabha recently passed the Oilfields (Regulation and Development) Amendment Bill, 2024.

The Bill amends the Oilfields (Regulation and Development) Act of 1948. It draws a clear line between the law governing the mining of "minerals" — defined under the Mines and Minerals (Development and Regulation) Act, 1957 — and the Oilfields Act. If passed by Parliament, the Oilfields Act in its amended form would be limited to governing petroleum and other "mineral oil" production.

What is the Oilfields Bill?

Oilfields Amendment Bill passed to attract investment, delink petroleum from mining

As noted by Minister of Petroleum and Natural Gas Hardeep Singh Puri in the Statement of Objects and Reasons supporting the Oilfields Bill, when the Oilfields Act was first passed it was known as the Mines and Minerals (Regulation and Development) Act, 1948. This sole legislation governed and regulated oilfields, mines and minerals until 1957, when the present-day Mines and Minerals Act came into force.

To demarcate the spheres in which the two Acts would operate, the 1948 legislation was renamed the Oilfields (Regulation and Development) Act, 1948, and its language was amended to replace references to "minerals" with "mineral oils". However, the Act does not define "mineral oil", an oversight that the current Oilfields Bill aims to correct.

Other major proposed changes concern:

MINERAL OIL: The Bill defines mineral oils as "any naturally occurring hydrocarbon, whether in the form of natural gas or in a liquid, viscous or solid form, or a mixture thereof" and includes a long list of resources (such as crude oil, natural gas and petroleum) that would fall under this definition.

However, it clarifies that the definition will not include "coal, lignite and helium occurring in association with petroleum or coal or shale", likely because regulation of coal and lignite is governed by the Mines and Minerals Act.

PETROLEUM LEASE: The original approach of replacing references to "minerals" with "mineral oils" has now been revived in the Oilfields Bill, which replaces references to "mining leases" with "petroleum leases". It has also been newly defined as a lease granted for "prospecting, exploration, development, production, making merchantable, carrying away or disposing of mineral oils".

Subsequently, the provisions relating to the grant of mining leases and the Centre's power to make rules on them would instead govern the granting and regulation of petroleum leases.

PRIVATE INVESTMENT: The Bill includes several provisions for encouraging investment from private players to spur domestic production of petroleum and other mineral oils. It clarifies

that mining leases already been granted under the Act will remain valid and none of the leases will be "altered to the disadvantage of the lessee during the period of the lease".

Further, the Bill scraps criminal punishment for those who contravene provisions of the Oilfields Act, replacing it with fines. As the 1948 Act stands, any violations of the Act or the connected rules passed by the Centre may be punished with up to six months imprisonment and a fine of Rs. 1,000. The Bill would replace this with a penalty of up to Rs. 25 Lakh, with the possibility of a further penalty of Rs. 10 Lakh per day starting from the date of the first penalty if the violations persist.

Criticisms and concerns

Several opposition members raised concerns about how the Bill would affect the rights of states, given that Indian states have the power to tax mining activities.

DMK Member of Parliament N R Elango demanded that the Bill be sent to a select committee for review, stating that the word "mining" is being "replaced only to take away the rights of the states".

On July 25 this year, a nine-judge bench of the Supreme Court held that states had the exclusive power to tax mining activities and collect royalties from mining leaseholders. This power, the court held, stems from Entry 50 of the State List in the Indian Constitution, which gives states the power to impose taxes on "mineral rights".

However, by reframing the Oilfields Act as providing petroleum leases instead of mining leases, and limiting the operation to mineral oils instead of minerals, it could be argued that the law would fall under Entry 53 of the Union List. It gives Parliament the power to create laws regarding the "Regulation and development of oilfields and mineral oil resources; petroleum and petroleum products; other liquids and substances declared by Parliament by law to be dangerously inflammable".

Union Minister for Petroleum and Natural Gas Hardeep Puri attempted to allay these concerns, indicating that the state government would retain a measure of control as they would hold the authority to grant petroleum leases.

The possible environmental impact of handing the reins to private players was also highlighted by Communist Party of India MP P P Suneer, who said public companies such as the Oil and Natural Gas Corporation should be prioritised instead.

The provisions in the Bill further give private players a certain amount of discretion in how they operate, by removing the possibility of criminal punishment and contracts being modified. The Bill contains provisions addressing this by expanding the Centre's power to make rules to curtail carbon and greenhouse gas emissions and promote renewable energy projects at oilfields.

Relevance: GS Prelims & Mains Paper II; Governance

8. PM launches LIC's 'Bima Sakhi Yojana'

Overview

Prime Minister Narendra Modi launched the 'Bima Sakhi Yojana' of LIC under which two lakh woman insurance agents will be appointed over the next three years.

About the Scheme

'Bima Sakhi Yojana', an initiative of State-owned LIC, is designed to empower women aged 18-70 years who are Class X pass.

The women agents will receive specialised training and a stipend for the first three years to promote financial literacy and insurance awareness.

Under the scheme, the woman agents will also get a stipend of ₹7,000 per month for the first year, ₹6,000 per month in the second year and ₹5,000 per month in the third year. Bima Sakhis will also get the benefit of commission.

The plan is to appoint two lakh Bima Sakhi over a period of three years.

Relevance: GS Prelims; Governance

9. Opposition moves no-confidence motion against RS Chair – what is the procedure, and why the attempt is unlikely to succeed

Overview

The Opposition gave notice for a motion of no-confidence against Rajya Sabha chairperson Jagdeep Dhankhar, the first such action in India's parliamentary history.

A similar motion had been considered by the Opposition during the Budget Session in August, but was not followed through on that occasion.

What is the process and the requirements for impeaching the chairperson of Rajya Sabha, who is also the Vice President of India? How did the framers of the Constitution view this action?

What does it take to remove the Rajya Sabha chairman from his position?

Under Article 64 of the Constitution of India, the Vice President "shall be ex officio Chairman of the Council of the States".

Since the Vice President and Rajya Sabha chairperson must be the same individual, the process for their removal is also the same – and is laid down under Article 67.

Under this provision, the Vice President "shall hold office for a term of five years from the date on which he enters upon his office" unless the Vice President resigns before that by sending a letter to the President, or is removed from office.

The requirements for removing or impeaching the Vice President are provided under Article 67(b).

It states that the Vice President may be removed if a majority "all the then members of the Council (Rajya Sabha)" passes a resolution for his removal, which must then be "agreed to" by the House of the People (Lok Sabha).

Under this provision, "no resolution...shall be moved unless at least fourteen days' notice has been given of the intention to move the resolution".

What happens after the notice for impeachment is given?
Upon the expiry of the 14-day period, Rajya Sabha will take up the resolution for discussion. The procedure outlined in Article 67(b) will then follow.

In the present case, it is unclear if the resolution will be taken up by the House. This is because the Winter Session of Parliament is scheduled to conclude on December 20, which is less than 14 days away. There are no precedents to determine whether this same resolution can be considered in the next Session of the House.

In any case, given the arithmetic in Parliament, it is almost certain that the resolution will be defeated. This is largely a symbolic move of protest by the Opposition that alleges the Vice President is unfair and partisan in the way he conducts the House.

Relevance: GS Prelims & Mains Paper II; Polity
Source: Indian Express

10. Sanganer Open Jail: A Unique Experiment in Prison Reform

Supreme Court Review of Sanganer Open Jail
The Sanganer open jail in Rajasthan is under scrutiny as a Supreme Court-appointed commissioner visits it to address a dispute over the Rajasthan government's plan to construct a hospital on part of its land. The inspection follows a contempt petition that claims the proposed construction could disrupt the jail's unique ecosystem.

What Are Open Prisons?

The Model Prisons and Correctional Services Act, 2023, defines open prisons as facilities where eligible prisoners are given more liberty compared to regular prisons, allowing them to engage in productive activities to ease their rehabilitation.

Key Features:
• Minimum security.
• Prisoners may work outside the prison, often in agriculture.
• Helps reduce overcrowding in traditional prisons.
• Facilitates reintegration into society post-release.

In some states, open prisons are standalone colonies where inmates can live with their families but have restricted movement.

History of Open Prisons in India
• The first open jail was set up in 1949 in Lucknow, Uttar Pradesh.
• Inspired by the Hague Conference of 1952, open-air camps allowed prisoners to lead near-community lives after completing part of their sentence.
• By the 1980s, India had 28-30 open jails, though only 13 states had formalized rules for them.
• These facilities often engage inmates in agriculture, dairy farming, or work on public projects.

Current Status
According to the Prison Statistics of India 2022:
• India has 91 open jails across 17 states.
• These jails can accommodate 6,043 inmates, with 4,473 prisoners currently lodged.
• Rajasthan has the highest number, with 41 open jails, followed by Maharashtra with 19.

What Makes Sanganer Open Jail Special?
A Pioneer in Open Prisons
• Established in 1963 as Sampurnanand Khula Bandi Shivir, it is named after a former Uttar Pradesh Chief Minister and Rajasthan Governor.
• Located 15 km from Jaipur, it houses 422 prisoners, including 14 women, along with their families.

Unique Features
1. Family Living:
O Inmates can stay with spouses and children.
O They build and renovate their homes using earnings from local jobs.
2. Self-Governance:
O Prisoners have their own bandi panchayats to ensure discipline and manage daily roll calls.
3. Community Integration:
O Inmates pay for water and electricity.
O They work in the local community, running grocery shops and other businesses.

4. Facilities:

O A primary school, anganwadis, and a playground.

O Access to phones for inmates.

5. Inmate Selection Criteria:

O Prisoners must have completed at least six years and eight months of their sentence.

Based on Sanganer's success, Rajasthan has developed 52 similar open-air camps, the highest in India.

The Dispute Before the Court

Land for Hospital Construction

The Jaipur Development Authority has allocated land for a hospital within the jail's premises. This decision has sparked opposition, with concerns that it might disrupt the functioning of the jail.

Legal Context

• The Supreme Court previously ruled that the area of open jails should not be reduced.

• A contempt petition by social worker Prasun Goswami claims that the hospital plan threatens the open jail's ecosystem.

Government's Position

• The state government denies plans to reduce the jail's area.

• It alleges that unauthorized structures were built by jail authorities.

• Promises have been made to allocate additional land and relocate inmates to new shelters.

Court's Observation

The Supreme Court bench emphasized balancing the needs of maintaining the open jail and building a hospital for local residents.

Conclusion

Sanganer open jail remains a unique model of prison reform, blending rehabilitation with community integration. However, the ongoing dispute underscores the challenges of balancing development with preserving innovative systems of justice.

Relevance: GS Prelims; Governance

11. 1991 Places of Worship Act: What Supreme Court stopped, why

Overview

The Supreme Court recently barred civil courts across the country from registering fresh suits challenging the ownership and title of any place of worship, and from ordering surveys of disputed religious places until further orders.

"As the matter is sub judice..., we deem it appropriate to direct that no fresh suits may be filed nor registered or proceedings be ordered till further orders of this court... We also direct that in pending suits, the courts would not pass any effective interim orders or final orders including orders of survey till the next date of hearing," the Bench headed by Chief Justice of India Sanjiv Khanna said.

Case before the court

The Bench, also comprising Justices P V Sanjay Kumar and K V Viswanathan, was hearing petitions challenging the constitutional validity of the Places of Worship Act, 1991.

The law, brought in the wake of the Ayodhya movement, prohibits conversion of any place of worship and provides for the maintenance of the religious character of places of worship as it existed on August 15, 1947.

Only the Ram Janmabhoomi-Babri Masjid dispute was kept out of the purview of the law since the case was already sub judice.

What the order impacts

The order applies to both civil suits that are already pending (there are several; below) and to those that may be filed in the future.

The order bars the "registration" of cases by civil courts. Consequently, they also cannot order a survey, or seek a report from the Archeological Survey of India (ASI), as they have done in several recent instances.

All these civil cases have raised questions on the title of mosques, arguing that they were built on Hindu religious structures that were razed by medieval rulers.

The SC also observed that court orders in these civil suits could be challenged on the grounds that they violate larger constitutional principles of secularism and the rule of law, irrespective of the Places of Worship Act.

Challenge to the 1991 Act

Meanwhile, the SC will have to hear the constitutional challenge to the 1991 Act. These petitions have been pending since 2020. It remains to be seen if the Centre will defend the law or argue against it.

The petitioners have challenged the law on two main grounds. First, that it takes away the power of judicial review by abating claims that existed at the time of passing the law and prohibiting fresh claims in courts. Second, that it is arbitrary in retrospectively picking August 15, 1947 as the cut-off date for determining the religious character of a place of worship.

In 2019, in the five-judge Constitution Bench ruling in the Ayodhya case, the SC had referred to the 1991 law as forming a part of the "basic structure of the Constitution".
While the 1991 law was not directly under challenge in that case, the SC observations could still be relevant in determining the constitutional validity of the law.

Places of Worship Act: A timeline
1991: Places of Worship (Special Provisions) Act enacted; said "religious character" of a place of worship will remain as it was on August 15, 1947. Only exception: "Ram Janma Bhumi-Babri Masjid". The Ayodhya agitation was raging at the time; Babri Masjid was still standing.

Oct 2020: First petition filed challenging the Act; five more filed subsequently — on grounds of arbitrariness on date, and the fact that it takes away judicial review.

Aug 2021: Five women filed suit in Varanasi seeking permission to pray at the Gyanvapi mosque.

May 2022: After case reached SC, then CJI D Y Chandrachud orally observed that a survey "may not necessarily fall foul" of the Places of Worship Act.

2022-2024: At least six suits were filed claiming past existence of a Hindu temple at the site of a mosque or dargah. Surveys were ordered in three of these cases.

Dec 2024: SC barred further survey orders, further "effective" orders, and the registering of fresh suits.

PENDING SUITS ON MOSQUE-TEMPLE DISPUTES

Shahi Jama Masjid, Sambhal
Case: Suit filed on November 19 claiming mosque was built on ruins of an ancient temple that was dedicated to Lord Kalki.
Status: Civil Judge (Senior Division), Sambhal ordered survey, which triggered violence on November 24, in which several people were killed. On November 29, SC asked court not to proceed with suit for now.

Atala Mosque, Jaunpur

Case: Suit filed in May 2024 seeking declaration that Atala Devi temple existed at site; possession of property; restraining order against non-Hindus.
Status: Survey ordered; Jaunpur court was to hear plea for security to surveyors on December 16. Petition filed at Allahabad HC challenging registration of suit.

Kamal Moula Mosque, Bhojshala Complex, Dhar
Case: Petition filed before MP HC in 2022 challenging 2003 ASI order allowing Muslims to offer namaz on Fridays.
Status: In March 2024, HC sought "scientific survey". In April, SC disallowed digging that changes character of premises.

Gyanvapi Mosque, Varanasi
Case: Suit filed on behalf of Adi Vishweshwar in 1991. In 2021 five Hindu women sought permission to worship there.
Status: Sessions Judge ordered ASI survey; upheld maintainability of 2021 suit in 2023. Maintainability of 1991 suit was also upheld in 2022.

Shamsi Jama Masjid, Budaun
Case: Suit filed in 2022 by Akhil Bharat Hindu Mahasabha claiming temple to Neelkanth Mahadev stood at site; seeking permission to pray.
Status: Fast-track court in Budaun is currently hearing arguments on maintainability of the suit.

Quwwat-ul-Islam Mosque, Delhi
Case: In 2020, suit filed seeking restoration of Hindu and Jain deities inside mosque in Qutub Minar complex.
Status: Civil Judge rejected suit in 2021 stating it was barred by provisions of Places of Worship Act, 1991. Challenge to this order is pending.

Shahi Idgah Mosque, Mathura
Case: Several suits filed since 2020 seeking removal of mosque; also question validity of 1968 "agreement" that allowed mosque and a new temple to co-exist.
Status: In August 2024, Allahabad HC rejected challenge to maintainability of suits. Mosque committee has gone to SC.

Teele Wali Masjid, Lucknow
Case: In 2013, suit filed by Hindus seeking survey of mosque allegedly built after Aurangzeb demolished temple.
Status: Maintainability of suit pending before Allahabad HC; suit seeking injunction to allow Hindu devotees to pray pending before Civil Judge.

Ajmer Sharif Dargah, Ajmer
Case: Suit filed in September 2024 claiming there is evidence of a temple to Lord Shiva at the site.

Status: Civil Judge issued notices to Union Ministry of Minority Affairs, ASI, and the Ajmer Dargah Committee on November 27.

Malali Juma Masjid, Mangaluru
Case: Suit filed in 2022 by VHP claiming "temple like" structure was found beneath the mosque during renovation; requested survey of premises.
Status: On January 31, 2024 Karnataka HC ordered trial court to first decide on maintainability of suit.

Relevance: GS Prelims & Mains Paper II; Governance
Source: Indian Express

12. Durgadi Fort Dispute in Kalyan, Maharashtra

Origins of the Dispute

On September 20, 1968, Shiv Sena founder Bal Thackeray raised a saffron flag at the Durgadi Fort in Kalyan, marking a pivotal moment in Maharashtra's political history and the Sena's early foray into Hindu revivalism. This event intensified the longstanding contention between local Hindu and Muslim communities over the site.

Court Verdict After Five Decades
On December 12, 2023, a Kalyan Civil Court ruled in favor of the Maharashtra government, rejecting the Muslim community's claim to the disputed site at Durgadi Fort. The legal battle, spanning over five decades, has seen multiple petitions, protests, and tensions between the communities involved.

A Historical Overview of Durgadi Fort

16th-Century Beginnings
Durgadi Fort, situated in Kalyan (approximately 50 km northeast of Mumbai), dates back to the 16th century under the Bijapur-based Adil Shahi Sultanate. Historical records describe it as a significant trading post housing a mosque, a Muslim tomb, and other structures.

• Notable Features (as per 1892 Gazetteer):
O A 64-foot-long Idga (prayer wall).
O A mosque measuring 22 feet in length, width, and height.
O A deep, round stone well.

Transformation Under Maratha Rule

In 1760, the Marathas captured the fort, constructed a small wooden temple dedicated to Goddess Durgadevi, and renamed it "Durgadi Killa." A mosque within the fort was converted into a temple dedicated to Ramji.

Decline During British Rule
By 1818, the British took control of Kalyan. By the late 19th century, the temple within the fort had ceased to function as a place of worship, primarily after the goddess's idol was stolen in 1876.

Escalation of Communal Tensions

Muslim Claims and Hindu Resistance (1960s)
In the mid-1960s, local Kokni Muslims claimed they had offered Eid prayers at the fort for centuries and asserted ownership of the land. In response, Hindus demanded equal prayer rights at the site.

Government Intervention
In 1966, the Maharashtra government asserted ownership of the land, intending to develop it into a park. However, public protests led to the reversal of the decision, allowing Muslims to continue Eid prayers twice a year while restricting claims from both communities.

Rise of Shiv Sena and Hindu Mobilization
In 1968, local Hindus began celebrating Navratri at the site, asserting the fort's connection to Goddess Durga. Bal Thackeray's declaration to install an idol of the goddess within the fort further polarized the situation.

Legal Battle and Recent Developments

Decades-Long Dispute
The legal tussle began in the early 1970s when the Maharashtra government reasserted its ownership. A 1974 order handing the land to the Kalyan Municipal Corporation was challenged by the Muslim community in 1976.

Court Ruling (2023)
The Kalyan Civil Court ruled in favor of the Maharashtra government, stating that the Muslim side's legal claim was invalid under the Limitation Act. The court emphasized that possession was interrupted in 1968, and the 1976 petition was filed too late.

Reactions and Next Steps
• **Muslim Community:** Plans to challenge the ruling in higher courts, citing the case's dismissal on a technicality rather than its merits.
• **Maharashtra Government:** Reaffirmed its ownership and right to use the land.
Notably, the court refrained from commenting on the historicity of the religious structures or denying prayer rights to either community.

13. Why Was Telugu Actor Allu Arjun Arrested? Are the Charges Likely to Stick?

The Incident: A Tragic Early Screening

Actor Allu Arjun arrested days after woman killed in stampede at 'Pushpa 2' screening in Hyderabad

A special screening of Pushpa 2: The Rule on December 4, 2024, at Hyderabad's Sandhya Theater turned tragic. During the event, a stampede led to the death of one woman, M. Revathi, and left her teenage son in critical condition. The chaos was triggered when Telugu superstar Allu Arjun made an appearance at the venue.

What Went Wrong?

According to the police, neither the theater management nor Arjun's team informed authorities about his arrival. The venue lacked adequate security arrangements, with no separate entry or exit for the actor's team. When Arjun arrived at 9:30 PM, the unprepared security team struggled to manage the crowd's reaction. The gate collapsed under the pressure of the surging crowd, causing panic. The actor's personal security team allegedly pushed back the crowd, further aggravating the situation.

Revathi and her son suffered suffocation in the stampede. While police performed CPR to save the boy, Revathi passed away before reaching the hospital.

Legal Case Against Allu Arjun

On December 5, the Hyderabad police filed a case against Allu Arjun, his security team, and the theater management. The charges include:

• **Culpable Homicide Not Amounting to Murder:** Under Section 105 of the Bharatiya Nyaya Sanhita (BNS), this offense applies to acts that cause death without the intent to kill but with the knowledge that the act could result in death.

• **Voluntarily Causing Hurt or Grievous Hurt by Dangerous Means:** Under Section 118(1) of the BNS, this provision applies when someone voluntarily causes harm using dangerous methods or actions.

• **Common Intention Clause:** Section 3(5) of the BNS allows the police to charge individuals acting in furtherance of a shared intention.

Deputy Commissioner of Police Akshansh Yadav stated that stringent action would be taken against those responsible for the chaotic situation.

Arjun's Legal Response

Arjun has filed a petition at the Telangana High Court to quash the FIR and halt police proceedings. While the court is set to hear the case, Arjun was arrested on December 13.

Do the Charges Hold Merit?

Culpable Homicide Not Amounting to Murder (Section 105)

This charge requires proof that:

1. The accused caused the death through their actions.
2. The accused acted with the knowledge or intention that their actions could lead to death.

In Arjun's case, the prosecution must prove that his appearance directly caused the stampede and that he knew his presence posed a significant security risk. Without evidence that Arjun was aware of the inadequate security measures or that his actions directly led to Revathi's death, this charge may be difficult to substantiate.

Voluntarily Causing Hurt by Dangerous Means (Section 118)

This provision applies to harm caused by dangerous means such as weapons, fire, or poison. In this context, it may refer to the actions of Arjun's security team during the stampede. The prosecution will need to establish that the team's actions constituted a dangerous means of causing harm.

Common Intention Clause (Section 3(5))

This clause holds individuals accountable for offenses committed collectively. If the theater management, Arjun, and his team acted in a way that collectively endangered public safety, they could be jointly liable.

Key Takeaways

While the charges against Allu Arjun are serious, proving culpability will depend on the evidence of his intent or knowledge of the risks involved. The case also highlights broader concerns about public safety and event management in high-profile gatherings.

Relevance: GS Prelims & Mains Paper II; Governance

14. Why Was the Railways Amendment Bill 2024 Introduced, and How Did MPs React?

Introduction

The Railways (Amendment) Bill, 2024, was passed in the Lok Sabha on December 13, 2024, amid heated debates between the government and opposition MPs. The Bill seeks to modernize Indian Railways by consolidating outdated laws but has also raised concerns over unresolved issues like safety, vacancies, and decentralization.

Why Did the Government Introduce the Bill?
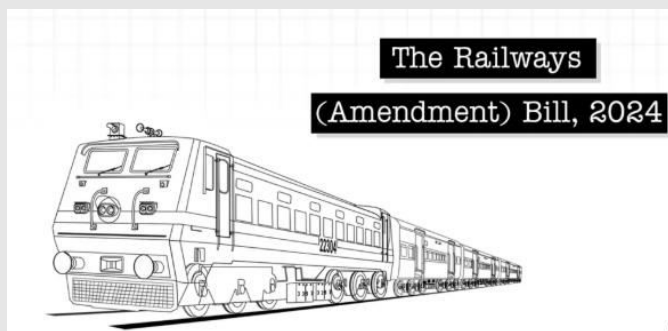
Background
- India's railway network initially operated as a branch of the Public Works Department during colonial rule.
- In 1890, the Indian Railways Act was enacted to regulate operations, followed by the Indian Railway Board Act, 1905, to grant the Railway Board specific powers.
- While the Railways Act, 1890, was repealed in 1989 and replaced by a new Act, the 1905 Act remained in effect.

Purpose of the Amendment
- The government aims to repeal the Railway Board Act, 1905, and integrate its provisions into the Railways Act, 1989, simplifying the legal framework.
- This change is expected to enhance the efficiency and development of the Indian Railways.
- Union Minister Ashwini Vaishnaw stated that the Bill would usher in a "paradigm shift" for Indian Railways.

Key Provisions of the Bill
- Integration of the Railway Board Act: Provisions from the 1905 Act will now fall under the Railways Act, 1989.
- Enhanced Powers for the Railway Board: The Central Government may delegate its powers under the Railways Act to the Railway Board.
- No New Board Created: The Railway Board remains as it is, with the Chairman and members deemed appointed under the amended Act.

Concerns Raised by MPs

Positive Views
- **Aparajita Sarangi (BJP MP):** Called the Bill a step toward modernizing Indian Railways, emphasizing enhanced independence and functionality of the Railway Board.

Opposition Criticism
1. Lack of Deliberation:
O Neeraj Maurya (SP MP): Criticized the lack of an all-party committee to discuss the amendments, calling for greater independence for the Railway Board.
2. Missed Recommendations:
O Asaduddin Owaisi (AIMIM MP): Highlighted the Bill's failure to include key recommendations like creating an independent regulator, as suggested by the 2015 Committee on Restructuring Railways.
3. Diversity and Appointments:

O Chandra Shekhar (Azad Samaj Party MP): Questioned the inclusion of SCs, STs, OBCs, and women in Railway Board appointments. Stressed the need for appointments based on qualifications rather than political affiliations.

4. Unaddressed Challenges:

O Kalyan Banerjee (TMC MP): Raised concerns over whether merging the Acts would address issues like operational delays, safety measures, and technical upgrades.

Implications for Passengers

• The Bill is expected to streamline decision-making within the Railway Board, potentially improving railway services and infrastructure development.

• However, concerns persist over centralized decision-making, lack of independent oversight, and unresolved structural issues within Indian Railways.

Relevance: GS Prelims & Mains Paper II; Governance

15. One Nation, One Election Bills Introduced: Key Highlights

Introduction

The government has introduced two Bills in the Lok Sabha, marking the first steps toward implementing the "One Nation, One Election" policy. This initiative aims to synchronize elections for the Lok Sabha and state Assemblies. Law Minister Arjun Ram Meghwal presented these Bills during the Winter session of Parliament on December 17, 2024.

Key Features of the Bills

1. Simultaneous Elections for Lok Sabha and State Assemblies

O The Constitution Amendment Bill seeks to align the terms of Lok Sabha and state Assemblies to enable simultaneous elections.

O Municipal elections are excluded for now, simplifying the implementation process.

2. Timeline for Implementation

O The earliest simultaneous elections may occur in the 2034 election cycle, assuming the current and next Lok Sabha complete their full five-year terms.

3. Transition Mechanism

O The Bills propose measures for mid-term elections, should any Assembly or Lok Sabha dissolve before completing its term.

Constitutional Amendments Proposed

1. New Article 82A

O Facilitates simultaneous elections by aligning Assembly terms with the Lok Sabha.

O Allows curtailing or extending Assembly terms to synchronize with Lok Sabha elections.

2. Article 83
O In case of mid-term dissolution, the next Lok Sabha's tenure will be limited to the remainder of the original term.

3. Article 172
O Similar provisions for state Assemblies, aligning their terms with the Lok Sabha in case of mid-term dissolution.

4. Article 372
O Adds provisions for "conduct of simultaneous elections."

High-Level Committee Recommendations
The amendments align with the report of the High-Level Committee chaired by former President Ram Nath Kovind, submitted in March 2024.

Practical Implications
Election Commission's Role
O Empowered to decide whether simultaneous elections are feasible.
O Can recommend deferring specific Assembly elections if conditions are not favorable.

Union Territories and Special Amendments
The second Bill, The Union Territories Laws (Amendment) Bill, 2024, proposes changes to align with the new election framework:
• Applies to the Government of Union Territories Act (1963), the National Capital Territory of Delhi Act (1991), and the Jammu and Kashmir Reorganisation Act (2019).

Challenges and Future Steps
1. Special Majority Requirement
O The Constitutional amendment requires approval by two-thirds of members "present and voting" in both Houses of Parliament.
2. State Legislature Ratification
O Municipal elections are excluded to avoid the need for ratification by at least half of all state legislatures.
3. Long-Term Transition
O Full implementation is expected only after significant adjustments to legislative and electoral processes.

Conclusion
The Bills mark a critical step towards electoral reform, though challenges in logistics, coordination, and constitutional alignment remain. The government's vision aims to streamline India's election cycle, potentially reducing costs and improving governance efficiency.

Relevance: GS Prelims & Mains Paper II; Governance

Introduction
A seven-member committee led by former ISRO Chairman Dr. K. Radhakrishnan has proposed significant changes to strengthen the National Testing Agency (NTA) and ensure the smooth conduct of entrance exams. The recommendations follow irregularities like the NEET-UG paper leak earlier this year.

Why the Committee Was Formed

Context of Examination Irregularities
• The NEET-UG paper leak prompted the formation of the committee in June 2024.
• Investigations revealed 144 candidates paid for leaked papers, which were stolen, solved, and distributed before the exam.
• Other exams like UGC-NET and CSIR-UGC NET were also postponed or canceled due to similar issues.

Objectives
• Reform the examination process and improve data security protocols.
• Strengthen the NTA's structure and administration.
• Address examination security concerns and update Standard Operating Procedures (SOPs).

Key Recommendations for Exams

Digital and Online Exam Reforms
• Online Exams: Conduct entrance exams online wherever feasible.
• Digital Transmission: Use systems where question papers are digitally transmitted but answered on paper.
• Computer-Adaptive Testing: Move towards tests tailored to candidates' abilities, enhancing security and personalization.

Improving Accessibility and Security
• Testing Centres:
O Allocate centres in candidates' districts to avoid unnecessary travel.
O Establish secured testing centres in every district.
O Deploy mobile testing centres in remote and rural areas.
• Authentication: Introduce multi-stage identity verification using Aadhaar biometrics.
Structural Changes
• Coordination Committees: Set up district and state-level committees for secure test administration.
• Question Paper Guidelines: Train teams involved in preparing question papers.

Strengthening the NTA
• Employ more permanent staff to reduce reliance on contract workers.
• Develop a robust infrastructure for a public test platform.

• Create new director-level and joint director-level posts through the central staffing scheme.

Long-Term Vision
• Transition to computer-adaptive testing for better security and accurate assessment of candidates' abilities.
• Build a comprehensive infrastructure to support digital and secure testing nationwide.

Steps Taken So Far
• The Ministry of Education has sought the support of state governments to implement reforms.
• A high-powered steering committee has been established to monitor progress.
• 16 new positions at the NTA have been created to boost capacity and efficiency.

These measures aim to ensure fairer, safer, and more efficient entrance examinations in India.

<mark>Relevance: GS Prelims & Mains Paper II; Governance</mark>

17. What is a joint committee of Parliament, to be set-up for 'One Nation, One Election' Bills?

Overall view
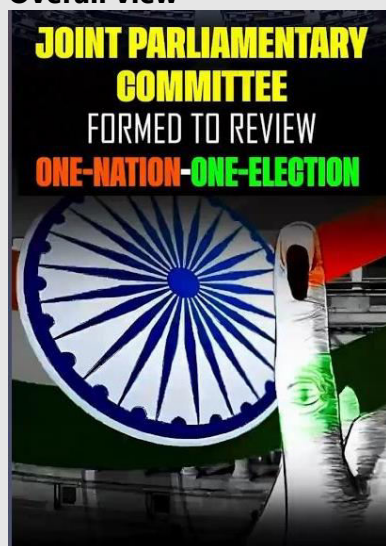
Law Minister Arjun Ram Meghwal will move a motion in Parliament for the Bills on the 'One Nation, One Election' proposal to be referred to a joint committee for further examination.

The JPC to examine the Bills will have 21 members from the Lok Sabha and 10 members from the Rajya Sabha, including Congress leaders Priyanka Gandhi Vadra and Manish Tewari, BJP's Bansuri Swaraj and Anurag Singh Thakur, and NCP's Supriya Sule.

Meghwal is also set to propose that the committee submit its report on the Bills on the first day of the last week of the next session. What exactly are JPCs supposed to do and how are they constituted? We explain.

What is a Joint Parliamentary Committee (JPC)?
A Joint Parliamentary Committee (JPC) is set up by the Parliament for a special purpose, like the detailed scrutiny of a subject or Bill. As the name suggests, it has members from both the Houses and from the ruling parties and the opposition. It is dissolved after its term ends or its task has been completed.

Some examples of joint committees include one on the Waqf Amendment Bill, 2024, set up in August this year, and on The Personal Data Protection Bill of 2019. Others are mandated to

investigate alleged irregularities, such as of a financial nature. For instance, Congress members demanded earlier this year that a JPC investigate Hindenburg Research's allegations against Sebi chairperson Madhabi Puri Buch.

How is a JPC set up?
A JPC is set up after one House of Parliament has passed a motion and the other has agreed to it. Members of the JPC are decided by the Parliament. The number of members can vary.

What can a JPC do?
According to an article on PRS Legislative Research, the mandate of a JPC depends on the motion constituting it. For example, "The terms of reference for the JPC on the stock market scam asked the committee to look into financial irregularities, to fix responsibility on persons and institutions for the scam, to identify regulatory loopholes and also to make suitable recommendations," the PRS article said.

To fulfil its mandate in investigating an issue, a JPC can scrutinise documents and summon people for questioning. It then submits a report and makes recommendations to the government.
The proceedings and findings of the committee are confidential, except in matters of public interest. The government can decide to withhold a document if it is considered prejudicial to the safety or interest of the State. The Speaker has the final word in case of a dispute over calling for evidence.

How powerful is a JPC?
While the recommendations of a JPC have persuasive value, they are not binding on the government. The government can choose to launch further investigations based on what the JPC has said, but it can't be forced to do so.

"The government is required to report on the follow-up action taken on the basis of the recommendations of the JPC and other committees. The committees then submit 'Action Taken Reports' in Parliament on the basis of the government's reply," the PRS article says.

What JPCs have been set up so far?
A few JPCs have earlier been set-up, having investigative powers:
(i) to examine matters relating to Allocation and Pricing of Telecom Licenses and Spectrum
(ii) on Pesticide Residues in and Safety Standard for Soft Drinks, Fruit Juice and other Beverages
(iii) on Stock Market Scam and Matters Relating thereto
(iv) to enquire into irregularities in Securities and Banking Transactions
(v) to enquire into Bofors Contract
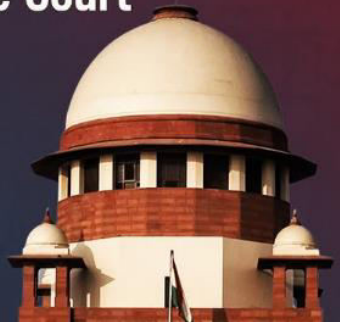(vi) to examine the Constitutional and Legal Position Relating to Office of Profit."

Relevance: GS Prelims & Mains Paper II; Governance

18. Supreme Court expands the reach of NIA's powers: What was the case?

Introduction

The Supreme Court recently expanded the National Investigation Agency's (NIA's) powers of investigation.

A Bench of Justices B V Nagarathna and N K Singh held that the NIA has the power to investigate offences "connected" to the main Scheduled Offence that is already under investigation — even if the connected offence was committed by a separate person who is not an accused in the Scheduled Offence.

The National Investigation Agency Act, 2008 (NIA Act) allows the agency to investigate certain Scheduled Offences upon the direction of the Central Government. The NIA Act includes a list or "Schedule" of laws that contain offences that the NIA may investigate, including offences under the Unlawful Activities (Prevention) Act, 1967 (UAPA) and the Anti-Hijacking Act, 1982.

Here is why the above case came before the SC, and how the apex court expanded the NIA's powers.

Facts of the case

In January 2020, an FIR was registered by a police Special Task Force in Mohali, Punjab against a man named Sukhbir Singh for the offences related to drug trafficking and illegal arms possession under the Narcotic Drugs and Psychotropic Substances Act, 1985 (NDPS Act). During interrogation, Singh stated that the car he was caught in belonged to one Ankush Vipan Kapoor. When the police arrested Kapoor from his shop, they found heroin, an illegal narcotic drug, at the location. He was granted bail by the Punjab & Haryana High Court in July 2021.

Parallel to this case, Sukhbir Singh has been under investigation in Gujarat since 2018 for allegedly smuggling and distributing 500 kgs of narcotics transported from Pakistan. In June 2020, the Ministry of Home Affairs (MHA) transferred the Gujarat investigation to the NIA. The NIA re-registered the case, and added the offences of conspiracy to raise funds for terrorist acts under Sections 17 and 18 of the UAPA, which are also Scheduled Offences under the NIA Act. The NIA then took custody of Sukhbir Singh from the Punjab Police after learning about his arrest. Singh once again named Kapoor as someone who was involved in drug smuggling activities.

In May 2023, the NIA moved the Punjab & Haryana HC to cancel the bail granted to Kapoor. The HC agreed, taking note of the 500 kg of heroin recovered in Gujarat and the link to Kapoor, stating that an investigation is required along with custodial interrogation. Kapoor approached

the Supreme Court challenging both the bail cancellation order, and the MHA order transferring the investigation to the NIA.

What Kapoor & the Centre argued
Under Section 8 of the NIA Act, "While investigating any Scheduled Offence, the Agency may also investigate any other offence which the accused is alleged to have committed if the offence is connected with the Scheduled Offence". This allows the NIA to investigate non-Scheduled Offences if it can show that there is a "connection" with the Scheduled Offence under investigation.

Before the SC, Kapoor argued that he was not being investigated for a Scheduled Offence under the NIA Act as offences under the NDPS Act are not included. He also argued that there was no link between the petitioner and the alleged crime committed in Gujarat, so the offences registered under the UAPA (which are Scheduled Offences) could not be invoked against him. The Centre on the other hand, argued that the ongoing investigation into the Scheduled Offence under the UAPA was connected to the crime alleged against Kapoor in Gujarat. It argued that Kapoor is a part of a terror network smuggling drugs into Gujarat, and transporting them to Punjab for purification and further distribution. Further, it claimed that the link between Kapoor and Sukhbir Singh shows that Kapoor is also connected to the NIA's investigation.

Supreme Court's verdict
The court found no reason to interfere with either the bail cancellation order, nor the MHA's order transferring the Gujarat investigation to the NIA.

The court acknowledged that the plain-meaning phrase "the accused" used in Section 8 of the NIA Act indicates that the NIA can only investigate connected offences committed by the particular accused under investigation — such as Sukhbir Singh in Gujarat. However, the court held that Section 8 must be given a "purposive and meaningful interpretation" that allows the NIA to investigate connected offences, even if a different person committed it.

The court clarified that "the nexus or connection between any other offence and the Scheduled Offence is of critical importance", and that this connection must be present before the NIA can investigate any other offence committed by an accused in connection with the Scheduled Offence. In the present case, the court held that "there is a connection, nexus and a link" between the Scheduled Offences investigated by the NIA under Sections 17/18 of the UAPA, and the offences alleged against the Kapoor under the NDPS Act.

Kerala HC on "connection" with Scheduled offence
The Kerala High Court in December 2023 had expanded on how this "connection" with a Scheduled Offence can be understood in a case involving the murder of an RSS and BJP activist. The police concluded that members of the Popular Front of India (before it was declared an unlawful association under the UAPA in September 28, 2022) had conspired to murder the activist.

The investigation continued even after this finding, and it was eventually transferred to the NIA on September 16, 2022, based on allegations that "office bearers and activists of PFI and its affiliates in Kerala have conspired to instigate communal violence and radicalise its cadres to commit terrorist acts in the State and various other parts of the country", according to the judgment. In December, the NIA filed a report claiming that the murder was a part of a larger conspiracy hatched by senior PFI leaders and levied charges under the UAPA.

The petitioners, the PFI members accused in the murder case, argued that the initial murder case could not have been investigated by the NIA as there was no connection between the murder and the Scheduled Offence under the UAPA. The HC held however, that this connection must be considered with a "wider perspective", and stated that the PFI leaders had been named as accused persons in both the murder case and the Scheduled Offence under the UAPA and the two have to be considered connected offences.

Relevance: GS Prelims & Mains Paper II; Governance

19. Row over Bharat Ratna to Ambedkar: the Award's history, under various govts

Introduction

As controversy continues over Home Minister Amit Shah "insulting" Dr BR Ambedkar in Parliament, the BJP and its supporters have repeatedly cited one fact to claim that the Congress "did not respect" Babasaheb — that he was not awarded the Bharat Ratna by successive Congress governments. He was awarded Bharat Ratna in year 1990.

B.R. Ambedkar was posthumously conferred
Bharat Ratna on March 31, 1990
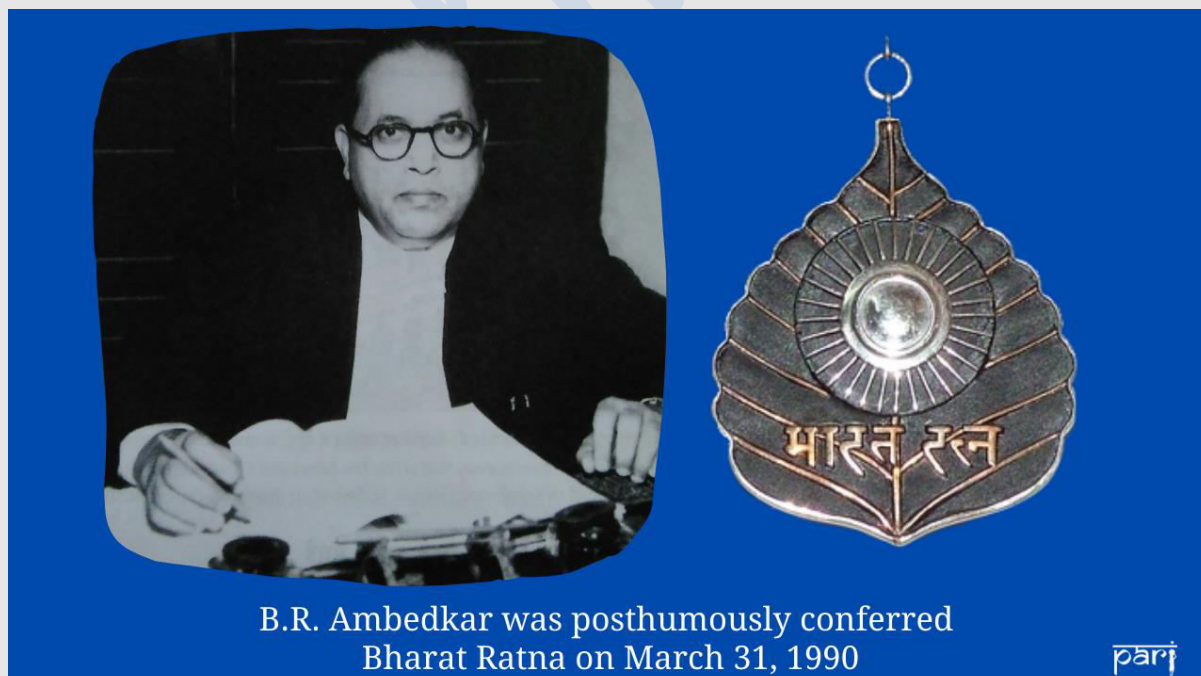
How is the Bharat Ratna awarded, how many politicians have received it so far, and under which governments?

What are Bharat Ratna awards?

Bharat Ratna is the highest civilian award of the country, instituted in 1954. It is awarded in recognition of exceptional service/performance of the highest order in any field. The recommendations for Bharat Ratna are made by the Prime Minister to the President.

No formal recommendations for this are necessary. The Prime Minister is free to consult or obtain advice from any one he chooses. However, as per practice, the Ministry of Home Affairs (MHA) receives several recommendations, which are forwarded to the Prime Minister's Office. The MHA is the nodal ministry for these awards.

The number of awards is normally restricted to a maximum of three in a year. The recipient or (if posthumously) someone on his/her behalf receives a Sanad (certificate) signed by the President and a medallion. It does not carry any monetary grant.

Who have been awarded so far?

There are 53 awardees so far. These include all three Prime Ministers from the Nehru-Gandhi family (Jawaharlal Nehru, Indira Gandhi, and Rajiv Gandhi). Rajiv Gandhi and Lal Bahadur Shashtri were given the award posthumously.

