

CURRENT AFFAIRS

MONTHLY MAGAZINE

For Integrated Preparation of
CSE Prelims + Mains + Interview

5 NEW
RAMSAR SITES
IN INDIA

INCLUDES

Practice Questions
(Prelims* & Mains) After each Topic

*MCQs on Prelims 2023 Pattern



- Uniform Civil Code
- Electoral Bond Scheme Verdict
- India-France Strategic Partnership
- India's Defence Exports
- 100% FDI in the Indian Space Sector
- INSAT-3DS
- Martand Sun Temple

- Dogri Folk Dance
- Sandeshkhali Violence
- World Restoration Flagship Programme
- 5 New Ramsar Sites in India
- Convention On Migratory Species
- INS SANDHAYAK
- Artificial Intelligence in Cancer Therapies

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POLITY & GOVERNANCE

UNIFORM CIVIL CODE

Why in News: The Uttarakhand legislative assembly passed the Uniform Civil Code (UCC) Bill on February 7th.

What is Uniform Civil Code (UCC)?

- It proposes a single set of personal laws governing all citizens equally, irrespective of their religion or community. This applies to areas like marriage, divorce, inheritance, adoption, and maintenance.

Constitutional Provision and SC Judgements related to UCC

- **Article 44:** Part of the Directive Principles of State Policy in the Indian Constitution, it states that the state shall endeavor to secure UCC throughout the territory of India. However, it is not an enforceable right.
- In 1985, in the case of **Ahmed Khan v. Shah Bano Begum and others**, it was suggested that Parliament define a uniform civil code.
- In 1995, **Sarla Mudgal v Union of India** reinforced the call for Parliament to enact a uniform civil code.
- In 2017, **Shayara Bano v Union of India** saw the Supreme Court ruling that the practice of talaq-e-biddat, or instantaneous triple talaq, is unconstitutional.

Current Status

- **Operational only in Goa:** It has a common family law applicable to all religions.
- **No UCC at national level:** Different personal laws based on community/religion currently govern citizens.

Evolution of UCC in India

- **The Lex Loci Report of 1840** underscored the importance of uniformity in codifying Indian law, particularly regarding offenses, evidence, and contracts. It suggested that while uniformity was crucial, the personal laws of Muslims and Hindus should not be codified.
- **The B N Rau Committee in 1941** recommended the codification of Hindu law to ensure equal rights for women.
- **The Special Marriage Act of 1954** introduced provisions for civil marriage for all Indian nationals, regardless of religion or faith, both within India and abroad.
- Several significant enactments were made

concerning Hindu Law, including the Hindu Marriage Act of 1955, the Hindu Succession Act of 1956, the Hindu Minority and Guardianship Act of 1956, and the Hindu Adoption and Maintenance Act of 1956.

Provisions of the Bill:

- Applies to **all residents except Scheduled Tribes**.
- Regulates live-in relationships, mandating registration and imposing penalties for non-compliance.
- **Abolishes “illegitimate children”** by recognizing children born in void/voidable marriages and live-in relationships.
- **Prohibits bigamy/polygamy**, mandates marriage registration, and criminalizes unregistered marriages.
- Sets grounds for divorce, including religious conversion but not “irretrievable breakdown.”
- Abolishes coparcenary system, making inheritance rights equal for spouse, children, and parents.
 - According to the Hindu Succession Act, 1956, an individual who is born in a Hindu Undivided Family (HUF) has a legal right over his ancestral property. Therefore, he is a coparcener (joint heir) by birth. A coparcenary has a lineal descending succession of up to four generations.
- Criminalizes practices like nikah halala and triple talaq without explicit naming.

CHAHAL'S PERSPECTIVE**UNIFORM CIVIL CODE****Arguments for UCC**

- » **Equality and Secularism:** Promotes equal treatment for all, regardless of religion, upholding secular principles.
- » **Gender Equality:** Addresses discriminatory practices within certain personal laws that disadvantage women.
- » **National Integration:** Encourages unity and removes discriminatory legal systems based on religion.
- » **Simplification of Laws:** Reduces complexity and confusion arising from multiple personal laws.
- » **Combating Social Evils:** Aims to curb harmful practices like polygamy and triple talaq.
- » **Modernization:** Aligns legal framework with evolving social norms and gender equality principles.

Arguments against UCC

- » **Cultural and Religious Freedom:** Seen as an infringement on cultural and religious rights of minorities.
- » **Apprehensions of Uniformity:** Fear of imposing a majority's views on diverse communities.
- » **Possibility of Backlash:** Fear of social unrest and resistance from certain communities.
- » **Lack of Consensus:** No national consensus on the specific content and implementation of UCC.



Way Forward

- **Extensive Consultations:** Open and inclusive dialogue with all stakeholders, including minority communities and religious leaders.
- **Need for Reforms within Existing Laws:** Emphasis on reforming existing personal laws in all religious communities.
- **Codification of personal laws** aims to establish universal principles to enhance fairness, as opposed to imposing a rigid uniform code.
- **Focus on Gender Equality:** Ensure the proposed UCC upholds principles of gender equality and addresses discriminatory practices.
- **Gradual Implementation:** Consider a phased approach, starting with common provisions across communities and building consensus.
- **Constitutional Safeguards:** Incorporate safeguards to protect cultural and religious rights of minorities.
- **Continuous Review:** Regular review and assessment of the UCC's impact on different communities.

Conclusion

The **debate on UCC is complex and multifaceted**. While promoting equality and national integration are key objectives, addressing concerns of religious freedom and ensuring safeguards for minorities is crucial. Finding common ground through **inclusive dialogue** and a focus on progressive, gender-equal principles can pave the way for a just and unified legal system.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. In the context of Indian constitution, the mention of Uniform Civil Code (UCC) is found in which of the following?

- Fundamental Rights
- Directive Principles of State Policy
- Preamble
- Fundamental Duties

Answer: b

Descriptive Question

Q. Trace the