Politicians dominate the list of awardees — former governor general Chakravarti Rajgopalachari (in 1954 when he was Chief Minister of Madras, he later quit Congress and founded Swatantra Party); former President S Radhakrishnan (was conferred when he was Vice President); Nehru (when he was PM); former UP CM Govind Ballabh Pant (when he was Union Minister of Home Affairs); BC Roy (when he was CM of West Bengal); Purushottam Das Tandon (former UP Speaker, was conferred when not active in politics); Dr Rajendra Prasad (after his tenure as President ended); former President Dr Zakir Hussain (was conferred as Vice President of India); Indira Gandhi (when she was PM); former President VV Giri (after tenure as President ended).

Is the Bharat Ratna awarded posthumously?

The Award is normally not conferred posthumously. However, in cases deemed exceptional and highly deserving, the award has been given after the recipient's death — to 18 people so far.

K Kamaraj, a Congress stalwart who had joined the Congress-O (the non-Indira Gandhi block) after the party split, was awarded posthumously in 1976 during the Emergency. In 1988, the Rajiv Gandhi government conferred the award to MG Ramchandran, AIADMK founder, posthumously.

Other politicians, like Lal Bahadur Shashtri, Morarji Desai, PV Narasimha Rao, Chaudhary Charan Singh, Karpoori Thakur — and Dr BR Ambedkar — have been conferred the award posthumously.

When did Ambedkar get the Bharat Ratna?

Much has been written about why Dr Ambedkar became important to all political factions years after his demise.

With the foundation of Bahujan Samaj Party (BSP) in 1984, the DS-4 (Dalit Shosit Samaj Sangharsh Samiti) in 1983, and Kanshiram's book Chamcha Yug (Era of Stooges) published in 1982, things started changing in favour of Dr Ambedkar. The BSP started criticising Mahatma Gandhi and presenting Ambedkar as real hero of deprived sections. The BSP gradually started getting nearly 10 per cent votes in many seats it contested, sending a clear signal that Scheduled Caste voters were solidly backing the new party. This alarmed other established players, who now celebrated Ambedkar more to win over SC/ST votes.

When the Janata Dal government under VP Singh was formed in December 1989, influenced by leaders like Ram Vilas Paswan, Sharad Yadav, and Nitish Kumar, it conferred the Bharat Ratna on Dr Ambedkar in 1990. The BJP was supporting this government from outside until its president LK Advani was arrested in Samastipur (Bihar) on September 24, 1990.

Congressmen awarded by non-Congress governments
Morarji Desai, who quit Congress and became PM in 1977, was conferred in 1991 by then Janata Dal (S) government headed by Chandra Shekhar. Gulzarilal Nanda was conferred the award by the United Front government in 1997. Two prominent Congressmen, former President Pranab Mukherjee and former PM PV Narasimha Rao, were given the Bharat Ratna by the Narendra Modi government.

The Modi government and Bharat Ratna
The Modi government has given 10 Bharat Ratna awards in its more than 10 years of tenure. The winners include Atal Bihari Vajpayee and Madan Mohan Malviya in 2015; and Nanaji Deshmukh, among the founders of the Bharatiya Jan Sangh, in 2019.

Last year, ahead of the 2024 Lok Sabha polls, BJP leader LK Advani, former PM Chaudhary Charan Singh, socialist leader Karpoor Thakur, and agriculture scientist MS Swaminathan were given the awards.

What are the other civilian awards given?
On the eve of Republic Day, the President of India announces Padma Awards. These are given in three categories: Padma Vibhushan (for exceptional and distinguished service), Padma Bhushan (distinguished service of higher order) and Padma Shri (distinguished service). They are given on the recommendations of the Padma Awards Committee, constituted by the Prime Minister every year.

In fact, the Government of India had instituted two civilian awards, Bharat Ratna and Padma Vibhushan, in 1954. The latter had three classes, namely Pahela Varg, Dusra Varg and Tisra Varg. These were subsequently renamed as Padma Vibhushan, Padma Bhushan, and Padma Shri in 1955.

Now there is a dedicated website, which opens for a certain time and receives nominations for these Awards every year.

Can winners use the awards as prefix/suffix?
No. As per Article 18 (1) of the Constitution, the award cannot be used as a prefix or suffix to the recipient's name. "No title, not being a military or academic distinction, shall be conferred by the State," the Article states.

However, an award winner can write "Awarded Bharat Ratna by the President" or "Recipient of Bharat Ratna Award," in their biodata or letterhead, the MHA states. As per the Table of Precedence issued by the MHA, Bharat Ratna awardees find place just behind Union Cabinet Ministers (and their equivalents like Chief Ministers with in their own state, Deputy Chairman of NITI Aayog, former Prime Ministers and Leaders of Opposition in Lok Sabha and Rajya Sabha).

<mark>Relevance: GS Prelims & Mains Paper II; Governance</mark>

<mark>**20. Why has the MHA reimposed restrictions in three NE States?**</mark>

Introduction

Foreigners' entry restricted in Manipur, Mizoram, Nagaland

Centre reimposes Protected Area Regime amid 'security concerns arising out of influx from neighbouring countries'; foreigners will have to seek prior permission and special permits to visit the three States.

On December 17, the Union Ministry of Home Affairs (MHA) reimposed the Protected Area Regime (PAR) in the States of Manipur, Nagaland, and Mizoram to restrict and monitor the movement of foreigners. From now on, foreigners visiting the three States would have to seek prior permission and Protected Area Permits (PAP) from the government. The circular stated that the relaxation provided to the three States under the Foreigners (Protected Areas) Order, 1958 was being withdrawn with immediate effect.

What does the 1958 Order entail?
The Order stated that no foreigner shall enter into or remain in any protected area except under and in accordance with a permit issued by the Central government or any office authorised by the Central government. The permit shall include the following details — place of entry, place of residence and period of stay. The areas falling between the inner line and the international Border of the following States and Union Territories were declared as Protected Areas — parts of Himachal Pradesh and Jammu and Kashmir, Ladakh, Rajasthan and Uttarakhand and the whole of Manipur, Mizoram, Nagaland, and Sikkim (partly as protected areas and partly as restricted areas). Another Order in 1963 declared entire Andaman & Nicobar Islands and parts of Sikkim as "restricted area."

When was the Order first relaxed?

The PAR was relaxed for the whole of Manipur, Mizoram and Nagaland on December 30, 2010 in wake of an improved security scenario, and to promote tourism. The relaxation was initially for a period of one year. It was subsequently extended for a duration of 1-2 years till 2022 when it was further relaxed for another five years till December 31, 2027. On December 17, the relaxation was withdrawn for the States.

Why was it withdrawn?
A copy of the circular accessed by The Hindu said that the matter was examined by the Ministry in "the backdrop of growing security concerns in border areas of these States." Manipur, bordering Myanmar has been affected by ethnic violence between the tribal Kuki-Zo and the Meitei people since May 3, 2023. Chief Minister N. Biren Singh has attributed the ongoing violence in the State to "outsiders and foreign hands."

After a military coup in Myanmar in February 2021, there was an influx of undocumented migrants — over 40,000 refugees took shelter in Mizoram and around 4,000 refugees are said to have entered Manipur. The migrants belonging to the Kuki-Chin-Zo ethnic group share ethnic ties with the communities in Mizoram and Manipur. India shares a 1,643 km long border with Myanmar which passes through the States of Arunachal Pradesh, Nagaland, Manipur and Mizoram, The Free Movement Regime (FMR) between the two countries, allowing movement of people living within 16 kms of the international border, was suspended by the MHA in January.

How does one obtain a PAP?
The permits can be secured from Indian missions, the MHA, district magistrates, resident commissioners of a State, Home Commissioners or Foreigners Regional Registration Office (FRRO) among others.

Like earlier, citizens of Afghanistan, China, Pakistan and foreign nationals having their origin in the three countries would continue to require prior approval from the MHA. All foreigners visiting these States will mandatorily register themselves with the Foreigners Registration Officer of the State or the District they visit within 24 hours of their arrival. Myanmar nationals visiting the three States, who till now were excluded from the requirement of obtaining a PAP if they had an e-tourist visa or any other visa, should compulsorily register with the FRRO within 24 hours of their arrival.

Relevance: GS Prelims & Mains Paper II; Governance

21. Why are activists opposing EC's election rule amendment? How has the Election Commission defended its decision to limit access to election documents?

Introduction

The Centre recently amended the Conduct of Election Rules to restrict access for the public to a section of poll documents. This was done by the Union Law Ministry following a recommendation from the Election Commission (EC). While the EC said the amendment aims to restrict access to electronic data, the Opposition and transparency activists have been up in arms, branding it as an attack on the right to information and electoral freedom.

What is the Conduct of Election Rules?
The Conduct of Election Rules,1961, is a set of rules which provide for provisions on how to conduct the elections as per the Representation of People Act.

What is the amendment?
This amendment was brought into effect through a notification issued by the Ministry of Law and Justice. Rule 93(2)(a) of the 1961 Conduct of Election Rules had earlier stated that "all other papers relating to the election shall be open to public inspection" but after the amendment, it reads, "all other papers as specified in these rules relating to the election shall be open to public inspection."

Why has the amendment been brought in now?
The move comes after a recent direction to the EC by the Punjab and Haryana High Court to share all documents related to the Haryana Assembly election, including treating CCTV footage also as permissible under Rule 93(2) of the Conduct of Election Rules, to petitioner Mahmoud Pracha.

According to a senior official of the EC, "The rule mentioned election papers. The election papers and documents does not specifically refer to electronic records. In order to remove this ambiguity and considering the serious issue of violation of secrecy of vote and potential misuse of CCTV footage of inside the polling station using artificial intelligence by a single person, the rule has been amended. The EC argues that sharing of CCTV footage may have serious repercussions, especially in sensitive areas where secrecy is important. All election papers and documents are otherwise available for public inspection."

Why are the transparency activists protesting?
According to transparency activist Anjali Bharadwaj, Rule 93 is akin to the Right to Information Act as far as elections are concerned and, any change hurts the citizen's right to know about the process.

Venkatesh Nayak, Director Commonwealth Human Rights Initiative explained further that "upon initial examination, the amendment appears to be aimed at restricting citizen-voters' right to access a large number of documents created during Parliamentary and State Assembly elections many of which are not specifically mentioned in the Conduct of Election Rules,

instead, they are mentioned in the handbooks and manuals published by the Election Commission from time to time".

He said that given the controversy about voter turnout in recent Lok Sabha and Assembly polls, access to the Presiding Officers' diaries which contain detailed data about voter turnout and the number of tokens they distribute to voters who are in the queue at the hour scheduled for closing of polling are not mentioned specifically in the Conduct of Election Rules. "The amendment seeks to prevent access to such documents and many other reports and returns that are filed by various election officials".

What does the Opposition say?
The Congress claimed that a change in rules regarding the conduct of elections vindicated their assertions regarding the rapidly eroding integrity of the electoral process managed by the EC.

The Congress moved the Supreme Court against the amendments.

Congress President Mallikarjun Kharge has said it was part of a "systematic conspiracy to destroy the institutional integrity of the EC", while the Samajwadi Party and the Left parties accused the EC of "undermining multi-party democracy" by taking "unilateral" decisions without consulting all political parties.

Relevance: GS Prelims & Mains Paper II; Governance

22. Background and Debates Around the No-Detention Policy

What Was the No-Detention Policy?

The RTE Act, 2009, aimed to ensure free and compulsory education for children aged 6-14. Section 16 of the Act prohibited holding back or expelling students until the completion of elementary education (Class 8). The policy sought to prevent demotivation and school dropouts while emphasizing continuous and comprehensive evaluation (CCE). However, students were not required to pass board exams during this phase.

Centre Ends No-Detention Policy for Classes 5 and 8
The Centre has scrapped the no-detention policy for central schools, including Kendriya Vidyalayas and Jawahar Navodaya Vidyalayas. From this academic session, students in Classes 5 and 8 can be held back if they fail to meet promotion criteria after regular exams. These students will get additional instruction and a chance to clear a re-examination within two months. If they fail again, they will not be promoted.

This move comes after the Right to Education (RTE) Act, 2009, was amended in 2019 to allow states and UTs to hold back students in these grades. Since then, 18 states and UTs have ended the no-detention policy, with Punjab being one of the first.

Why Was the RTE Act Amended?
A 2017 Bill to amend the RTE Act highlighted that automatic promotions were leading to declining learning outcomes and low student attendance. The amendment replaced Section 16, introducing annual exams for Classes 5 and 8, with provisions to hold back students failing re-examinations. By 2019, this amendment became law.

Arguments For and Against the No-Detention Policy

Supporting the Policy:
• Advocates highlighted that detention often demotivates students and increases dropouts.
• The policy kept children in the education system for at least eight years, boosting enrollment and reducing dropouts among marginalized groups.

Criticizing the Policy:
• Critics pointed to declining learning levels and teacher accountability.
• A 2012 Central Advisory Board of Education (CABE) sub-committee report found a drop in reading proficiency among Class 5 students and increased migration to private schools.
• Misinterpretation of the policy as "no assessments" led to low motivation among students and teachers.

The Debate's Conclusion
By 2016, CABE recommended scrapping the policy, citing its negative impact on academic performance. Some states, like Punjab and Madhya Pradesh, supported introducing board exams for Classes 5 and 8. Others, like Karnataka and Andhra Pradesh, argued for retaining the policy to ensure eight years of school education and avoid higher dropout rates.

Implementation Across States and UTs

States Retaining the No-Detention Policy
States and UTs like Andhra Pradesh, Karnataka, Kerala, Maharashtra, and Odisha continue the no-detention policy. Tamil Nadu has also decided to retain it, focusing on strengthening the CCE system.

States Scrapping the No-Detention Policy
States including Punjab, Delhi, Madhya Pradesh, and Rajasthan have ended the policy. In Delhi, 20% of Class 8 students and 0.93% of Class 5 students failed their exams in the first academic year following the policy's removal.

Punjab's Concerns with the No-Detention Policy
In 2014, the Punjab government, led by Chief Minister Parkash Singh Badal, opposed the no-detention policy, citing a decline in learning outcomes. A resolution was passed in the Vidhan

Sabha to restart board exams for Classes 5 and 8. Badal also wrote to Prime Minister Modi, highlighting that automatic promotions without exams were deteriorating stage-specific learning. Despite these concerns, the Centre amended the RTE Act only in 2019.

Punjab's Workaround: Learning Outcome Evaluation System (LOES)

To address declining learning outcomes without violating the RTE Act, Punjab introduced the Learning Outcome Evaluation System (LOES) in 2016. Under LOES, students in Classes 5 and 8 were evaluated by the State Council of Educational Research and Training (SCERT). However, students were not held back but identified for remedial coaching.

Reintroduction of Board Exams in Punjab

After the 2019 amendment to the RTE Act, Punjab officially reintroduced board exams for Classes 5 and 8. The amendment allowed states to detain students who failed both the regular exams and re-examinations, conducted within two months of the results. Punjab adopted this provision to improve accountability and learning outcomes.

Relevance: GS Prelims & Mains Paper II; Governance

23. Why protesting farmers demand implementation of the Land Acquisition Act 2013

Introduction

Punjab farmers have been camping at the Khanauri and Shambhu borders of Punjab and Haryana since February, demanding legal status for the Minimum Support Price (MSP) of crops along with a dozen other demands from the central government. One of the prominent demands is the implementation of the Land Acquisition Act, 2013.

What is the Land Acquisition Act, 2013?

The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation, and Resettlement Act, 2013 (commonly referred to as the Land Acquisition Act, 2013) was enacted by the Centre to replace the outdated Land Acquisition Act of 1894.

The 2013 Act provides a modern framework for land acquisition, ensuring fair compensation and rehabilitation for affected families. The Act came into force on January 1, 2014. Some amendments were made in 2015.

What are the key features of this Act?

Fair compensation and consent requirements are the foremost features of the Act. Landowners are entitled to compensation that is twice the market value in urban areas and four times the market value in rural areas. Additionally, consent is required from 70% of the affected families for Public-Private Partnership (PPP) projects, and 80% consent is needed for land acquisition by private companies.

For irrigated multi-cropped land, acquisition is restricted beyond limits specified by the state governments. If such fertile land is acquired, the government must develop an equal size of wasteland for agricultural purposes. If an individual is dissatisfied with an award under the Act, they can approach the Land Acquisition, Rehabilitation, and Resettlement (LARR) Authority for redressal.

The Act also mandates a Social Impact Assessment (SIA) to evaluate the social, environmental, and economic impacts of land acquisition. Furthermore, the Act includes provisions for Rehabilitation and Resettlement (R&R), offering entitlements for affected families such as:
• A house for displaced families.
• Financial assistance for livelihood loss.
• Employment or annuity-based income for dependent families.
• Infrastructure development, such as roads, schools, and healthcare facilities, in resettlement areas.

What are the other features of this Act?
The Act narrows the definition of "public purpose" to prevent arbitrary acquisitions. Public purposes include infrastructure projects, urbanisation, and industrial corridors. If the acquired land is not utilised for its stated purpose within five years, it must be returned to the original owners or a land bank.

Certain projects, such as those related to defence, railways, and atomic energy, are exempt from the Act; however, compensation and R&R provisions still apply. Transparency is ensured through public hearings and access to SIA reports. Additionally, the Act mandates extra benefits and consultation processes for Scheduled Castes (SCs) and Scheduled Tribes (STs).

When the Act is already in force, why are farmers demanding its implementation?
The Act is not being implemented in its letter and spirit, the farmers claim.

"Both the central and state governments are responsible for not implementing the Act in its original form," said Bharti Kisan Union General Secretary Jagmohan Singh.

He cited the ongoing situation in Noida, where around 160 farmers were recently arrested for protesting against the lack of "fair" compensation for land acquired by the state, for projects including the Yamuna Expressway.

Jagmohan also highlighted that several states have implemented the Act with amendments, leading to controversies and court cases. "Changes were proposed, such as relaxing certain

provisions, including the removal of the consent clause for several categories, including PPP initiatives," he said.

"The Land Acquisition Act, 2013 is a progressive law that ensures fair compensation, providing financial security to farmers. Its consent clause gives farmers a say in whether their land can be acquired, empowering them against forced acquisitions. The Act's rehabilitation provisions support displaced families by providing livelihood assistance and essential infrastructure in resettlement areas. It also prevents misuse of arbitrary acquisitions for private gains, safeguarding farmers' dignity, especially as land remains their primary source of income and identity," Jagmohan said.

What challenges does the Act face in its implementation?

Experts point out that the procedural requirements often delay land acquisition for development projects, and the compensation costs can strain public and private project budgets.

Balancing development needs with social justice remains a contentious issue, making the Act's full implementation challenging, experts say.

Relevance: GS Prelims & Mains Paper II; Governance
Source: Indian Express

24. Why is strengthening fisheries extension services crucial? What support do Matsya Seva Kendras provide to fish farmers?

Introduction

India possesses diverse fisheries resources that provide livelihood opportunities to approximately three crore fishers and fish farmers. The country has witnessed an 83% increase in the national fish production since 2013-14, that stands at a record 175 lakh tons in 2022-23. With 75% of this coming from inland fisheries, India is the second-largest fish and aquaculture producer globally. In this backdrop, strengthening last-mile fisheries and aquaculture extension services is of paramount importance. Experts contend that such extension should provide request-based services to fishers/fish farmers on the life cycle of improved species cultured, water quality, disease, and available rearing technologies; address issues faced by seed growers and hatcheries; and conduct need-based training to promote sustainable practices and fisheries-based activities that have the potential to be viable business models.

What is the role of Matsya Seva Kendras?

Under the flagship Pradhan Mantri Matsya Samapada Yojana, 'Matsya Seva Kendras' (MSK) has been envisioned as one-stop solution to provide a range of extension services by trained aquaculture professionals. The governmental assistance to set up such Kendras for women and weaker sections is available to the extent of 60%. Funds have been provided to State governments and Union Territories for operationalising 102 such Kendras. For example, the MSK in Thrissur, Kerala has a well-equipped lab for water, soil, and microbial analysis to conduct request-based disease tests, while the MSK in Nasik and Sangli districts in Maharashtra focuses on capacity building for fishers/fish farmers on varied seed/feed inputs backed with the required technology infusion.

Fostering a 'whole of government approach,' the Government of India advises MSKs to mobilise start-ups, cooperatives, fish farmers' producer organisations, joint liability groups, and self-help groups to share best practices. The latter includes regenerative and conservation management practises for both inland and marine fisheries in view of the effects of climate change.

How do Sagar Mitras support fishers?

Another innovative extension initiative by the government is the deployment of "Sagar Mitras" in coastal States and U.T.s as a vital interface between the government and sea-borne fishers. They compile information and data on daily marine catch, price fluctuations, and requisite marketing needs at fish landing centres/harbours. They disseminate information to fishers on local regulations, weather forecasts, natural calamities, hygienic fish handling, and potential fishing zones in the seas.

How can extension services be improved?

To make the extension and advisory services in fisheries and aquaculture more robust the need of the hour is twofold. First, the above initiatives should be institutionally converged with the already networked field extension machinery of over 700 Indian Council of Agricultural Research-driven Krishi Vigyan Kendras and the State governments and U.T.s extension services. Second, promoting digital outreach. The National Fisheries Development Board has initiated a nationwide virtual learning platform, 'AquaBazaar,' that enables experts to clarify basic concepts and provide practical demonstrations to fishers on breeding/seed production of commercially important fish.

In this context, the World Bank-assisted Government of India project to formalise the fisheries and aquaculture sector is a boon indeed. It aims to create work-based digital identities for all fishers and fish farmers in the country, thereby strengthening their extension, capacity building, and awareness generation needs.

Bilateral Relations and International Organizations

1. Israel-Hezbollah ceasefire deal and UNSC Resolution 1701

Introduction

In these early days at least, the fresh ceasefire between Israel and Hezbollah is holding.

Principally, the (unpublished) ceasefire mimics UNSC Resolution 1701, which was adopted in the wake of the 2006 conflict. Hezbollah is supposed to withdraw to the north of the Litani river, Israel to the south of the Blue Line, with the Lebanese Army remaining as the only armed force allowed between the two in South Lebanon. It gives both forces 60 days to withdraw to their respective positions.

A crucial novelty in the agreement is the addition of the United States and France to the tripartite mechanism of Lebanon, Israel, and the UNIFIL that oversees the implementation of UNSCR 1701. Notably, it does not call for a complete disarmament of Hezbollah in Lebanon, north of the Litani, while Israel proclaimed that it retains the right to strike again if Hezbollah violates the agreement (something that the Lebanese government rejects).

Why did Israel agree to this deal?
Israel Prime Minister Benjamin Netanyahu has outlined three reasons for the ceasefire — to focus on Iran, to give Israeli forces "a breather and replenish stocks", and to "separate" the Hamas and Hezbollah fronts by taking one of them out of the war. Indeed, Hezbollah had opened a parallel front to support Hamas just days after the latter's terror attack, and the beginning of Israel's bombardment of Gaza.

Three further factors might have influenced Israel's decision.

FIRST, there has evidently been at least a mild fracture in Israel's civil-military framework. Former Defense Minister Yoav Gallant (along with the IDF Chief of Staff) had been pressing for a ceasefire in Gaza and Lebanon. He had repeatedly questioned Netanyahu's political and military objectives, as well as vociferously called for clarity on a day-after plan from the government.

While Gallant was fired less than a week publicly expressing his disagreement with the prime minister, it is evident that the IDF thinking that he represented, has prevailed to some degree.

SECOND, Israel's experience of fighting in Lebanon has always been tactically effective but strategically bitter.
A long-term military presence in Lebanon would severely wear down the IDF. This is perhaps why it kept its initial objectives, outlined on October 1, vague in military terms to allow for a withdrawal whenever Hezbollah was deemed to be weakened enough for Israelis living in the North to return to their homes.

Continued Israeli presence in South Lebanon would also enable a stronger re-consolidation of support for Hezbollah within Lebanon (which had been facing significant popular domestic resistance by mid-2023).

THIRD, despite the loss of its entire senior leadership and significant loss of infrastructure, Hezbollah evidently maintained the ability to strike Israel until the end. Its most extensive bombardment of Israel — with 250 rockets — occurred less than two days before the ceasefire, and after Israel's strike on central Beirut killed at least 29 people, including health workers.

Even with the IDF being militarily superior, Hezbollah's fighting capacity would ensure a protracted war. The IDF pressed for a ceasefire almost hours after it reached the Litani river, achieving what might be seen at least as a symbolic victory.

What does the ceasefire mean for the Israel-Lebanon frontier?
The most important underpinning to every development around Israel across the past year, has been the fact that October 7 decimated Israeli perceptions of security. This is what drove Israel to unleash a literal firestorm first in Gaza, and then in Lebanon.

International pressure on Israel has been concerted, with the United Nations' experts characterising Israel's acts as a "genocide", the International Court of Justice calling for Israel

to withdraw from occupied territories, and the International Criminal Court issuing an arrest warrant against Netanyahu. This has evidently not stopped Israel from pushing on in Gaza, as Israel now views this as its ultimate quest for complete security against all threats; a new "never again".

That said, the strong dent in Netanyahu's image as "Mr Security" still lingers, and Israel's threat perception has usually not differentiated between any of the Iran-sponsored groups. It is curious then that the post-ceasefire status quo post-bellum uncannily resembles the state of affairs at the end of the 34-day Israeli invasion of Lebanon in 2006. (The current invasion spanned 57 days.)

Then too the Lebanese Army was mandated to be the only armed force between the Litani and Blue lines post the ceasefire; its heavy armament and troop trucks rolled into the effective buffer zone by August of 2006. The American addition to the new "tripartite+" arrangement in 2024, that is supposed to differentiate it from the 2006 predicament, has come with explicit non-commitment of any combat troops, which is arguably also more palatable for the incoming Donald Trump administration in Washington DC.

However, Hezbollah still remains entrenched in Lebanon's society and government, with 15 members in Parliament and an ally in the Speaker's office. Notwithstanding the fillip of Western presence in ceasefire oversight, Hezbollah can now shift to regaining its socio-political base, having forced Israel again to withdraw as it did in 2006.

Hezbollah MP Hassan Fadlallah on Tuesday vowed to "carry on resistance", adding that the force that was "fighting in the battlefield will itself help to rebuild".

What does it mean for the region at large?
Two things.

FIRST, the acceptance on the part of Lebanon and Hezbollah of even a cursory US presence in South Lebanon, could not have occurred without Hezbollah Chief Naim Qassem (who televised his acceptance to the US-proposed ceasefire draft at least a week ago) consulting Tehran.

As Iran engages the IAEA, keeps up a steady stream of signals to engage the United States for sanctions relief, and deepens its (well-reciprocated) rapprochement with its Arab neighbours, the country no longer has to worry about what seemed to be an existential threat to its largest proxy in the region, at least momentarily in early October. It is useful to remember that Iran's principal objective in raising and sustaining Hezbollah is to ensure a military buffer between itself and Israel, despite the Palestine-linked framing of Iranian support to the resistance.

SECOND, Israel can now ensure complete military focus on not just Hamas in Gaza, but also Iranian proxies in Syria (which includes Hezbollah and allied troops), Iraq, and Yemen for the first time since the beginning of its campaign in Gaza. Netanyahu's address specifically warned that Syrian President Bashar al-Assad is "playing with fire". With Iran indicating some measure

of restraint and preparing for a Trump administration, Israel retains the option to both continue striking Iranian proxies, or to meet restraint with restraint, as it focuses on Gaza where the death toll is now touching 45,000.

In the Lebanon theatre specifically, however, all elements of conflict that sparked this latest war remain. Much more water has to flow down the Litani before complete stability is guaranteed in Lebanon and North Israel.

2. Trump to impose 'additional' tariff on China: Why fentanyl is a major problem for the US — and China's role in it

Introduction
President-elect Donald Trump recently said that he would impose tariffs on the United States' three largest trading partners — Canada, Mexico, and China — after he takes office on January 20.

In a post on Truth Social, Trump said he would impose 25% tariffs on imported goods from the three countries. Moreover, he also mentioned "an additional 10% tariff" on imports from China in response to the Asian country's failure to curb the flow of fentanyl into the US.
Here is why fentanyl is a major problem for the US — and China's role in it.

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] and anesthetic. 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 such as acetyl fentanyl and carfentanil. A recent US House Committee report 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. A 2020 DEA intelligence report ('Fentanyl Flow to the United States'), stated that fentanyl and fentanyl-related substances were trafficked from China through international mail and express consignment operations.

Investigative journalist Ben Westhoff told Vice News about how he found several Chinese companies in Wuhan and Shanghai being involved in the manufacturing of chemicals used to create synthetic opioids (precursors). China-manufactured chemicals would be shipped to Mexico for processing into pills and then sent to the US.

The previously mentioned House committee report stated that the Chinese Communist Party "directly subsidises" fentanyl production through tax rebates to companies — often engaged in other, legal chemical manufacturing — which are implicated in the production of precursors. On April 24, US President Joe Biden signed the FEND Off Fentanyl Bill into law to combat "illicit fentanyl traffickers in Mexico and the creators of precursor chemicals in 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. According to the DEA, China's move saw some of the production shifting to India, although here too export of fentanyl precursors has been regulated since 2018.

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.

Of late, there has been an attempt at resuming cooperation. In November 2023, following Xi's meeting with Biden, a bilateral Counternarcotics Working Group was announced to coordinate law enforcement actions and address the misuse of precursor chemicals, among other things. The many roadblocks to dealing with the fentanyl crisis

According to Westhoff, a lot depends on China's local governments. Many provinces see fentanyl production as a source of employment for people. To evade law enforcement agencies, operations often slightly tweak the formulae of certain chemicals.

China has also deflected blame onto the US, pointing to how even before fentanyl, the opioid crisis was in full swing. US pharmaceutical companies such as Purdue Pharma have been accused of handing out heavy-duty opioid prescriptions to patients, making them opioid addicts who seek ever more potent drugs.

And China is just a part of a much more complex puzzle, involving many countries, criminal organisations, and issues. For instance, Mexico is a major player in the trade, but cooperation with the country has been difficult to achieve. Earlier this year, the AP reported the head of Mexico's detective agency as saying: "Mexico has been the champion of methamphetamine production, and now fentanyl."

Relevance: GS Prelims & Mains Paper II; International Issues
Source: Indian Express

3. Bangladesh court rejects plea to ban ISKCON: All you need to know

Overview

Calls for banning the organisation came in response to violence earlier this week, triggered by the arrest of Hindu leader Chinmoy Krishna Das. Assistant government prosecutor Saiful Islam Alif was killed recently in clashes between police and the supporters of Das in Chattogram.

ISKCON Bangladesh general secretary Charu Chandra Das Brahmachari said in a press conference that the organisation was never involved in "communal or conflict-driven activities". Das added that Chinmoy was previously expelled from the organisation for violating its rules and none of his activities were connected to ISKCON.

Who demanded the ban on ISKCON Bangladesh?
Additional Attorney General Aneek R Haque and Deputy Attorney General Asad Uddin informed the High Court (as the top court is called in Bangladesh) that three separate cases have been filed in this regard.

The Jatiyatabadi Ainjibi Forum also staged a protest against the lawyer's killing and demanded a ban on ISKCON. The organisation is associated with Khaleda Zia's Bangladesh Nationalist Party (BNP). Leaders of the Anti-Discrimination Students Movement, which led the recent student protests in Bangladesh and played a part in the ouster of Hasina earlier this year, called for a ban as well.

To recall, Chinmoy is a spokesperson for the Bangladesh Sammilita Sanatani Jagran Jote. He was arrested from Dhaka's Hazrat Shahjalal International Airport as he was about to fly to Chattogram to join a rally advocating for the rights of Hindus in Bangladesh. He was denied bail and sent to jail by the Chattogram's Sixth Metropolitan Magistrate court in a sedition case. Bangladesh Attorney-General Mohammad Asaduzzaman urged the court not to take any decisions on the issue and said the government was acting on the matter. ISKCON Bangladesh also refuted allegations linking the organisation to the lawyer's death.

What is ISKCON and who founded it?
On its website, ISKCON describes itself as belonging to the "Gaudiya-Vaishnava sampradāya, a monotheistic tradition within the Vedic or Hindu culture. Philosophically it is based on the Sanskrit texts Bhagavad-gītā and the Bhagavat Purana, or Srimad Bhagavatam. These are the historic texts of the devotional bhakti yoga tradition, which teaches that the ultimate goal for all living beings is to reawaken their love for God, or Lord Krishna, the "all-attractive one"."

Also known as the Hare Krishna Movement, it was founded in New York City in 1966 by AC Bhaktivedanta Swami Prabhupāda (1896-1977). He hailed from Bengal, which led his organisation to eventually develop a significant presence there, including in present-day Bangladesh.

ISKCON came up when counterculture, a rejection of societal norms, was at its peak in the United States during the 1960s. It was also a period when the Vietnam War led the youth to criticise the political establishment that sought to enlist them into the military, to fight in a faraway conflict. Other social movements, such as civil rights and feminism, were also active.

Many young people in the West sought transcendental experiences through multiple routes, from psychedelic drugs to meditation. In this context, Hinduism and Eastern philosophy emerged as attractive alternatives for many. Renowned American poet Allen Ginsburg was also one of ISKCON's early supporters. The Beatles' member George Harrison is known to have gifted a manor house to the Hare Krishna movement to establish a base in the UK.

What activities does ISKCON engage in?
ISKCON today has 650 temples in more than 80 countries, with guest houses, vegetarian restaurants (in line with its worldview) and other attached facilities. The organisation also engages in relief work at times. During the Covid-19 lockdown, it said it fed 5,500 people in London, daily.

Its website notes historian AL Basham writing of its growth in a short period: "It arose out of next to nothing in less than twenty years and has become known all over the West. This, I feel, is a sign of the times and an important fact in the history of the Western world."

At the same time, it has been criticised for reports of corporal punishment meted out to children within the organisation, as well as child sex abuse allegations (particularly in the '80s).

How has the Indian government reacted?
The Indian government has repeatedly raised concerns over reports of attacks on Hindu temples in Bangladesh, in the aftermath of the ouster of Sheikh Hasina's government. It expressed "deep concern" over Chinmoy's arrest and urged Dhaka to ensure the safety of Hindus and other minority groups.

West Bengal Chief Minister Mamata Banerjee also expressed concern but refrained from commenting further. Speaking in the State Assembly, she said, "Bangladesh is a different country. The government of India will look into it. It does not come under our jurisdiction. We are not supposed to talk about it or interfere. While we feel sorry inside, we follow the policies set by the Centre." She added that she had spoken with representatives of ISKCON.

Relevance: GS Prelims; International Issues
Source: Indian Express

4. Is Russia engaging in 'hybrid warfare'?

Overview
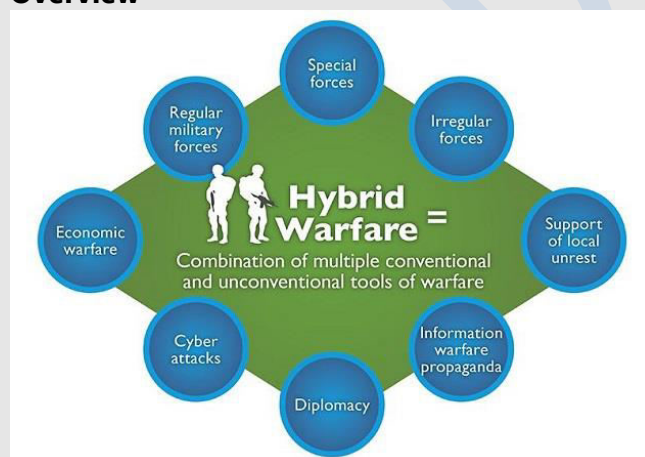
In the span of one week, a cargo plane belonging to German logistics company DHL crashed in Lithuania, two underwater data cables were damaged in the Baltic Sea, and pro-Russian right-wing extremist Calin Georgescu surprisingly won the first round of Romania's presidential election.

Several Western politicians and intelligence agencies suspect that Russia was the driving force behind all three incidents, although nothing has been proven and no evidence backing the suspicions has so far been made public. While Kremlin-orchestrated hybrid warfare has always posed a danger, experts now warn that this danger has grown dramatically since Russia's 2022 full-scale invasion of Ukraine.

Hybrid warfare means broadening military operations to include espionage, sabotage and cyberattacks, as well as engaging in election interference, propaganda or disinformation campaigns to weaken and destabilise the enemy from within. Experts say Russia has

continuously expanded its hybrid warfare arsenal in recent years. Here is what hybrid warfare consists of.

1. Espionage

European countries have expelled around 500 Russian diplomats since early 2022. Britain's MI5 secret service said at least 400 of them are spies. Many Russian embassies and consulates are reported to be equipped with state-of-the-art communications and espionage technology. If any of this can be definitively proven, Western intelligence agencies have chosen not to make public the information they may have gathered. After all, the embassy and consulate buildings are considered Russian territory and cannot be entered by host states without Russian permission.

The Dutch secret service has warned that Russia is equipping its spies with false papers and smuggling them into Western institutions disguised as business people.

Reports of suspected Russian espionage emerge regularly. Some drew attention to a hacked conversation between German army officials discussing the country's Taurus missile system. Others have dealt with suspected Russian drones spying on European air bases and industrial zones. Some reports have also focused on suspected spy ships, officially classed as research vessels, cruising the seas of northern Europe and mapping critical seabed infrastructure for possible acts of sabotage.

2. Sabotage

Last week, a Russian-captained Chinese freighter reportedly damaged two undersea cables by dragging an anchor over the seabed. The incident is similar to one that occurred in October 2023. Last month, a London warehouse used for storing aid for Ukraine was hit by an arson attack. In July, a parcel that should have been sent by air freight went up in flames at a DHL logistics center in Leipzig, Germany. It is thought Russian sabotage could have been at play in these and numerous other cases. Yet nothing has been proven so far.

European intelligence services warn that the number of acts of sabotage and arson have increased dramatically over the past year in the EU and UK.

3. Cyberattacks

Germany's Federal Office for Information Security (BSI) warns that the risk of malicious cyberspace activity is "higher than ever." Online espionage and sabotage are ever-present. "Before Russia's attack on Ukraine, Russian-linked groups were very active in Germany engaging in cyberespionage and financially motivated ransomware attacks," the BSI said. "The scope of threats has expanded since Russia launched its war of aggression against Ukraine."

The agency said "the number of DDoS attacks by pro-Russian hacktivists" has risen sharply. DDoS attacks involve flooding websites or servers with traffic until they crash due to overload. Hacks aimed at penetrating company and institutional networks are also on the rise.

4. Disinformation and propaganda

Another objective of hybrid warfare is trying to influence public opinion in a given target country. Falsehoods and pro-Russian or anti-Ukrainian narratives are disseminated to this end, whether on social media platforms through troll factories, or via Russian foreign media outlets. In early 2024, Germany's Foreign Ministry uncovered a Russian "Doppelganger" disinformation campaign. It involved 50,000 fake social media user accounts spreading falsehoods and pro-Russian opinions on social networks while linking to fake news outlets spreading Russian propaganda. Some of the sites appeared deceptively similar to well-known news sites.

5. Election interference, meddling in the political process
One of the aims of these disinformation campaigns is to undermine public support for Ukraine. Another objective consists of politically destabilizing a democratic target country by strengthening extreme parties and candidates, for example by providing financial support to them.

In April, the Czech secret service uncovered a propaganda website called Voice of Europe, believed to be financed by Moscow. The site is suspected of paying bribes to some members of European Parliament.

One of the individuals suspected of having received such payments is Petr Bystron, an MEP with the far-right populist Alternative for Germany (AfD) party. He has denied the accusations. Western intelligence agencies also accused Russia of directly or indirectly influencing dozens of elections across Europe, North America and South America. Russian international broadcaster RT is said to have produced videos on controversial topics such as aid for Ukraine, migration and the economy during the US presidential election campaign. Right-wing US bloggers then spread some of the videos.

Hack-and-leak attacks are also part of the hybrid warfare repertoire. They involve hacking politicians, political parties or other institutions to steal and publish confidential information, sometimes alongside falsified documents, before elections. This happened, for example, in the run-up to the 2016 US election and the 2017 French presidential election.

6. Targeted killings
Assassinating influential figures is another facet of hybrid warfare. Russian President Vladimir Putin has not shied away from attacking individuals abroad. This is clear from the killing of a Chechen ex-commander in Berlin's Tiergarten park, who allegedly fought against Russia during the Second Chechen War. This is also evident from the 2006 attack on Kremlin critic Alexander Litvinenko and the assassination attempt against Russian double agent Sergei Skripal and his daughter Yulia in 2018. All were carried out on British soil.

It's mainly Russian citizens who have fallen victim to such attacks so far. In July 2024, however, news leaked that Russia was planning to assassinate Armin Papperger, CEO of the German armaments group Rheinmetall, which manufactures the Leopard II tanks and other munitions supplied to Ukraine. The Kremlin has denied all the accusations.

How to deal with hybrid warfare?

Russia is conducting many different hybrid warfare pinpricks across Europe, according to Sönke Marahrens, a German army officer and hybrid security expert.

"Russian operators are trying out different things in many European states, which are individually tailored to the respective state," Marahrens told German public news outlet tagesschau.de. "Hybrid measures that work in Poland don't work in Germany; what works in Germany wouldn't work in Finland."

That is why, he said, one must expect "a very broad spectrum of attacks in the future." Likewise, one should show flexibility in reacting to such attacks, he added.

5. Rebel offensive in Syria: What is happening now and why?

Introduction
In what has been described as a "shock offensive", Syrian rebel forces recently concluded a three-day attack towards the city of Aleppo, marking a major movement in the Syrian civil war that began in 2011.

The conflict lay dormant since a ceasefire was negotiated in 2020, which is why recent developments have come as a surprise. In response to the advance, the government of Syria and Russia have united forces to regain control of rebel-occupied territory. Reuters reported their jets struck the rebel-controlled Idlib province in northwestern Syria, resulting in continued bombing for the second day. The strikes aimed to force the retreat of insurgents who stormed into Aleppo.

The rebel attack was also the first time since 2016 that opposition forces have seized territory in Aleppo.

What we know about the surprise attack in Syria
Syrian rebels led by the extremist group Hayat Tahrir al-Sham (HTS), which has retained control of Idlib since 2020, advanced eastward toward Aleppo, the second-largest city in the country. Two days later, Syrian insurgents seized control of Aleppo, forcing the Syrian army to redeploy and announce a "temporary withdrawal".

This offensive reignited a conflict that had been all but contained in this region.

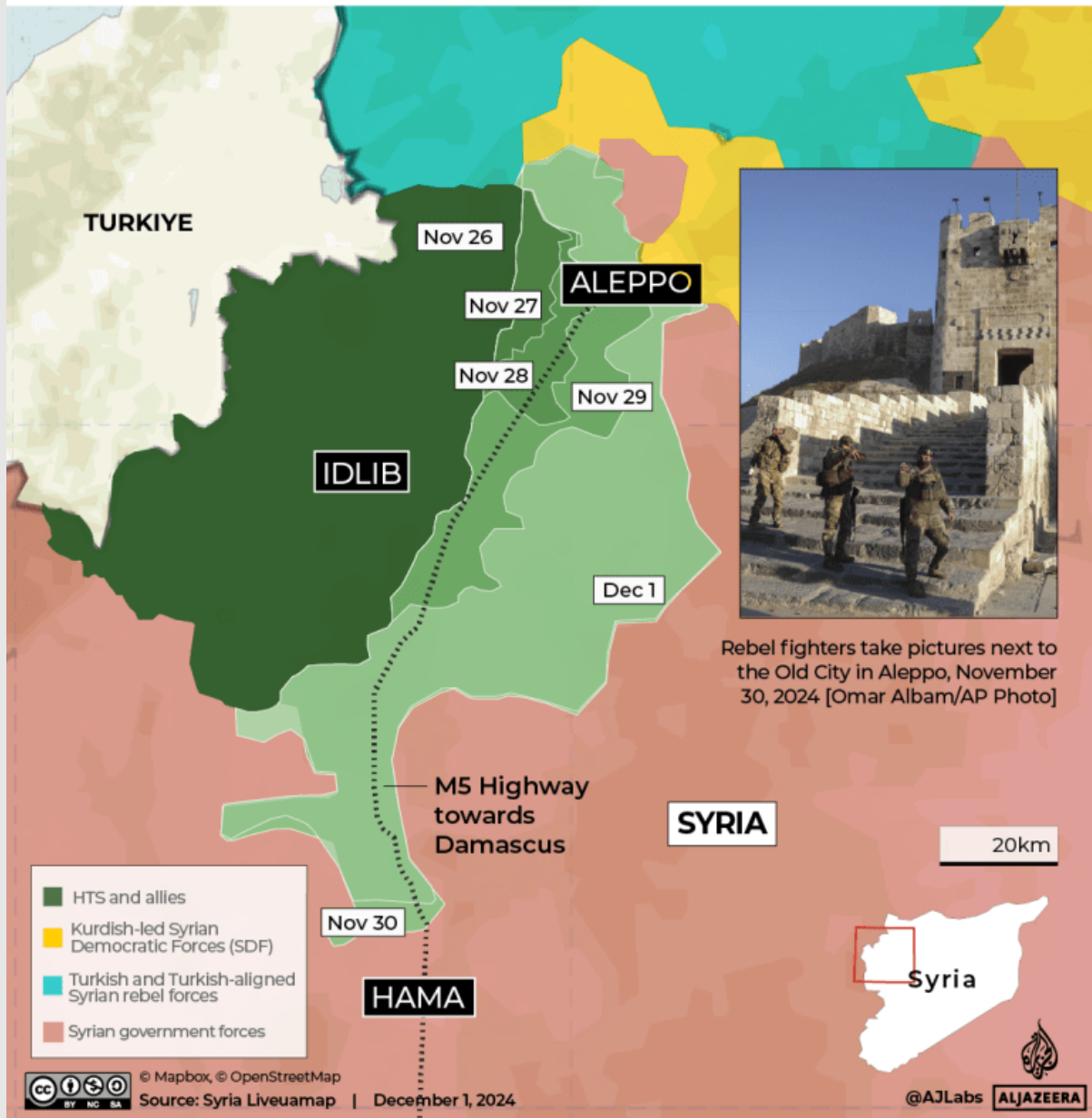### What is the Syrian civil war and who controls what?
The Syrian civil war began around the "Arab Spring" of 2010, dubbed so as many countries in the Middle East and North Africa saw uprisings against authoritarian governments that had been in power for decades. In some nations, such as Tunisia and Egypt, ruling governments were forced out. In most others, governments and militaries crushed the movements.

MIDDLE EAST

Syrian rebels sweep into Aleppo

Rebel forces, led by Hayat Tahrir al-Sham (HTS), have continued their advance into Aleppo and south towards Hama, just five days after launching a surprise offensive that has prompted a new phase of the 13-year war in Syria.

Rebel fighters take pictures next to the Old City in Aleppo, November 30, 2024 [Omar Albam/AP Photo]

TURKIYE

Nov 26

ALEPPO

Nov 27

Nov 28

Nov 29

IDLIB

Dec 1

M5 Highway towards Damascus

SYRIA

20km

HTS and allies

Kurdish-led Syrian Democratic Forces (SDF)

Turkish and Turkish-aligned Syrian rebel forces

Syrian government forces

Nov 30

HAMA

Syria

© Mapbox, © OpenStreetMap
Source: Syria Liveuamap | December 1, 2024

@AJLabs ALJAZEERA

The Internet and social media websites such as Twitter, which were then taking off, were believed to have played a role in the spread of pro-democracy ideas in the region. Foreign governments, such as the United States and Russia, also responded to the events based on their respective strategic interests.

In Syria, protests began against the rule of President Assad, who came to power in 2000. Today, he controls major parts of the country, barring a few regions. These include Kurdish-majority areas in east Syria, parts of the south, and parts of the Syrian desert ruled by offshoots of the group affiliated with the erstwhile Islamic State.

In March 2020, Turkey (which has historically backed Syrian rebels) and Russia (which has allied with the Assad regime) entered into a ceasefire deal in Idlib. This has remained in place, with the HTS retaining de facto control of the province since then.

HTS is a former al-Qaeda affiliate previously known as Jabhat al-Nusra (Al Nusra Front) and designated a terrorist group by the US, Russia and Turkey, among other nations. However, Turkey's links to HTS are complex. A Financial Times report points to a mutually beneficial relationship, with Turkey serving as "Idlib's ultimate protector from large-scale attacks by regime forces and their Russian backers, while Ankara also controls the border into the province, through which HTS depends on trade and taxes."

Significance of the current Syrian offensive

The latest rebel offensive marks the strongest effort by the rebels in recent years. However, Assad quelled a similar rebellion in Aleppo in 2016 with Russian air support. A similar effort is presently underway.

The surprise attack also highlights the regime's present vulnerability, with its allies being occupied in other military operations. Assad counts Iran and the Iran-backed Lebanese militant group Hezbollah among his allies but Israel, allied with the US, has been fighting Hezbollah in Lebanon over its support to the Palestinian militant group Hamas. Russia has also been at war with Ukraine since February 2022.

While Israel and Lebanon entered into a provisional "permanent" ceasefire on November 27, the Israel Defense Forces (IDF) had identified truce violations and carried out two airstrikes on Hezbollah assets in southern Lebanon. It could mean that despite recent efforts, peace may be elusive in the region in the short-term.

Relevance: GS Prelims; International Issues
Source: Indian Express

6. Why are Taiwanese leaders' visits to the US officially called 'transits'?

Overview

Taiwan's president Lai Ching-te arrived recently in Hawaii for a two-day visit to the United States for the first time since assuming power earlier this year. Officially, the trip was referred to as a "transit", adhering to a long-held convention given China's claims over Taiwan.

TAIWAN PRESIDENT
LAI CHING-TE IN HAWAII

China also criticised the transit, which began a day after the US approved the potential sale of spare parts for F-16 jets and radars to Taiwan for around $385 million.

In a statement, China's Ministry of Foreign Affairs said, "China… firmly opposes any trip by leader of the Taiwan authorities to the US in any name or under whatever pretext… China strongly condemns the US's arranging for Lai Ching-te's "stopover" and has lodged serious protests with the US."

Competing claims of China and Taiwan
China has long been critical of high-level official exchanges between the US and Taiwan given its territorial claims over Taiwan. Since the inception of China's modern communist state in 1949, it has laid historical claims over the island. In turn, Taiwan also claimed to be the sole representative of China. Amid prevalent Cold War rivalries, the US supported Taiwan and officially recognised it.

However, with the end of the Cold War in 1991 and China's increasing global heft after its economic liberalisation in 1978, more countries began establishing diplomatic relations with mainland China. Its government also mandated the One-China principle, which meant that any country hoping to form diplomatic ties could not recognise Taiwanese independence.

Today, only 12 nations recognise Taiwan as an independent country. Most other countries, such as India, the US, Japan, etc., only have unofficial ties with it since they recognise mainland China.

As a result, when the US recognised China and established diplomatic ties with it in 1979, it had to downgrade its relationship with Taiwan.

Underlying conditions for US-Taiwan relationship
In three joint communiqués concluded with the Chinese government in 1972, 1978, and 1982, the United States "acknowledged," but did not endorse, the "Chinese" position that "there is but one China and Taiwan is part of China." It also said it would "maintain cultural, commercial, and other unofficial relations with the people of Taiwan".

It was only in 1994 that the first Taiwanese president went to the US for a "transit", essentially having the visit serve as a stopover to travel elsewhere. According to a US Congressional Research Service report, the Bill Clinton administration allowed Taiwan's then-President Lee Teng-hui "to stop to refuel his plane in Hawaii on his way to Central America, but not to spend the night. Apparently piqued, Lee declined to leave his plane. Some Members of Congress saw the Administration's treatment of Lee as insufficiently respectful."

De-classified official documents later showed the Clinton administration said it would "[p]ermit normal transits of the U.S., but no visits or public activities, for Taiwan's top leadership," while continuing to "[f]orbid visits, as opposed to transits…" Congress also passed the Immigration and Nationality Technical Corrections Act in 1994. Section 221 makes visas available to Taiwan officials "under specified circumstances".

The only time a "visit" has been undertaken was in 1995, when President Lee sought to make a private visit to his alma mater, Cornell University. While the Clinton Administration initially denied the request and assured China of its decision, Lee ultimately visited Cornell in June 1995. In response, China "carried out missile launches, live-fire exercises, a naval exercise, and an amphibious landing exercise over several months in 1995," the report says. The ensuing period of military tensions was termed the Third Taiwan Strait Crisis.

Recent criticisms from China

Criticisms over Lai's visit also arise from his party's more pro-independence stance. The Democratic Progressive Party has been in power since 2016 and is termed "separatist" by the communist government in China. Former Taiwan President Tsai Ing-wen, Lai's predecessor, made seven overseas trips with transit stops in the US between 2016 and 2024. One trip in 2023, where she met House Speaker Kevin McCarthy and other members, drew China's condemnations. The Taiwan Work Office of the Chinese Communist Party accused her party of "clinging to U.S. support to seek independence."

China also conducted large-scale joint military exercises around Taiwan for three days. A White House official then observed that transit visits by Taiwan presidents are "not uncommon" and said there was "no reason for any overreaction here."

Presumably to keep the visit devoid of fanfare, no high-ranking US or Hawaii state officials visited Lai to greet him when he landed in Honolulu. After the transit, Lai is scheduled to visit Marshall Island, Tuvalu and Palau (located in Oceania), which are among the few countries still officially recognising Taiwan.

Relevance: GS Prelims & Mains Paper II; International Issues
Source: Indian Express

7. Trump threat to BRICS over ditching the dollar: what he can do, what it will mean for US, India

Overview

Ever since the US chose to weaponise the global financial infrastructure by throwing Iran (in 2012) and Russia (in 2022) out of the Society for Worldwide Interbank Financial Telecommunication (SWIFT), key to international financial transactions, countries across the globe have been looking to reduce dependence on the US dollar as well as the US-led global financial system.

> **Donald J. Trump** ✓
> @realDonaldTrump
>
> The idea that the BRICS Countries are trying to move away from the Dollar while we stand by and watch is OVER. We require a commitment from these Countries that they will neither create a new BRICS Currency, nor back any other Currency to replace the mighty U.S. Dollar or, they will face 100% Tariffs, and should expect to say goodbye to selling into the wonderful U.S. Economy. They can go find another "sucker!" There is no chance that the BRICS will replace the U.S. Dollar in International Trade, and any Country that tries should wave goodbye to America.

Perceiving these growing attempts as a threat to the US dollar's domination, US President-elect Donald Trump has threatened Brazil, Russia, India, China, and South Africa (BRICS nations) with 100 per cent tariffs if they create a new BRICS currency or back any other currency to replace the US dollar as the world's reserve currency.

This comes after Russian President Vladimir Putin at the BRICS summit in October said: "The dollar is being used as a weapon. We really see that this is so. I think that this is a big mistake by those who do this."

However, Prime Minister Narendra Modi at the summit said that BRICS should not acquire the image of one that is trying to replace global institutions.

India's efforts towards rupee internationalisation

Trump's threat comes at a time when US sanctions on Russia resulted in Russian oil being redirected from Europe to Asia. In an effort to reduce reliance on the US dollar and to internationalise the Indian rupee, the Reserve Bank of India allowed invoicing and payments for international trade in Indian rupees in 2022, after sanctions were imposed on Russia amid the Ukraine war.

Notably, foreign exchange market turnover (daily averages), as per the BIS Triennial Central Bank Survey 2022, shows the US dollar is the dominant vehicle currency, accounting for 88 per cent of the global forex turnover. The rupee accounted for 1.6 per cent. The survey stated that if rupee turnover rises to equal the share of non-US, non-Euro currencies in global forex turnover of 4 per cent, it will be regarded as an international currency.

However, India's trade with Russia in domestic currency remains low due to Indian banks' fear of US sanctions and an unbalanced trade relationship between the two countries. While there has been a multifold rise in India-Russia trade after the Ukraine war, it has been firmly in favour of Russia.

India's exports to Russia stood at $4.2 billion in FY24, but increasing oil imports from Moscow have widened the import bill to $61 billion. As a result, Russia has a huge pile of rupee reserves that it has not been able to use to settle bilateral trade using domestic currency, and is instead using it to invest in Indian stocks and bonds.

On the contrary, bilateral trade between Russia and China in domestic currency has jumped. A more balanced Russia-China trade has helped transactions using the yuan and rouble. China-

Russia trade in 2023 crossed a record $240-billion mark. The Russian government said that over 90 per cent of the bilateral trade settlement is now in Russian roubles.

'Not trying to target the US dollar'
External Affairs Minister S Jaishankar in October said that while India is pursuing its trade interests, avoiding the use of the US dollar is not part of India's economic policy.

Jaishankar said US policies often complicate trade with certain countries, and India is seeking "workarounds" without intending to move away from the dollar, unlike some other nations. However, the minister added that a multipolar world will eventually be reflected in "currencies and economic dealings".

'Threats impractical and counterproductive'
International trade experts said that while the US dollar dominates global trade—accounting for over 90 per cent of transactions—it is not the only currency used internationally. Other convertible currencies like the Japanese yen, the euro, and the British pound are also integral to global commerce, and the United States has not objected to their use. The proposed BRICS currency is simply an extension of these existing alternatives.

"It is the actions of the United States that have pushed many countries to seek alternatives to the US dollar. The US has a history of leveraging its influence over global financial systems, such as the SWIFT network, to impose unilateral sanctions. SWIFT is essential for secure and standardised international financial transactions. By blocking countries like Russia and Iran from accessing SWIFT, the US has effectively weaponised the global financial infrastructure, forcing other nations to find alternative payment mechanisms to continue legitimate trade," former trade officer and head of think tank Global Trade Research Initiative, Ajay Srivastava, said.

Srivastava said that a 100 per cent tariff on BRICS countries could backfire. "Imports into the US would simply shift to third countries, potentially increasing costs for American consumers without bringing manufacturing jobs back home. The US has become less competitive in manufacturing labour-intensive goods due to higher production costs, and tariffs are unlikely to reverse this trend," he said.

Relevance: GS Prelims & Mains Paper II; International Issues
Source: Indian Express

8. Why global plastic treaty talks collapsed

Introduction
The week-long global talks in Busan, South Korea, on curbing plastic pollution ended recently in failure to adopt a final legally binding treaty as countries could not reach an agreement on how to regulate plastic production.

This was the fifth and final round of negotiations since March 2022, when the United Nations Environment Assembly (UNEA) agreed to develop a legally binding treaty on plastics pollution by the end of 2024. Although the treaty was not finalised, discussions on the draft text of the treaty will continue next year.

Why did the talks fail?

The main dispute was regarding the demand for production cap goals in the final treaty along with clear language on the elimination of certain plastic chemicals and products. This demand was mainly pushed by a coalition of more than 100 countries which includes African nations, Latin American nations and most of the European Union.

However, a coalition of "like-minded countries" including Saudi Arabia, Kuwait, Russia, and Iran opposed the inclusion of provisions on plastic production cuts, arguing they were beyond the mandate of the 2022 resolution to end plastic pollution. For instance, Kuwait said in a bid to include such provisions in the final treaty, the mandate was being stretched for advancing trade restrictions, economic agendas, and commercial competition, under the guise of environmental action. India and China also supported the stand of this coalition.

What does the treaty's draft text say?

The draft text reflected both points of consensus and contention.

Points of consensus included proposing a ban on open dumping and open burning for sustainable waste management. The draft text also provided clear definitions of plastic and plastic products, but it did not reflect definitions of contentious issues such as microplastics, nanoplastics, primary plastic polymers, and recycling.

Despite a pushback from the Arab group of countries led by Saudi Arabia and Kuwait, the draft text included options to include a goal to reduce plastic after the treaty is finalised. References to single-use plastics and short-lived plastics were also included.

This draft text, with all its issues and progress, will serve as the basis for the next session in 2025.

What was India's stance?

India's stance and interventions centred on issues such as the varying responsibilities of countries in addressing plastic pollution, keeping in focus the right to development of

countries and the need for the provision of technical and financial assistance to manage plastic waste. It also stressed that the scope of the treaty should be well-defined to not overlap with existing multilateral environmental agreements.

India outlined its stance in the opening plenary. Its delegation said any legally binding treaty must recognise the need for support to developing countries through finance and technology transfer. At the outset it made clear it did not support any articles on "supply", referring to the discussions surrounding curbing production. India said the sustainable level of production at a global or national level was not well-defined and may become a method for imposing a cap on the production of products, chemicals, or primary polymers.

It also said production of primary polymers was not directly linked to plastic pollution and there should be no targets concerning polymer or plastic production. Instead, it asked to focus on reducing plastic pollution. Further, it did not support a levy of a plastic pollution fee on the production of primary polymers.

At the end of the talks, India added that a balance has to be struck between preventing plastic pollution and protecting the sustainable development of developing countries.

Relevance: GS Prelims; International Issues
Source: Indian Express

9. Why South Korea President has declared 'emergency martial law', what this means

Overview
South Korea President Yoon Suk Yeol declared "emergency martial law" in an unannounced television address late on December 3 night, accusing the opposition of sympathising with North Korea and paralysing the government with anti-state activities.

"Through this martial law, I will rebuild and protect the free Republic of Korea, which is falling into the depths of national ruin… I will eliminate anti-state forces as quickly as possible and normalise the country," he said, while requesting the public to tolerate "some inconveniences".

What does martial law entail?
Put simply, martial law is the replacement of civilian government by military rule, and the suspension of civilian legal processes for military ones. Standard civil liberties may be suspended for as long as martial law continues.

Article 77 of the Republic of Korea's constitution contains provisions pertaining to the declaration of martial law in the country. It says: "When it is required to cope with a military necessity or to maintain the public safety and order by mobilization of the military forces in time of war, armed conflict or similar national emergency, the President may proclaim martial law as prescribed by law."

"Under extraordinary martial law, special measures may be taken with respect to the necessity for warrants, freedom of speech, the press, assembly and association, or the powers of the Executive and the Judiciary under the conditions as prescribed by law," Article 77 further says. South Korea's Yonhap News Agency cited the military as saying activities by parliament and political parties would be banned, and that media and publishers would be under the control of the martial law command. The news agency also reported that MPs are not being allowed to access the premises of the National Assembly in Seoul.

In his announcement, Yoon did not mention specific measures that will be in force during martial law.

Since the establishment of the Republic of Korea, martial law has been declared 16 times. It was last declared in 1980.

Why did President Yoon declare martial law?

Since the latest National Assembly elections held earlier this year delivered a landslide verdict for the opposition, Yoon has effectively been a lame duck president. He has not been able to pass the laws he wants, and has instead been reduced to vetoing bills passed by the opposition. This is what he was referring to when he spoke about the opposition having "paralysed state affairs".

Moreover, since his election in 2022, he has seen a steady decline in approval ratings in part due to the number of scandals involving him and his wife, who has been accused of "influence peddling", according to the BBC. Allegations against Yoon's wife include stock manipulation and accepting a luxury Dior handbag. The opposition has been trying to launch a special investigation against her.

In recent weeks, Yoon's conservative People Power Party had been locked in an impasse with the liberal opposition Democratic Party over next year's budget bill. Simultaneously, the opposition has also moved to impeach three top prosecutors in what Yoon has described as a vendetta against their criminal investigation on Lee Jae-myung, who narrowly lost the presidential election in 2022 but is favourite to win the next time around in 2027.

It is in face of these crises that Yoon has chosen what analysts are calling "the nuclear option".

What has the response been to Yoon's declaration?

The declaration of martial law has come completely out of the blue. So far, according to the BBC, "the streets look normal". The public's reaction is characterised more by "bewilderment" than anything else, the BBC reported.

The move, however, has invited unanimous criticism from South Korea's political establishment, including Yoon's own party.

The People's Power Party leader Han Dong-hoon has called the declaration of martial law a "wrong" move, and has vowed to block it. Notably, according to South Korean law, the government must lift martial law if the majority of the National Assembly demands votes for its repeal.

However, it is unclear how this vote will take place, given reports that lawmakers are not being allowed access into the Parliament.

10. ICJ begins hearing on landmark climate change case: Why is this significant?

Introduction

The recently concluded annual climate talks in Baku, Azerbaijan, ended in disappointment for the developing countries. The main agreement negotiated at this conference promised to mobilise just $300 billion a year in climate finance for the developing countries, far less than the $1.3 trillion a year they had been demanding in line with their requirements assessed by several studies.

The refusal of the developed nations to fully meet their obligations on climate finance follows the continuing neglect of their responsibilities on emission cuts.

To hold the developed countries to account for their climate responsibilities, the developing nations, particularly the small island states, have now taken their concerns to another forum, the International Court of Justice (ICJ), the main judicial arm of the United Nations. Recently, the ICJ began hearings in a case that seeks its advisory opinion on the obligations of countries on climate change under existing international laws, and the legal consequences of those obligations.

The case is expected to have significant implications for the increasing number of climate-related lawsuits being filed everywhere. It could potentially also influence the negotiations at the annual climate talks.

The case
The case results from a resolution passed by the UN General Assembly (UNGA) in March last year, at the initiative of Vanuatu, a small country in the Pacific Ocean located about 2,000 km northeast of Australia. Like several other small island states, Vanuatu is one of the most vulnerable countries, with its existence threatened by rising sea levels.

Vanuatu moved a proposal seeking an advisory opinion of the ICJ on climate change in September, 2021. It received support from a large number of countries, and eventually the UNGA, in March last year, adopted the resolution that was co-sponsored by 132 countries.

The resolution seeks answers to two specific questions. One, what are the obligations of the countries under international laws to protect the climate system. Two, what are the legal consequences under these obligations for countries that have caused harm to this climate system.

Although the 1994 UN Framework Convention on Climate Change (UNFCCC) and the 2015 Paris Agreement are the two international laws that deal exclusively with climate change, there are several other legal instruments which are relevant to the issue. These include the UN Convention on the Law of the Seas, the Convention on Biological Diversity, the Convention to Combat Desertification, the Universal Declaration on Human Rights, the International Covenant on Civil and Political Rights and the UN Charter itself.

The UNGA resolution has sought the ICJ opinion on the climate obligations of countries in light of these, and other related, international laws.

The significance
The two-week hearings at ICJ would result in only an advisory opinion, as sought by the UNGA resolution. But it could have far-reaching ramifications.

Currently, the UNFCCC defines the climate obligations of countries based on their share of historical emissions. A group of about 40 rich and developed countries, which had the maximum share of historical emissions till then, were held mainly responsible for causing climate change. These countries were asked to reduce their emissions, and also help the developing nations, through provision of finance and technology, in fighting climate change. Over the years, the rich and developed countries have not just managed to largely ignore these obligations, but also succeeded in transferring a part of their burden on the developing countries.

The ICJ ruling can potentially show that the obligations of the developed nations stem not just from the UNFCCC and the Paris Agreement, but also from several other international legal frameworks. This can become a new argument in the climate negotiations. More importantly,

defining the legal consequences for climate change can have implications for demands of small island states that they be compensated for the damage caused by climate change.

At the minimum, the outcome of this case could become a precedent for the thousands of climate lawsuits that have been filed in recent years, seeking accountability from governments and corporations. As of 2023, more than 2,600 lawsuits have been filed worldwide that seek courts to adjudicate matters on climate change, or rely on climate arguments to decide issues of public importance. A few of these have already resulted in landmark judgments. For instance, earlier this year, the European Court of Human Rights held that Switzerland had failed to meet its greenhouse gas emission reduction targets, and thus violated the human rights of its citizens.

Several countries are also enacting climate-specific legislation. In April this year, India's Supreme Court had expanded the scope of the fundamental rights to life and equality to include the right to be free from adverse impacts of climate change.

Record representations
The importance of this case can be gauged also from the record number of representations that have been made before the ICJ. The court has already received over 90 written submissions from countries and organisations. At least 97 countries and a dozen international organisations are scheduled to participate in the hearings, which too is a record for any case at ICJ.
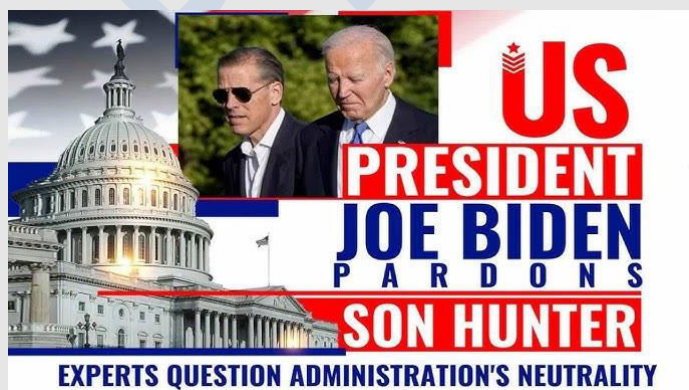
Even countries that accept ICJ's authority only in a limited manner, including India, China and the United States, are participating in this case.

Relevance: GS Prelims & Mains Paper II; International Issues
Source: Indian Express

11. Presidential Pardons and Political Interference

Overview of the Pardon

Outgoing U.S. President Joe Biden issued a presidential pardon to his son, Hunter Biden, covering any federal crimes he "committed or may have committed or taken part in" between January 1, 2014, and December 1, 2024. Hunter Biden was previously convicted on federal gun and drug charges and pleaded guilty to tax charges in California.

• **Context of Charges:**

O Gun Form Charges: President Biden noted that individuals are rarely brought to trial solely for errors in completing gun forms unless aggravating circumstances exist.

O Tax Evasion: He highlighted that late tax payments followed by full restitution with interest and penalties, often result in non-criminal resolutions.

Criticism of the Pardon

The pardon has drawn scrutiny for being "full and unconditional," potentially shielding Hunter Biden from future prosecutions by the incoming Trump administration. Concerns center on charges that may arise from Hunter's foreign business dealings, including unlawful lobbying and corruption-related payments.

Historical Context of Pardons

Presidential pardons are common in U.S. politics, with past presidents exercising this power extensively:
• Donald Trump: Granted 143 pardons, including to high-profile individuals such as:
O Steve Bannon (Republican lobbyist)
O Michael Flynn (former National Security Adviser)
O Joe Arpaio (controversial sheriff)

• **Bill Clinton:** Pardoned his half-brother Roger Clinton, convicted on drug-related charges.

Concerns About Justice and Polarisation

President Biden's pardon raises questions about whether justice can be administered fairly in a politically polarised environment.

• **Weaponisation of Law Enforcement:** Biden argued that "raw politics" has tainted legal processes, a claim mirrored by Trump, who accuses Biden's Department of Justice of bias.

• **Impact on Trust in Justice:** The use of pardons for political allies or family members risks eroding public trust in the impartiality of the justice system.

Conclusion

While presidential pardons are a constitutional right, their use in highly polarised environments requires caution. Leaders across party lines must exercise restraint to ensure the justice system remains free from political interference.

Relevance: GS Prelims; International Issues
Source: The Hindu

12. Why New Delhi is Cautious About Events in Syria

The Fall of Assad and the Rise of HTS

Who is Abu Mohammed al-Golani?

- **Transformation:** Al-Golani evolved from al-Qaida affiliate to regional leader, seeking legitimacy & public support.

- **Current role:** He leads Hayat Tahrir al-Sham (HTS), ruling northwestern Syria with significant influence.

- **Offensive in Aleppo:** His fighters recently led major offensive, shaking Syria's tense stalemate.

- **Ties to Al-Qaida:** Al-Golani joined al-Qaida in 2003, rising to prominence through its Nusra Front branch in Syria.

- **Break with Al-Qaida:** In 2016, he severed ties with al-Qaida, rebranding his group for broader appeal.

- **Reputation shift:** Al-Golani promoted pluralism, tolerance & outreach to minorities, diverging from his earlier stance.

- **Conflict with Isis:** He rejected merging with Isis, battling it & other factions for dominance in Syria.

- **HTS consolidation:** Under his leadership, HTS merged smaller groups, becoming the dominant force in Idlib province.

- **Global perception:** Despite rebranding, HTS remains US-designated terrorist group, with $10M bounty on al-Golani.

- **Media strategy:** He changed his public image, granting interviews to Western outlets to distance HTS from global jihadism.

The recent ouster of Syrian President Bashar al-Assad has sparked jubilation in Damascus but left global capitals, including New Delhi, wary of the unfolding events. Assad, who ruled since

2000 after inheriting power from his father, Hafez al-Assad, was forced to flee as Islamist rebels, led by Hayat Tahrir al-Sham (HTS), advanced on the capital.

Discontent with Assad's Rule

Initially viewed as a reluctant yet popular leader, Assad faced growing discontent due to his failure to address social justice issues during economic liberalization. The discontent stemmed from:

1. **Economic Inequality:** Liberalization disproportionately impacted lower socioeconomic groups.
2. **Political Suppression:** Calls for democratic reform were met with authoritarian crackdowns.
3. **Religious Extremism:** Modern and secular Syria became fertile ground for extremist exploitation.

The Arab Spring protests in 2011, mirroring uprisings across West Asia and North Africa, turned into a brutal civil war. Assad's regime, accused of using chemical weapons, faced opposition backed by the U.S., while Russia, Iran, and Hezbollah supported him.

HTS's Evolution and the Shift in Power

HTS emerged victorious in the recent conflict. Initially formed as Jabhat al-Nusrah in 2012, the group evolved from its origins as a branch of the Islamic State's predecessor. Over time:
• **2013:** Disavowed ties with the Islamic State and pledged allegiance to al-Qaeda.
• **2016:** Broke away from al-Qaeda, focusing on localized goals over global jihad.
• **2020:** Successfully dismantled Islamic State and al-Qaeda factions in rebel-held territories.

HTS, described as "political jihadists" by experts like Aaron Y. Zelin, prioritizes pragmatic, localized decision-making over rigid ideological frameworks.

Regional and Global Implications

The weakening of Syria's key allies—Russia, Iran, and Hezbollah—created an opportunity for rebels to capitalize. Russia's focus on Ukraine, Iran's conflicts with Israel, and Hezbollah's setbacks left Assad's forces vulnerable. Turkey's support for HTS further tipped the scales.

Concerns in New Delhi

India remains cautious, drawing lessons from the instability in Libya and Egypt post-Arab Spring. HTS's assurances of protecting minorities and establishing institutional governance are being met with skepticism.

Outlook for Syria and Global Watch

HTS leader Abu Muhammad al-Jawlani has pledged to safeguard civilians and address sectarian fears, emphasizing actions over promises. However, New Delhi and other nations are closely monitoring the situation, particularly in light of the Taliban's resurgence in Afghanistan. The coming months will reveal whether Syria stabilizes under new leadership or descends into further chaos.

13. New Delhi's Engagement with Post-Hasina Bangladesh

Why in News?

WHY?

Shri Vikram Misri, the Foreign Secretary of India, visited Dhaka on December 9th, 2024, to hold *Foreign Office Consultations* in light of strained bilateral relations.

Foreign Secretary Vikram Misri's recent visit to Dhaka, where he met his Bangladeshi counterpart Mohammad Jashim Uddin, signals India's intent to engage with the new political landscape in Bangladesh following Sheikh Hasina's departure.

Strained Bilateral Relations

The political upheaval in Bangladesh has strained ties with India. Following a street uprising that ousted Hasina in August, attacks on Hindus and the arrest of a Hindu monk on sedition charges have heightened tensions. Misri's visit emphasized India's concerns over these developments and urged Bangladesh to maintain the bilateral development partnership.

Turmoil Post-August 5

The fall of Sheikh Hasina's government led to widespread unrest.

• **Widespread Chaos:** Protests targeted the police, politicians, and bureaucrats aligned with Hasina's regime.

• **Civil Unrest:** Homes and offices of Awami League leaders were attacked, while protesters looted valuables, some of which were later returned.

Communal Violence Against Hindus

In the aftermath of Hasina's exit, incidents of communal violence surged:

• **Reported Attacks:**
O 2,010 incidents, including 9 deaths and 4 rapes, were reported by minority rights groups.
O Over 900 homes, businesses, and places of worship were vandalized.

• **Islamist Hardliners:** As law enforcement withdrew, religious extremists escalated attacks, often targeting Hindus for their historical alignment with Hasina's secular politics.

Anti-India Sentiments

Indian establishments became targets of public anger:

• The Indira Gandhi Cultural Centre in Dhaka was looted and set on fire.
• Indian diplomats required evacuation after facing threats.
• Bangladesh Army provided refuge to over 600 individuals, including prominent figures targeted by mobs.

Response from the Transitional Government
Bangladesh's transitional leadership, headed by Nobel laureate Muhammad Yunus, attempted to address minority concerns but faced ongoing challenges:

• **Outreach to Minorities:** Yunus visited Dhaka's Dhakeshwari Temple to show solidarity with Hindus.

• **Media Dynamics:** Bangladeshi media criticized alleged bias in Indian reporting on the violence, while fact-checkers debunked misinformation.

India-Bangladesh Diplomatic Exchange
• **India's Concerns:** Misri highlighted the need to ensure the safety of minorities and protect cultural, religious, and diplomatic properties.

• **Bangladesh's Pushback:** Jashim Uddin rejected external interference, framing the issues as internal matters.

A Forward-Looking Partnership
Despite the tensions, India emphasized its commitment to the "people of Bangladesh," focusing on connectivity, trade, and development cooperation. Misri conveyed a desire to work constructively with the interim government to sustain mutually beneficial relations.

Relevance: GS Prelims; Bilateral Relations

14. Thousands Freed from Syria's Saydnaya Prison

Overview
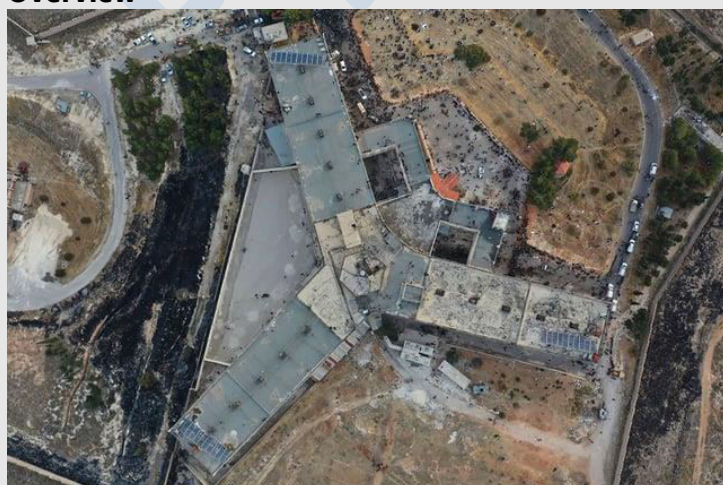
 In a significant event during the anti-Assad rebellion in Syria, militants from Hayat Tahrir al-Sham (HTS) stormed the infamous Saydnaya Prison near Damascus, freeing thousands of detainees. These included political prisoners held since the 2011 Syrian uprising in what Amnesty International once described as a "Human Slaughterhouse."

About Saydnaya Prison
• **Location and Establishment:** Located 30 kilometers north of Damascus, Saydnaya Prison was built in the 1980s and began housing detainees in 1987. It was operated by the Syrian military police.

• **Structure:** The prison consists of two detention centers:
O Red Building: Detained civilians, especially political prisoners arrested during the civil war.
O White Building: Housed disloyal Syrian military personnel and suspected members of Islamist groups.

• **Capacity:** Each building could hold 10,000 to 20,000 people.

Why Saydnaya is Called the "Human Slaughterhouse"
• **Extrajudicial Executions:** Between 2011 and 2015, an estimated 5,000 to 13,000 detainees were executed. Reports suggest over 30,000 deaths since the civil war began.

• **Execution Process:** Prisoners were transferred at midnight to an execution room with multiple nooses. The facility expanded in 2012 to accommodate more executions.

• **Horrific Conditions:**
O Detainees faced starvation, torture, dehydration, and disease.
O Many were forced to drink their own urine to survive.
O Cells were overcrowded and unsanitary, leading to high mortality rates.

Allegations of a Crematorium
In 2017, the US State Department alleged that a crematorium had been built in Saydnaya to dispose of the bodies of executed prisoners. Satellite imagery was cited as evidence of modifications to a building that could support such a facility.

Search for Hidden Underground Cells
• **White Helmets Investigation:** The Syrian Civil Defence, also known as the White Helmets, conducted searches for undiscovered cells and basements in Saydnaya Prison after the prison was stormed.

• **Findings:** No evidence of secret underground cells was uncovered. The group urged the public to avoid spreading misinformation about hidden prisoners.

A Dark Symbol of Repression
Saydnaya Prison stands as a grim reminder of the Syrian regime's brutal tactics against dissent. While thousands have now been freed, the atrocities committed within its walls underscore the long struggle for justice in the region.

Relevance: GS Prelims; International Issues

15. India confers honorary rank on Nepal Army chief

Honorary General Title Conferred to Nepal's Army Chief

President Droupadi Murmu conferred the honorary rank of 'General of the Indian Army' on Nepal's Army Chief, General Ashok Raj Sigdel, during a ceremony on Thursday. The title was awarded in recognition of his commendable military prowess and his role in strengthening the long-standing friendly ties between Nepal and India, as stated by the President's office.

Tradition of Mutual Recognition

The tradition of conferring the honorary rank of General on each other's Army Chiefs has been upheld by Nepal and India since 1950, symbolizing the close and friendly ties between the two nations.

Recent Conferrals

• Last month, Nepal's President Ramchandra Paudel conferred the honorary rank of 'General of the Nepal Army' on Indian Army Chief General Upendra Dwivedi at a ceremony in Kathmandu, also known as Sheetal Niwas.

Relevance: GS Prelims; International Relations

16. What Will Yoon's Impeachment Mean for South Korea?

Political Chaos and Confrontation

South Korean politics is expected to remain turbulent after the Constitutional Court began deliberating on the impeachment of President Yoon Suk Yeol. The National Assembly passed Yoon's impeachment motion 11 days after his declaration of martial law was overturned. The court now has the authority to either remove Yoon from office or reinstate him.

Suspension of Duties and Interim Leadership

While the court deliberates, Yoon is suspended, and former Prime Minister Han Duck-soo has taken over as acting president. Meanwhile, Han Dong-hoon, leader of the ruling People Power Party (PPP), resigned due to internal party issues, further adding to political instability.

Opposition Gaining Strength

The opposition Democratic Party, led by Lee Jae-myung, stands to benefit from Yoon's impeachment, with over 70% of the public reportedly supporting the move. Analysts believe the Democratic Party would likely win power if a general election is called. However, Lee faces legal challenges, including charges of bribery and corruption, which could impact his political future.

Deepening Political Polarization

Experts highlight the dangers of South Korea's deep political divides. While peaceful protests have underscored the resilience of its democracy, prolonged dysfunction could hinder governance. Calls for greater accountability mechanisms to prevent government paralysis have grown louder.
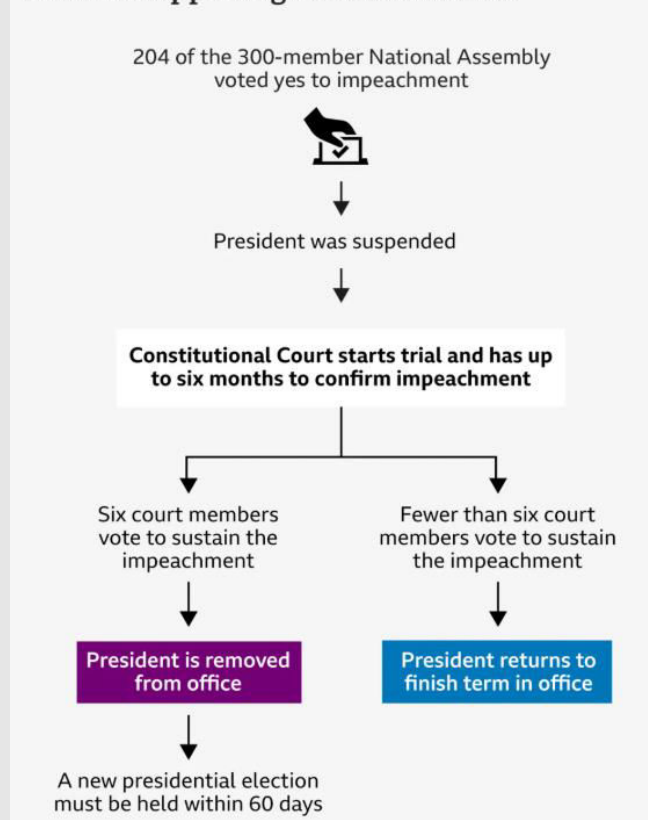
Constitutional Court's Role

The court has up to six months to rule on Yoon's impeachment, though past cases have been resolved more quickly. A confirmation of the impeachment would trigger a general election within two months. Complications arise as the court currently has only six judges, with seven needed for a final decision. One dissenting vote could defeat the impeachment.

Potential Government Paralysis

Although the Democratic Party has refrained from pursuing further impeachment proceedings against the acting president and other cabinet members, this stance could change if the interim leadership fails to align with opposition expectations. Analysts warn of potential paralysis in governance and challenges in managing foreign affairs.

Opposition Leader's Legal Troubles

Lee Jae-myung, despite his party's strong position, faces legal hurdles. Convicted of making false statements during his 2022 presidential campaign, he received a suspended prison sentence and is appealing. If elected before his appeal concludes, legal proceedings against him would be paused under Korean law.

Challenges for the Ruling Party

The PPP, established in 2020, is grappling with internal discord and the fallout from Yoon's impeachment. The party's rejection of the Democratic Party's proposal for joint governance further highlights the rift between the two factions.

Public Perspective

Despite the political upheaval, everyday life in South Korea remains largely unaffected. Citizens hope for a peaceful resolution as the legal process unfolds.

Outlook

The impeachment proceedings mark a critical juncture for South Korea, with the potential to reshape its political landscape. However, deep divisions and ongoing legal battles could prolong uncertainty and instability.

17. As Dissanayake visits, takeaways from the India-SL engagement

Introduction

The visit of Sri Lanka's President Anura Kumara Dissanayake to India recently — his first trip overseas since becoming leader of his country — saw some classic diplomatic deal-making, with give and take on both sides.

Not allow anti-Indian activities

AKD, as he is popularly known, committed to not allowing the use of Sri Lankan territory for any anti-Indian activities.

This was a signal to China — whose "research vessels" frequently visit Sri Lanka, and are seen with suspicion in New Delhi. The fact that the President, who is seen as being pro-China, has clearly articulated this position is a relief to India.

Tamil Minorities Issue

On the issue of Tamil minorities, however, AKD did not yield to the formulation preferred by New Delhi. There was no explicit mention of the implementation of the 13th amendment in the Sri Lankan Constitution, which gives powers to the Tamil minority — a long-standing demand of the Indian government.

AKD does not support the implementation of the amendment, and has opposed any investigation into alleged war crimes during the last phase of the civil war between the Liberation Tigers of Tamil Eelam (LTTE) and the Sri Lankan military.

Focus on mutual benefits

The elements of cooperation range from digital connectivity — the Aadhaar project and UPI — to energy cooperation. The countries are discussing the supply of LNG to Sri Lanka, the development of Trincomalee as a regional energy and industrial hub, high-capacity power grid interconnection, and the development of offshore wind power in the Palk Strait.

On physical connectivity, apart from the resumption of the passenger ferry service between Nagapattinam and Kankesanthurai, the two leaders agreed that officials should work towards the early recommencement of the passenger ferry service between Rameswaram and Talaimannar. They will also explore the possibility of working on the rehabilitation of Sri Lanka's Kankesanthurai port.

18. India's Ranking in the Travel and Tourism Development Index

India's Ranking

Climbs To **39th** Position In World Economic Forum's Travel & Tourism Development Index 2024.
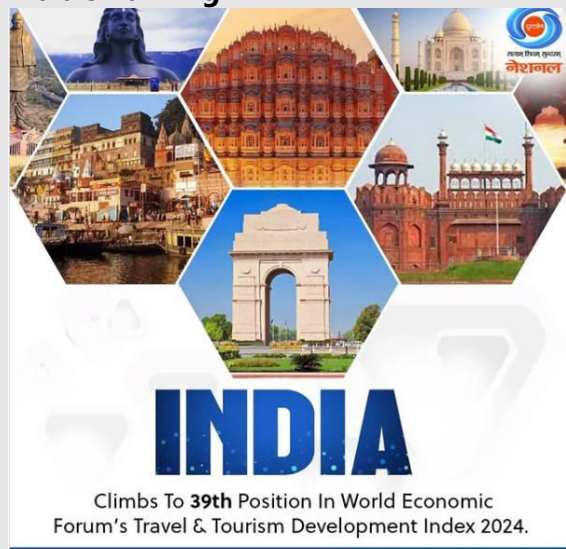
According to the Travel and Tourism Development Index (TTDI) 2024 report published by the World Economic Forum (WEF), India is ranked 39th among 119 countries. In the previous index published in 2021, India was ranked 54th. However, due to a revision in the WEF's methodology, India's 2021 rank was adjusted to 38th place.

About Travel and Tourism Development Index

The Travel & Tourism Development Index (TTDI) 2024 is the second edition of an index that evolved from the Travel & Tourism Competitiveness Index (TTCI) series, a flagship index of the World Economic Forum that has been in production since 2007. Created in collaboration with the University of Surrey and with input from leading Travel & Tourism (T&T) stakeholder organizations, thought leaders and data partners, the TTDI measures the set of factors and policies that enable the sustainable and resilient development of T&T.

19. World Bank approves loan of $800 million to develop A.P. capital city Amaravati

Introduction

In a major boost to the development of Amaravati, the greenfield capital city of Andhra Pradesh, the World Bank (WB) recently approved $800 million loan for the Amaravati Integrated Urban Development Programme (AIUDP), as per a request made by the Centre. The loan has a final maturity of 29 years, including a six-year grace period. It is payable in Japanese Yen.

A press release from the WB said the AIUDP was aimed at establishing the capital city as a well-managed, climate-resilient growth centre that would create jobs and improve the lives of its current and future residents, especially the most vulnerable.

Role for private sector

The A.P. government has prepared a masterplan for a 217 sq. km area that can accommodate 3.50 million people by 2050 and the WB was supporting the first phase of the city's development along with the Asian Development Bank.

The AIUDP would help the government mobilise the private sector to provide affordable housing and establish enterprises that can create quality jobs.

20. PM Modi awarded Order of Mubarak Al-Kabeer: What is this Kuwaiti honour, its significance

Introduction

PM Narendra Modi Gets Kuwait's Highest Honour Civilian Award 'The Order of Mubarak Al Kabeer'

Prime Minister Narendra Modi was awarded the Wisam Mubarak al-Kabeer, or the Order of Mubarak the Great, by Sheikh Meshal Al-Ahmad Al-Jaber Al-Sabah, the Amir of Kuwait, recently.

The Order of Mubarak Al-Kabeer is the highest national award of Kuwait.

What is the Order of Mubarak Al-Kabeer?

The Order of Mubarak Al-Kabeer is conferred by the Kuwaiti government on Heads of State, Sovereigns of foreign countries, and on members of foreign royal families as a sign of friendship and goodwill.

Before PM Modi, recipients include Queen Elizabeth II of England, former American Presidents George HW Bush and Bill Clinton, King Salman of Saudi Arabia, former French President Nicolas Sarkozy, among others.

The award was instituted in 1974, in the memory of Mubarak Al Sabah — also known as Mubarak al-Kabeer or Mubarak the Great — who ruled Kuwait from 1896 to 1915. Under his reign, Kuwait got more autonomy from the Ottoman Empire. In 1899, Mubarak signed a deal with Britain to guard his kingdom from Turkey, effectively becoming a British protectorate. Mubarak is known for playing a major role in shaping the future of Kuwait.

The design of the award changed in 1992, after Kuwait was liberated from Iraq in the year before.

Significance of the award to PM Modi

PM Modi, after receiving the award, dedicated it to "the long-standing friendship between India and Kuwait, to the Indian community in Kuwait and to the 1.4 billion people of India."

A press release from the Ministry of External Affairs said, "The conferment of the award on this historic visit of a Prime Minister of India to Kuwait after 43 years added a special meaning to the occasion."

Before Modi, the last Indian PM to visit Kuwait was Indira Gandhi in 1981.

Kuwait is among the top trading partners of India, with bilateral trade valued at $10.47 billion in 2023-24. It is also India's sixth largest crude supplier, meeting three per cent of the country's energy needs. Indian exports to Kuwait reached $2 billion for the first time, while investments by the Kuwait Investment Authority in India exceed $10 billion.

India and Kuwait have enjoyed friendly relations, with links dating back to pre-oil Kuwait when maritime trade with India was the backbone of its economy. In fact, the Indian rupee remained legal tender in Kuwait until 1961.

Relevance: GS Prelims; Bilateral Relations

21. India's reliance on China for critical minerals

Introduction

The Ministry of Mines in 2023 identified 30 critical minerals deemed essential for the nation's economic development and national security. While the report highlighted India's complete import dependency for 10 critical minerals, it did not fully address a more pressing concern — the extent and nature of dependency on China.

Is China a dominant player?

China's unparalleled dominance in critical minerals stems from its vast resource base and strategic investments across the value chain. As the world's largest mining nation, China has discovered 173 types of minerals, including 13 energy minerals, 59 metallic minerals, and 95 non-metallic minerals. Reserves of nearly 40% of these minerals, particularly copper, lead, zinc, nickel, cobalt, lithium, gallium, germanium, and crystalline graphite, increased significantly last year, supported by an exploration investment of $19.4 billion. This led to the discovery of 132 new mineral deposits, including 34 large ones. China's dominance extends beyond reserves to include processing and refining, with control over 87% of rare earth processing, 58% of lithium refining, and 68% of silicon processing. Furthermore, China has strategically invested in overseas mining projects and built unparalleled midstream refining capabilities, raising supply chain vulnerabilities for countries including India, the U.S., and EU nations.
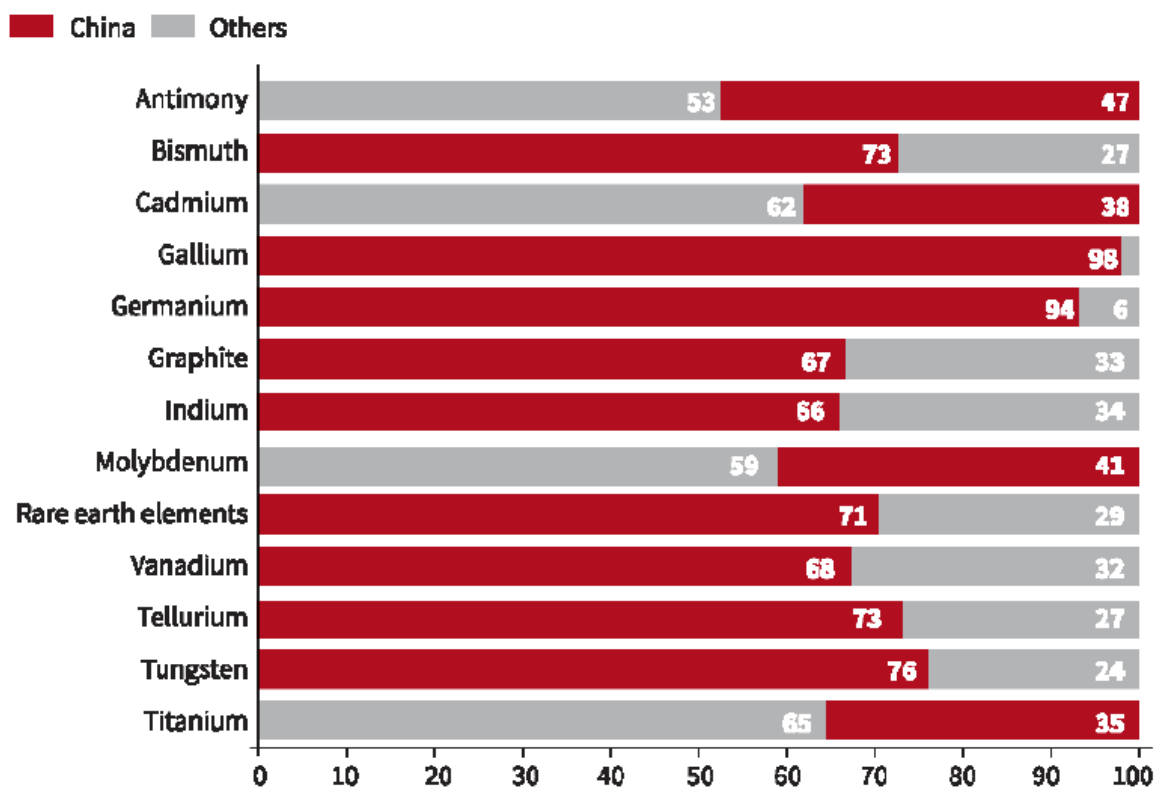
What about China's export controls?

When it comes to China's approach to weaponising critical mineral exports, it is strategic and calculated. Beijing primarily targets minerals deemed critical by Western nations and their allies, especially those essential for semiconductors, batteries, and high-tech manufacturing. However, China carefully balances these decisions against two constraining factors: it avoids controlling minerals which heavily depend on Western raw material imports, and it refrains from actions that could disrupt its domestic industrial enterprises or export-dependent sectors. This strategic calculus was evident in China's 2010 rare earth embargo against Japan, its recent restrictions on antimony, gallium, and germanium exports, and its December 2023 ban on rare earth extraction and processing technologies.

China, a leading player in critical minerals

China's dominance in critical minerals stems from its vast resource base and strategic investments across the value chain. As the world's largest mining nation, China has discovered 173 types of minerals

China's global market share (in percentage) across various minerals as of 2022

Legend: ■ China ■ Others

Mineral	China	Others
Antimony	47	53
Bismuth	73	27
Cadmium	38	62
Gallium	98	
Germanium	94	6
Graphite	67	33
Indium	66	34
Molybdenum	41	59
Rare earth elements	71	29
Vanadium	68	32
Tellurium	73	27
Tungsten	76	24
Titanium	35	65

Is India dependent on China?

An in-depth examination of import data of 30 critical minerals spanning 2019 to 2024 reveals India's acute vulnerability to Chinese supplies, particularly for six critical minerals where dependency exceeds 40%: bismuth (85.6%), lithium (82%), silicon (76%), titanium (50.6%), tellurium (48.8%), and graphite (42.4%). Bismuth, primarily used in pharmaceuticals and chemicals, has few alternative sources, with China maintaining an estimated 80% of global refinery production. Lithium, crucial for EV batteries and energy storage, faces processing bottlenecks, despite alternative raw material sources, as China controls 58% of global refining. Silicon, vital for semiconductors and solar panels, requires sophisticated processing technology that few countries possess. Titanium, essential for aerospace and defence applications, has diversified sources but involves high switching costs. Tellurium, important for solar power and thermoelectric devices, is dominated by China's 60% global production share and finally graphite, indispensable for EV batteries and steel production, faces supply constraints as China controls 67.2% of global output, including battery-grade material.

Why does India rely on imports?

Despite being endowed with significant mineral resources, India's heavy reliance on imports stem from several structural challenges in its mining and processing ecosystem. Many critical minerals are deep-seated, requiring high-risk investments in exploration and mining technologies — a factor that has deterred private sector participation in the absence of adequate incentives and policy support. The country's processing capabilities are also limited. This is particularly evident in the case of the recently discovered lithium deposits in Jammu and Kashmir, where despite the presence of 5.9 million tonnes of resources in clay deposits, India lacks the technological capability to extract lithium from such geological formations.

What is the way forward?

India has initiated a multi-pronged approach to reduce its dependency on China. The government has established KABIL, a joint venture of three State-owned companies, to secure overseas mineral assets. India has also joined strategic initiatives like the Minerals Security Partnership and the Critical Raw Materials Club to diversify its supply sources and strengthen partnerships. The country is also investing in research through institutions like the Geological Survey of India and the Council for Scientific and Industrial Research while promoting recycling and circular economy practices to reduce virgin mineral dependency. Production-linked incentives for extracting critical minerals through recycling also seem promising. However, transitioning away from China will require sustained investment and long-term commitment to these various initiatives.

Relevance: GS Prelims & Mains Paper II; Bilateral Relations

22. Why Trump wants to buy Greenland, and why he is not alone in this

Introduction

"FOR PURPOSES OF NATIONAL SECURITY AND FREEDOM THROUGHOUT THE WORLD, THE UNITED STATES OF AMERICA FEELS THAT THE OWNERSHIP AND CONTROL OF GREENLAND IS AN ABSOLUTE NECESSITY."

Trump wants to buy Greenland, again, after claiming US could take back ownership of Panama Canal: 'Absolute necessity'

US President-elect Donald Trump has once again expressed interest in buying Greenland, and Greenland has again stated it is not for sale.

In recent weeks, Trump has threatened to take over the Panama Canal and said Canada should be the USA's 51st state. While his claims have earned flak for displaying "territorial ambitions", Trump is not the first US president to want Greenland, nor is buying new territories unheard of for the US.

Why is the huge Arctic island important for the US? When did the US last buy territories, and what efforts has it made in the past to acquire Greenland? We explain in three points.

1. Why does Greenland matter to the US?

Broadly, there are three reasons, related to geostrategy and geography.

Greenland was once a Danish colony and is now an autonomous province of Denmark. It is located in the North Atlantic Ocean, between Europe and North America, across the Baffin Bay from Canada. Its strategic importance rose during the Cold War, and the US has a large air base there, the Pituffik Space Base, earlier the Thule Air Base. From Greenland, the US can monitor and prevent any missile coming towards it from Russia, China, or even North Korea. Similarly, it can launch missiles and ships towards Asia or Europe more easily from Greenland. Second, Greenland is rich in rare earth minerals, which are used in mobile phones, electric vehicles and other consumer electronics, but also in bombs and other weapons. At present, China is a major supplier of these minerals. In 2021, Greenland passed a law banning uranium mining.

Third, as global warming leads to melting of ice, new waterways can open in the Arctic region, and all major powers are keen to boost their presence here. The US would want to pre-empt a larger Russian or Chinese role in Greenland and its neighbourhood.

2. When did the US last try to acquire Greenland?
Trump in his last term had proposed buying Greenland, terming his proposal a "large real estate deal". When the Danish PM, Mette Frederiksen, called the idea absurd, Trump cancelled a scheduled visit to Denmark.

Before that, in 1946, just after the end of World War II, President Harry S Truman offered $100 million to Denmark for Greenland. Truman had earlier considered exchanging some portions of Alaska for certain parts of Greenland. The proposal did not progress.

In 1867, the US State Department pointed to the fact that Greenland's strategic location and abundant natural resources make it ideal for acquisition. However, no formal effort was made to move on the suggestion.

3. And when has US bought territories before this?
One famous example is the purchase of Alaska, which the Russian empire transferred to the US in 1867 when Andrew Johnson was President, for $7.2 million. The purchase added about 1.5 million sq km of land to the US. In 1959, the modern state of Alaska was created.

Earlier, in 1803, the US bought more than 2 million sq km of land from France in what is known as the Louisiana Purchase. The acquisition of Louisiana happened when Thomas Jefferson was President, and the US paid $ 15 million for the deal.

In 1917, the US bought the Danish West Indies, a group of islands in the Caribbean, and called them the US Virgin Islands.

Relevance: GS Prelims & Mains Paper II; International Relations

23. Rising Risks for Airlines Amid the Russia-Ukraine War

Azerbaijani Airliner Crash

The crash of an Azerbaijani Embraer 190 airliner near Aktau, Kazakhstan, killing 38 people, highlights the perils of flying over the Russia-Ukraine conflict zone. The plane, en route from Baku to Grozny, was diverted and attempted an emergency landing after a suspected Russian anti-drone attack. Signs of depressurization, damaged control systems, and restricted landing permissions suggest a complex and dangerous scenario for civilian flights in the area.

Investigations Underway

The recovered flight data and cockpit voice recorders will be key to determining the cause of the crash. The investigation involves multiple stakeholders, including Azerbaijan and the Brazilian manufacturer, Embraer. Early reports suggest the plane's control systems may have been affected by Russian air and drone defense measures, potentially explaining its erratic flight paths.

Geopolitical Implications

Azerbaijani and U.S. officials have blamed Russian air defense systems reacting to a Ukrainian drone attack. Russian President Vladimir Putin offered a partial apology to Azerbaijani President Ilham Aliyev, avoiding full acknowledgment of responsibility. This incident, occurring 500 miles from the Ukrainian border, underscores the growing role of drones as cost-effective weapons capable of causing widespread destruction far from conflict zones.

Call for De-escalation

The crash highlights the urgent need to de-escalate military actions in the region. A resolution hinges on Moscow's willingness to end its invasion of Ukraine and negotiate NATO's expansion. Failure to act risks further civilian casualties, collateral damage, and the involvement of additional regional players in the conflict.

Relevance: GS Prelims; International Issues

24. Why India Doesn't Have to Extradite Sheikh Hasina to Bangladesh

Introduction

CAN BE A LONG PROCESS UNDER '13 PACT

➤ Hasina (pic) is in India since her Aug 5 ouster. A B'desh tribunal has issued arrest warrants against her for **'crimes against humanity, genocide'**

➤ Monday's **request to India made through a 'note verbale'** (formal diplomatic note)

➤ B'desh home adviser Jahangir Alam claims she can be extradited under 2013 pact with India

➤ But it can be a lengthy and complex affair, given that **Hasina will most certainly challenge it in court**

➤ Also, **India needs to balance its legal commitments with geopolitical considerations**

➤ According to Article 8 of treaty, **extradition may be refused** if Hasina can convince India that charges against her not 'made in good faith in interests of justice'

India and Bangladesh signed an extradition treaty in 2013 to address the issue of fugitives operating between the two countries. However, the existence of this treaty does not obligate India to hand over Sheikh Hasina to Bangladesh. Several provisions in the treaty, along with political considerations, play a crucial role in such decisions.

Provisions for Refusal in the Extradition Treaty
The treaty includes a clause allowing refusal of extradition for offences of a "political nature". While this exception excludes crimes such as murder, enforced disappearance, and torture—charges Sheikh Hasina faces—the option to deny extradition still exists.

Additionally, Article 8 of the treaty provides grounds for refusal, such as:
• Accusations not made "in good faith in the interests of justice."
• Cases involving military offences not recognized as crimes under general criminal law.
India could leverage these provisions to deny the request, though it might strain diplomatic ties with Bangladesh.

Amendments Simplifying Extradition
In 2016, an amendment to Article 10(3) simplified the extradition process by removing the need for evidence of the offence. Now, an arrest warrant issued by a competent court is sufficient for processing extradition. Sheikh Hasina has multiple such warrants against her in Bangladesh.

Despite this, the treaty still provides discretionary grounds for India to reject an extradition request.

Political Considerations in Extradition Decisions
Ultimately, the decision to extradite Sheikh Hasina is not solely a legal matter but a political one. India's critical interests and bilateral relations with Bangladesh will weigh heavily on this decision. As a former Research and Analysis Wing (R&AW) officer noted, "The legalese of the treaty does not matter."

A former diplomat emphasized that healthy relations between nations can persist even with unresolved extradition requests, highlighting the broader context of bilateral ties over isolated legal cases.

Previous Extradition Successes
India and Bangladesh's extradition treaty has facilitated cooperation in the past. For instance, in 2015, India successfully extradited Anup Chetia, a top leader of the United Liberation Front of Assam (ULFA). This demonstrates the treaty's functionality when political and mutual interests align.

Conclusion
While the 2013 extradition treaty and its 2016 amendments streamline the extradition process, they do not mandate India to hand over Sheikh Hasina. Legal provisions and political considerations give India the flexibility to refuse the request if it serves its broader strategic interests, preserving the balance in its relationship with Bangladesh.

Relevance: GS Prelims & Mains Paper II; Bilateral Relations

25. South Korea's Political Turmoil and the Need for Stability

Democracy Under Strain

South Korea's evolution from military dictatorship to democracy has been marred by corruption, abuse of power, and political vendettas. The impeachment of interim President Han Duck-soo, following the impeachment of President Yoon Suk Yeol, highlights deep vulnerabilities in the nation's political system. Governance has remained paralysed since Mr. Yoon's 2022 election, with his presidency plagued by controversies and low approval ratings.

Martial Law and Public Outrage
Amid increasing tensions with the opposition-controlled National Assembly, Mr. Yoon's declaration of martial law earlier this month sparked protests, recalling the country's dark history under military rule. His impeachment marked an extreme response to the growing

crisis. However, Mr. Han's brief tenure as interim leader has also ended in impeachment, a first in South Korea's history.

Constitutional Deadlock

At the heart of the crisis is Mr. Han's refusal to appoint three judges to the nine-member Constitutional Court. The opposition accuses him of delaying the impeachment process, while the ruling party claims only an elected President can make such appointments. This standoff risks prolonging the political and constitutional crisis, weakening democratic institutions at a time when South Korea faces economic challenges and security threats from North Korea.

The Path Forward

This crisis represents South Korea's most severe democratic challenge since its transition in the late 1980s. The political class must prioritize constitutional stability over partisan interests. The new acting President should work toward consensus on Constitutional Court appointments and expedite impeachment proceedings to restore governance and public trust.

Relevance: GS Prelims; International Issues

1. Punjab's paddy procurement hits five-year low: why record acreage couldn't meet the target

Introduction

Punjab, a state renowned for its significant contribution to India's foodgrain pool, is set to witness one of the lowest paddy procurements in the past five years. This development comes despite the state recording the highest-ever area under rice cultivation this year.

The state has procured 172.16 lakh metric tonnes (LMT) of paddy so far, significantly below the expected target, while paddy harvesting is nearly complete. While paddy procurement in the state will continue till November 30, only a minimal quantity of paddy has arrived in mandis for this purpose.

Why is Punjab unlikely to meet the target even with ongoing procurement?
The centre has fixed an estimated target of 185 lakh metric tonnes (LMT) of paddy for the 2024-25 season, almost similar to last year's figure. This estimate was based on approximately 32 lakh hectares under rice cultivation, including over 25 lakh hectares of paddy (non-basmati) and around 6.4 lakh hectares of Basmati, an aromatic variety not procured by the government. However, paddy arrivals to the state have thus far been a trickle: On November 27, only 50,600 tonnes arrived in mandis, compared to 6-7 lakh tonnes per day during the peak period (October 20 to early November). With arrivals drastically reduced, reaching the target of 185 LMT is impossible.

Punjab is expected to fall short by around 14 LMT, marking one of the lowest procurement levels since 2020.

How does this season compare with previous years?
Here is a look at Punjab's rice area and paddy procurement over the past five years:

Year	Area (Lakh Hectares)	Procurement (LMT)
2024-25	32.00	172.16 (till Nov 27)

2023-24	31.87	184.93
2022-23	30.98	182.96
2021-22	29.69	189.08
2020-21	29.28	204.83

Why is there a shortfall in procurement?
Procurement delays: Early in the procurement season, issues with rice shellers caused delays in procurement.

Rice mills, tasked with the storage of the procured paddy and handing over rice to the Food Corporation of India (FCI) after milling, refused to store it in their respective mills.

Last year the government took the delivery of rice till September 30, 2024, while the next paddy procurement began on October 1. Millers however would take delivery of rice only by March 31st. Thus farmers who brought their crops to mandis in the intervening period were either met with delays or offered ₹150-200 less than the Minimum Support Price (MSP).

Fearing a similar situation, many farmers delayed harvesting their crops hoping to avoid low prices. This delay impacted the moisture levels in paddy, which is critical for achieving higher yields.

Moisture level issues: Paddy is typically harvested at 21-22% moisture level and sold at 17-18% moisture. However, delayed harvesting reduced moisture levels to 14-15%, leading to lower yield. Farmers expected 30-32 quintals per acre but ended up with 2-5 quintals less per acre.

Decline in paddy from other states: The problem was compounded by restrictions on the transport and sale of paddy from states which do not have the MSP facility. Previously, traders would bring large quantities of paddy from other states at a lower rate and sell it at MSP in Punjab's mandis.

Experts believe that stricter enforcement of procurement policies and the absence of paddy from other states significantly contributed to the shortfall in paddy procurement. They added that while Punjab has seen one of the highest areas under paddy this year, multiple systemic

issues have led to a significant shortfall in procurement, impacting both farmers' earnings and the state's contribution to the central grain pool.

2. How will bribery charges impact Adani?

Overview
Last week, the U.S. Department of Justice charged two officials of a renewable energy company listed in the U.S. in connection with a bribery scheme allegedly perpetrated by Gautam Adani, chairman of the Adani Group, and his associates including his nephew Sagar Adani. Several officials of an Adani Group company have been accused of bribing government officials in various Indian States to receive business favours.

What followed the revelations?
Shares of various Adani Group companies dropped sharply; they have recovered most of their losses in the last week after Adani Green Energy Ltd. (AGEL) filed its first response to stock exchanges, denying the bribery charges pressed by the American market regulator. The Adani Group has claimed that the allegations of bribery cost the group's listed companies a loss of $55 billion in market value. The conglomerate had notably lost more than $150 billion in market value last year after fraud allegations made by U.S. short-seller Hindenburg Research.

Are lenders likely to review plans?
The latest bribery allegations are likely to make it harder for the Adani Group to raise funds from overseas investors, which means the company may have to rely more on domestic investors for its financing needs. Local lenders, including Indian banks that currently lend to the Adani Group, too may review their exposure to the group. The State Bank of India, which is the largest lender to the Adani Group among Indian banks, is exposed with loans worth ₹33,800 crore. While this represents less than 1% of the bank's total loan book, a Reuters report on Thursday contended that SBI has said it will be cautious about disbursals to the Adani Group.

How have rating agencies responded?
Fitch Ratings, Moody's and S&P Global took negative rating actions on Adani firms this week. As The Hindu reported, citing governance risks for its rating action, Moody's said there could be a broader credit impact from AGEL's crisis on group firms "given Gautam Adani's prominent role as chairman of each of the rated entities or their parent companies as well as the controlling shareholder." Fitch Ratings also took negative rating actions on the Adani Group's infrastructure entities. S&P Global Ratings lowered its outlook on three Adani Group entities to negative, pointing at risks to funding access following the U.S. indictment.

What are the allegations?

The U.S. DOJ alleges that the AGEL promoter and senior officials paid bribes worth $265 million to officials in Andhra Pradesh, Chhattisgarh, Odisha, Tamil Nadu, and Jammu and Kashmir for the sale of renewable energy produced by AGEL. It is alleged that these bribes were paid so that State power distribution companies (DISCOMS) would purchase eight gigawatts worth of energy from AGEL's renewable energy project. AGEL had won the right to sell renewable energy to interested buyers through the Solar Energy Corporation of India (SECI), a public sector unit owned by the Centre. It is alleged that DISCOMS were unwilling to purchase power from AGEL due to the high price quoted, and hence bribes were paid by Adani Group officials to prod State government officials to purchase power at prices favourable to the Adani Group. Azure Power Energy Ltd., a New Delhi-headquartered energy company that is listed in the U.S. and whose officials have been indicted for bribery by the DOJ, is also alleged to have colluded with AGEL officials to bribe State officials.

What are the implications?
Allegations against AGEL officials could lead to higher cost of capital for the Group and also affect its profitability. However, the allegations may have no impact if lenders were already implicitly aware of potential corrupt practices and factored this in while making their lending decisions. The charges against AGEL have also raised doubts about the Centre's policy goal of boosting the nation's renewable energy capacity to 500 gigawatts by 2030. The Centre has been prodding State governments to increase renewable energy adoption through Renewable Purchase Obligations which obligate States to purchase a certain minimum amount of their power from renewable energy sources. But State DISCOMS have been reluctant to follow the mandate as they are already financially burdened and lack the infrastructure to source and distribute renewable energy. Some analysts also note that governments often renege on their guarantee to purchase energy from renewable energy companies. Some of the companies resort to illegal means, including bribery, to sell power.

Relevance: GS Prelims; Economics
Source: The Hindu

## 3. Bitcoin Breaks $100K: What is behind the cryptocurrency's surge?

Bitcoin surges past $100
Bitcoin crossed $100,000 for the first time recently, thanks to Donald Trump's reentry to the White House and the expectation that some of his administrative picks would show more regulatory lenience towards cryptocurrency than their predecessors.

Bitcoin is up 130% for the year so far, with the post US election rally accounting for a significant portion of its gains. It had last seen a sharp increase after Trump chose tech billionaire Elon Musk to lead the new Department of Government Efficiency (DOGE). The acronym refers to Musk's favourite cryptocurrency Dogecoin.

Investors had predicted bitcoin could hit that mark if Trump were to be elected, since his entire campaign featured pro-crypto messaging.

The rally of Bitcoin against USD in 2024
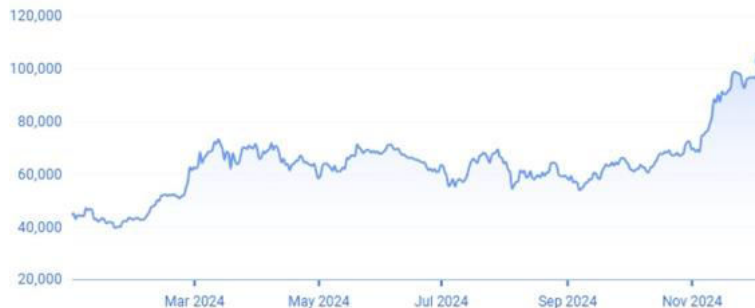
Source: Google Finance

How did Bitcoin rise to a historic high?

One key Trump pick is Paul Atkins, to lead the Securities and Exchange Commission (SEC) that regulates cryptocurrency. Atkins is widely considered a cryptocurrency advocate. Bitcoin touched $100,000 just hours after his name was announced.

Under the Joe Biden administration, the SEC head Gary Gensler had cracked down on the crypto industry. The SEC sued companies for fraud and money laundering and assessed billions of dollars in fines.

Trump, once a crypto sceptic, turned around in the run-up to the 2024 Presidential elections. His campaign featured positive messaging around cryptocurrencies, such as the announcement of bitcoin as a strategic reserve, and favourable energy policies for crypto miners. His 180-turn on crypto was widely viewed as a way to attract younger male voters.

Trump has also launched his own cryptocurrency business called World Liberty Financial.

What could be the impact in India?

In India, the crypto journey has been topsy-turvy. Investors might not share the same enthusiasm as their American counterparts owing to factors like a high taxation rate on incomes from cryptocurrencies, and the banking sectors' less-than-kind outlook towards the asset.

In 2018, the Central Board of Direct Taxes had submitted a draft scheme to the finance ministry for banning virtual currencies. A month later, the RBI restrained banks from dealing in cryptocurrencies, a decision that had to be reversed by the Supreme Court in 2020.

Despite this, the banking regulator has been vocal about its problems with crypto-assets, having identified them as "a macro-economic risk". In July 2022, underscoring that the RBI had sought a ban, Finance Minister Nirmala Sitharaman said in Parliament that "international

collaboration" would be needed for "any effective regulation or ban" on cryptocurrency as the digital currency is borderless in nature.

The government had, in 2022, imposed a tax on "any income from transfer of any virtual digital asset" at a rate of 30 per cent, along with a 1 per cent tax deduction at source (TDS) on each transaction.

However, a paper that was prepared by the International Monetary Fund (IMF) and the Financial Stability Board (FSB), at the request of the Indian G20 Presidency last year, called for licensing crypto service providers, while suggesting that an outright ban might not work given the borderless nature of cryptocurrencies.

On account of the latest surge in cryptocurrencies, Bernstein in a recent note asked whether India can "afford to ignore Bitcoin". The note further added that the crypto narrative in India "has been caught in this false premise of Central bank digital currencies (CBDC) and what the government calls private crypto.

The note emphasised that Indian investors had "missed the strong proposition" of bitcoin by framing it as private currency. It said the cryptocurrency could be a way for governments to build reserves.

4. RBI cuts CRR, keeps Repo rate unchanged: here's why

Overview

 Reserve Bank of India Monetary Policy Committee: The Reserve Bank of India (RBI) recently slashed the cash reserve ratio (CRR) by 50 basis points (bps) to 4% from 4.5% in a bid to boost liquidity in the financial system.

CRR is the percentage of a bank's total deposits that it is required to maintain in liquid cash with the RBI as a reserve.

The Monetary Policy Committee (MPC) of the RBI, which met in Mumbai on Friday, however, kept the Repo rate – the key policy rate – unchanged at 6.5% in a majority 4-2 decision. This is the eleventh consecutive monetary policy, over 22 months, which has left the Repo rate unchanged.

Significantly, the policy panel cut the GDP growth estimate to 6.6% in FY2025 from 7.2% projected earlier, and raised the retail inflation forecast to 4.8% for the current fiscal from 4.5% projected earlier.

The six-member MPC also decided to retain the monetary policy stance as 'neutral' in the policy.

Why was CRR cut?
The decision to cut CRR by 50 bps will free up Rs 1.16 lakh crore to the banking system, augmenting the lendable resources of banks.

The liquidity in the banking system has tightened because of the RBI's actions to stabilise the rupee. There have been a lot of dollar sales (by the RBI), which has affected the overall liquidity in the system. In December, liquidity will further tighten due to outflows related to payment of advance tax, goods and services tax (GST), and quarter-end demand for credit.

As banks do not get any interest on this amount, which is kept as CRR from the RBI, banks are expected to benefit from the central bank's latest decision. The CRR is a tool used by the RBI to manage inflation and check excessive lending.

The surplus liquidity can be used by banks for lending, which is expected to help in spurring economic growth. "A CRR cut will free up bank money, which can further be deployed for lending. There is a chance that banks may pass on the benefits of this CRR cut to borrowers. Usually, the cut in CRR is net interest margin (NIM) accretive for banks," said VRC Reddy, Head Treasury, Karur Vysya Bank.

What about the decision to keep the Repo rate unchanged?
The 4-2 decision to keep the Repo rate unchanged indicates that there are differences of opinion in the policy panel about the way forward in the wake of the slowdown in the economy.

RBI Governor Shaktikanta Das flagged the persistent food inflation in his explanation for the majority decision.

"Food inflation pressure is likely to linger in Q3 of FY25 and start easing in Q4 of FY25. High inflation reduces disposable income in the hands of consumers. MPC believes that only with durable price stability, we secure strong foundation for high growth," he said.

Over the last two months, two Union Ministers have called for a cut in the Repo rate.

Last month, Finance Minister Nirmala Sitharaman batted for "affordable bank interest rates" to support industries to ramp up and build capacities. And the Union Minister for Commerce and Industry, Piyush Goyal, urged the RBI to cut interest rates to boost economic growth and look through food prices while deciding on monetary policy.

How are ordinary borrowers likely to be impacted by the RBI MPC's decision?
With the RBI leaving the Repo rate steady at 6.5%, all external benchmark lending rates (EBLR) linked to the Repo rate will not increase, giving relief to borrowers as their equated monthly instalments (EMIs) will not increase.

However, the cut in CRR is likely to reduce the deposit rates marginally as the liquidity will increase in the banking system.

Lenders (banks and financial institutions) may raise interest rates on loans that are linked to the marginal cost of fund-based lending rate (MCLR), where the full transmission of a 250-bps hike in the Repo rate between May 2022 and February 2023 has not happened.

In response to the 250-bps hike in the policy Repo rate since May 2022, banks have revised upwards their Repo-linked external benchmark-based lending rates (EBLRs) by a similar magnitude.

The median 1-year marginal cost of funds-based lending rate (MCLR) of scheduled commercial banks has increased by 170 bps during May 2022 to October 2024.

Why has the MPC reduced the growth forecast for the economy?
The MPC has reduced the GDP growth forecast to 6.6% from 7.2% in the wake of the slowdown in the economy in the second quarter.

In the October, August, and June MPC announcements, the RBI had retained the GDP growth estimate for 2024-25 at 7.2%, with slight variations in the quarterly growths.

The slowdown bottomed out in the second quarter, and has since then recovered – driven by festive demand and rural consumption, Governor Das said.

The recent data released by the National Statistics Office (NSO) showed that the country's real gross domestic product (GDP) slumped to a seven-quarter low of 5.4% in July-September 2024. This compares with a growth of 6.7% in the April-June 2024 quarter and 8.1% in the July-September 2023 period.

And what did the MPC say on inflation – and why?
The policy panel has hiked the inflation estimate for FY25 to 4.8% for the current fiscal from 4.5% projected earlier.

Consumer price-based inflation (CPI), or retail inflation, surged to a 14-month high of 6.21% in October 2024, compared to 5.5% in September.

The MPC had maintained a cautious posture, highlighting limited room to cut rates in the face of above-target inflation. The inflation level has remained much above the RBI's tolerance level.

Relevance: GS Prelims & Mains Paper III; Economics

5. Why does RBI want a hedge against dollar reliance, but not push for de-dollarisation?

Introduction
Reserve Bank of India (RBI) Governor Shaktikanta Das said recently that India is not pursuing "de-dollarisation", and that recent measures promoting transactions in domestic currencies are intended to de-risk Indian trade.

The clarification came days after US President-elect Donald Trump threatened "100 per cent tariffs" against BRICS countries if they sought to reduce reliance on the US dollar in international trade.

Das said that BRICS (Brazil, Russia, India, China, South Africa) nations have discussed the possibility of a shared currency, but reached no decision. RBI decisions such as allowing Vostro accounts and entering local currency trade agreements are aimed at diversifying risk rather than reducing dependence on the dollar.
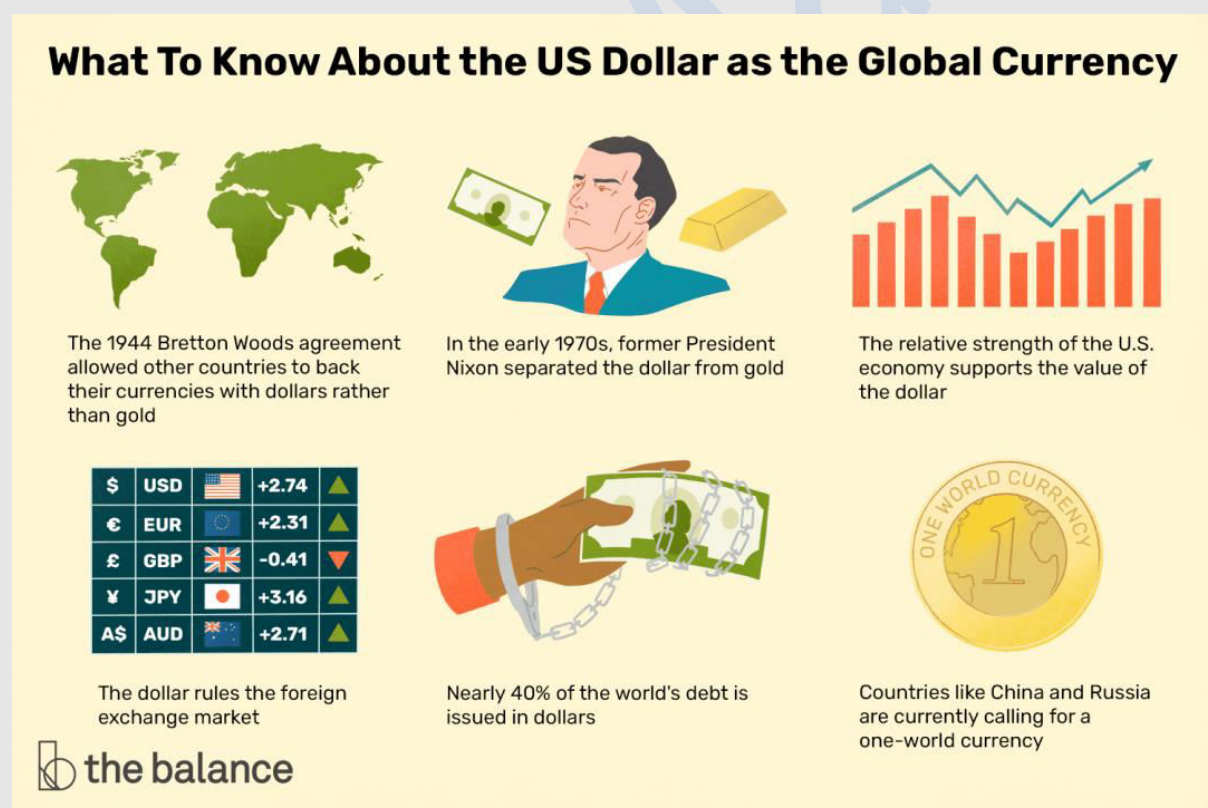
Yuan as challenger
A key reason India is not backing de-dollarisation is the rise of the Chinese yuan as a challenger to the US dollar. India has resisted using the yuan for Russian oil imports, even as the acceptance of the currency is growing in Russia. Following the Western sanctions on Russia,

including freezing $300 billion in Russian foreign holdings, the yuan became Russia's most traded currency last year.

Vary of overdependence
At the same time, India is wary of over-dependence on the dollar. The RBI has increased gold purchases, and has begun moving its gold, held abroad, back into the country.

While this is in part due to increased uncertainties after the war in Ukraine, it is in line with the buying of gold by global central banks fearing secondary sanctions.

Why are central banks on a gold-buying spree?
Central banks, particularly in emerging market economies, have increased their gold holdings sharply so as to diversify away from a dollar-dominated financial system.

According to JP Morgan, central banks collectively bought a net 1,136 tonnes of gold in 2022, the highest annual demand on record, and another 1,037 tonnes in 2023.

How does the high cost of holding dollars play out in this scenario?
Depleting dollar reserves amid surging oil prices has recently caused considerable social and political unrest in India's neighbourhood. Sri Lanka, Bangladesh, Nepal, and Pakistan witnessed sharp declines in their dollar reserves following the Ukraine war, which upset their trade relations with India. While India has managed to keep a robust reserve, the surging value of the dollar has become a concern.

To partially de-risk its trade ties, India is pushing for trade with Russia and the UAE in domestic currencies that could help cut reliance on the US dollar. However, the domestic currency trade has not yet picked up as expected because of India's low foothold in goods and services trade internationally.
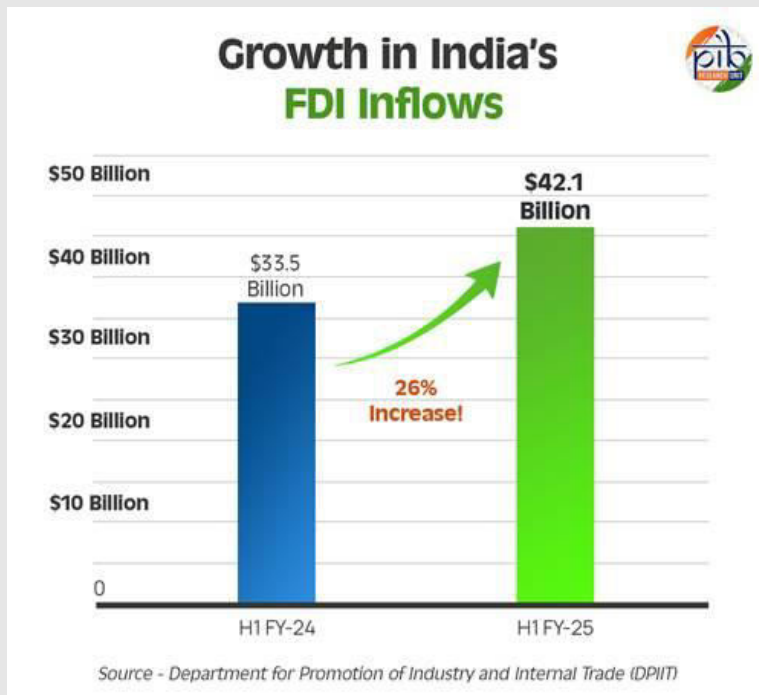
India's efforts toward internationalising the rupee could get a boost if oil exporters begin accepting rupee payments. But they have remained hesitant due to the high transaction costs. A reason for the rise of the yuan has been its use in purchasing Russian oil. As China and Russia have a bilateral trade balance, both countries have been able to reduce reliance on the US dollar by successfully trading in domestic currency. India has a bilateral trade deficit with most countries except the US.

Relevance: GS Prelims & Mains Paper III; Economics
Source: Indian Express

6. India's Milestone in FDI Inflows

Introduction

Growth in India's FDI Inflows

Source - Department for Promotion of Industry and Internal Trade (DPIIT)

India has achieved a significant milestone in its economic journey, with gross Foreign Direct Investment (FDI) inflows surpassing $1 trillion since April 2000. This achievement highlights India's growing stature as a global investment destination.

Recent Growth
During the first half of the current fiscal year, FDI inflows surged by nearly 26% to $42.1 billion, reflecting increased investor confidence driven by:
• A proactive policy framework.
• A dynamic business environment.
• Enhanced international competitiveness.

Impact of FDI
FDI has been transformative for India's development, offering:
• Substantial non-debt financial resources.
• Technology transfers.
• Employment generation.

Policies Boosting Investor Confidence
Key initiatives contributing to India's FDI success include:
• "Make in India" campaign to promote domestic manufacturing.
• Liberalized sectoral policies for foreign investments.
• Goods and Services Tax (GST) to streamline taxation.
• Competitive labor costs and strategic incentives.

A Decade of Exceptional Growth
From April 2014 to September 2024, India received $709.84 billion in FDI, accounting for nearly 69% of total FDI inflows in the last 24 years.
This robust inflow underscores India's pivotal role in the global economic landscape and its emergence as a preferred destination for multinational corporations.

Relevance: GS Prelims & Mains Paper III; Economics

7. How would a US bitcoin strategic reserve work?

Introduction

Bitcoin hit a record high above $107,000 on Monday after President-elect Donald Trump reiterated plans to create a U.S. bitcoin strategic reserve, stoking the enthusiasm of crypto bulls. Here's how the plan could work.

What is a strategic reserve?

A strategic reserve is a stock of a critical resource which can be released at times of crisis or supply disruptions. The best-known example is the U.S. Strategic Petroleum Reserve, the world's largest supply of emergency crude oil, which was created by an act of Congress in 1975 after a 1973-74 Arab oil embargo throttled the U.S. economy.

Presidents have tapped the stockpile to calm oil markets during war or when hurricanes hit oil infrastructure along the U.S. Gulf of Mexico.

Canada has the world's only strategic reserve of maple syrup, while China has strategic reserves of metals, grains and even pork products.

How would a US strategic bitcoin reserve work?

It is currently unclear whether Trump could use his executive powers to create the reserve, or whether an act of Congress would be necessary. Some have argued Trump could create the reserve via an executive order directing the U.S. Treasury's Exchange Stabilization Fund, which can be used to purchase or sell foreign currencies, and to also hold bitcoin.

This reserve could include bitcoin seized from criminal actors by the government. That stands at around 200,000 tokens, worth about $21 billion at the current price, according to bitcointreasuries.net. Trump suggested in a July speech unveiling his bitcoin reserve plan that this stockpile could be the starting point.

Trump has not said if the government would add to that stockpile by buying more bitcoin in the open market. To do that, the government may have to issue debt, although some proponents of a bitcoin reserve say the United States could sell some of its gold reserves and use the proceeds to buy bitcoin.

What are the benefits of a bitcoin reserve?

In his July speech, Trump suggested a bitcoin reserve would help the U.S. dominate the global bitcoin market in the face of growing competition from China.

Other proponents argue that by holding a stockpile of bitcoin, which they say is likely to continue appreciating over the long term, the U.S. could reduce its deficit without raising taxes, strengthening the U.S. dollar.

A strong dollar would in turn give the United States more leverage over foreign adversaries like China and Russia, proponents say.

What are the risks?

Crypto sceptics say that, unlike most other commodities, bitcoin has no intrinsic use and is not crucial to the functioning of the U.S. economy.

Created in 2008, bitcoin remains too young and volatile to presume its value will continue to rise in the long term, while crypto wallets remain notoriously vulnerable to cyber attacks, they also argue. And given its volatility, any government purchases or sales could have an outsized impact on bitcoin's price.

Relevance: GS Prelims & Mains Paper III; Economics

8. Why scientists are recommending Punjab's farmers grow barley

Introduction

Barley Farming In India: A Promising Crop for Indian Farmers

Recently, scientists suggested that barley should be grown in Punjab in a bid to diversify wheat-paddy monoculture in the state. Barley requires much less water to grow compared to paddy, and is healthier than wheat.

In recent years, the area under barley cultivation has dramatically shrunk across India, including in Punjab. In 1960-61, barley cultivation area stood at 3.20 million hectares in India, and 66,000 hectares in Punjab. However, it came down to 0.54 million hectares and 5,000 hectares in India and Punjab respectively.

Low water consumption, low input cost

Unlike barley, paddy and wheat require a huge amount of water to grow. Moreover, there is more input cost for growing paddy and wheat. For instance, to grow barley in one acre, a farmer would need 35 kg of seeds but for wheat would require 40 kg of seeds. Even the fertilisers required for farming paddy and wheat end up being more costly. To grow barley, 55 kg of urea and 25 kg of diammonium phosphate (DAP) are required. Whereas for wheat, almost double amounts of 110 kg urea and 55 kg DAP are recommended respectively.

Moreover, barley has less gluten compared to wheat, which is 80% gluten and can lead to serious health issues such as cancer, kidney damage, and leaky gut syndrome.

Barley provides better nutrients than other food grains. It contains a high amount of active ingredients, such as beta-glucan (5-10%), whereas wheat contains only 1.6% and rice contains 0.82%. It also contains phytochemicals, resistant starch, lignin, ferulic acid, phytosterols, and antioxidants.

Barley also comprises insoluble fibre, vitamins, protein, and other important elements.

Helps with diabetics

With 11.4% of the Indian population and 10% in Punjab being diabetic, barley could be a choice of grain with its glycemic index of 28 comparable to wheat. It keeps the sugar content in the blood low. In addition, beta-glucan also increases the effectiveness of insulin (an element essential for the digestion of sugar) as well as stimulates the production of another hormone called glucagon-like peptide-1, which produces and uses equal amounts of glucose. Beta-glucan makes a jelly-like substance in the intestine which reduces the feeling of hunger. It can also reduce the risk of obesity.

Keeps cholesterol in check

Beta-glucan also provides a base for health-beneficial bacteria and helps in the formation of short-chain fatty acids (SCFAs) quickly. The SCFA helps in keeping cholesterol levels in check by slowing down the production of cholesterol in the liver and intestines.

The indigestible fibres found in barley keep the gut strong and the liver healthy.

Challenges

More research is required to establish barley as a "superfood". It is clear that Punjab needs an alternative for paddy which is responsible for decreasing the levels of underground water, harming the environment, and pollution via stubble burning.

However, barley is a rabi crop and can replace only wheat. Crores were spent on developing harvesting machines for wheat and paddy. For introducing a new crop, more investment would be required, he added.

> Relevance: GS Prelims; Economics

9. Parliamentary Standing Committee recommendations on MSP, debt waiver

Introduction

Parliamentary Standing Committee Recommends Implementation of Legally Binding MSP, Farm Loan Waiver

The Committees recommendations come at a time when farmer unions have been staging protests at the Shambhu and Khanauri borders.

A parliamentary committee has recommended implementing a legal guarantee on Minimum Support Price, amid a slew of measures to improve farmers' welfare.

The Parliamentary Standing Committee on Agriculture, Animal Husbandry and Food Processing tabled its first report on demands for grants (2024-25) of the Ministry of Agriculture and Farmers Welfare in the 18th Lok Sabha.

The committee, chaired by former Punjab Chief Minister Charanjit Singh Channi, has additionally

recommended increasing budgetary allocations, compensation for stubble disposal and debt waiver among a slew of measures.

This report assumes significance amidst the protests by farmers' organisations since February at Khanauri and Shambhu, which border Punjab and Haryana respectively. Organisations including the Samyukta Kisan Morcha (non-political) and Kisan Mazdoor Morcha (KMM) have demanded a legal guarantee of MSP on all crops.

What are the key recommendations of this report?

Legal guarantee of Minimum Support Price
According to the committee, a legally binding MSP would ensure financial stability for farmers, reduce suicides, mitigate market volatility, alleviate debt burdens, and improve overall mental health among farmers.

According to the committee, the MSP mechanism aligns with broader national food security objectives by ensuring that foodgrains are available at stable prices, thus aiding public distribution systems.

The committee reiterated that the benefits of implementing the legal guarantee of MSP far outweigh its challenges. In particular, this could stimulate economic activity in these areas, benefiting local businesses and economies. With assured income through MSP, farmers are more likely to invest in their agricultural practices, leading to increased productivity and sustainability in farming.

The committee also pointed out that legally guaranteeing MSP would help contribute to long-term food security for the nation by stabilising the production of foodgrains. A legally guaranteed MSP would ensure consistent income for farmers, and allow them to plan better and maintain production without the fear of market fluctuations.

The committee has recommended that the department declare a roadmap for legally guaranteeing MSP at the earliest. This would also allow the central government to plan its finances accordingly and subsequently allow a smooth transition.

It has also suggested that the department may table a statement in the Parliament after every crop season giving details of the number of farmers who sold their produce at MSP and the existing gap between MSP and actualised market prices crops.

Compensation for disposing of paddy waste
The committee has recommended that farmers be compensated for managing and disposing of crop residue, or parali, to prevent them from burning it. The management of paddy stubble has been a major environmental concern, especially during winters when the national capital turns into a fast chamber.

The Punjab government has sought a bonus of Rs 2,000 per acre for farmers, offering to match half the grant if the centre covers the rest.

Increasing PM Kisan support

The committee has proposed increasing monetary support under the PM-KISAN Samman Nidhi scheme from Rs 6,000 per annum to Rs 12,000 per annum. It also recommended extending seasonal incentives to tenant farmers and farm labourers.

Referring to the NABARD Survey on Rural Financial Inclusion for 2022-23, the committee noted that while there had been a 57.6% increase in the average monthly income of rural households between 2016-17 and 2021-22, average monthly expenditure had surged by 69.4% over the same period. "This imbalance indicates that while incomes are rising, expenses are outpacing income growth, leading families to borrow more," the committee said.

Debt waiver to combat farmer distress

The committee has recommended introducing a scheme to waive off the debts of farmers and farm labourers to combat the rise in farmer distress and suicides over debt repayment.

Citing the NABARD survey, the report said that the percentage of rural families taking loans has risen from 47.4% in 2016-17 to 52% in 2021-22.

The proportion of families with outstanding debts has also increased, indicating a heightened financial pressure on these agricultural households. More families now depend on loans to manage expenses, reflecting a concerning trend in rural financial health.

The committee has called for careful monitoring and targeted interventions to help farmers manage their debts sustainably while continuing to invest in their agricultural activities.

Increasing budgetary allocations

The committee highlighted the need to increase the budgetary allocation to agriculture to boost the sector's growth rate. It has pointed to the continuous decline in the budgetary allocation to agriculture as a percentage of the total central plan.

Despite higher absolute allocations from 2021-22 to 2024-25, the percentage share in the total Central plan outlay declined from 3.53% in 2020-21 to 2.54% in 2024-25. For context, agriculture's growth rate in 2023-24 (provisional estimates) declined to 1.4%, the lowest in the last seven years, compared to the average annual growth rate of 4.18% over the past four years.

Other recommendations

The committee suggested implementing compulsory universal crop insurance for smallholder farmers with landholdings of up to 2 acres, modelled after the Pradhan Mantri Jan Arogya Yojana (PM-JAY) health insurance scheme.

It has also recommended establishing a National Commission for Minimum Living Wages for Farm Labourers to address their long-pending rights.
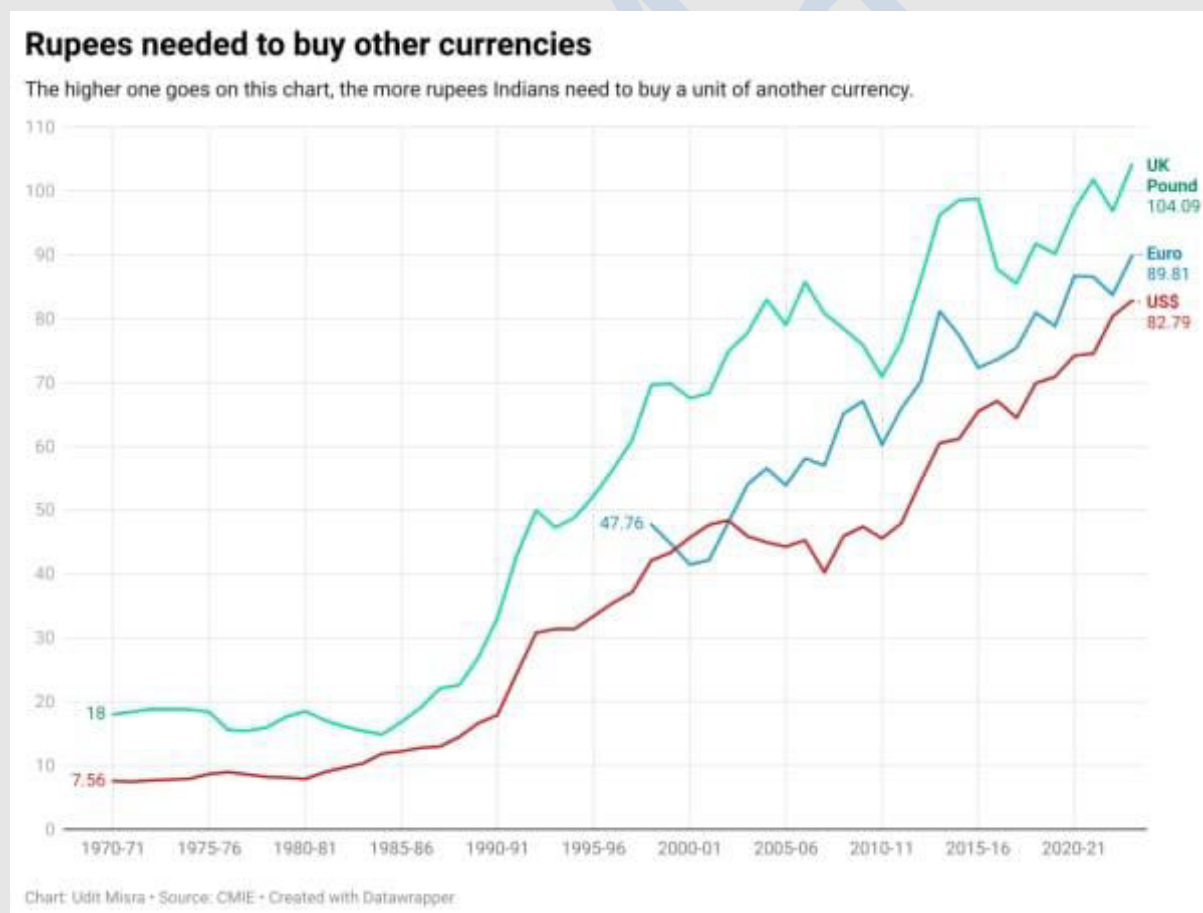
The committee recommended renaming the Department of Agriculture and Farmers Welfare to the Department of Agriculture, Farmers, and Farm Labourers Welfare to reflect a broader focus on the welfare of agricultural labourers.

Relevance: GS Prelims & Mains Paper III; Economics

10. Why is the Indian rupee falling against the US dollar?

Introduction
The Indian rupee's exchange rate against the US dollar has breached the 85 mark. In other words, one would have to pay Rs 85 to buy $1. In April, this "exchange rate" was around 83 and a decade ago, when Prime Minister Narendra Modi took charge, it was around 61. As such, the rupee has been weakening in value relative to the dollar.

Rupees needed to buy other currencies
The higher one goes on this chart, the more rupees Indians need to buy a unit of another currency.

Chart: Udit Misra • Source: CMIE • Created with Datawrapper

What is the exchange rate?
Typically, we buy goods (such as a pizza or a car) and services (such as a haircut or a hotel stay in a hill station) using our money — the Indian rupee. But there are many things where we

need things from outside the country — say an American-made car or Swiss vacation or indeed, crude oil. For all such goods and services we might have to first buy the US (dollar) or Swiss currency (euro) using our domestic currency before we buy the final item. The rate at which one can swap between currencies is the exchange rate. In other words, how many rupees would buy you a dollar or a euro.

In such a market — also referred to as the currency market — each currency is like a commodity itself. The value of each currency relative to another currency is called the exchange rate. These values can stay the same over time but more often than not they keep changing.

What determines the exchange rate?

Like any other trade in life, the relative value of one currency against another depends on which is demanded more. If Indians demand more US dollar than Americans demand the Indian rupee, the exchange rate will tilt in favour of the US dollar; that is, the US dollar will become relatively more precious, more valuable, and more costly. If this situation keeps repeating every day, such a trend will become stronger and the rupee will keep losing value relative to the US dollar. This movement will show up in the form of the rupee's exchange rate weakening against the dollar.

But what factors determine the demand for rupee vis a vis dollar?

There are several factors that can affect the demand for currencies.

One big component of demand comes from trade of goods. For the sake of simplicity, imagine a world where there are only two countries — India and the US. If India imports more goods from the US than what it exports to the US, then the demand for US dollar will outstrip the demand for Indian rupee. This, in turn, will make the US dollar gain strength against the rupee and its exchange rate versus the rupee will appreciate. Put differently, the rupee's exchange rate relative to the dollar will weaken. As a result, more rupees will be required to buy a single US dollar.

The other big component is trade in services. If Indians buy more US services — say tourism — than Americans buy Indian services, then again, demand for dollar will outstrip the demand for rupee, and rupee will weaken.

The third component is investments. If Americans invest in India more than Indians invest in the US, then the demand for rupee will outstrip the dollar and rupee will appreciate against the dollar.

These are the three main ways in which the exchange rate can change.

But what factors affect these three kinds of demands?

Of course, there are several factors that can affect these three demands.

Suppose the US decides that it will not allow Indian imports. In such a scenario, the demand for Indian rupees will plummet. After all, if the Americans can't buy Indian goods, why would they go to the currency market to buy Indian rupees?

End result: rupee will weaken. Something similar is expected to happen if, as President-elect Donald Trump has promised, the US slaps high tariffs against Indian goods, making them so costly that no one in America will buy them.

Similarly, imagine a scenario where both India and the US are experiencing high inflation. By definition, inflation eats away the value of a currency because an inflation of 5% means that whatever one could buy for Rs 100 in first year, requires Rs 105 to buy in the second year.

Now imagine that in five years time, the US reduces its inflation to zero while in India it stays at 6%. This would mean that if an American decides to invest in the Indian stock market thinking that Indian companies/shares give an annual return of 10%, he or she would end up getting only 4% real return because six out of those 10% would be eaten up by inflation. On the other hand, the US stock market might give a return of just 5% but since inflation is at 0%, the final return would be 5%.

In such a scenario, an investor may not make any fresh investments into India; worse still, he or she may actually pull out money from India and invest it back in the US. Both these actions will reduce the demand for rupees relative to the dollar and the rupee will weaken against the dollar. Again, something similar is happening at present as the investors pull out money from India.

Relevance: GS Prelims & Mains Paper III; Economics

11. Manmohanomics, in his own words

Introduction
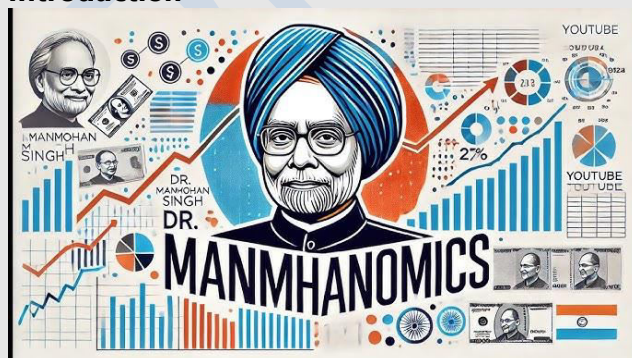
Former Prime Minister Manmohan Singh, who passed away recently, remains one of India's lesser understood public intellectuals.

Education
He obtained a Tripos in Economics with first class honours from Cambridge in 1957, and a DPhil from Oxford in 1962. He taught at the Delhi School of Economics from 1969 to1971, and went on to serve in some of the most important policymaking roles in India.

As Finance Minister

He entered politics in 1991, and became the Finance Minister who shaped India's transition from a centrally-planned, highly regulated, and largely closed economy to an open (in terms of trade), liberalised (in terms of regulations and restrictions), market economy.

As Prime Minister

As Prime Minister between 2004 and 2014, he oversaw the phase of fastest economic growth and poverty reduction in the country.

But he left office amid allegations of corruption against his government. The last phase of his tenure saw a "policy paralysis" in which coalition partners — and even his Congress colleagues — moved in different directions, and the Prime Minister appeared too weak to provide direction. The widespread public dissatisfaction reduced the Congress to its worst electoral performance in the 2014 election, and put a question mark over his legacy and beliefs.

Views on Economy

Did Manmohan Singh really believe in the power of Indian entrepreneurs and market forces, and in the promise of free trade and export-led growth? Did he believe governments should "soak the rich" to address inequality? Did he try to support public sector enterprises even when they made losses? Did he care about household sanitation, and understand its links to the economy?

Excerpts from Singh's own writings — sourced from a five-volume set of his most important speeches and writings, published by the Oxford University Press in 2019 — on topics that often dominate the news today, show how far ahead of the curve he was on various economic policy issues long before India reached its current consensus on them.

On planning vs markets

Even as part of India's "Nehruvian" economic policy establishment, Singh showed he was not a blind believer in the planning process, nor was he blind to the threat of corruption in government. Delivering the Vithal N Chandavarkar Memorial Lecture at IISc Bangalore in 1986, Singh, who was then Deputy Chairman of the Planning Commission, said:

"Planning is no panacea for economic ills. It all depends on the institutional setting... Adam Smith's preference for laissez-faire was to an important degree the result of his knowledge of the corruption in British life that regulations under mercantilist influence often led to. If the basic preconditions of a fairly efficient and honest public administration are not satisfied, planning cannot be expected to lead to an improvement either in resource allocation or income distribution."

However, Singh did understand why policymakers before him chose a planned economic approach. He said:

"Newly independent countries of the Third World found that they lacked both a well developed infrastructure of social overhead capital as well as an entrepreneurial class with a strong propensity to bear risk and uncertainty.

"In this environment, exclusive reliance on market forces and private enterprise could not lead to fast enough progress. …Since development in the initial stages is characterised by large discontinuities and externalities leading to a significant divergence between social and private costs and benefits, reliance on unregulated market forces was considered as contributing to sub-optimal investment decisions.

"There was also the additional concern that in an economy characterised by highly skewed initial distribution of income and wealth, excessive reliance on market forces could accentuate these disparities to an extent which would not be acceptable to the broad mass of people. For all these reasons, a growing role for public ownership and regulation of private investment in the framework of broad national priorities as outlined in a medium term development plan found ready acceptance."

On the licence-permit raj
In his TTK Memorial Lecture in Madras in 1983, Singh, who was then Governor of the Reserve Bank of India, argued for sharply scaling back overly restrictive regulations on private enterprise.

"I see no hope of improvement unless there is a deliberate effort to confine detailed programming and licensing only to a manageable list of sectors and industries of critical importance to the country… In all other cases, industrial licensing can be dispensed with. Government can still release demand forecasts for guidance of prospective entrepreneurs but the choice of investment decision should be left to them. If growth of some of these industries is vital for sustaining the process of industrial development, a scheme of positive incentives should be devised to attract investments into these industries. Licensing is a poor substitute for positive promotional measures in such cases."

On inequality, 'soak the rich'
Singh was concerned about the danger of widening inequalities if India chose the path solely of market forces. Data show that while poverty rates have fallen since economic liberalisation, income and wealth inequalities have soared. In another 1983 lecture, Singh underscored the need for "containing elite-mass contradictions" to avoid widespread social and economic unrest.

"[In] a modern technological society…a certain distance between the elite and the masses is perhaps unavoidable. But if not controlled, elite-mass contradictions can be highly disruptive and destablising. If the elite sections use their power and influence for personal material gain and comfort, this will lead to distortions in the allocation of scarce resources. …Overall resources being limited, the insistence of a small privileged minority to enjoy living standards comparable to those prevailing in advanced postindustrial societies will inevitably result in the production structure being biased in favour of luxury goods at the very time when the great mass of our people do not have access even to elementary necessities of life.

[This] can give rise to serious political and economic tensions which can affect the growth of productivity and much more. The elite will be unable to persuade the mass of working classes to accept a degree of restraint on their consumption and, therefore, on wage claims, in the interest of faster accumulation of capital. The resulting struggle between workers and employers...can easily degenerate into hyperinflation of the type one comes across in Latin America."

But Singh also warned against governments adopting "soaking the rich" policies to address inequality.

"The establishment of a relation of mutual trust and confidence between Government and private industry is not an easy task in an underdeveloped mixed economy operating in the framework of an open polity. Entrepreneurs usually belong to small minority groups and very often policies of 'soaking the rich' have a strong electoral appeal. Thus, Governments often fall prey to populist pressures and devise a regulatory framework with an eye on electoral appeal... This...compels entrepreneurs to turn into speculators, short-term maximisers, making a living by manipulating political processes rather than through creative productive activity, and provides them a strong built-in incentive for evading taxes and siphoning off funds abroad for investment in Swiss banks..."

On openness of trade
Many economists now point out that the trade protectionism of the Nehru decades was a mistake. India's weak export performance in the 1950s dismayed Singh as a DPhil candidate. In his thesis, India's export trends and the prospects of self-sustained growth, published in 1962, Singh argued that policymakers had underestimated India's export potential.

"Indian planners were swayed by undue export pessimism, which led to a neglect of the scope and potential of export growth and to the sacrifice of important efficiency gains associated with greater emphasis on international specialisation.

"...In fact, given sensible domestic policies in areas such as the control of inflation and more realistic exchange rate policies, India's exports could do much better than assumed by India's development planners."

On PSU autonomy, unions
Political interventions leading to inefficiencies in public sector undertakings, price controls, and the role of trade unions in sick and struggling firms were areas of concerns that Singh recognised as holding India back. In the 1986 lecture quoted above, he said:

"Autonomy and accountability of public sector enterprises have been under discussion for nearly two decades. Those who swear by the public sector and yet will not grant these enterprises legitimate functional autonomy are no true friends of the public sector. It has also to be recognised that if the top executives of public enterprises do not enjoy a reasonable security of tenure, we cannot expect them to take a fairly long term view of the interest of their enterprises.

"Trade unions which insist on the persistence of obsolete technologies for the sake of job security of their members do not advance the cause of the public sector or, for that matter, of employment.

"Lack of periodic technological upgradation often leads to uncompetitive costs, low profitability and restricted scope for future expansion of both output and employment. Similarly, public policies which will not permit adjustment of prices of public enterprises despite justified increase in costs also do not serve the cause of growth. Very often, needed price adjustments are postponed under political pressure so that in the meanwhile, losses go on increasing and public sector enterprises are starved of funds needed for their expansion. The time has come to depoliticise the process of price formation in the public sector."

On education, health, women
In a lecture at the National Productivity Council in 1983, Singh stressed the critical role of better education, health, and sanitation in boosting India's productive capacity.

"The spread of mass education can greatly help to change attitudes, aspirations, motivation and ability to master new skills. It is really unfortunate that even after thirty-five years of independence, universal primary education is not a reality... The heavy dropout rate [in schools] robs the rise in enrolment ratio of any great significance. The proportion of illiterates is much higher among women... [which] is bound to affect the progress of family planning and preventive health care measures through adoption of simple hygienic practices in our homes. Without paying adequate attention to the health care and nutrition needs of pregnant women, nursing mothers and young children, we can never hope to realise adequately the vast productive potential represented by a nation of 700 million people. An adequate and more equal access to basic public goods, especially education and health, can release vast latent human energies for creative, purposeful and socially satisfying work."

Relevance: GS Prelims & Mains Paper III; Economics
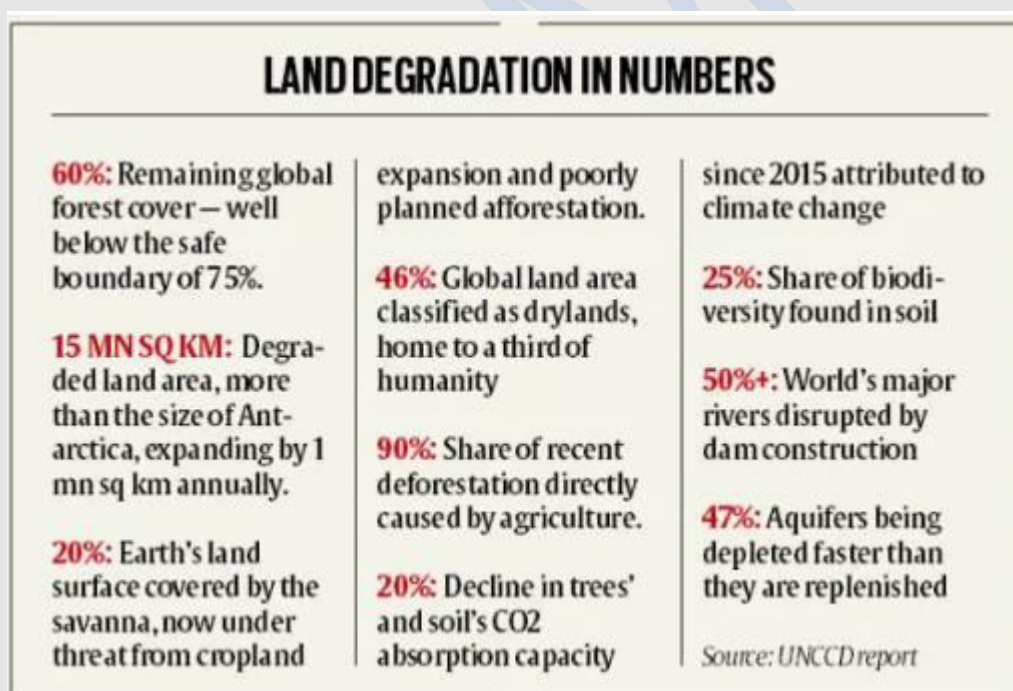Source: Indian Express

Environment

1. How land degradation is threatening Earth's capacity to sustain humanity

Overview

Land degradation is undermining Earth's capacity to sustain humanity, and failure to reverse it will pose challenges for generations to come, a new United Nations report found.

A million sq km of land is getting degraded each year, with an estimated 15 million sq km already impacted — more than the entire continent of Antarctica — by land degradation, the report titled Stepping back from the precipice: Transforming land management to stay within planetary boundaries said.

The analysis has been carried out by the United Nations Convention to Combat Desertification (UNCCD) — a legally binding framework to address desertification and the effects of drought — in collaboration with Germany's Potsdam Institute for Climate Impact Research. It was published on Monday, a day before the 16th session of the Conference of the Parties (COP16) of UNCCD began in Riyadh, Saudi Arabia.

LAND DEGRADATION IN NUMBERS

60%: Remaining global forest cover — well below the safe boundary of 75%.

15 MN SQ KM: Degraded land area, more than the size of Antarctica, expanding by 1 mn sq km annually.

20%: Earth's land surface covered by the savanna, now under threat from cropland

expansion and poorly planned afforestation.

46%: Global land area classified as drylands, home to a third of humanity

90%: Share of recent deforestation directly caused by agriculture.

20%: Decline in trees' and soil's CO2 absorption capacity

since 2015 attributed to climate change

25%: Share of biodiversity found in soil

50%+: World's major rivers disrupted by dam construction

47%: Aquifers being depleted faster than they are replenished

Source: UNCCD report

What is land degradation? Why is it a matter of concern?

According to UNCCD, land degradation is "the reduction or loss of the biological or economic productivity and complexity of rainfed cropland, irrigated cropland, or range, pasture, forest and woodlands resulting from a combination of pressures, including land use and management practices".

Land degradation adversely affects humans and ecosystems around the planet. For instance, it raises the risk of malnutrition by reducing the quality and quantity of food production. It contributes to the spread of water- and food-borne diseases that result from poor hygiene and scarcity of clean water. It can cause respiratory diseases due to soil erosion.

Marine and freshwater systems also suffer due to land degradation. For example, eroded soil carrying fertilisers and pesticides washes into water bodies, harming both the fauna living there and local communities which depend on them.

Land degradation contributes to climate change as well. The world's soil is the largest terrestrial carbon sink. When land is degraded, soil carbon can be released into the atmosphere, along with nitrous oxide. This can further exacerbate global warming.

The new report said land degradation has reduced the capacity of land ecosystems such as trees and soil to absorb human-caused carbon dioxide by 20% in the last decade. Previously, these ecosystems could absorb nearly one-third of this kind of pollution.

What is causing land degradation?
Unsustainable agricultural practices such as the heavy use of chemical inputs, pesticides, and water diversion are the foremost drivers of land degradation, the report said. That is because such practices lead to deforestation, soil erosion, and pollution.

"Unsustainable irrigation practices deplete freshwater resources, while excessive use of nitrogen- and phosphorus-based fertilisers destabilise ecosystems," according to the report.

Another factor is climate change — land degradation not only contributes to climate change but is also spurred by it. A report by the Intergovernmental Panel on Climate Change (IPCC), the UN body for assessing the science related to climate change, noted that global warming has worsened land degradation by increasing frequency, intensity and/ or amount of heavy precipitation, and increased heat stress.

Then there is rapid urbanisation, which has intensified land degradation by contributing to habitat destruction, pollution, and biodiversity loss.

Which areas are the worst affected?
The report has identified several land degradation hotspots in dry regions such as South Asia, northern China, the High Plains and California in the United States, and the Mediterranean. A third of humanity now lives in drylands, which include three-quarters of Africa.

It also noted that land degradation hits low-income countries disproportionately. That is because its impacts are concentrated in tropical and arid regions, and poorer countries have lesser resilience to withstand land degradation and its fallouts.

Relevance: GS Prelims & Mains Paper III; Environment
Source: Indian Express

2. With Ratapani in MP declared India's latest tiger reserve, all about the protected areas

Overview

Recently, India got its 57th tiger reserve in Madhya Pradesh's Ratapani Wildlife Sanctuary, after receiving in-principle approval from the Union Ministry of Environment, Forest, and Climate Change.

This development comes after the state's Madhav National Park received approval to be declared a tiger reserve on December 1. Following official notification, it will become India's 58th tiger reserve.

What is a tiger reserve?

A tiger reserve in India is a designated area established under the Project Tiger initiative of 1973 to ensure the conservation of tigers and their habitats. These reserves are part of the government's efforts to protect the tiger population, maintain biodiversity, and restore ecological balance.

Tiger reserves are usually large tracts of land with a core and buffer area. The core area is legally designated as a national park or a sanctuary. In contrast, the buffer or peripheral areas are a mix of forest and non-forest land, which is maintained as a mixed-use area. Buffer zones act as transition areas for wildlife.

Currently, there are 57 tiger reserves in India, spread across around 82,000 sq kilometres and accounting for over 2.3 per cent of India's geographical area, as per the National Tiger Conservation Authority (NTCA).

The NTCA conducts the All India Tiger Estimation to track the big cat numbers, usually in cycles of four years. As per the 5th cycle summary report of 2022, India has a minimum of 3,167 tigers and is home to more than 70% of the world's wild tiger population.
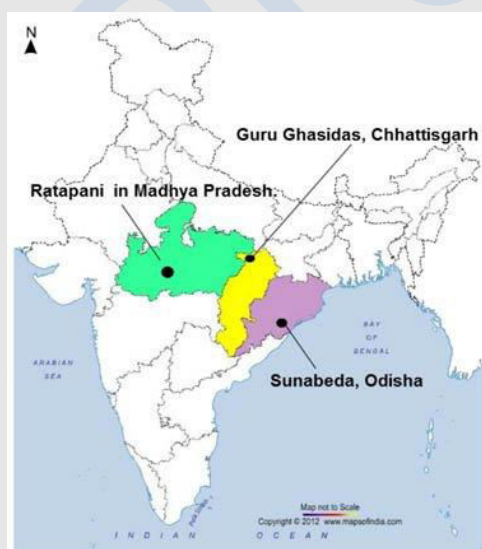
New Tiger Reserves Created

Why and when did the first tiger reserves come up in India?

In the mid-20th century, India's tiger population rapidly declined due to hunting, habitat loss, and other human activities. Following Indian independence in 1947, this decline became even more pronounced. In the first attempt to ensure the big cats were not poached, the Indian Government banned the export of wild cat skins, including of tigers, in 1969.

Extending further protection, the Indian Board for Wild Life (IBWL) formed an 11-member task force to devise a comprehensive conservation strategy, marking the inception of Project Tiger. The task force submitted its final report in August 1972, recommending that eight tiger forests across India be included in the project. On April 1, 1973, Project Tiger was officially launched at the Corbett Tiger Reserve.

The initial phase included nine tiger reserves: Corbett (Uttarakhand), Palamau (Jharkhand), Similipal (Orissa), Sundarbans (West Bengal), Manas (Assam), Ranthambhore (Rajasthan), Kanha (Madhya Pradesh), Melghat (Maharashtra) and Bandipur (Karnataka).

How is a tiger reserve created?

The state government identifies a suitable area for a tiger reserve based on the presence of a viable tiger population and suitable habitat.

Ecological assessments, including studies on prey base, vegetation, and the area's potential to support tigers, are then conducted. The state prepares a detailed proposal, including maps, ecological studies, and management plans.

Finally, a proposal is submitted to the NTCA, which studies and approves it and submits it to the Union Ministry of Environment, Forest and Climate Change for further consideration.

Following this, the state government issues a preliminary notification under the Wildlife (Protection) Act, 1972, declaring the identified area as a tiger reserve. After addressing any objections or modifications, the state issues a final notification under Section 38V of the Wildlife (Protection) Act, formalising the reserve.

The reserve is brought under the Project Tiger initiative, entitling it to central funding and technical support for conservation activities. A detailed management plan is developed, focusing on habitat improvement, anti-poaching measures, and community participation. The NTCA conducts regular monitoring and evaluation.

As per section 38W of the Act, once the notification comes "no State Government shall de-notify a tiger reserve, except in public interest with the approval of the Tiger Conservation Authority and the National Board for Wild Life".

What are the benefits of tiger reserves?

According to wildlife researchers, as top predators in an ecosystem, tigers play an essential role in regulating and perpetuating ecological processes. Ensuring the conservation of this

apex carnivore ensures the health of forest ecosystems, the biodiversity they represent, and the security of water and climate.

Tigers inhabit a wide range of habitats in India, including high mountains, mangrove swamps, tall grasslands, dry and damp deciduous forests, and evergreen and shola forest systems. "Since there are many resources at the disposal of Project Tiger and the national interest behind this project the protection enacted on tigers has an umbrella effect that extends to other sub-species," said an NTCA official.

A 2023 study published in Nature ("Climate co-benefits of tiger conservation") found that protecting tiger reserves has significant environmental benefits. Between 2007 and 2020, these reserves helped prevent the loss of over 5,800 hectares of forest. This, in turn, restricted the release of about 1 million metric tons of carbon dioxide into the atmosphere, contributing positively to combating the effects of climate change.

Relevance: GS Prelims; Environment
Source: Indian Express

3. Tamil Nadu Opposes Tungsten Mining in Madurai

What's the Issue?
The Central Government's decision to auction tungsten mining rights in Madurai's Nayakkarpatti block has sparked widespread opposition in Tamil Nadu. On December 9, 2024, the Tamil Nadu Assembly passed a unanimous resolution urging the Centre to revoke the mining rights, citing environmental, cultural, and federal concerns.

Strategic Importance of the Project

Centre's Perspective
• On November 7, 2024, the Union Ministry of Mines announced the auction of eight critical mineral blocks, including Nayakkarpatti in Madurai's Melur taluk.
• The Nayakkarpatti block, spanning over 2,015 hectares, is rich in scheelite, a primary tungsten ore essential for aerospace, defense, and green energy technologies.
• The auction aimed to bolster India's self-reliance in high-tech applications.
• Hindustan Zinc Limited, a Vedanta subsidiary, won the auction.

Opposition in Tamil Nadu

Ecological and Cultural Concerns

• The mining area overlaps with Arittapatti, a biodiversity-rich site with historical and cultural significance.

O Features: Cave temples, Jain symbols, Tamil Brahmi scripts, and rare species.

• Environmentalists fear mining waste, such as tailings, could release harmful heavy metals like arsenic, cadmium, and lead, contaminating soil and water.

Local Impact

• Villagers from Terkutteru, Muthuvelpatti, and Kidaripatti fear environmental degradation and loss of livelihoods.

Vedanta's Track Record

• Opposition is amplified due to Vedanta's controversial history, including environmental violations at the Sterlite copper smelter in Thoothukudi.

Centre-State Tensions

Tamil Nadu's Objections

• The Tamil Nadu government claims it opposed the auction in October 2023 due to ecological and cultural concerns.

• Water Resources Minister Duraimurugan criticized the Centre for ignoring state objections, calling the move "condemnable."

State Assembly's Resolution

• The resolution urges the Centre to revoke the mining rights and seek state consent for such projects.

• Chief Minister M.K. Stalin vowed to block tungsten mining, stating, "If it comes, then I will not hold this post."

Centre's Response

• The Centre asserts that only 1.93 sq km of the 20.16 sq km block overlaps with the Arittapatti Biodiversity Heritage Site, notified by Tamil Nadu in 2022.

• It claims no formal objections were received during the auction process.

What's Next?

The Centre has yet to respond to the state's resolution, but protests continue in affected villages. The controversy underscores larger debates on federalism and the balance between resource management and environmental protection.

Relevance: GS Prelims; Environment

4. How much water does India have available? Here is what Central Water Commission found

Introduction
The Central Water Commission (CWC) in its study titled 'Assessment of Water Resources of India 2024' estimated that India's average annual water availability, between 1985 and 2023, stood at 2,115.95 billion cubic meters (BCM).

What is the CWC's water availability figure based on?
In its study, the CWC assessed the average annual water availability based annual net-runoff using precipitation, evapotranspiration, land use, land cover, and soil datasets as major inputs. The water availability has been assessed for all river basins in the country, excluding three western tributaries of the Indus (Indus, Jhelum, and Chenab).

How is the availability of water distributed across geographic regions?
According to the CWC report, Brahmaputra (592.32 BCM), Ganga (581.75 BCM), and Godavari (129.17 BCM) were the top three basins with the highest water availability across the country, while Sabarmati (9.87 BCM), Pennar (10.42 BCM), and Mahi (13.03 BCM) were bottom three basins in terms of water availability.

Basin	Water Availability (BCM)
Barak & Others	93.65
Brahmani-Baitarani	31.27
Brahmaputra	592.32
Cauvery	26.53
Eastern Flowing Rivers Between Mahanadi & Pennar	23.33
Eastern Flowing Rivers Between Pennar & Kayakumari	27.06
Ganga	581.75
Godavari	129.17

Indus (Eastern)	47.30
Krishna	86.32
Mahanadi	72.82
Mahi	13.03
Minor Rivers draining into Myanmar & Bangladesh	31.86
Narmada	49.45
Pennar	10.42
Sabarmati	9.87
Subarnarekha	14.48
Tapi	20.98
Western Flowing Rivers from Tadri to Kanyakumari	116.47
Western Flowing Rivers from Tapi to Tadri	110.44
Western Flowing Rivers of Kutch & Saurashtra including Luni	26.95
Total	**2115.95**

What were the findings of the previous assessments?
The 2,115.95 BCM figure is higher than the previous estimate made in 2019, which calculated water availability from 1985 to 2015 to be at 1,999.2 BCM.

About a half a dozen water availability assessments, using various methodologies, had been carried out prior to 2019. All of these found water availability to be under 2,000 BCM, with the earliest estimate in 1901-03 giving a 1,443.2 BCM.

Why is the current water availability figure higher than previous assessments?
This is primarily due to methodological factors. First, the new assessment takes into account Bhutan's contribution to the Brahmaputra, which was not included in the assessment conducted in 2019. Second, while Nepal's contribution to the Ganga was only partially taken into account in the 2019 assessment, the current study includes it fully.

According to the CWC, "The current study includes all trans-boundary water entering India in the Brahmaputra basin, in the Ganga basin and in the Indus basin (eastern rivers)."

Why is such an assessment significant?
The assessment of water availability is significant for the sustainable management of water resources, which face challenges from factors such as urbanisation, industrialisation, and climate change.

It is also a prerequisite to calculate the per capita water availability, which is one of the indicators used for measuring water scarcity. According to the most common method for calculating water scarcity, known as the Falkenmark Indicator or Water Stress Index, a country would be deemed to be under "water stress" if the per capita water availability in a country is below 1,700 cubic meters. A per capita water availability of under 1,000 cubic meters puts a country in "water scarcity", whereas a per capita water availability of below 500 cubic meters means "absolute water scarcity".

According to the Ministry of Jal Shakti, the average annual per capita water availability for the year 2021 was 1,486 cubic meters based on annual water availability of 1,999.2 BCM assessed in the CWC's 2019 study. Taking the latest assessments into account, this figure will be higher (1,513 cubic meters for 2024 using a projected population figure of 1.398 billion) but still below the 1,700 cubic meters mark.

Is all available water utilisable?
The CWC's numbers, however, do not refer to water that is utilisable. For instance, in 2019, the average water resources availability was assessed at 1999.2 BCM, but the utiliSable surface water resources were estimated to only be 690 BCM.

As per the CWC, the proportion of utilisable surface water resources to average water resources potential is very high in smaller basins except in West Flowing River basins from Tapi to Tadri and Tadri to Kanyakumari, Sabarmati and Mahi. The proportion of utilisable surface water resources to average water resources potential is found to be minimum in Brahmaputra sub-basin, as per the CWC.

Relevance: GS Prelims & Mains Paper III; Environment
Source: Indian Express

Introduction

Arctic tundra is now a source – not a sink – of carbon emissions |

The Arctic tundra, a once-frozen treeless biome storing carbon for millennia, has now become a net emitter of greenhouse gases (GHGs) like carbon dioxide (CO_2) and methane (CH_4). According to NOAA's Arctic Report Card, wildfires and rising temperatures are the key drivers of this alarming shift, with significant global climate implications.

How the Arctic Tundra Stores Carbon

1. The Carbon Cycle in Tundra

O In typical ecosystems, plants absorb CO_2 through photosynthesis and return it to the atmosphere after decomposition.

O In the Arctic, the cold climate slows decomposition, trapping organic matter in permafrost (frozen ground lasting at least two years).

2. Scale of Carbon Storage

O Arctic soils hold over 1.6 trillion metric tonnes of carbon, double the amount currently in the atmosphere.

Why Is the Tundra Emitting More Carbon?

1. Rising Temperatures

O The Arctic is warming four times faster than the global average.

O Thawing permafrost activates microbes that decompose organic matter, releasing CO_2 and CH_4 into the atmosphere.

O Twila Moon, lead editor of the Arctic Report Card, compares permafrost to frozen chicken: "Once thawed, microbes begin breaking it down, causing it to rot."

2. Increased Wildfires

O Wildfires have become more frequent and intense.

O 2023 was the worst wildfire season in Arctic history, while 2024 ranked second for wildfire emissions.

O Smoke from wildfires adds GHGs and accelerates permafrost thawing.

3. Net Carbon Emissions

O Between 2001 and 2020, Arctic tundra released more carbon than its plants absorbed — likely for the first time in thousands of years.

Future Implications

1. Global Impact

O The Arctic's shift from a carbon sink to a source will exacerbate climate change, increasing global temperatures and worsening its impacts.

2. Potential Solutions

O Reducing global GHG emissions could reverse the trend, making the tundra a carbon sink again.

O Scientists emphasize that lower climate change levels would result in fewer emissions from thawing permafrost.

3. Challenges Ahead

O Despite calls for action, global GHG emissions continue to rise.

O The Global Carbon Project predicts 41.6 billion tonnes of CO_2 emissions in 2024, up from 40.6 billion tonnes in 2023, driven by fossil fuel use and deforestation.

Conclusion

The transformation of the Arctic tundra into a carbon source highlights the urgent need for global action to reduce emissions. Without intervention, this ecosystem's shift will further accelerate climate change, amplifying its already severe consequences worldwide.

Relevance: GS Prelims & Mains Paper III; Environment

6. Climate change and biodiversity loss are connected: Key takeaways from NEXUS report

Overall view

A new major scientific report has highlighted the strong interlinkages between some of the biggest challenges facing humankind such as climate change, biodiversity loss and hunger, and emphasised on the need for adopting an integrated approach in addressing these issues. Trying to deal with these challenges separately, while ignoring the interactions with and influences on others, was not just likely to be ineffective, but also counterproductive, according to the report.
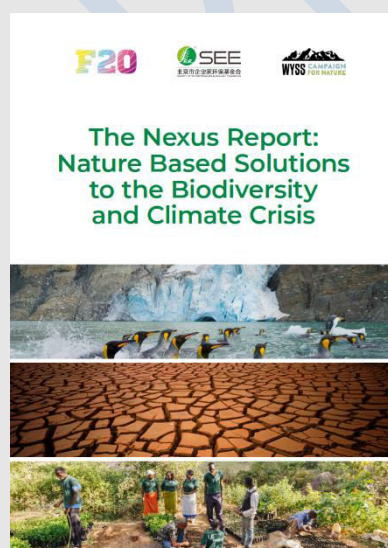
The report, the first of its kind looking at the interconnections between these multiple crises, has been produced by Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), a global group of scientific experts. The group examined five major challenges — climate change, biodiversity loss, food insecurity, water scarcity, and health risks — and found that they were strongly interconnected.

It said the manner in which economic activities were currently being carried out had big negative impacts on biodiversity, climate change, food production, water and health. The unaccounted-for costs of these adverse effects are estimated to be at least $10-25 trillion a year.

What is IPBES?

IPBES is to biodiversity and natural ecosystems what the more famous Intergovernmental Panel on Climate Change (IPCC) is to climate change. It periodically examines all the existing scientific knowledge on biodiversity and nature to make an assessment of their current state. Just like IPCC, IPBES too does not produce new science. It only evaluates the existing knowledge to make consolidated assessments.

The information provided by IPCC, which came into being in 1988, have formed the scientific basis for climate change negotiations. The much younger IPBES, set up in 2012, informs several multilateral environmental processes, including the UN Convention on Biological Diversity (CBD), the Convention on Combating Desertification (CCD), the Ramsar Convention on Wetlands, Convention on International Trade in Endangered Species, and the Cartagena Protocol on Biosafety.

First Report

IPBES produced its first report in 2019 in which it assessed the threat to global biodiversity. That report found that as many as one million different species of plants and animals, out of an estimated eight million in total, were facing extinction threats, more than at any previous time, mainly due to the changes in natural ecosystems caused by human activities. It had said nearly 75 per cent of the Earth's land surface and 66 per cent of marine environments had been "significantly altered", and over 85 per cent of wetlands had been "lost".

The information in this report became the basis for the Kunming-Montreal Global Biodiversity Framework, an international agreement that was finalised in 2022. This agreement set 23 targets to be met by 2030 in order to halt and reverse biodiversity loss. These include what are known as the 30 x 30 targets — protecting at least 30 per cent of the land, freshwater and oceans, and restoring at least 30 per cent of degraded ecosystems by 2030.

What does the latest report say?

The latest assessment of IPBES is called the Nexus Report, which has highlighted the strong interlinkages between the five identified global challenges. Its key takeaway is that responses to all these challenges need to be harmonised so that positive actions taken on any one of these does not result in negative impacts on others, something that is quite possible, as exemplified in several current approaches.

For example, an attempt to scale up food production, a positive action to deal with hunger and malnutrition, could have the unintended consequence of increasing stress on land and water resources and biodiversity. Exclusive focus on climate change could also go down on the same pathway. Similarly, protecting land and oceans could restrict choices on climate change and food security.

The report, therefore, argues that it was important to adopt synergistic approaches that deliver benefits across the spectrum.

Such synergistic approaches were available, the report said, and identified over 70 response options that produced positive outcomes across the five elements. Examples of such response measures included restoration of carbon-rich ecosystems such as forests, soils and mangroves, effective management of biodiversity to reduce risks of diseases spreading from animals to humans, promotion of sustainable healthy diets, and reliance on nature-based solutions wherever possible.

There were other response options that deliver benefits on two or three elements but not all. These were important but needed to be implemented carefully, the report said.

It said that the effort must be to find, and implement, actions that focus on sustainable production and consumption while also conserving and restoring ecosystems, reducing pollution, and mitigating the impacts of climate change.

How is damaging biodiversity leading to economic loss?
The report emphasised that nature and biodiversity were important not just for ecological and aesthetic reasons but also for purely economic reasons. It pointed out that more than half of the global GDP — about 58 trillion dollars worth of annual economic activity — was moderately to highly dependent on nature. Deterioration of natural ecosystems, therefore, could directly hurt productivity and adversely impact economic output.

As it is, the world has been witnessing biodiversity decline at the rate of about 2-6 per cent on an average every decade over the last half a century, the report said. It also highlighted that existing economic systems still offered trillions of dollars in incentives every year for actions that have direct negative impacts on biodiversity and natural ecosystems.

In another report released simultaneously, IPBES called for fundamental and transformative shifts in the way people view and interact with the natural world in pursuit of its well-being.

This report, being called the Transformative Change Report, said current, and previous, approaches to deal with ecological decline had failed, and a new and different approach was needed to halt the slide further.

This new and transformative approach, it said, must be based on four fundamental principles — equity and justice, pluralism and inclusion, respectful and reciprocal human-nature relationships, and adaptive learning and action.

It said the world needed to act immediately on such new approaches because the cost of delaying action would significantly increase the costs, almost doubling in just about a decade. There were also economic benefits to be had from immediate action. It said recent estimates suggested that more than 10 trillion dollars in business opportunities, and about 400 million jobs, could be generated by 2030 through sustainable economic approaches that rely on nature-positive economic models.

Relevance: GS Prelims & Mains Paper III; Environment

Introduction

The first ever Ganges river dolphin (Platanista gangetica) was tagged in Assam recently, in what is being deemed as a historic milestone for Project Dolphin, the movement aimed towards conserving India's National Aquatic Animal.

The tagging exercise will help in understanding the species' seasonal and migratory patterns, range, distribution, and habitat utilisation, particularly in fragmented or disturbed river systems, according to the press release by the Ministry of Environment, Forest and Climate Change.
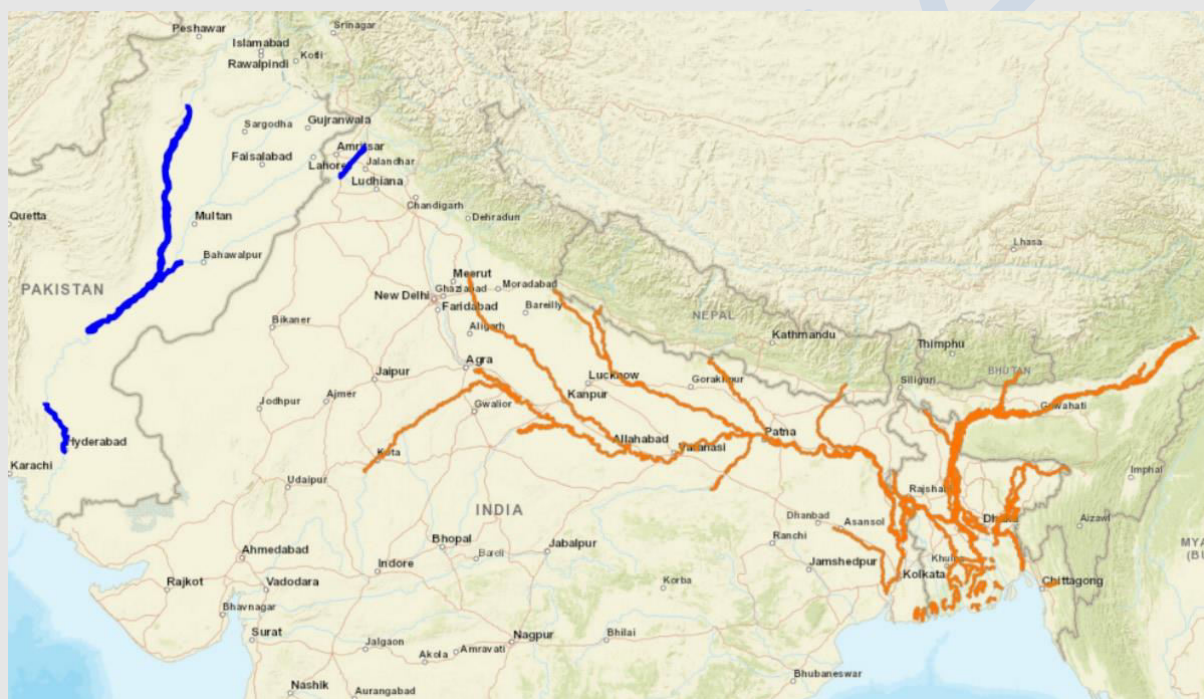
Distribution of Indus (blue) and Ganges (orange) river dolphins.

Ganges river dolphin

There are some 40 extant species across multiple families that are referred to as dolphins. The family Platanistidae comprises two extant species of Indian river dolphins — the Indus river dolphin and the Ganges river dolphin, both of which were considered to be the same species till the 1970s.

The Conservation Action Plan for the Ganges River Dolphin, 2010-2020, describes male Gangetic dolphins as being about 2-2.2 metres long, and females as a little longer at 2.4-2.6 m. An adult dolphin could weigh between 70 kg and 90 kg. They feed on several species of fishes, invertebrates, etc.

Ganges river dolphins are frequently found alone or in small groups, and are known to be extremely shy around boats, making it hard for scientists to observe them.

They go by a number of local names across their range including susu, soons, soans, or soos in Hindi, shushuk in Bengali, hiho or hihu in Assamese, and bhagirath, shus or suongsu in Nepali. Culturally, the species is often associated with Ganga and is occasionally depicted as the vahana (vehicle) of Goddess Ganga.

Behind declining population

The Ganges river dolphin was once found across the Ganges-Brahmaputra-Meghna and Karnaphuli-Sangu river systems of Bangladesh and India, and the Sapta Koshi and Karnali Rivers in Nepal. (See Map). There was a time when Gangetic dolphins could be spotted as high upstream in the Ganges and its tributaries as the Himalayan foothills.

However, according to the World Wildlife Foundation (WWF) the species is now extinct in most of its original distribution ranges, with only 3,500 to 5,000 individuals alive today. Both the Indus and Ganges dolphins have been listed as 'Endangered' in the International Union for Conservation of Nature (IUCN) Red List since the 1990s. This classification indicates that the species has "a very high risk of becoming extinct in the wild".

Behind the species' declining population and endangered status are a number of factors. These include:
• Construction of dams and barrages in rivers, which restrict these dolphins' movement and migration patterns, food supply, and breeding behaviours;
• Riverine pollution, which makes these dolphins' habitats unlivable for the species and others it depends on for food;
• Poaching for these dolphins' oily blubber, or accidental entanglement in fishing nets; and
• Habitat shrinking, as rivers dry up, and become less navigable.

Attempts at conservation

This is why, since the 1980s, various efforts have been made to conserve the elusive species, and restore its population to pre-20th century levels. But so far, these efforts have not borne much fruit.

1. WILDLIFE ACT PROTECTION

After the launch of Ganga Action Plan in 1985, the government in 1986 included Gangetic dolphins in the First Schedule of the Indian Wildlife (Protection) Act, 1972. This was aimed at checking hunting and providing conservation facilities such as wildlife sanctuaries for the species. For instance, the Vikramshila Ganges Dolphin Sanctuary was established in Bihar under this Act.

2. CONSERVATION PLAN

The government prepared The Conservation Action Plan for the Ganges River Dolphin 2010-2020, which "identified threats to Gangetic Dolphins and impact of river traffic, irrigation canals and depletion of prey-base on Dolphins populations". The idea was to holistically identify factors that were leading to the species population declining, and address these issues.

NATIONAL AQUATIC ANIMAL: In 2009, then Prime Minister Manmohan Singh, declared the Gangetic river dolphin as the National Aquatic Animal of India, in what was an attempt to boost awareness of the species and community participation in its conservation.

3. PROJECT DOLPHIN

This is the latest effort to aid the species' conservation, launched by Prime Minister Narendra Modi in 2020. While announcing the project, Modi said that this project will be on the lines of Project Tiger, which has been successful in reviving the tiger population in the country.

The latest dolphin tagging exercise is among the many initiatives made under the project, which according to its website "involves a systematic status monitoring of the target species and their potential threats, in order to develop and implement a conservation action plan." The lightweight tags are designed to emit signals that will be picked up by satellites when these species surface, which "will contribute to evidence-based conservation strategies that are urgently needed for this species," Virendra R Tiwari, director of the Wildlife Institute of India said.

Notably, Project Dolphin views the Gangetic river dolphin as an "umbrella species" whose conservation "will contribute to the wellbeing of associated habitat and biodiversity, including humans".

Relevance: GS Prelims; Environment

8. Mumbai remains under smog blanket: Factors behind city's deteriorating air

Overall view

For the third consecutive day, Mumbai was shrouded in a blanket of smog with the overall air quality index (AQI) touching 187.

Amid the city, as well as the extended metropolitan region, engulfed in smog for the past few days, lets have a look at the factors contributing to the deteriorating air quality conditions.

Several parts of Mumbai covered under blanket of smog as AQI dips

Low humidity, high vertical wind speed

Currently, Mumbai is experiencing dry weather, owing to low moisture content, but with temperature falling, as evidenced by little to no sweating among citizens.

This dry or low humidity level coupled with high speed of horizontal as well as vertical uplift is amongst a crucial factor that has resulted in hazy skies in the city without significant elevation in ground level AQI.

Typically, when Mumbai's humidity levels are high, there are small droplets of water vapour in the air on which tiny Particulate Matters (PM) piggyback and remain hanging in the air to deteriorate the air quality.

However, right now, the moisture is low resulting in low humidity in the city. Along with this, not only the horizontal winds but also the vertical wind speed — which is also known as eddy diffusion — is very high. It is an unusual situation. The combination of these factors including the high vertical speed, means that the layer of pollution is pushed higher up from the surface. The layer of pollutant cloud keeps getting pushed higher until it reaches the inversion layer which does not allow it to go further up. So the pollution cloud hangs in the atmosphere just below the inversion layer in the sky, making it look hazy from the ground.

Emissions from vehicles, construction sites, industries etc.
Besides the meteorological factors, emissions from open burning, construction sites, vehicles etc further affect Mumbai's smog-laden air shed as the pollutants from these sources remain trapped in the atmosphere for a longer duration, during winters.

Apart from traditional sources like emissions from industries and open fire burnings, increased construction projects, suspended particulate matters from tyres of vehicles going to and fro construction sites, emissions from vehicles have emerged as the major polluting factors. Even small scale sources like bakeries can add up to contribute to the deterioration.

Relevance: GS Prelims & Mains Paper III; Environment

9. Why growth of India's overall green cover is not all good news

Introduction
The 18th biennial State of Forest Report (ISFR-2023) by the Forest Survey of India (FSI) found a marginal gain of 156 sq km in forest cover, and a sizable increase of 1,289 sq km in tree cover since 2021.

For the first time, India's green cover has exceeded the 25% threshold with 8,27,357 sq km (25.17%) of the country now under forest (21.76%) and tree (3.41%) cover. Of this, 4,10,175 sq km is classified as dense forests.

Trees and forests
Tree patches smaller than 1 hectare do not count as forests, and have been measured separately by FSI as tree cover since 2001. The latest biennial cycle registered the sharpest growth in tree cover. From 3.04% in 2003, it had fallen to 2.76% in 2011, before rising to 2.91% in 2021. IFSR-2023 recorded a 0.5 percentage point jump in two years, with tree cover rising to 3.41%.

In comparison, India's forest cover has increased by only 0.05 percentage points since 2021. This is consistent with the trend of diminishing growth since India's forest cover crossed the 20% threshold at the turn of the millennium. Between 2003 and 2013, forest cover increased

by 0.61 percentage points, from 20.62% to 21.23%. In the next 10 years, it grew by only 0.53 percentage points to 21.76%.

Forests within forest

Irrespective of land use or ownership, tree patches measuring 1 hectare or more with a minimum canopy cover of 10% are counted as forests in India. Areas with a canopy density of 40% and above are considered dense forests, and those with canopy density of 10-40% are open forests (OF). Since 2003, areas with at least 70% canopy density have been classified as very dense forests (VDF).

Depending on factors such as climate and biotic pressure, a forest can improve or degrade to the next density category — a VDF patch may thin to become a moderately dense forest (MDF) or an OF may get upgraded as an MDF — during a 2-year IFSR cycle. When a previously forested area is recorded as non-forest (NF) or shrub (below 10% canopy), it means that the forest has been wiped clean.

Plain aggregated data on the quantum of different forest types do not represent this dynamic process where natural forests transform, disappear, and are replaced by plantations that typically grow much faster. Since 2003, ISFRs have made available data on this "change matrix" which, stitched together, indicates the broad trends over two decades.

Forest balance sheet

ISFR-2023 shows that 3,913 sq km of dense forests — an area larger than Goa — have disappeared in India in just two years since 2021. This is consistent with the worsening trend over the past two decades: 17,500 sq km of dense forests were wiped out between 2013 and 2023, while 7,151 sq km disappeared between 2003 and 2013.

Overall, India has witnessed the complete destruction of 24,651 sq km — more than 6.3% — of its dense forests in the two decades since 2003. As a single forest unit, that would be nearly half the size of Punjab.

The bulk of this loss has been offset by the rapid transformation of 15,530 sq km of non-forested or scantly forested land to dense or even very dense forests in successive two-year windows during 2003-2023. These are plantations, say experts, because natural forests do not grow this fast.

ISFR-2023 accounts for 1,420 sq km of plantations becoming dense forests since 2021. This again shows a downhill trend: areas under plantations-as-dense-forests are expanding as the disappearance of dense forests becomes routine.

CHANGE IN DENSE FOREST COVER 2003-2023

	2021-23	2003-2013	2013-2023	2003-2023
LOST				
VDF to NF	295	288	1277	1565
MDF to NF	3362	6714	15086	21800
VDF to scrub	24	5	65	70
MDF to scrub	313	144	1153	1297
Disappeared	**3994**	**7151**	**17581**	**24732**
VDF to OF	228	134	1128	1262
MDF to OF	5166	6414	22249	28663
Total loss	**9388**	**13699**	**40958**	**54657**
GAINED				
NF to VDF	56	43	483	526
NF to MDF	839	3631	7554	11185
Scub to VDF	1	0	54	54
Scrub to MDF	102	105	1043	1148
OF to VDF	496	124	2567	2691
Plantations	**1494**	**3903**	**11701**	**15604**
OF to MDF	8610	6122	34301	40423
Total gain	**10104**	**10025**	**46002**	**56027**
NET CHANGE	716	-3674	5044	1370

VDF: Very Dense Forest (canopy over 70%) | MDF: Moderate Dense Forest (canopy 40-70%)

OF: Open Forest (canopy 10-40%)| Shrub (canopy under 10%) | NF: Non-Forest (no canopy)

Source: ISFR 2003-23

Better management has helped large swaths of OFs become MDFs in the last decade. At the same time, plantations are supplementing these natural gains to keep the extent of India's dense forest cover stable: the "change matrix" shows an increase of 1,370 sq km over 20 years. Of this, 716 sq km was gained in the 2021-23 cycle alone.

On paper, though, India's dense forest cover has grown by 21,601 sq km — or 6% — during 2003-2023 due to a series of unexplained revisions of data presented in ISFR-2005, -2009, -2015 and -2021, adding a total of 20,232 sq km of dense forest to the inventory.

The implications
Under this opaque veneer of overall stability and growth in forest cover, the trend of steady replacement of natural dense forests with plantations has been criticised by experts.

Plantations usually have trees of the same age (and often the same species), are vulnerable to fire, pests and epidemics, and often act as a barrier to the regeneration of natural forests which are more biodiverse, perform a wider range of ecological functions, and support numerous species.

Old natural forests also stock a lot more carbon in their frame and in the soil. In 2018, the United Nations Framework Convention on Climate Change (UNFCCC) flagged India's assumption that plantations reach the carbon stock level of existing forests in just eight years. Plantations are frequently promoted for their rapid growth which can achieve carbon targets faster. On the flip side, plantations are often harvested more readily, defeating climate goals in the long term.

Relevance: GS Prelims & Mains Paper III; Environment

10. PM Modi lays foundation stone: What is the Ken-Betwa river linking project, environmental concerns around it

Introduction
Prime Minister Narendra Modi laid the foundation stone of the Ken- Betwa River Linking National Project recently, on the 100th birth anniversary of former Prime Minister Atal Bihari Vajpayee.

The Congress criticised the PM for this, saying the project poses a threat to the Panna Tiger Reserve.

What is the Ken-Betwa Link Project (KBLP)?
The KBLP envisages transferring water from the Ken river to the Betwa river, both tributaries of the Yamuna. The Ken-Betwa Link Canal will be 221 km in length, including a 2-km tunnel. According to the Jal Shakti Ministry, the project is expected to provide annual irrigation to 10.62 lakh hectares (8.11 lakh ha in MP and 2.51 lakh ha in UP) of land, supply drinking water to about 62 lakh people, and generate 103 MW of hydropower and 27 MW of solar power.

It is the first project under the National Perspective Plan for interlinking of rivers, which was prepared in 1980. This plan has 16 projects under its peninsular component, including the KBLP. Apart from this, 14 links are proposed under the Himalayan rivers development plan.

The Ken-Betwa Link Project has two phases. Phase-I will involve building the Daudhan Dam complex and its subsidiary units such as the Low Level Tunnel, High Level Tunnel, Ken-Betwa Link Canal and power houses. Phase-II will involve three components — Lower Orr Dam, Bina Complex Project and Kotha Barrage.
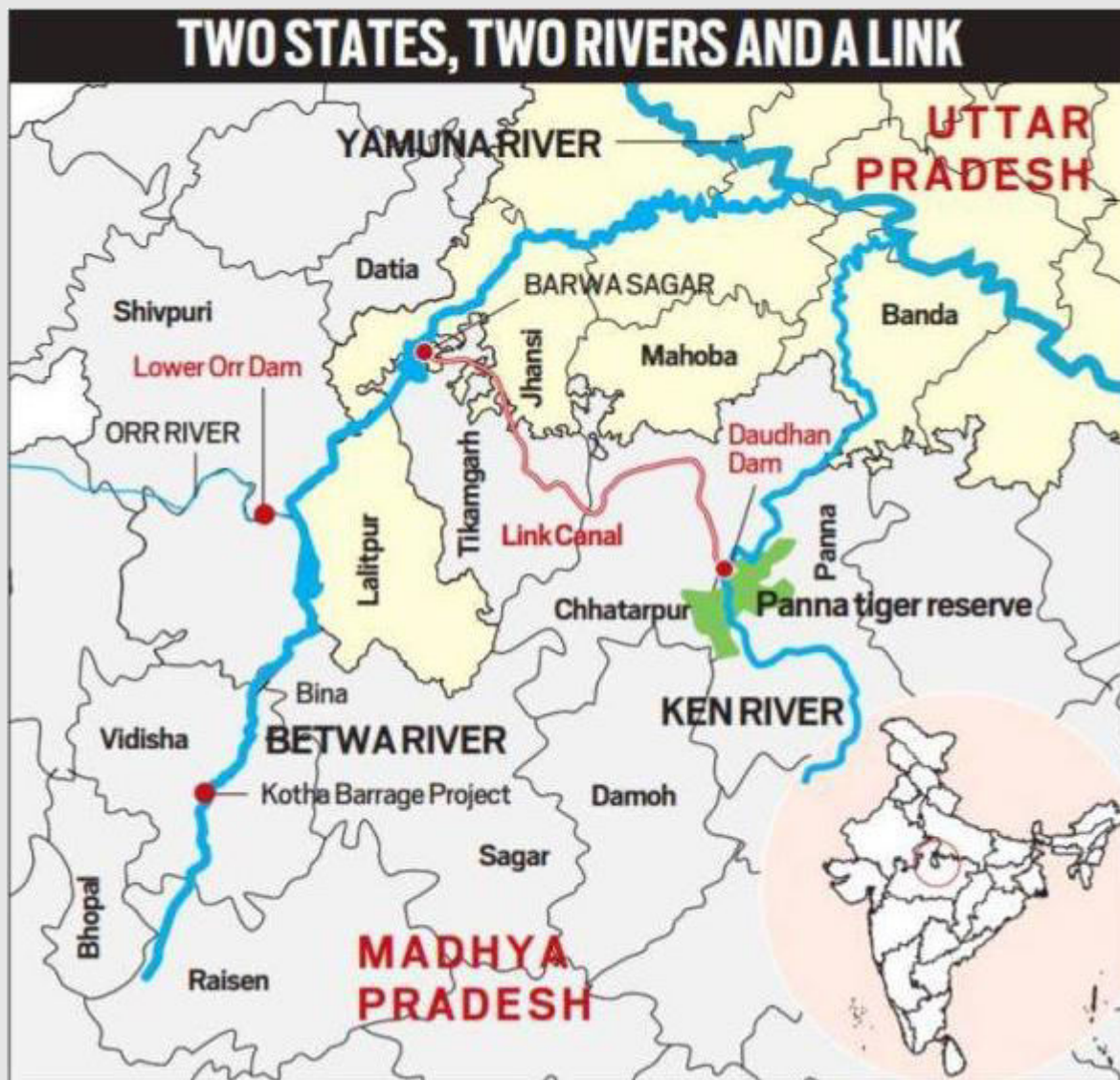
The Union Cabinet had approved Rs 44,605 crore (at 2020-21 prices) for the KBLP project in December 2021.

PM Modi laid the foundation stone for the Daudhan Dam. Daudhan dam is 2,031 m long, out of which 1,233 metre will be earthen and the rest 798 m will be of concrete. The height of the dam will be 77 m. According to the Jal Shakti Ministry, the dam will submerge about 9,000 hectares of land, affecting 10 villages.

Infrastructure company NCC Ltd has been awarded the contract for the Daudhan Dam.

By when will the project be completed?

According to the Jal Shakti Ministry, the KBLP project is proposed to be implemented in eight years.

When was the Ken-Betwa project agreement signed?

On March 22, 2021, a memorandum of agreement was signed among the Ministry of Jal Shakti and the governments of Madhya Pradesh and Uttar Pradesh to implement the Ken-Betwa Link Project.

How was the project conceptualised?

The idea of linking the Ken with the Betwa got a major push in August 2005, when a tripartite memorandum of understanding for preparation of a detailed project report (DPR) was signed among the Centre and the two states. In 2008, the Centre declared the KBLP a National Project. Later, it was included as part of the Prime Minister's package for the development of the drought-prone Bundelkhand region.

In April 2009, it was decided that the DPR would be prepared in two phases. In 2018, a comprehensive DPR, including Phase-I, II and additional area proposed by Madhya Pradesh, was prepared. It was sent to Uttar Pradesh, Madhya Pradesh and the Central Water Commission in October 2018.

Which regions will benefit from it?

The project lies in Bundelkhand, which spreads across 13 districts of Uttar Pradesh and Madhya Pradesh. According to the Jal Shakti Ministry, the project will be of immense benefit to the water-starved region, especially the districts of Panna, Tikamgarh, Chhatarpur, Sagar, Damoh, Datia, Vidisha, Shivpuri and Raisen of Madhya Pradesh, and Banda, Mahoba, Jhansi and Lalitpur of Uttar Pradesh. "It will pave the way for more river interlinking projects to ensure that scarcity of water does not become an inhibitor for development in the country," the Ministry said in a statement.

What are the project's likely environmental and social impacts?

The river-linking project has faced intense scrutiny for its potential environmental and social impact. The project will involve large-scale deforestation inside the heart of the Panna National Park and Tiger Reserve.

Also, over the years, experts have sought that hydrological data of Ken's surplus water be made public for a thorough review or fresh studies. A study published last year by IIT-Bombay scientists even found that moving large quantities of water as part of river linking projects can affect land-atmosphere interplay and feedback and lead to a mean rainfall deficit by up to 12 per cent in September.

The Supreme Court's Central Empowered Committee (CEC) had questioned the project on multiple counts while examining its wildlife clearance. The CEC had raised questions on the economic viability of the project, advocating for first exhausting other irrigation options in the upper Ken basin.

The submergence of around 98 sq km of Panna national park, where tigers had gone locally extinct in 2009, and felling of about two to three million trees has been one of the most controversial aspects of the project. The Daudhan dam is situated inside the national park.

The Union environment ministry approved its construction inside the core of the Panna tiger reserve, despite no precedent of such heavy infrastructure projects deep within national parks and tiger reserves. The CEC had also pointed out that the project will undo the successful tiger reintroduction that helped the tiger population bounce back from local extinction.

Downstream of the national park, the Daudham dam is also likely to affect the Gharial population in the Ken Gharial sanctuary along with vulture nesting sites, the CEC had noted. The dam will displace 5,228 families in Chhatarpur district and 1,400 families in Panna district due to submergence and project-related acquisition. The acquisition process has seen a lot of protests related to what locals have dubbed inadequate compensation and low benefits for Panna district.

Relevance: GS Prelims & Mains Paper III; Environment
Source: Indian Express

11. How furry sea otters are saving California's coastal ecosystems

Introduction

Sea otters are devouring thousands of green crabs — an invasive species native to Europe — at the Elkhorn Slough National Estuarine Research Reserve in California, helping save the ecosystem of the West Coast of the United States, according to a new study.

Once thought to be extinct, sea otters have rebounded along the coast, and have eaten so many crabs that they have locally solved a problem that has plagued the West Coast for years.

The study, 'Recovering population of the southern sea otter suppresses a global marine invader', was published by the journal Biological Invasions.

Why are green crabs a threat?
Green crabs first arrived in North America in the 1800s, likely via the ballast water — fresh or saltwater held in the ballast tanks and cargo holds of ships — of merchant ships from Europe, according to a report by National Oceanic and Atmospheric Administration Fisheries. They reached the West Coast in ballast water as well.

It was around the late 1980s when green crabs came to be seen as a threat to coastal ecosystems in the region. That is because they were damaging seagrass beds in multiple states, aggressively hunting and eating its prey which were crucial to other species' survival, and outcompeting native species for food and habitat.

Despite several efforts by states to curtail their population, green crabs continued to proliferate. For instance, in 2021, scientists said they failed to eradicate green crabs from an estuary in Stinson Beach, California, after years of efforts.

How did sea otters solve the issue?
Sea otters are a rare species as humans excessively hunted them in the 18th and 19th Century. They were mainly hunted for their thick, soft fur. It was only in 1913 that California declared them as a "fully protected mammal" but this did not stop them from being hunted. The sea otter population was further hit by oil spills which impacted their ability to remain warm.

Their number began to rebound after being listed as threatened and named a protected federal species in 1977.

"The first male sea otter arrived in the Elkhorn Slough, 35 miles north of Bixby Cove, in the late 1990s. Only in the early 2000s did females arrive, and soon thereafter pups," Kerstin Wasson, research coordinator with the Elkhorn Slough Reserve and co-author of the new study, told USA Today.

As a result, their population increased in the region — there are around 120 southern sea otters at the reserve currently. The new study found that these sea otters are consuming somewhere between 50,000 and 120,000 green crabs a year, playing a key role in limiting the proliferation of the invasive species.

Sea otters are a "super voracious predator" as unlike most marine mammals, they rely on a very rapid metabolism to stay warm in chilly oceans.

Wasson said, "Other marine mammals like seals have blubber (a thick layer of fat) to keep them warm. But sea otters do not have blubber, so they have to eat an enormous amount of food every day."

Sea otters eat about a quarter of their body weight every day, according to a report in The Marine Mammal Centre, a US-based non-profit organisation.

How else do sea otters help maintain healthy ecosystems?
Sea otters not only hunt green crabs but also sea urchins — small, spiky animals which can destroy entire forests of kelp, leaving behind deserts called urchin barrens. Kelp forests play a critical role in maintaining global environmental health. With levels of carbon dioxide rising in the atmosphere, a large amount of it is being absorbed by the sea, making it more acidic and

harmful to numerous species. However, studies have shown that healthy kelp forests can absorb billions of kilograms of carbon and help protect marine ecosystems.

In his 2016 book, 'Serendipity: An Ecologist's Quest to Understand Nature', marine biologist James Estes wrote that in his observations, around islands where sea otters had disappeared, sea urchins had proliferated and destroyed kelp forests. On the other hand, near islands where sea otters had survived or had been reintroduced, kelp forests flourished.

Relevance: GS Prelims; Environment
Source: Indian Express

12. India State of Forest Report (ISFR) 2023

Introduction
The India State of Forest Report (ISFR) 2023 shows that the country's Forest and Tree cover now spans 827,357 square kilometers, covering 25.17% of the nation's total land area. This includes 715,343 square kilometers (21.76%) of forest cover and 112,014 square kilometers (3.41%) of tree cover. This progress reflects India's successful efforts to balance development with environmental conservation.

ISFR 2023: A Snapshot of India's Forests
The India State of Forest Report (ISFR) 2023, published by the Forest Survey of India (FSI), is a biennial assessment of the country's forest resources using satellite data and field information.

The first report was published in 1987, and the ISFR 2023 marks the 18th edition.

The report is published in two volumes:
• Volume-I provides a national-level assessment, covering aspects like forest cover, mangrove cover, forest fires, growing stock, carbon stock, agroforestry, forest characteristics, and decadal changes.
• Volume-II offers detailed information on forest cover and field inventory data for each State/UT, including district and forest division-wise forest cover data.

Growth in Forest Cover
The India State of Forest Report (ISFR) 2023 highlights positive growth in India's forest cover, increasing from 698,712 km² in 2013 to 715,343 km² in 2023. Fire incidents have also decreased, with 203,544 fire hotspots recorded in 2023-24, down from 223,333 in 2021-22. In line with India's Nationally Determined Contributions (NDC) target, the country has achieved a carbon sink of 30.43 billion tonnes of CO2 equivalent. This represents an additional 2.29 billion tonnes of carbon sink in Forest and Tree Cover since 2005, nearing the target of 2.5 to 3.0 billion tonnes of CO2 equivalent by 2030. These advancements in forest cover and the reduction in fire incidents highlight India's progress toward sustainable environmental conservation.

EXPANSION OF FOREST COVER

698,712 KM² → 715,343 KM²

2013 — 2023

DECLINE IN FIRE INCIDENTS

223,333 → 203,544

FIRE HOTSPOTS IN 2021-22 — FIRE HOTSPOTS IN 2023-24

SOURCE: INDIA STATE OF FOREST REPORT (ISFR) 2023

Govt. Schemes and Initiatives to Increase the Forest Cover

The Forest Survey of India (FSI) has been key in improving forest monitoring through better forest cover mapping, the creation of an upgraded Forest Fire Alert System, and the completion of the first five-year cycle of the National Forest Inventory, which has provided important data on forest growth and carbon stocks. Additionally, the digitization of forest boundaries in 25 States and UTs has significantly improved forest cover assessments. These initiatives, coupled with the Ministry of Environment, Forest and Climate Change's efforts to expand forest and tree cover and conserve mangroves and wetlands, have greatly contributed to the development of forest cover. Here are some schemes that have supported these advancements:

· **National Mission for a Green India (GIM):** Launched in February 2014, this mission aims to enhance India's forest cover through protection, restoration, and expansion initiatives via Joint Forest Management Committees (JFMCs). The program has released Rs. 944.48 crore to 17 States and 1 Union Territory for plantation and eco-restoration efforts.

· **Nagar Van Yojana (NVY):** Established in 2020, this scheme focuses on developing green spaces in urban and peri-urban areas. The Ministry has approved 546 projects across 31 States/UTs, with Rs. 431.77 crore allocated for the initiative.

· **School Nursery Yojana (SNY):** Aimed at raising awareness about the importance of plants, this scheme encourages tree planting in schools across India. With an allocation of Rs. 4.80 crore, 743 projects have been sanctioned in 19 States/UTs.

· **Mangrove Initiative for Shoreline Habitats & Tangible Incomes (MISHTI):** This five-year initiative (2023-2028) seeks to restore and promote mangroves along India's coastline, enhancing coastal habitats' sustainability. Rs. 17.96 crore has been allocated to states like Andhra Pradesh, Gujarat, Kerala, Odisha, West Bengal, and U.T. of Puducherry.

· **Ek Ped Maa Ke Naam:** Launched by the Prime Minister on 5th June 2024, this campaign encourages citizens to plant trees in honor of mothers, fostering a deep connection between nature and nurturing.

· **Compensatory Afforestation Fund Management and Planning Authority (CAMPA):** This scheme compensates for the loss of forest cover and ecosystem services caused by the diversion of forest land for non-forestry purposes, in line with the Van Sanrakshan Evam Samvardhan Adhiniyam, 1980.

· **Afforestation Targets under the Twenty-Point Programme:** The Ministry sets annual afforestation targets for States/UTs, utilizing a mix of Central Government schemes, State Government plans, and efforts by NGOs, private organizations, and civil society.

· **Awareness and Mass Plantation Drives:** The Ministry promotes tree planting through events like International Day of Forests, World Environment Day, Van Mahotsav, and Wildlife Week, alongside conferences, workshops, and informational campaigns.

· **Indian Forest Management Standard:** A part of the National Working Plan Code – 2023, this standard establishes criteria and frameworks for monitoring sustainable forest management and supports the Indian Forest and Wood Certification Scheme, particularly benefiting small-scale timber producers.

· **National Action Plan on Forest Fire-2018:** This plan provides measures to prevent forest fires, build resilience, and enhance community capacity for fire control and prevention.

· **Joint Forest Management and Eco Development Committees:** In line with the National Forest Policy of 1988, the Ministry has promoted community involvement through Joint Forest Management Committees (JFMCs) for better forest and wildlife protection, ensuring local participation in management and conservation activities.

Additionally, the conservation of forests, mangroves, and wetlands is ensured through strict enforcement of relevant Acts, Rules, Regulations, and Court orders.

Legal Framework for Forest and Wildlife Protection
In India, the protection and management of forest and wildlife resources are governed by a strong legal framework designed to ensure conservation and sustainable use. Key laws include the Indian Forest Act, 1927, the Van (Sanrakshan Evam Samvardhan) Adhiniyam, 1980, and the Wildlife (Protection) Act, 1972, aimed at protecting wildlife species and their habitats, including the creation of protected areas like national parks and sanctuaries. Additionally, State Forest Acts cater to forest management specific to each state, while Tree Preservation Acts and Rules focus on protecting trees in both urban and rural areas. The enforcement of these laws is primarily the responsibility of State Governments and Union Territories, which take necessary actions to ensure the protection and management of forests and wildlife as per these legal provisions.

People's Connection with Nature
Laws, schemes, and acts alone cannot drive the change we need; it takes dedicated individuals to truly make a difference. Padma Shri Tulsi Gowda, also known as the "Mother of Trees,"

dedicated over 60 years to planting and nurturing lakhs of trees in Karnataka, transforming barren land into lush forests. Her work has left a lasting legacy in environmental conservation. Tulsi's passing serves as a poignant reminder of the urgent need for more individuals like her—those who selflessly dedicate their lives to nurturing and protecting the Earth, ensuring a greener, more sustainable future for generations to come.

Conclusion

India is making remarkable strides in its journey towards environmental sustainability. The 2023 India State of Forest Report showcases impressive growth in both forest and tree cover, a significant decline in fire incidents, and the flourishing of agroforestry. These achievements reflect the country's dedication to balancing development with conservation. Through innovative government initiatives and the involvement of local communities, India is not just protecting its natural resources but actively restoring them. With continued commitment and collective action, India is paving the way for a greener, healthier future for all.

Relevance: GS Prelims & Mains Paper III; Environment
Source: PIB

Science & Technology

1. India Rises to Top 50 in Network Readiness Index 2024

Improved Ranking and Score

India has climbed 11 positions to rank 49th in the Network Readiness Index (NRI) 2024, compared to 60th in 2023. The report, released on November 21, 2024, evaluates 133 economies based on four pillars: Technology, People, Governance, and Impact, encompassing 54 variables. India's score also improved from 49.93 in 2023 to 53.63 in 2024. The report has been published by the Portulans Institute, an independent non-profit research and educational institute based in Washington DC.

Key Achievements

India excels in several indicators:

• 1st rank: AI scientific publications, AI talent concentration, ICT services exports.
• 2nd rank: FTTH/building Internet subscriptions, mobile broadband traffic, international Internet bandwidth.
• 3rd rank: Domestic market scale.
• 4th rank: Annual investment in telecommunication services.

Performance Among Peer Economies

In the lower-middle-income group, India is ranked 2nd, trailing only Vietnam. The report highlights India's strengths in technological innovation and digital transformation.

Growth in Telecommunications Sector

India's rise in the NRI reflects significant advancements in telecommunications:
• Tele-density: Increased from 75.2% to 84.69% in the last decade.
• Wireless connections: Surged to 119 crore.
• Broadband expansion: Internet subscribers grew from 25.1 crore to 94.4 crore, with significant growth in rural areas.

Key reforms such as spectrum management, ease of doing business, and consumer protection have further boosted the sector.

Leap in Global Broadband Speeds
Since launching 5G services in 2022, India's global mobile broadband speed ranking improved from 118th to 15th.

Future Goals
India aims to position itself as a leader in telecom innovation with the Bharat 6G Vision, investments in emerging technologies, and a strong focus on digital infrastructure. These efforts underscore India's commitment to becoming a global digital powerhouse.

Relevance: GS Prelims; Science & Technology
Source: PIB

2. How scientists took first zoomed-in image of star outside our galaxy

Overview

First 'Zoomed-in' Image of Star Outside Milky Way Revealed

For the first time, scientists have succeeded in taking a zoomed-in picture of a star in another galaxy. The star, known as WOH G64, seems to be cloaked in an egg-shaped cocoon and is located 160,000 light years away in the Large Magellanic Cloud, one of the small galaxies that orbit the Milky Way.

The scientists have described their observations in the paper, 'Imaging the innermost circumstellar environment of the red supergiant WOH G64 in the Large Magellanic Cloud', published by the journal Astronomy and Astrophysics last week.

How was the picture taken?
Until now, researchers have been able to take pictures of stars in other galaxies that show them as little more than points of light. However, with the help of the European Southern Observatory's Very Large Telescope Interferometer (VLTI), they have now revealed a detailed image of WOH G64.

VLTI comprises four 8-metre diameter telescopes situated in Cerro Paranal, Chile. It also has an interferometer called GRAVITY that combines the light from the telescopes to achieve the resolution of a much larger telescope.

What do we know about WOH G64?
WOH G64 is believed to be the largest galaxy in the Large Magellanic Cloud. The star is around 2,000 times the diameter of the Sun.

The new photo has revealed that WOH G64 is entering the last stages of its life. In recent years, the star has blown off its outer layer, and it is now surrounded by wreaths and arcs of gas and dust.

Massive stars explode with an energy equivalent to the Sun shining for all of its 10 billion years of life. People have seen these supernova explosions, and astronomers have found some of the stars that exploded in older images. But we have never seen a star change in a way that signals its imminent death.

When big stars like WOH G64 exhaust their nuclear fuel which keeps them burning, their cores collapse. Some massive stars collapse directly to form a black hole — a region in space where gravity is so strong that nothing can escape, including light and matter. Others collapse and lead to an explosion called supernova, which produces many elements such as zinc, silver, tin, gold, mercury, lead, and uranium.

Relevance: GS Prelims; Science & Technology
Source: Indian Express

3 Marburg virus outbreak in Rwanda: Why 'bleeding eye disease' is a global concern

Bleeding eye disease

'BLEEDING EYE DISEASE' CAUSES CONCERN: MARBURG OUTBREAK SPARKS GLOBAL URGENCY FOR

An outbreak of Marburg virus disease (MVD) has killed at least 15 people, and infected at least 66 in Rwanda as of November 29, the country's Ministry of Health announced.

Often referred to as the "bleeding eye virus", MVD is one of the deadliest pathogens known to infect humans. Case fatality rates ranging from 24% to 88% in past outbreaks, depending on virus strain and case management. The first case in Rwanda this year was reported in September.

Ebola's lesser-known twin
Marburg belongs to the filovirus family, like the much better known Ebola. Both pathogens are clinically similar, and although rare, can cause outbreaks with high fatality rates.

The first recognised MVD outbreak occurred in the town of Marburg in Germany in 1967. Since then, subsequent outbreaks have been mostly reported across Africa, most recently in Tanzania, Ghana, and now Rwanda.

The World Health Organisation has put MVD in a list of pathogens that pose the greatest threat to public health, and do not have adequate drugs and vaccines against them.

Spread from bats, human contact

Initially, human MVD infections were caused by prolonged exposure to mines or caves inhabited by colonies of Rousettus bats, most notably the Egyptian fruit bat (Rousettus aegyptiacus).

However, according to the World Health Organization (WHO), the virus also spreads through human-to-human contact: both directly (through contact with blood and other bodily fluids of infected people), and indirectly (through surfaces and materials like bedding, clothing, etc. contaminated with these fluids).

Can cause haemorrhagic symptoms

The interval between infection and onset of symptoms varies from 2 to 21 days. Initial symptoms, according to the WHO, include high fever, severe headache, muscle ache, severe watery diarrhoea, abdominal pain and cramping, and vomiting.

Many patients develop haemorrhagic symptoms (bleeding), often in many places including the digestive system (faeces and vomit often come with fresh blood), the nose, gums, the eyes (hence "bleeding eye disease"), and vagina. Haemmorage leads to most MVD fatalities, with death in fatal cases occurring 8 to 9 days after the onset of symptoms, usually of severe blood loss and shock.

Treatments still in the works

Currently, there are no approved vaccines or specific treatments for MVD. According to WHO, supportive care — rehydration with oral or intravenous fluids — and treatment of specific symptoms, improves survival.

Some treatments are also being further devised. Rwanda Health Minister Sabin Nsanzimana had said in October that the country is seeking experimental vaccines and treatments. The US-based Sabin Vaccine Institute had provided Rwanda with 700 doses of its experimental Marburg vaccine, which were administered to healthcare professionals at the frontlines. Its efficacy is still unclear.

Relevance: GS Prelims; Science & Technology
Source: Indian Express

4. Nafithromycin: Country's First Indigenous Antibiotic

Introduction

Antimicrobial resistance has long been a growing global concern, with pharmaceutical companies striving to develop new medicines to combat it worldwide. Despite years of challenges and relentless effort, a breakthrough has finally emerged. After three decades of research and hard work, India has led the way with the creation of Nafithromycin, the country's first indigenous Macrolide antibiotic. This remarkable achievement marks a pivotal moment in the fight against antimicrobial resistance, showcasing India's growing capabilities in pharmaceutical innovation.

India's Fight Against Antimicrobial Resistance

Antimicrobial Resistance (AMR) occurs when bacteria, viruses, fungi and parasites no longer respond to antimicrobial medicines. As a result of drug resistance, antibiotics and other antimicrobial medicines become ineffective and infections become difficult or impossible to treat, increasing the risk of disease spread, severe illness, disability and death. Antimicrobial resistance (AMR) has become a major global health issue, with around 6 lakh lives lost in India each year due to resistant infections. However, India is making significant strides in addressing AMR, particularly through the development of new drugs.

Nafithromycin, developed with ₹8 crore in funding under the Biotechnology Industry Research Assistance Council (BIRAC) Biotech Industry Program for Phase 3 clinical trials, is a key milestone in this effort. Since India carries a large share of the global pneumonia burden, introducing Nafithromycin is especially important, as there have been no new antibiotics in recent years. Nafithromycin offers improved patient compliance and is a vital step in combating AMR.

Nafithromycin: Milestone for Public Health

Nafithromycin, was officially launched on November 20, 2024, by Union Minister Dr. Jitendra Singh. Developed by Wockhardt with support from the Biotechnology Industry Research Assistance Council (BIRAC), Nafithromycin, marketed as "Miqnaf," targets Community-Acquired Bacterial Pneumonia (CABP) caused by drug-resistant bacteria, which disproportionately affects vulnerable populations such as children, the elderly, and those with compromised immune systems.

This groundbreaking antibiotic is ten times more effective than current treatments like azithromycin and offers a three-day treatment regimen, significantly shortening the recovery time while improving patient outcomes. Nafithromycin is designed to treat both typical and atypical drug-resistant bacteria, making it a crucial tool in addressing the global health crisis of AMR (Anti-microbial Resistance). It boasts superior safety, minimal side effects, and no significant drug interactions.

Nafithromycin's development marks a historic milestone as the first new antibiotic in its class to be introduced globally in over 30 years. The drug, which has undergone extensive clinical trials across the U.S., Europe, and India, has been developed with an investment of ₹500 crores

and is now awaiting final approval from the Central Drugs Standard Control Organization (CDSCO).

This innovation exemplifies the power of public-private collaboration and underscores India's growing capabilities in biotechnology. Nafithromycin's successful introduction represents a major leap in the fight against AMR, offering hope for treating multi-drug-resistant infections and saving lives worldwide.

Government's Other Initiatives to Combat AMR

Other than developing Nafithromycin, the Government of India has taken significant steps to combat Antimicrobial Resistance (AMR) through a series of strategic initiatives aimed at surveillance, awareness, and collaboration. These efforts focus on enhancing AMR containment, improving infection control, and fostering national and international partnerships.

1. Surveillance and Reporting: National surveillance networks, including laboratories across the country, have been established to generate annual AMR surveillance reports, with data submitted to the Global AMR Surveillance System (GLASS).

2. Awareness and Training: Awareness materials on the judicious use of antimicrobials, hand hygiene, and infection prevention have been developed and shared with stakeholders. National Guidelines on infection prevention have been launched, and a "train-the-trainer" program has been conducted across all states and UTs, with ongoing cascading of training at the state level.

3. Judicious Use of Antimicrobials: To promote responsible usage, surveillance of antimicrobial use has been initiated at tertiary care hospitals.

4. National Action Plan on AMR (NAP-AMR): Launched in 2017, the NAP-AMR aligns with the Global Action Plan on AMR. The plan has been implemented across multiple ministries and was initially set for five years.

5. NAP-AMR 2.0 Development: National consultations were held in 2022 across sectors (human health, research, environment, animal husbandry) to develop NAP-AMR 2.0, which includes SWOT analysis and recommendations for AMR research policies.

6. Red Line Awareness Campaign: The Ministry of Health and Family Welfare (MoHFW) launched the Red Line campaign to raise awareness about the dangers of using antibiotics without a prescription. The campaign advises the public not to use antibiotics marked with a red vertical line unless prescribed by a doctor.

7. ICMR Guidelines: The Indian Council of Medical Research (ICMR) has issued treatment guidelines to regulate the use of antibiotics, especially for common conditions like viral bronchitis and low-grade fever. These guidelines aim to prevent unnecessary antibiotic use.

8. Regulation of Antibiotics under Schedule H and H1: Antibiotics are listed under Schedule H and H1 of the Drugs Rules, 1945, ensuring they are only available with a prescription from a registered medical practitioner. Drugs under Schedule H1 are also subject to strict record-keeping, with supply records maintained for three years.

9. CDSCO Notification for High-End Antibiotics: The Central Drugs Standard Control Organisation (CDSCO) has included 24 high-end antimicrobials under Schedule H1, mandating strict regulation and oversight to prevent misuse.

Relevance: GS Prelims; Science & Technology
Source: PIB

5. Why Centre wants states to make snakebites notifiable disease

Introduction

The Union Health Ministry has urged states to make snakebites a notifiable disease — a disease that is legally required to be reported to the government by both private and public hospitals.

Snakebites are a major public health challenge in the country. Some three to four million cases of snakebites are reported every year, and an estimated 58,000 persons die because of them annually, according to the 2020 Indian Million Death Study, a largescale study that examined the causes of premature death in India.

Earlier this year, the government launched the National Action Plan for Prevention and Control of Snakebite Envenoming (NAPSE) with the aim of halving snakebite deaths by 2030. NAPSE recommended that snakebites should be made a notifiable disease.

Which types of diseases are considered notifiable?
Usually, infections that are likely to cause an outbreak, lead to deaths, and those that need to be investigated quickly to take appropriate public health measures, are declared as notifiable diseases.

While the list of notifiable diseases differs from state to state — state governments are responsible for bringing out the notification — most of them consider infections such as tuberculosis, HIV, cholera, malaria, dengue, and hepatitis among others to be notifiable.

Why is snakebite considered a 'disease'?
Snakebites can lead to acute medical emergencies that require immediate care. They can cause severe paralysis that can prevent breathing, can lead to a fatal haemorrhage, and damage different tissues.

Snakebites need to be treated with antivenoms to prevent death and severe symptoms.

The bites of which snakes can be fatal?
There are more than 310 species of snakes in India — 66 of them are venomous and 42 are mildly venomous. Twenty-three snake species are considered to be of medical importance as their venom can kill. However, almost 90% of snakebites in the country are caused by the 'Big Four' — the Indian cobra, common krait, Russell's viper, and saw-scaled viper.

The commercially available polyvalent antivenom contains venom from all four species, and is effective against 80% of snakebites.

Why does the Centre want snakebites to be made notifiable?
Making snakebites notifiable is expected to lead to proper surveillance, and to help determine the precise numbers of snakebite cases and deaths across India. The government can then use this information to effectively manage, prevent, and control cases of snakebites. Adequate antivenoms can be provided to various regions, and proper training can be imparted in areas where snakebites are frequent.

In a letter to all state health secretaries, Union Health Secretary Punya Salia wrote: "A mandatory notification of all snakebite cases and deaths is required to strengthen snakebite surveillance. It will help stakeholders gauge accurate burden, high-risk areas, factors responsible for deaths of snakebite victims etc resulting in improved clinical management."

Most snakebites happen in densely populated, low-altitude, agricultural areas in states including Bihar, Jharkhand, Madhya Pradesh, Odisha, Uttar Pradesh, Andhra Pradesh, Telangana, Rajasthan, and Gujarat, according to NAPSE.

What are the challenges of treating snakebites?
The challenges are mainly on three fronts.

Treatment: Snakebite victims either do not reach a healthcare centre in time or do not go there at all — and many reach out to faith-based healers instead.

In many cases, staff at healthcare centres are not adequately trained in treating snakebites. Tests for confirming snakebites are also not available.

Antivenoms: Almost all the venom that is used to develop the antivenom in the country comes from snakes caught by the Irula tribe, who live in the states of Tamil Nadu, Karnataka, and Kerala. This is a major challenge, as the biochemical constituents and the effect of the venom from the same snake species may differ based on geography.

"These differences result in the commercial ASV (anti-snake venom) prepared against the venom samples from a particular geographical location of the country showing poor immune cross-neutralisation and toxicity neutralisation," according to a 2020 paper published in the Indian Journal of Medical Research (IJMR).

Studies also show that the venom potency changes with age. For instance, the venom of Russell's viper neonates is far more toxic for mammals and reptiles than that of the adult ones, according to a 2024 study.

Besides, antivenoms themselves cause various reactions.

There are also local snake species — such as the banded krait, monocled cobra, and green pit viper in the Northeast — against which the commercially available antivenom does not work.

Due to these limitations of antivenoms, researchers are now developing artificially produced antibodies that can help neutralise the toxins across various snake species. They are also looking at artificially designed peptides to fight the toxin.
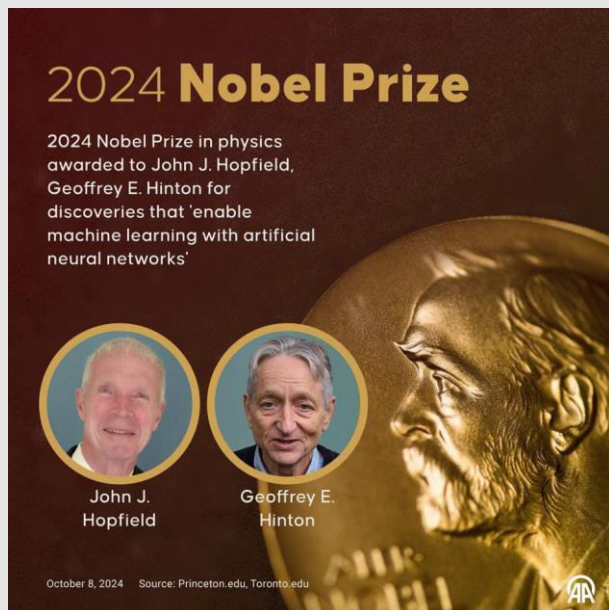
Venom collection: Experts have suggested setting up zonal venom collection banks across the country to develop antivenoms that can cover the regional differences. However, The Wild Life (Protection) Act, 1972, limits access to snakes, making it difficult to set up such banks.

Relevance: GS Prelims; Science & Technology
Source: Indian Express

6. The Neuropsychology and Physics Behind the 2024 Physics Nobel Prize

A Cross-Disciplinary Prize

2024 Nobel Prize in physics awarded to John J. Hopfield, Geoffrey E. Hinton for discoveries that 'enable machine learning with artificial neural networks'

John J. Hopfield

Geoffrey E. Hinton

October 8, 2024   Source: Princeton.edu, Toronto.edu

The 2024 Physics Nobel Prize has sparked interest across disciplines due to its connection with neural networks. Many are puzzled, including physicists, as the citation does not clearly highlight the physics behind the award. Surprisingly, at the core of John Hopfield's Nobel-winning work lies not only fundamental physics but also a breakthrough discovery in neuropsychology, forming the basis for artificial neural networks (ANNs). These networks were later advanced by Geoffrey Hinton, another co-recipient, to power modern Artificial Intelligence (AI).

A Link to Cognitive Neuroscience

This year's prize also holds significance for cognitive neuroscientists. To understand its context, we must revisit the history of computational and neurological exploration. Early pioneers like David Hilbert, Kurt Gödel, Alan Turing, and Alonzo Church laid the groundwork for understanding computability in the 1930s and 1940s. Simultaneously, scientists were investigating how the brain computes.

The Hebbian Revolution in Learning and Memory

Progress on understanding the brain's learning mechanisms was slow until neuropsychologist Donald O. Hebb provided a crucial insight in 1949. Hebb discovered that synaptic connections between neurons change their effectiveness during learning in an irreversible manner, akin to plasticity. This foundational discovery advanced the study of learning and memory.

Hopfield's Breakthrough: The ANN Model

In 1982, physicist-turned-computer-scientist John Hopfield introduced a biologically plausible model for a neuronal network, inspired by the behavior of a fascinating physical system called a spin glass.

• What is a Spin Glass?

A spin glass forms when magnetic elements like iron or manganese mix with non-magnetic ones such as gold or copper. In this system, atomic spins freeze in random orientations, resulting in a vast number of energy-minimizing patterns.

• Mapping to Neurons

Hopfield analogized spins to neurons, which either fire or remain inactive, interacting and modifying their connections according to Hebb's principle. The energy-minimizing spin patterns correspond to memories in a neural network.

Associative Memory and the ANN Brain Model

Hopfield's ANN mimicked a biological brain where:

• Neurons fire or stay quiescent, influenced by electrical impulses.
• Memories are stored as patterns of synaptic changes.
• These patterns can be retrieved even from partial or distorted inputs.

This model marked a significant milestone, bridging physics and neuropsychology, and laying the groundwork for modern AI.

Advances and Diversification
Hopfield's work led to two major research directions:
1. **Improving ANN Architecture:** Focused on computational applications, fueling the AI revolution.
2. **Biological Realism:** Addressing cognitive and physiological aspects to make ANNs closer to biological systems.

This year's Physics Nobel not only honors transformative work in AI but also celebrates the interplay of physics, neuropsychology, and cognitive science.

Relevance: GS Prelims; Science & Technology

7. Indian Scientists Pioneer Gene Therapy for Haemophilia

Breakthrough in Treating Haemophilia A

Indian scientists have successfully developed a novel gene therapy to treat severe haemophilia A, a rare hereditary condition caused by a defective gene. The condition leads to severe, spontaneous, and potentially fatal bleeding episodes. In a trial conducted on five patients in Tamil Nadu, none experienced bleeding episodes over an average follow-up of 14 months. The findings were recently published in the New England Journal of Medicine (NEJM).

Trial Details
The study was led by Dr. Alok Srivastava of the Centre for Stem Cell Research (CSCR) at the Christian Medical College in Vellore, with financial support from the Union Department of Biotechnology.

Gene Therapy: A One-Time Solution
Current treatments for haemophilia A involve regular injections of clotting factors. Gene therapy offers a potential one-time solution by introducing a gene that enables the body to produce sufficient clotting factor to prevent bleeding.

Understanding Haemophilia A
• What is Haemophilia A?

Haemophilia A is the more common type of haemophilia, caused by the absence of Factor VIII, a key blood-clotting protein.

• Severity Levels:

Severe haemophilia patients have less than 1% of clotting factor and require frequent treatment with Factor VIII replacements, monoclonal antibodies, or substitutes mimicking Factor VIII.

• Prevalence in India:

India has one of the largest haemophilia patient populations globally, with an estimated 40,000 to 1,00,000 patients.

Cost of Treatment

Treatment is prohibitively expensive, with a study estimating a 10-year treatment cost at $3,00,000 (₹2.54 crore) per patient in India.

Comparison with Roctavian

The only commercially approved gene therapy, Roctavian, was approved by the U.S. FDA in 2023. It reduced annual bleeding incidents from 5.4 to 2.6 in patients but required corticosteroids to suppress immune responses for efficacy.

Advantages of the Indian Approach

The Indian therapy avoids the use of adenovirus vectors employed in Roctavian, making it potentially safer and suitable for children.

Global Recognition

Independent expert Johny Mahlangu, in an NEJM editorial, called the study "ground-breaking." He highlighted its significance in demonstrating the feasibility of advanced gene therapy in resource-constrained settings like India.

Relevance: GS Prelims; Science & Technology

8. What is Disease X and Why Should the World Prepare for It?

The Story So Far
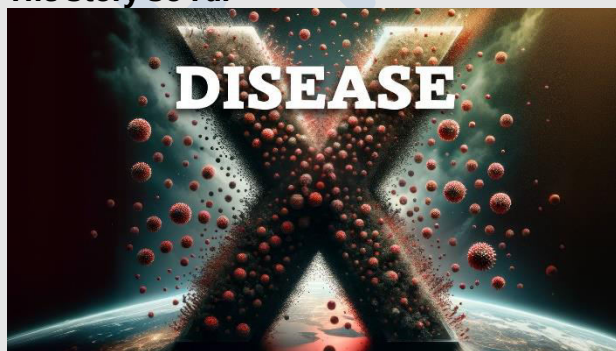
In early December 2024, an outbreak in the Democratic Republic of Congo claimed over 400 lives. This unclassified outbreak has raised concerns that it could be an instance of Disease X. The World Health Organization (WHO) coined the term "Disease X" in 2018 to represent a hypothetical, unknown pathogen capable of causing a severe epidemic or pandemic. This concept underscores the need for preparedness against unpredictable outbreaks.

WHO's Priority List of Pathogens

Origins of Disease X
The concept of Disease X emerged after the West African Ebola epidemic (2014–2016), which caused over 11,000 deaths and exposed critical gaps in global epidemic preparedness. COVID-19 is considered the first real-world example of Disease X, demonstrating the need for rapid global response to novel threats.

Purpose of the List
In 2018, WHO published a priority list of pathogens to direct global attention and resources toward combating the most serious infectious disease threats. These include diseases with high epidemic or pandemic potential but lacking sufficient medical countermeasures such as vaccines or treatments.

Current Pathogen List
The list includes Ebola, Marburg, Lassa fever, Nipah virus, Rift Valley fever, Crimean-Congo haemorrhagic fever, Zika virus, and Disease X. These pathogens are prioritized due to high mortality rates, rapid spread potential, and inadequate preventive or therapeutic measures.

What is Disease X?
Disease X is not a specific illness but a placeholder for an unknown and unpredictable pathogen capable of causing a global health crisis. It highlights the need for vigilance against emerging diseases that science has yet to encounter.

Characteristics of Disease X
Disease X encompasses elements of "known unknowns" (threats we anticipate but don't fully understand) and "unknown unknowns" (completely unforeseen threats). Potential causes include:
• **Pathogen X:** Viruses, bacteria, parasites, fungi, helminths, or prions.
• **Zoonotic Spillover:** Around 70% of emerging diseases since 1940 have zoonotic origins, often linked to human encroachment on wildlife habitats.
• **Other Risks:** Antimicrobial resistance, bioterrorism, and accidental lab leaks.

Patterns in Emerging Diseases

Human Activity as a Catalyst
Deforestation, urbanization, and climate change have increased human-wildlife interactions, raising the risk of zoonotic spillovers. Over 1.7 million undiscovered viruses exist in wildlife, with many potentially transmissible to humans.

Vulnerable Regions
Areas with high biodiversity and inadequate healthcare systems, like the Congo Basin, are particularly at risk. Global interconnectedness through travel and trade can quickly escalate local outbreaks into pandemics.

Challenges of Predicting Disease X

Unpredictability

Forecasting Disease X is challenging due to its dependence on unforeseen factors, including:
• **Zoonotic Diseases:** Historically major drivers of epidemics.
• **Climate Change:** Expands the range of vector-borne diseases.
• **Unknown Pathogens:** Only a fraction of human-infecting viruses have been identified.

Tools for Prediction

Advances in genomic sequencing, artificial intelligence, and real-time data sharing are narrowing the scope for predictions. However, the exact origin, timing, or behavior of Disease X remains uncertain.

The Need for Preparedness

Surveillance and Response

Robust surveillance systems are critical for early outbreak detection. Investments in healthcare infrastructure, particularly in low- and middle-income countries, are equally important. Organizations like the Coalition for Epidemic Preparedness Innovations (CEPI) are developing adaptable platforms to target unknown diseases within 100 days.

Global Collaboration

International cooperation is essential to combat Disease X. WHO's initiatives, including the proposed Pandemic Treaty, aim to foster unified global responses to health emergencies. Governments must prioritize:
• Data sharing
• Resource pooling
• Equitable access to diagnostics, treatments, and vaccines

A Call to Action

The Congo outbreak highlights the urgent need for preparedness. Disease X is not a distant hypothetical threat but a pressing challenge. By strengthening public health systems, investing in research, and fostering global solidarity, the world can mitigate the risks of future pandemics. Frameworks like the Nagoya Protocol could ensure fair access to research and medical countermeasures, promoting global collaboration.

Relevance: GS Prelims & Mains Paper III; Science & Technology

9. IIT-Madras Researchers Map Foetal Brain: Key Details

Significance of the Study

IIT-Madras researchers have developed a cellular-level map of growing foetal brains, a first-of-its-kind resource for neuroscientists. This repository, named Dharini, helps study brain development and its links to neurological diseases.

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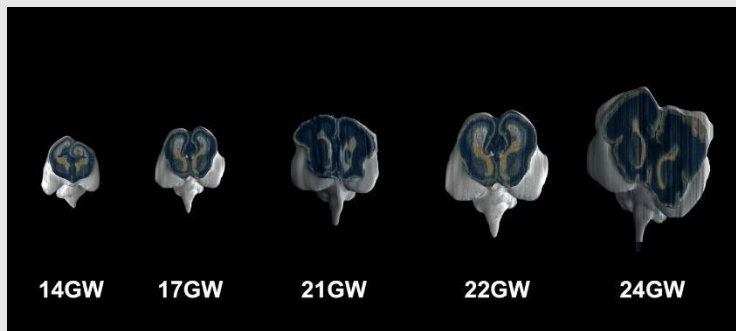
What Does the Dataset Include?

1. Data Overview

O Researchers used the brains of five stillborn babies, aged between 4 and 24 weeks of gestation.

O The dataset contains 5,132 cross-sectional plates of the brain at cellular resolution.

O A detailed 3D model was created by combining these plates, marking 500 distinct brain structures.

2. Accessibility

O The dataset is freely available to researchers and students worldwide.

O Plans are underway to expand the mapping to neonates, children, and adults.

How Was the Dataset Created?

1. Brain Preservation

O Brains were carefully frozen to avoid tissue damage.

O Thin slices (10–20 microns) were prepared from the frozen brains.

2. Processing Steps

O Each slice was stained, imaged at high resolution (0.5–1 micron), and digitized.

O Advanced tools were used to assemble these slices into a 3D brain map.

3. Technology Development

IIT-Madras researchers developed their own:

O Brain-freezing platform and automated slicing equipment.

O Staining, imaging, and visualization systems.

O Tools for high-resolution annotation and 3D visualization.

Applications of Brain Maps

1. Understanding Brain Development

O Offers insights into the rapid growth of the brain during gestation.

O Identifies structural and functional milestones of the brain in the womb.

2. Neurological and Developmental Disorders

O Helps study conditions like autism spectrum disorder and cerebral palsy.

O May provide clues to why some infants suffer permanent brain damage after oxygen deprivation while others recover.

3. Mental Health Research

O Provides a foundation for studying disorders such as depression, anxiety, and bipolar disorder.

Global Brain Mapping Initiatives

1. Pioneering Projects

O Allen Brain Institute in USA created the first complete brain atlas of a mouse in 2006.

O In 2016, the same institute released a human brain atlas, including 1,356 plates of a female adult brain.

2. Goals of Brain Mapping
O Explore brain structures, cell types, connections, electrical activity, and gene expression.

Conclusion
The foetal brain map developed by IIT-Madras is a groundbreaking resource for understanding brain development and associated disorders. Alongside global initiatives, it represents a critical step forward in neuroscience, with immense potential for medical and research advancements.

Relevance: GS Prelims & Mains Paper III; Science & Technology

10. What is Jetson Orin Nano Super, Nvidia's affordable tiny supercomputer?

Introduction
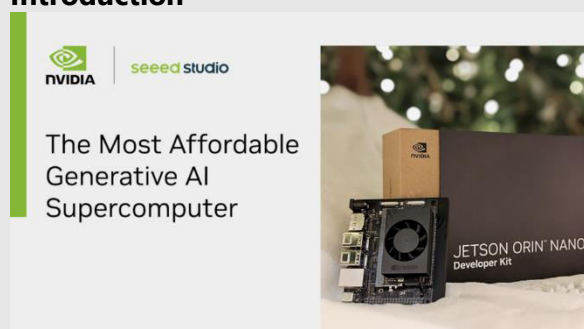
Leading graphic processing units (GPUs) maker Nvidia recently introduced its new compact generative AI supercomputer. Jetson Orin Nano Super, comes at a lower price, boasts enhanced performance, and a software upgrade.

What made headlines, however, was Nvidia deciding to offer the dev kit for the supercomputer for as low as $249 (around Rs 21,147). According to Nvidia, the Jetson Orin Nano Super Developer Kit fits in the palm of your hand. From commercial AI developers to students, the Jetson Orin Nano Super offers generative AI capabilities and performance to develop their own AI tools.

What is Jetson Orin Nano Super?
Nvidia has defined its latest offering as a '"compact, yet powerful computer" that redefines generative AI for small edge devices. When it comes to performances, the Justin Orin Nano Super delivers up to 67 TOPS of AI, which is a 1.7 times improvement when compared to its predecessor. In simple words, TOPS or Trillions of Operations Per Second, is a key indicator to measure the computational prowess of AI chips and NPU chips (neural processing unit chips that mimic the human brain's neural network, which is designed to accelerate AI tasks).

The super computer is capable of running some of the most popular generative AI models such as vision transformers, large language models, vision-language models, etc. It features a memory bandwidth of 102 GB/s and CPU frequency of 1.7 GHZ. The computer does not come with built-in storage, and a user may be required to download the operating system to a microSD card to boot the system, much similar to a Raspberry Pie.

What's in the Jetson Orin Nano Super Developer Kit?
The developer kit is essentially a compact computing platform suitable for generative AI applications. It features an 8GB module based on Nvidia's Ampere GPU architecture with 1,024

CUDA cores, and 32 tensor cores. Both CUDA and tensor cores are specialised processing units in Nvidia's GPUs. The device comes with a 6-core ARM Cortex-A78 CPU, a processor that has been designed to deliver high-end performance at the best efficiency.

The carrier board on the supercomputer comes with connectivity options such as two camera connectors, four USB 3.2 ports, M.2 slots, and Gigabit Ethernet which allows the computer to connect with servers in local networks. The computer runs on the Nvidia AI software stack. Based on the features, the kit is compact, efficient, and developer-friendly.

What are the use cases of the Jetson Orin Nano Supercomputer?

While introducing the Jetson Orin Nano Super, Nvidia CEO Jensen Huang said that one could run Cuda, CudNN, and TensorRT and can be used to create an agentic AI that reasons and plans. Essentially, one can use it to build robots or workstations. The Jetson Orin Nano Super Developer Kit, although tiny, can help developers unravel an assortment of applications across industries. It can be put to use in a plethora of scenarios such as smart surveillance systems, robotics, smart retail, healthcare, AI-powered smart home devices and wearables, autonomous vehicles, research and education, content creation, etc.

When it comes to smart surveillance, the computer via camera connectivity can detect anomalies, and identify faces and objects in real-time. Robotics can use its high-performance AI for autonomous manufacturing, logistics, while healthcare can deploy the same to perform some simple tasks such as sorting and delivering. Moreover, small businesses will now be able to deploy generative solutions for predictive analytics and chatbots. In a way, Nvidia's latest tiny supercomputer is making AI accessible for businesses of all sizes.

Relevance: GS Prelims; Science & Technology

11. What are India's plans for a quantum satellite?

Introduction

On December 13, Ajai Chowdhry, chairman of the Mission Governing Board of the National Quantum Mission, said India plans to launch a quantum satellite in "2-3 years for quantum communications".

What is the National Quantum Mission?

The National Quantum Mission (NQM) is a Department of Science & Technology programme to accelerate the use of quantum physics to develop advanced communications and sensing systems.

The development of computers changed the course of human history from the mid-20th century onwards. Advances in this sector gave humankind satellites, telecommunications, weather forecasts, drug-discovery programmes, etc.

But these advances are reaching a saturation point because the physics phenomena on which they are based, called classical physics, are hitting a performance upper-limit. So scientists

around the world are developing new technologies to solve the same problems but using phenomena of quantum physics. Because the rules of quantum physics allow for the outcomes of classical physics as well as new 'bonus' ones, the new devices are expected to be more versatile problem-solvers.

The Union Cabinet approved the NQM in April 2023 at ₹6,000 crore, to be implemented from 2023 to 2031. The planned quantum satellite is part of this package.

What is a quantum satellite?

Quantum Satellite

A quantum satellite is a term for a communications satellite that uses quantum physics to secure its signals.

Communications is a broad term that refers to technologies that send and receive signals. An important part of these technologies is security: preventing bad actors from intercepting a message being transmitted across large distances, through multiple networks.

The advent of quantum computers threatens the technologies currently being used to secure messages. Fortunately, quantum physics has also paved the way for new forms of protection, and quantum satellites are expected to facilitate them.

How are messages secured?
Say two people, Anil and Selvi, are standing at two ends of a playground and wish to speak to each other. They could shout or wave their hands. However, Anil composes his message, encrypts it, and writes the encrypted text on a piece of paper. He ties it to the foot of a messenger pigeon and sends it to Selvi. If Selvi knows how Anil encrypted the message, she can decrypt it to access the original text.

Encryption is the task of concealing information. The manner is called the cipher. A simple example is the Caesar cipher, where the letters of the alphabet are offset by a fixed number. If the number is 5, the words BIRDS FLY AWAY become GNWIX KQD FBFD.

Say there is a third person, Kaushik, standing in the middle of the ground and trying to eavesdrop on the conversation. If he intercepts the pigeon, he can't crack the text unless he knows the manner of encryption.

This security paradigm is called cryptographic security. It works by hiding the secret code, or key, behind an extremely difficult mathematical problem. A bad actor like Kaushik can solve the problem with a powerful computer to reveal the code — but the harder the problem, the more time (and/or more computing resources) he will need.

Even the most powerful supercomputers have difficulty cracking the best Advanced Encryption Standard ciphers in use today — but quantum computers may be able to do better.

How can quantum physics protect messages?
Quantum cryptography uses the tenets of quantum physics to secure messages. Its most famous type is quantum key distribution (QKD).

In the example before, Anil used a key to encrypt his message and Selvi, who knew the key, used it to decrypt the message. QKD is concerned with sharing this key with both Anil and Selvi such that if Kaushik is eavesdropping on the transmission, everyone will find out and the sharing will be aborted.

Quantum physics can protect against eavesdropping in different ways. One is quantum measurement — the act of measuring the properties of a quantum system, like a photon (the particle of light). According to the rules of quantum physics, a quantum measurement changes the state of the system. If information about the key is encoded in a stream of photons and Kaushik traps and measures them to look for it, the state of the photons will change and Anil and Selvi will know the key has been compromised.

Another way is to use quantum entanglement: when two photons are entangled, any change to one particle will instantaneously change the other. (This is a simplistic description.)

Has QKD been implemented?
Ravindra Pratap Singh of the Physical Research Laboratory, Ahmedabad, wrote in 2023 that standards for different QKD implementations are still a decade away. This said, China currently operates the world's largest QKD network with three quantum satellites and four ground stations.

Experts are also trying to implement QKD across longer distances. Since the early 1990s, the distance of reliable transmissions has increased to several hundred kilometres, either through fibre-optic cables or free space.

In an October 2024 study, researchers at the Raman Research Institute, Bengaluru, reported the Indian Astronomical Observatory in Hanle, Ladakh, offers the best atmospheric conditions through which to transmit data for a satellite-based QKD system. The paper's lead author Satya Ranjan Behera said the beam distance would be 500 km.

Does QKD have drawbacks?
QKD on paper can be different from that in the real-world. This is why the U.S. National Security Agency has recommended the use of post-quantum cryptography rather than quantum cryptography. Its criticism is focused on five technical limitations: "QKD does not provide a means to authenticate the QKD transmission source"; "since QKD is hardware-based", QKD networks can't be upgraded or patched easily; "QKD increases infrastructure costs and insider threat risks" that "eliminate many use cases from consideration"; "the actual security provided by a QKD system is not the theoretical unconditional security from the laws of physics... but rather the more limited security that can be achieved by hardware and engineering designs";

and since eavesdroppers can cause a transmission to stop, they can deny the use of a transmission by its intended users (a.k.a. a denial-of-service attack).

The no-cloning theorem of quantum physics also disallows quantum information from being amplified to compensate for losses during transmission.

Relevance: GS Prelims & Mains Paper III; Science & Technology

12. Google's GenCast AI: Revolutionizing Weather Forecasting

Introduction
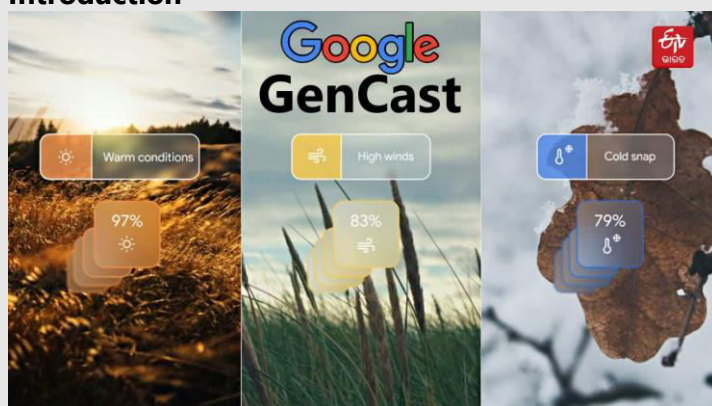
On December 4, Google DeepMind introduced GenCast, an advanced AI model that significantly improves weather forecasting. GenCast not only surpasses traditional tools in accuracy but can also predict weather events further into the future. Its capabilities signal a potential shift in how meteorological data is analyzed and utilized globally.

How Does Traditional Weather Forecasting Work?
Traditional Weather Forecasting relies on Numerical Weather Prediction (NWP), which uses simulations of atmospheric behavior based on physical laws. High-quality data and powerful supercomputers are essential for these predictions, which typically provide accurate results up to a week in advance. Since the 1990s, ensemble forecasting has enhanced NWP by producing multiple predictions with slightly different starting conditions, offering a range of possible outcomes.

GenCast's Training and Performance
GenCast employs ensemble forecasting but replaces traditional simulations with an AI model. Trained on 40 years of reanalysis data from 1979 to 2019, the AI leverages a comprehensive blend of past weather observations and modern forecasting techniques. This training was accomplished in just five days using Google's advanced TPU v5 processors, demonstrating remarkable efficiency. GenCast has shown superiority over ECMWF's ENS model, outperforming it on 97.2% of evaluated targets and offering better accuracy on predictions beyond 36 hours in 99.8% of cases. It excels in predicting extreme weather events, tropical cyclone tracks, and wind power production.

How GenCast Works
The technology behind GenCast relies on a neural network with over 41,000 nodes and 240,000 edges. It uses a diffusion-based AI model that refines noisy input data through iterative

processes to generate precise weather predictions. By completing 30 refinements per forecast, GenCast produces 50 probabilistic forecasts simultaneously. These forecasts cover 15 days with high spatial and temporal resolution, achieving results in just eight minutes using a single TPU v5 processor—a dramatic improvement over the hours required by traditional supercomputers.

Probabilistic Forecasts: A New Approach
GenCast's forecasts are probabilistic, providing probabilities like "25% chance of rain," rather than deterministic predictions, such as "5 mm of rain." Experts view probabilistic forecasts as more useful for identifying extreme weather risks, as they allow for better preparation. However, GenCast depends on high-quality reanalysis data, which is sourced from traditional NWP models, underscoring the importance of these systems in training and validating AI models.

Future of AI in Weather Forecasting
Looking ahead, GenCast is part of a broader wave of AI advancements in weather forecasting. Google is developing other models like GraphCast for deterministic forecasts and NeuralGCM for hybrid AI-NWP approaches. Meanwhile, companies like Huawei and Nvidia are also creating AI models that rival NWP in speed and accuracy.

Conclusion
In conclusion, GenCast represents a breakthrough in weather forecasting, combining speed, accuracy, and the ability to predict extreme events. While it complements rather than replaces traditional NWP, its development marks a significant step toward more efficient and comprehensive meteorological tools.

Relevance: GS Prelims & Mains Paper III; Science & Technology

13. Russian mRNA Vaccine for Cancer: A Potential Breakthrough?

Introduction
 Russian scientists have claimed to develop a personalised mRNA vaccine capable of suppressing tumour growth and metastasis in pre-clinical trials. Reports suggest that the vaccine uses artificial intelligence (AI) to identify genetic mutations in less than an hour, making it highly adaptable to individual patients. It is expected to be offered to Russians for free starting early next year.

The vaccine reportedly works by analysing a patient's tumour to detect unique mutations called neoantigens. These mutations, found only in cancer cells, are used to train the immune system to recognise and destroy cancer cells. While this approach shows promise, limited information has been shared publicly about the research and its findings.

However, the lack of detailed data has led to skepticism among experts. Russian research institutions, including Gamaleya National Research Center, have faced criticism in the past for inconsistent data reporting, as seen with the Sputnik V COVID-19 vaccine. Without comprehensive trial data, experts are uncertain about the vaccine's effectiveness or the range of cancers it may target.

Cancer Vaccines: How Do They Work?

Cancer vaccines differ from traditional vaccines in that they are administered to patients already diagnosed with specific types of cancer. They are designed to enhance the immune system's ability to target cancer cells, either in combination with other treatments or to prevent relapse. These vaccines are typically tailored to target specific mutations within cancer cells, such as neoantigens.

Neoantigens are unique proteins present only on cancer cells, helping the immune system identify and attack these cells. Research has shown that once the immune system recognises neoantigens, it can retain this memory for years, potentially preventing future relapses. This approach is similar to traditional vaccines, which train the immune system to fight infections.

A similar strategy is being employed by researchers at Memorial Sloan Kettering (MSK) for pancreatic cancer. Their vaccine leverages neoantigens to stimulate the immune system, inspired by a small group of patients whose immune systems naturally attacked cancer cells, leading to long-term survival.

Approved Cancer Vaccines

Currently, only one cancer vaccine, Sipuleucel-T, has been approved by the US FDA. This vaccine, developed for prostate cancer in 2010, is personalised by exposing a patient's immune cells to a cancer-specific protein and reintroducing them into the body. However, its efficacy was limited, extending patient survival by only four months.

Despite significant research efforts, major breakthroughs in cancer vaccines remain elusive. While several vaccines have shown promise, their impact on cancer treatment has been modest. Cost and accessibility also pose challenges, especially for personalised treatments.

Vaccine-Preventable Cancers

Certain cancers can be prevented through vaccines targeting their underlying causes. For instance, over 95% of cervical cancer cases are linked to persistent infection with high-risk strains of human papillomavirus (HPV). Vaccination against HPV has significantly reduced cervical cancer incidence. Similarly, vaccination against hepatitis B can lower the risk of liver cancer by preventing chronic infection.

Considerations for Cancer Vaccines

The success of cancer vaccines depends on several factors. Cost-effectiveness is crucial, as high prices may limit accessibility. Government support is essential to integrate these vaccines into public health programmes. Moreover, vaccines must demonstrate significant mortality benefits and long-term efficacy to justify widespread adoption. While advancements like the Russian mRNA vaccine are promising, more data and successful trials are needed to determine their true impact on cancer treatment.

Relevance: GS Prelims & Mains Paper III; Science & Technology

14. Amid reports of sixth-gen Chinese aircraft, what does 'generation' mean in the context of fighter jets?

Introduction
Unverified images of what is being termed as a Chinese sixth-generation fighter aircraft have gone viral on social media. This comes a month after China's Aviation Industry Corporation (AVIC) unveiled its Baidi White Emperor 'B Type' sixth generation fighter jet at the Zhuhai Airshow in November. But what does the concept of a "generation" mean in the context of fighter jets?

A relatively recent heuristic
Before getting into the weeds of what each generation entails, two points to be noted.

First, the notion of aircraft generations came up only in the 1990s. It has thus been retrospectively applied to fighter aircraft that came before this period. Notably, these generations only refer to jets and not the propeller-driven fighters that predated them.

Second, there is no standard definition of what constitutes a "generation". Some have even used terms such as "generation 3.5" or "generation 4.5". At the end of the day, the idea of generations is meant to act as a heuristic device and not the be-all, end-all determinant of an aircraft's capabilities. Not all aircraft in the same generation are equal, and the measure of a country's air capabilities does not rest solely on what generation of fighter jets it possesses.

So, how exactly are aircraft generations defined? Loosely put, a generational shift in fighter jets is said to occur when a certain technological innovation cannot be incorporated into an existing aircraft through upgrades and retrospective fit-outs — each new generation comes with a certain significant leap in technology.

The five generations (so far)
There are currently five generations of fighter jets which are (or were in the past) in active service, with sixth generation jets currently in development. Here is what each generation entails, according to the classification presented by aviation expert David Baker in Fifth Generation Fighters (2018).

First generation (1943 to 1955)

The Messerschmitt Me 262 Schwable, developed by Germany during World War II, is considered to be the world's first jet fighter. (USAF)

The earliest fighter jets appeared on the scene in the final years of World War II. They were faster than their piston-engined contemporaries, but otherwise not very different from existing fighter aircraft.

Notably, these jets still flew mostly at subsonic speeds. This was not only because of the capabilities of their engines — these were without afterburners, which provide a sudden boost of thrust — but also the design of their wings, which were more or less straight, and thus aerodynamically inefficient. Although later first generation aircraft did introduce swept wings which were angled backwards to the fuselage, which allowed for transonic flight during dives, pilots had minimal control at such speeds, which made them impractical.

First generation jets also had very basic avionic systems and no self-protection measures. Only the very final jets in this generation had rudimentary radar systems. They were armed with machine guns or cannons, and unguided bombs and rockets. These aircraft were deployed as interceptors, and could engage in combat within close visual range. Most such aircraft could also be operated only during the day. During this time, ground-attack aircraft continued to be powered by piston-engines and propellers.

Second generation (1955 to 1970)

A Romanian Mig-21F, the very first Mig-21 variant to be developed. (Govt of Romania)

Second generation fighters saw massive improvements in terms of speed, weaponry, and avionics. With the introduction of afterburners, and swept wings becoming the norm, these aircraft for the first time were capable of transonic and supersonic dashes during level flight. This new-found speed had a major influence on how dogfights would unfold, and air forces had to bring in major changes to their fighting doctrines.

Second generation fighters also boasted the very first fire control radars and semi-active guided missiles. Also came along radar warning receivers, which would eventually develop into aircraft being able to deploy active countermeasures. While the range of air-to-air engagement greatly increased, most combat was still within visual range albeit with pilots having much more accurate fire control systems.

Aircraft in this generation were classified as either interceptors or fighter-bombers for air superiority and ground attack roles respectively.

Third generation (1960-1970)

The Hawker Siddeley Harrier was the first jet to have vertical take-off and landing capabilities. (San Diego Air and Space Museum Archive)

There are four main points of demarcation between the second and third generations of fighter jets.

First, the design process of this generation of aircraft saw a major overhaul. Instead of designing an airframe upon which to hang an increasingly complex suite of systems and subsystems, there was a shift towards more integrated designs. The most important change in this regard came with the shift to an integrated engine and airframe assembly.

Second, this was the first generation of fighter jets designed to have multi-role capabilities. The traditional demarcation between fighter-bombers and interceptors started to become blurred — aircraft could now carry a far wider range of weapons, from air-to-ground missiles and laser-guided bombs, to air-to-air missiles and cannons.

Third, this generation of aircraft were the first with capabilities of beyond visual range air-to-air combat, aided by significantly improved fire control radars, guided missiles, and the first generation of tactical electronic warfare systems. Improved avionics included pulse-doppler radar, off-sight targeting and terrain-warning systems.

Fourth, the engines saw some major improvement as well, with better turbofans. Third generation fighters were thus capable of more sustained supersonic flight, far superior range

and performance, and more maneuverability, with some aircraft also coming with vectored thrust.

Fourth generation (1970 to 2000s)

The F-16 is the most popular fighter jet in the world, with almost 5,000 models produced till date. (Wikimedia Commons)

The fourth generation is the longest according to any classification, meaning that even within the generation one can find a rather extensive progression of technology. The earliest fourth gen fighters, like the Grumman F-14 Tomcat, made famous in the movie Top Gun (1986), are pretty much incomparable to the latest fighters of the generation (sometimes referred to as gen 4.5 as a result) such as the Dassault Rafale.

A few characteristic developments are nonetheless notable.

First, true multi-role aircraft emerged only with this generation. While the lines between interceptors and fighter-bombers had started to blur with the previous generation, it was now that fighters such as the F-14, and later the McDonnel Douglas F/A-18 'Superhornet' and Sukhoi Su-30 that one had fighters which were equally adept at either role.

Second, this was the first generation of aircraft to use fly-by-wire (FBW) control systems, which use computers to mediate between pilot's inputs and the eventual output on an aircraft's control surfaces (such as the rudder or the elevons). This provided pilots with improved control at high speeds, improved the performance and fuel efficiency of aircraft by replacing heavier

control systems with 'wires', and allowed for more intentionally aerodynamically unstable aircraft designs to increase maneuverability.

Third, with advancements in computers and electronics seen elsewhere, fighter aircraft too became far more "high-tech", as per modern standards. This generation saw a wide-range of developments in avionics, including the introduction of "heads-up displays", and "improved electronic warfare systems".

Fourth, this was the first generation of fighter aircraft designed using some stealth principles. (Stealth here refers to the ability to be invisible to radar systems). Composite construction materials, radar absorbent paints, and stealth-designs make a debut with this generation.

EXAMPLES: Sukhoi Su-30, Mikoyan Gurevich MiG-29, Chengdu J-10, Sukhoi Su-35, Eurofighter Typhoon, Saab Gripen, HAL Tejas LCA, Dassault Rafale

Fifth generation (2000 onwards)

The F-22 Raptor is the most expensive fighter jet produced till date, with each unit costing upto $350 million. (USAF)

The most advanced fighter aircraft currently in operation, fifth generation aircraft have fully embraced stealth, advanced integrated avionics systems that provide the pilot with a complete picture of the battle space (literally allowing them to look through the airframe), and network capabilities (which allow aircraft to be in constant touch, and act in coordination — like a hive mind).

The Lockheed Martin F-22 Raptor was the first fifth generation aircraft to enter service (in 2005). Till date, its stealth and long-range combat capabilities remain unmatched — its radar cross-section is comparable to a small bird or insect, while its own suite of advanced avionics

allows it to identify and locate enemy aircraft at great distances. This means that the Raptor can effectively shoot down an adversary before they even know of its presence.

A crucial aspect of a fifth generation fighter jets capabilities are its computers and onboard software, which help automate or semi-automate many functions, and process battlefield information at a very advanced level. However, these aircraft are also extremely expensive to develop and maintain, meaning that even among countries which operate them, they do not form the bulk of the fleet.

The Lockheed Martin F-35 Lightning was meant to address the cost issue by developing a single, all-purpose, universal aircraft which could be operated out of land or sea, for interceptor, ground attack or electronic warfare roles, in all conditions. The F-35B even boasts short takeoff/vertical landing capability. But the aircraft has seen multiple cost overruns, and its performance has been debatable.

Currently, only the US (F-22 and F-35), Russia (Sukhoi Su-57), and China (Chengdu J-20) have developed operational fifth generation aircraft. India is currently developing its own fifth generation aircraft, although this is not even in the prototype stage.

Sixth generation: What the future looks like
Several countries such as the US, China, Russia, the UK-Japan-Italy, and France-Germany-Spain have announced the development of sixth-generation fighters even before fifth-generation ones become ubiquitous. So far, there is no clarity on what features these fighters might boast, apart from further improving on beyond-visual-range capabilities, stealth, computational power, and weaponry.

The Tempest, being jointly developed by the UK, Italy, and Japan will be a sixth generation fighter. This is an image of a mockup from 2019. (Wikimedia Commons)

Some possible features may include the following.

• Sixth-generation aircraft may be optionally-manned, meaning that they may not require a human to sit in a cockpit to carry out their missions. So far, unmanned drones have been limited by various factors, including the tiny lag in the time it takes for aircraft to respond to commands sent from the control centre. The integration of Artificial Intelligence, and improvements in computation and networking can change this, which would fundamentally revolutionise aerial warfare.

• This generation might even boast advanced dual cycle engines, allowing aircraft to potentially touch hypersonic speeds when required while still being able to cruise economically. Such high speeds may especially become viable if pilots do not need to sit in cockpits and endure the tremendous G-forces that such speeds would generate.

• These aircraft may see the potential use of directed-energy weapons such as a laser.

• Some speculate that sixth-generation fighters might also come with the ability for suborbital flight, meaning they could operate in low space for brief periods, allowing them to escape anti-aircraft systems, and significantly improve survivability.

Relevance: GS Prelims & Mains Paper III; Science & Technology
Source: Indian Express

15. Why Parker Solar Probe completing closest-ever approach to Sun is significant

Introduction
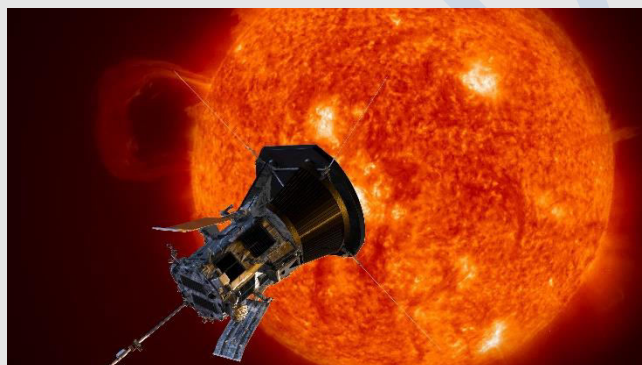
NASA scientists announced that the Parker Solar Probe survived the closest-ever approach to the Sun. The craft was operating normally after it passed just 6.1 million km from the solar surface.

This distance might not sound close but Dr Nicola Fox, head of science at NASA, told the BBC, "We are 93 million miles away from the Sun, so if I put the Sun and the Earth one metre apart, Parker Solar Probe is 4 cm from the Sun — so that's close."

What is the Parker Solar Probe?
Launched in 2018, the Parker Solar Probe was developed as part of NASA's Living With a Star program to explore aspects of the Sun-Earth system that directly affect life and society on Earth.

It is designed to make observations of the Sun's upper atmosphere, known as the corona, and carries four instrument suites.

The probe, which is the size of a small car, "also makes critical contributions to forecasting changes in the space environment that affect life and technology on Earth," according to a NASA report.

Over the years, it has completed 21 orbits around the Sun, with flybys of Venus gradually moving closer to our star.

How did it manage to come so close to the Sun?
The Parker Solar Probe is the closest any human-made object has ever come to the Sun.

Travelling at the speed of 6,92,000km/h, it endured temperatures up to 1,377 degree Celsius when it reached the closest to our star which occurred on December 24. The probe went out of contact during this but the scientists operating it received the signal on the night of December 26.

The craft was able to survive such high temperatures as it is protected by a 4.5-inch-thick (11.43 cm) carbon-composite shield.

"The spacecraft is outfitted with a cutting-edge heat shield made of a carbon composite foam sandwiched between two carbon plates. The heat shield is so good at its job that, even though the front side will receive the full brunt of the Sun's intense light, reaching 2,500°F (1,371 degree Celsius), the instruments behind it, in its shadow, will remain at a cosy 85°F (29.4 degree Celsius)," a different NASA report said.

The probe circulates a single gallon of water through its solar panels which helps it keep its cool — the water absorbs the heat, and then radiates it out into space.

What is the significance of this milestone?
Scientists are hoping that as the probe passed through the Sun's outer atmosphere – the corona – it would have collected data that can give clues about some long standing questions. For instance, researchers expect to solve the mystery around why the corona is so hot — temperatures regularly reach 1 million to 2 million degree Celsius there.

The data could also give an idea about the origins of solar winds, a continuous flow of material escaping the Sun. A better understanding of solar winds is crucial as it affects not only the space environment but also life on Earth.

Solar winds are usually deflected by Earth's magnetic field, which acts like a protective shield. Still, sometimes particles interact with atoms and molecules in the atmosphere to produce the phenomena of the northern and southern lights. However, a strong solar wind can disrupt power grids, satellites, and communication systems.

Speaking about the importance of the Parker Solar Probe's data, Dr Julia Stawarz of Northumbria University (UK) told The Guardian, "The measurements from Parker solar probe

will help us to answer some of the most fundamental questions about how the sun and its extended atmosphere behave that we have had since the very beginning of the space age."

The probe is expected to send back detailed telemetry data on its status on January 1, according to a statement by NASA.

Miscellaneous

1. What is the Right-To-Match option at IPL auctions, and how it played out this year

Overview

In one of the most fascinating moments of the Indian Premier League auctions — which took place in Saudi Arabia's Jeddah — Mumbai Indians owner Akash Ambani walked over to Royal Challengers Bengaluru's table and shook hands. This happened after RCB chose not to play the Right-To-Match option for English batter Will Jacks, and MI got their man.

This was just one of the many intriguing calls over the two days surrounding the RTM rule that was brought back this year, but with a twist.

What is RTM?

Right to Match (RTM) - How Does The Rule Work?

Right-To-Match, as the name suggests, allows franchises to bring back a player they had released before the retention deadline. Every three years, there is a mega auction in the IPL that allows franchises to reset and level the playing field. The more successful teams have reportedly not been in favour of mega auctions because they want to retain as many players as they can.

So, ahead of this year's auction, the league announced that the franchises could retain six players from their existing squad. This could be either via retention at fixed-price slabs or by using the RTM option at the auction. Teams tend to use RTM if they believe they can get a player cheaper than through their existing contracts.

How was it different this year?

The RTM was used at the mega auctions before IPL 2014 and IPL 2018, but scrapped before the 2022 edition. It made a comeback this year but with a modified clause. In the past, if the franchise used RTM after another team's successful bid for one of their released players, it was enough to sign them back. But this time, after a franchise used RTM, the highest bidder was allowed to name an improved one-time price, which the older franchise had to match or let the player go.

Ahead of the auctions, KKR and RR retained all six players, and so didn't have any RTM option available.

How did it play out early in the auction?
The modified RTM rule made for interesting dynamics, going both ways for franchises.

The very first player to be signed on Day 1 of the auction was through RTM. Punjab Kings had retained only two players ahead of the auction, so had four RTM options to use. So when Arshdeep Singh's name came up, with his rise in international cricket as India's foremost wicket-taker in this format, the bidding war was intense. First CSK and DC, then came GT. Later RCB, RR, and SRH. The winning bid was deemed to be SRH's Rs 15.75 crore. But PBKS played their RTM as expected, and it was SRH's turn to name a new price as per the new rule. SRH raised the amount to Rs 18 crore, and PBKS decided to match that and brought back their player. Interestingly though, PBKS could have easily retained Arshdeep at that price before the auction.

What happened with Will Jacks?
As mentioned at the start, when Will Jacks' name came up, there was a general expectation that RCB would use the RTM to bring back the English opener, who impressed in the 2024 edition with a century that drew admiration from Virat Kohli too. But when RCB said they weren't going to match MI's bid at Rs 5.25 crore, the Mumbai owners couldn't hide their happiness. So much so that Akash Ambani had to go thank RCB personally.

Were there RTMs that didn't work out?
Rishabh Pant's bidding war wasn't a surprise. Widely expected to be the most expensive purchase at these auctions, Pant generated serious interest, especially from LSG who eventually got the winning bid at Rs 20.75 crore. But there was a twist. When Pant was let go by Delhi Capitals, there were murmurs that he wasn't wholly happy with certain aspects of the management. But rather surprisingly, DC played the RTM option at Rs 20.75 crore. After a quick huddle, LSG owner Sanjeev Goenka decided to break the bank and gestured that the new price would be a whopping Rs 27 crore. The deal was sealed, in typical Pant style, with a maximum (increase of just Rs 6 crore) at the end.

How many RTMs were used finally?
A total of 8 players were brought back by franchises using the RTM option. On Day 1, apart from Arshdeep Singh to PBKS, three other players saw the use of RTM. Australia's highly-rated aggressive opener Jake Fraser-McGurk came back to DC at Rs 9 crore. Uncapped Punjab player Naman Dhir, who impressed for Mumbai Indians in brief cameos, came back for Rs 5.25 crore. Rachin Ravindra was signed up once again by CSK at what could be seen as a steal at Rs 4 crore. On Day 2, Mukesh Kumar went to DC for Rs 8 crore, while GT got R Sai Kishore at Rs 2 crore. LSG played their RTM for WI pacer Shamar Joseph at his base price. RCB took Swapnil Singh back at Rs 50 lakh.

Relevance: GS Prelims; Miscellaneous
Source: Indian Express

2. Cyclone Fengal makes landfall over Puducherry: What are tropical cyclones?

Introduction

Cyclone Fengal made landfall over Puducherry, with strong winds and heavy rains witnessed in parts of Tamil Nadu in recent days. Cyclone Fengal is a tropical storm. The National Disaster Management Authority classifies cyclones broadly into two categories: extratropical cyclones and tropical cyclones.

First, what is a cyclone?

A cyclone is a large-scale system of air that rotates around the centre of a low-pressure area. It is usually accompanied by violent storms and bad weather. As per NDMA, a cyclone is characterised by inward spiralling winds that rotate anticlockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere.

What are extratropical cyclones?

Also known as mid-latitude cyclones, extratropical cyclones occur outside of the tropic. They have "cold air at their core, and derive their energy from the release of potential energy when cold and warm air masses interact", according to the US National Oceanic and Atmospheric Administration (NOAA). It added that such cyclones always have one or more fronts — a weather system that is the boundary between two different types of air masses. One is represented by warm air and the other by cold air — connected to them, and can occur over land or ocean.

What are tropical cyclones?

Tropical cyclones are those which develop in the regions between the Tropics of Capricorn and Cancer. They are the most devastating storms on Earth. Such cyclones develop when "thunderstorm activity starts building close to the centre of circulation, and the strongest winds and rain are no longer in a band far from the centre," NOAA noted.

The core of the storm turns warm, and the cyclone gets most of its energy from the "latent heat" released when water vapour that has evaporated from warm ocean waters condenses into liquid water, the agency added. Moreover, warm fronts or cold fronts aren't associated with tropical cyclones.

Tropical cyclones have different names depending on their location and strength. For instance, they are known as hurricanes in the Caribbean Sea, the Gulf of Mexico, the North Atlantic Ocean and the eastern and central North Pacific Ocean. In the western North Pacific, they are called typhoons.

3. Nagaland's Hornbill Festival, and why the Church has frowned at relaxing rules around it

Introduction

Nagaland: Baptist Church Council Criticizes Alcohol Sale During Hornbill Festival

The 25th edition of Nagaland's famed Hornbill Festival is now underway amidst a wide public debate on relaxing the 35-year-old liquor prohibition law for the duration of the festival.

Tourism Minister Temjen Imna Along said that the government has granted tourists and stall owners permission to use Indian-made Foreign Liquor (IMFL) within the festival venue, the Kisama Heritage Village.

This move has been decried by influential church bodies, who have long contested the effort to make alcohol, including traditional rice beer, publicly available at the state's largest gathering.

Lending the situation complexity is the state government's proposed review of the Nagaland Liquor Total Prohibition (NLTP) Act 1989.

Firstly, what is the Hornbill Festival?
The Hornbill Festival, organised by the Nagaland government, is the state's largest public event. Started in 2000 as an annual tradition, it aims to boost tourism by showcasing Naga

heritage and culture, and thus act as a unifying force within the state. The festival acts as an umbrella of the major festivals celebrated by the 14 recognised Naga tribes in the state, each replete with its own traditions and practices.

The festival is the state's biggest tourist draw: In 2023, the 10-day festival witnessed a footfall of over 1.54 lakh, including 2,108 foreign tourists and 37,089 from different parts of India.

How does alcohol figure in the festival?
The Hornbill Festival holds a special place within the larger public debate on liquor prohibition in the state.

According to academic Theyiesinuo Keditsu, "This is the only time in this dry state that Thutse or local rice beer is openly sold and liberally consumed with the consent of the government." In her paper, 'Prohibition and Naga Cultural Identity: Cultural Politics of Hornbill Festival, Nagaland', she has identified the constant tussle between the Church and the organisers as a struggle to define the "Naga ethnic identity vis-a-vis Christian identity."

In the past, the Nagaland government has succumbed to pressure and enforced alcohol bans during the festival.

While the inclusion of local rice beer is being debated presently, Tourism Minister Along has supported easing restrictions on IMFL to welcome tourists to the state.

The Nagaland Baptist Church Council (NBCC) – the apex body of Baptist Churches in the state disagrees. It said, "The tourists are not visiting our state because there is a provision for visitors to drink liquor in Nagaland" but to "experience our culture and our heritage and our tribal way of life."

What is the prohibition law in Nagaland?
Complete prohibition was officially introduced in Nagaland in 1989 through the NLTP, backed by the Church and the state's apex women's organisation, the Naga Mothers' Association (NMA).

The arrival of American Baptists to Nagaland in the 1870s introduced new moral codes to a state where brewing rice beer was widely practised. The consumption of alcohol was subsequently painted as sinful behaviour with strict penalties for converts. Ethnographer J.P. Mills wrote that from the 1890s onwards, alcohol was strictly forbidden and transgressors would be expelled from the community.

Today 87% of the state's population is Christian, a majority of whom are Baptists. However, the preparation and consumption of rice beer has continued to this day.

Why is the state mulling a repeal of the prohibition law?

The government initiated a discussion on the efficacy of the prohibition law as a matter of urgent public importance in the last state assembly session in August. Drawing attention to the "Health Hazards of Spurious Alcohol", the government's Advisor on Excise Moatoshi Longkumer said there was a case for regulating alcohol use instead of prohibition.

He said that the "intended objectives" of the Act had not been met and the state continues to witness large-scale liquor smuggling from neighbouring Assam. He also pointed to the prevalence of bootleggers and spurious alcohol in the state, as well as people resorting to narcotics.

The government could also be motivated to stem the loss of excise revenue due to this policy. While the Nagaland government is openly considering a rethink, the Church's opposition continues to loom large over such a move.

Relevance: GS Prelims
Source: Indian Express

4. The story and history of Budaun's Shahi Jama Masjid, and the dispute surrounding it

Introduction

Counsel for Budaun's Jama Masjid Shamsi argued before a local court this week that a suit filed in 2022 seeking permission for Hindus to offer prayers at the mosque is barred under The Places of Worship (Special Provisions) Act, 1991. The petitioners have claimed that the mosque was built after demolishing a Hindu temple that stood at the site, and have asked for a court-ordered survey of the structure.

This same plea has been taken by petitioners in similar, separate ongoing litigation over the Gyanvapi Mosque in Mathura and the Shahi Idgah in Mathura and, most recently, in cases filed in local courts about the Shahi Jama Masjid in Sambhal and the Dargah Sharif of the Sufi saint Moinuddin Chishti in Ajmer.

The fast-track Civil Court (Senior Division) in Budaun, which heard the matter is yet to decide on the maintainability of the petition. The next hearing has been scheduled for December 10. Here is a brief history of the historic 800-year-old mosque in western Uttar Pradesh, and the dispute surrounding it.

What is the dispute, and the case before the court?
In August 2022, the Akhil Bharatiya Hindu Mahasabha (ABHM), through its convener Mukesh Patel, and three residents of Budaun filed a petition in a local court claiming that the Jama

Masjid 'Shamsi' (alternatively referred to as the 'Jami' Masjid) was built after demolishing the Neelkanth Mahadev Temple that stood at the site.

The respondents in the case include the Intizamia Committee of the mosque, the UP Sunni Central Waqf Board, the Union of India, the Archaeological Survey of India (ASI), the District Magistrate of Budaun (on behalf of the state government), and the Chief Secretary of Uttar Pradesh.

What is the argument of the Hindu side?
According to the Hindu side, the ancient Neelkanth Mahadev Temple was part of a fort belonging to a Hindu king named Raja Mahipal, who prayed at the temple.

The petition says that the temple was destroyed by the third Mamluk Sultan of Delhi, Shams ud-Din Iltutmish (1211-36) in the early 13th century.

According to the advocate for the Hindu side, said that the remains of the demolished temple can still be found at the site. Two large pillars of the mosque bear images of Hindu deities, he said. He also saod that a book published by the Budaun district administration too, identifies the site as "Raja Mahipal Kila and Neelkanth Mahadev Temple".

What is the position taken by the Muslim side?
The Muslim side has rejected the claim that the mosque was built after destroying a temple, and has maintained that the ABHM lacks any legal standing to file the petition.

The mosque committee has claimed that Muslims had regularly offered namaaz at the mosque for almost eight centuries before the August 15, 1947 cut-off date prescribed by the Places of Worship Act for determining the religious character of a place of worship. This, the committee argues, effectively bars suits such as the one filed by the ABHM.

And what is the history of the mosque itself?
The Jama Masjid Shamsi, located in the Maulvi Tola area of the Budaun district, is one of the oldest mosques in North India, and possibly the oldest mosque in the region in which prayers continue to be held even today.

The mosque has the capacity to accommodate 20,000 people, and the premises are spread out over acres of land. It used to be the largest congregational mosque in India until the construction of the Jama Masjid Delhi during the reign of Shah Jahan in the 17th century.

The moniker 'Shamsi' comes from the fact that it was commissioned by Shamsuddin Iltutmish (also spelt 'Altamash' in some older documents), who served as the governor of Budaun before becoming Sultan of Delhi in 1211.

J F Blackiston, a British-era Archaeological Survey of India (ASI) official, wrote "... The mosque...was built by Altamsh in the year 1223 AD during the governorship of his son Rukn-

ud-din Firoz. It possesses four inscriptions, the first mentioning its erection by Altamsh…" (The Jami Masjid At Badaun And Other Buildings In The United Provinces, 1926).

According to the 1907 district gazetteer, however, the mosque was constructed in 1230. (H R Neville, Budaun: a Gazetteer, Volume XV of the District Gazetteers of the United Provinces of Agra and Oudh, 1907).

After being gutted in a fire in the 16th century, an official from the court of Akbar commissioned major repairs, including the construction of the domes that stand today.

What does the historical record show about claims that the mosque was built after destroying a temple?
Blackiston mentioned that the structure was built using material from demolished Hindu temples.

"Up to a height of some 12 feet the mosque is constructed almost entirely of sandstone blocks, plundered from more ancient Hindu temples, and above, excepting later additions such as the dome which was restored at the end of Akbar's reign, the structure is of brick," he wrote.

He further stated: "On either side of [the mihrab] is a dwarf pillar probably taken from some Hindu building and shortened to suit its present position". This is what the Hindu petitioners have been referring to.

But Blackiston did not specify which temple was destroyed, and where that temple stood.

That said, a number of historical sources have pointed to the existence of a Neelkanth Mahadev Temple in Budaun. The aforementioned gazetteer noted that "Tradition assigns the foundation of the chief town, under the name of Budhgaon, to Budh, an Ahar prince who is said to have lived in the tenth century of the Christian era… There is nothing improbable in the story that the district was once under the Tomars of Delhi, to whom Mahipal belonged."

However, instead of Mahipal, the gazetteer credits the 12th century Chauhan king Ajaypal with building the Neelkanth Mahadev Temple. "…In 1175…Ajaypal built or reconstructed the fortress, and temple to Nilkanth Mahadeo", it says.

Alexander Cunningham, founder director of the Archaeological Survey of India, in his Report of a Tour in the Gangetic Provinces: from Badaon to Bihar in 1875-76 and 1877-78 wrote that the Jama Masjid in Badaun was built at the site of the Harmandar temple, which he said was destroyed by Muslims.

"Mahipal is also said to have built a temple named Harmandar, which was destroyed by the Muhammadans, and the present Jami Masjid built on its site. The people are unanimous in their belief that all the statues of the temple were buried under the floor of the Masjid, in front of the pulpit," he wrote.

5. Why low-intensity Cyclone Fengal caused large-scale destruction

Introduction

Cyclone Fengal, which made landfall near Puducherry on November 30, was a low-intensity storm as it maintained a wind speed of about 75-95 kmph. However, the cyclone left a trail of destruction in its wake. At least 12 people died, mostly in Tamil Nadu, numerous properties were damaged, and standing crops were destroyed over large areas.

Why did Cyclone Fengal cause widespread destruction despite being a low-intensity storm?

First, what are the different categories of cyclones?

The India Meteorological Department (IMD) categorises cyclones based on the associated wind speeds. These categories are: low pressure (< 31 kmph), depression (31-49 kmph), deep depression (50-61 kmph), cyclonic storm (62-88 kmph), severe cyclonic storm (89-117 kmph), very severe cyclonic storm (118-221 kmph), and super cyclone (> 222 kmph).

How did Fengal compare to past cyclones?

Over the years, Indian coasts have witnessed several severe storms which led to large-scale devastation. Associated maximum wind speeds went up to 260 kmph (Odisha super cyclone, October 1999), 215 kmph (Cyclone Phailin, May 2013), and 185 kmph (Cyclone Amphan, May 2020). Therefore, compared to many earlier storms, Cyclone Fengal was a low-intensity storm.

What was the impact of Fengal?

Fengal triggered exceptionally heavy rain and flooding in Tamil Nadu and Puducherry.

Krishnagiri and Villupuram in north Tamil Nadu, close to where Fengal made landfall, were among the worst affected areas between November 29 and December 1. Mailam village in Villupuram received 510 mm of rainfall in 24 hours. Puducherry received 490 mm of rainfall in a day, breaking the previous record of 211 mm set on October 31, 2004.

Air, rail and road transport took a hit, highways were inundated, and lakes and rivers overflowed.

Why was Fengal so destructive?

According to the IMD, this happened primarily due to the movement of Cyclone Fengal. From its genesis to landfall, Fengal moved at a slow pace. On occasions, it moved at speeds slower than 6 kmph while at sea. Fengal also remained stationary for nearly 12 hours soon after making landfall close to Puducherry. Maintaining its intensity as a cyclone, the storm caused heavy rainfall and rough windy conditions over the region.

Usually, after landfall, cyclones weaken as they hit obstructions and experience friction from buildings and trees. In the case of Fengal, as the storm stayed stationary, the destruction was far more pronounced, leading to numerous deaths.

Notably, during recent cyclones (such as Dana in October this year), which were more intense than Fengal, human casualties were either nil or limited to single digits.

6. With €840 million in funds, more than 2,000 workers, how the historic Notre Dame cathedral was restored

Overview
Originally built in the 12th century, the cathedral was closed following a devastating fire in April 2019. Over the last five years, it has witnessed a frenzied renovation process that attracted considerable global attention.

**Why was the Notre Dame cathedral restored?**
In 1160, Notre Dame was envisioned by Maurice de Sully, the Bishop of Paris, as a grand Gothic cathedral that would accommodate the city's growing population. Construction began three years later and is believed to have been completed by 1260.

It routinely underwent renovations and maintenance work in the following centuries, and was the site of King Napoleon's coronation in 1804. Its architectural beauty aside, it also counts among the enduring symbols of French culture.

On April 15, 2019, a fire broke out in the attic and went undetected until it was too late, allowing the fire to spread across the roof and the spire (the conical structure projecting upwards). Around 600 firefighters battled the blaze for 15 hours. Valuable artefacts like the round-stained glass windows called les roses, which date back to the Middle Ages, were spared.

However, the set of wooden roof beams called the forest, as well as the spire were destroyed. Moreover, the spread of the fire had engulfed the interiors with a cloud of lead dust, expanding the scope of restorative work needed.

While the investigation into its cause has continued to this day, French authorities uncovered no evidence of arson. It is suspected the fire stemmed from then-ongoing restoration work on the spire. A day later, President Emmanuel Macron inspected the damage and promised to restore the cathedral to its full glory within five years.
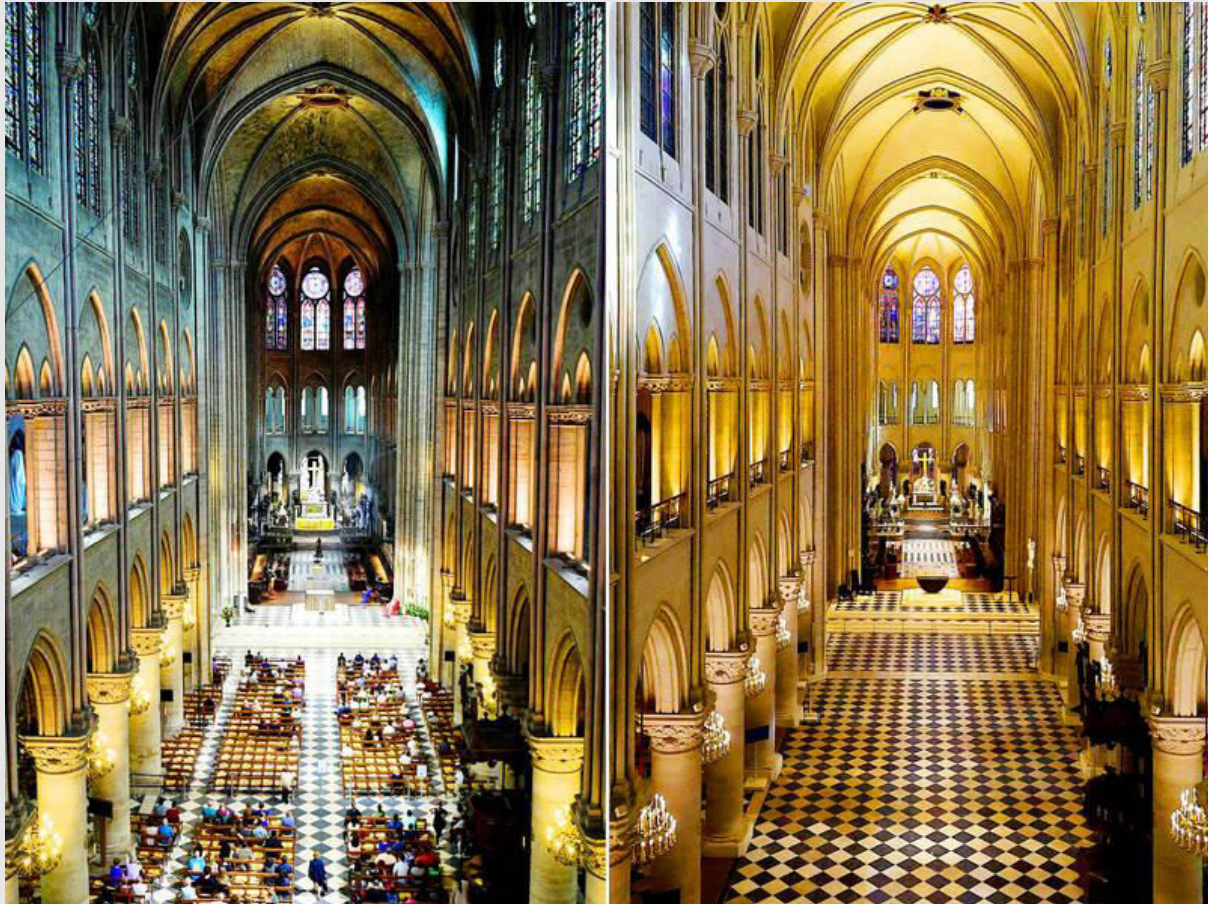
What does the restored cathedral feature?
Limestone walls cleaned: The walls of the cathedral, spanning 40,000 square metres of limestone, were thoroughly cleaned and restored, maintaining most of the masonry work according to a BBC report.

Restored wooden roof: Some 1,200 suitable oak trees in France's forests were felled to construct the wooden roof, with carpenters hand-sawing them into shape.

The restored spire: The reconstruction of the 96-metre-long spire relied on a massive wooden base and employed Europe's largest crane. The spire is lined with lead like the rest of the roof and features a new gilded rooster, according to BBC. The rooster contains holy relics such as a thorn from the cathedral's Crown of Thorns, and a parchment with the names of 2,000 people who worked on the renovation.

The Great Organ: Notre Dame houses France's largest musical instrument, The Great Organ, built by Aristide Cavaillé-Coll in 1905. It comprises 8,000 pipes, five keyboards and 109 stops. The entire structure was disassembled and sent to Paris workshops for its restoration. Each part was retuned over several months upon reinstallation. The organ itself now features new electronic controls.

7. How Saudi Arabia Secured the Hosting Rights for the 2034 FIFA World Cup

Saudi Arabia Emerges as the Sole Bidder
On December 11, FIFA is expected to announce Saudi Arabia as the host for the 2034 FIFA World Cup, making it the sole bidder for the event. This marks the return of football to the Gulf region after Qatar hosted the 2022 World Cup. Saudi Arabia's bid showcases how strategic investments and global alliances were employed to secure this prestigious event.

Extensive Sponsorship Deals
Saudi Arabia's path to hosting involved significant financial investments, including 910 sponsorship deals across 28 sports, with 194 focused solely on football. The Public Investment Fund (PIF), the Kingdom's sovereign wealth fund, played a crucial role by backing 346 sponsorships. These efforts were complemented by 48 Memorandums of Understanding (MoUs) signed with countries worldwide. These agreements helped foster goodwill and provided access to key decision-makers in FIFA.

Strengthening AFC Ties
Saudi Arabia also bolstered its relationship with the Asian Football Confederation (AFC). High-profile partnerships, like the Neom megacity project and Visit Saudi as AFC's Global Partners, positioned the Kingdom as a dominant force in Asian football. This strategy paid off when Saudi Arabia was chosen to host the 2027 Asian Cup and when Yasser Al-Misehal, president of Saudi's football federation, secured a seat on FIFA's governing council.

Corporate Investments in Global Football
The Kingdom's influence extended through investments in football leagues and clubs worldwide. Saudi Arabia's state-owned oil company, Aramco, partnered with FIFA, despite criticism over human rights concerns. Meanwhile, the Kingdom acquired top international players and teams, including the English Premier League club Newcastle United. Saudi royals also own clubs in Europe, the UAE, and India, highlighting their global reach.

Australia's Withdrawal

In October 2023, FIFA set a tight 25-day deadline for countries to submit bids for the 2034 World Cup. Saudi Arabia immediately declared its bid, followed by Australia. However, Australia withdrew shortly after to focus on other tournaments, leaving Saudi Arabia as the sole candidate. FIFA later praised Saudi Arabia's bid, giving it a higher score (4.2 out of 5) than the 2026 joint bid by the USA, Canada, and Mexico.

Implications for the Future

Saudi Arabia's unopposed victory is a result of its financial power and strategic alliances. This success could influence the Kingdom's approach to securing the hosting rights for the 2036 Olympics, where it will compete with Qatar and India. For now, Saudi Arabia's efforts underscore how nations can leverage investments and diplomacy to dominate the global sports landscape.

Relevance: GS Prelims

8. Gukesh is youngest world chess champion

Introduction

History was made in the small island of Sentosa as D. Gukesh became the youngest World chess champion ever after defeating Ding Liren of China in the final game of their match. The 18-year-old from Chennai broke the record held by the Russian Garry Kasparov for nearly four decades.

With his victory against the defending champion, which came after 58 moves, Gukesh took his points tally to 7.5 points. That was the requirement for a player to win the World title.

Contested between India and China

This was the first-ever World championship match contested by two Asian players. And it was a match between the players from India and China, the world's two most populous countries and the continent's superpowers.

Third Asian

Gukesh is only the third Asian to win the World championship. Viswanathan Anand, who is now a mentor for Gukesh, was the first, and Ding the second.

Gukesh is also only the 18th world champion in history, which dates back to 1886. That there have been only 17 undisputed world champions before him puts into perspective the enormity of the achievement.

Relevance: GS Prelims

A Legend Passes Away

Ustad Zakir Hussain, the iconic tabla maestro, passed away at the age of 73 after a brief illness. Revered as one of India's greatest musicians, his unparalleled contributions to music leave behind a legacy that transcends boundaries.

Elevating the Tabla

From Accompaniment to the Spotlight

Historically, the tabla was relegated to a secondary role in Hindustani classical music. Zakir Hussain transformed its status, bringing the instrument to center stage. Once overshadowed, tabla players today enjoy recognition as equal partners in performances, a shift largely credited to his efforts.

Pathbreaker and Innovator

While acknowledging the contributions of his predecessors like Ustad Alla Rakha and Pandit Kishan Maharaj, Hussain's unique innovations propelled the tabla into global consciousness. "He was a game-changer who put Indian music on the world map," said sitar and tabla artist Nayan Ghosh.

Ustad Zakir Hussain
1951–2024

Major awards & recognitions

1988	Padma Shri
1992	Grammy for Mickey Hart's *Planet Drum* project
1990	Indo-American award
1990	Sangeet Natak Akademi Award
1999	National Heritage Fellowship from the U.S. National Endowment for the Arts
2002	Padma Bhushan
2009	Grammy for *Global Drum Project*
2017	Lifetime Achievement Award from San Francisco Jazz Center
2019	Fellow of the Sangeet Natak Akademi
2022	Kyoto Prize in Arts and Philosophy
2023	Padma Vibhushan
2024	Three Grammys for *Pashto*, *As We Speak*, and *Motion*

Exploring New Horizons

Fusion and World Music

Zakir Hussain's collaborations with international artists, especially through his Grammy-winning band Shakti, redefined fusion music. Combining Indian classical with jazz and other global styles, Shakti became a pioneering force in "world music." Hussain's innovative approach bridged cultural gaps, introducing Indian rhythms to global audiences.

Expanding the Boundaries

Hussain's work did not merely blend traditions; it expanded them. "He created his own style without breaking traditional rules," noted Pandit Swapan Chaudhuri. Hussain described this process as transcending restrictions to create a path towards musical unity.

Master of His Craft

Style and Versatility

Though trained in the Punjab gharana, Hussain mastered and incorporated techniques from other gharanas, breaking barriers within classical music. He encouraged young musicians to explore and combine styles, emphasizing that no musical expression is "wrong."

Charisma on Stage

Hussain's live performances were a blend of technical brilliance and audience connection. Known for his storytelling through rhythm, his performances were immersive experiences, often described as "perfection." Yet, Hussain humbly rejected this notion, believing music is reborn every day.

Remembering a Genius

A Legacy Beyond Music

Zakir Hussain's life was a testament to innovation, humility, and artistry. His ability to balance tradition with modernity, technical mastery with emotional depth, and global reach with cultural roots ensures that his influence will endure for generations.

As Chaudhuri aptly summarized, "Zakir Hussain was not just a tabla player; he was a communicator, a creator, and a pioneer."

Relevance: GS Prelims; Miscellaneous

10. South Korea Plane Crash leaves 179 people dead: How do bird strikes impact flights?

South Korea Plane Crash

All passengers except two crew members of a flight were killed in an aviation accident in South Korea recently, when an aircraft skidded off the runway during landing, hit a wall and burst into flames at the Muan International Airport.

The Jeju Air flight 7C2216 was arriving from the Thai capital Bangkok to Muan, nearly 300 km from the capital Seoul, with 181 people on board. With only two people rescued from the tail section of the aircraft, 179 people were reported dead. Given the death toll, it is among the country's biggest aviation accidents to date.

Lee Jeong-hyeon, chief of the Muan fire station, said in a televised briefing that workers were looking into various possibilities about what caused the crash, including whether the aircraft was struck by birds, he said.

Korean media agency Yonhap also cited airport authorities as saying a bird strike may have caused the landing gear to malfunction. A transport ministry official has said the control tower issued a bird strike warning and shortly afterwards the pilots declared mayday. However, it is not confirmed yet whether the flight said it struck any birds.

What are bird strikes and what can happen as a result of a strike?
Bird strikes are among the most common threats to aircraft safety, and they typically occur during the take-off or landing phases of a flight. Dozens of bird strike incidents happen each day but some can be more dangerous than others. Typically, when birds collide with an aircraft's airframe, it is unlikely to cause significant problems for the pilots flying.

But there are cases where the aircraft engine has ingested birds, causing damage to the power plants. This can lead to a loss of thrust for the engine and cause manoeuvrability problems for the crew. In these cases, where a jet engine ingests a bird, procedures would generally call for pilots to get the plane on the ground at the closest airport.

However, while most airframe bird strikes are not considered critical to air safety, if the collision has happened with a window or a windscreen resulting in cracking of the structure, pilots will look to land the plane as early as possible.

Could bird strikes be critical to air safety?
Smaller planes would generally be more susceptible to the dangers of bird strikes than larger ones. Also, modern jetliners are built with a number of redundancies and common passenger aircraft like Boeing 737 or Airbus A320 are designed to safely land with even a single engine.

However, given that bird strikes mostly happen during take-offs and landings, these incidents could distract the pilots during what are highly critical phases of a flight that demand the complete attention of the crew.

What causes bird strikes and what are some of the solutions to this problem?
In the simplest of terms, the presence of birds around an airfield increases the chances of a bird strike. In monsoons, as water puddles emerge in open grounds attracting insects to breed, it also increases the presence of birds in these regions.

In some cases, bird hits also happen at higher altitudes when a plane is cruising. These are more dangerous than the low-altitude hits given that they can cause rapid depressurisation of cabins. Other reasons for bird activity around an airfield could be the presence of landfills or waste disposal sites that attract a large number of birds.

For example, in 2019, the Ahmedabad airport saw 11 wildlife strike events every 10,000 flights. One of the key reasons behind this was the dismantling of a large garbage dump in

Ahmedabad that was located almost directly in the trajectory of flights approaching the airport, a move that has caused the birds circling the landfill to disperse.

India's Ministry of Civil Aviation and the Directorate General of Civil Aviation (DGCA) has recognised wildlife strikes, including bird and animal hits, to aircraft as one of the "State Safety Priority", and the aviation regulator regularly carries out aerodrome inspections that are considered critical with regard to wildlife strikes. Aviation authorities, along with local agencies, work on reducing wildlife presence around airports from time to time.

A recent report in The Conversation further said, "The two largest manufacturers of passenger jets, Boeing and Airbus, use turbofan engines. These use a series of fan blades to compress air before adding fuel and flame to get the thrust needed to take off. Bird strikes in one of these engines can cause severe damage to the fan blades, causing the engine to fail. Engine manufacturers test the safety of these engines by firing a high-speed frozen chicken at them while the engine is operating at full thrust."

Relevance: GS Prelims; Internal Security
Source: Indian Express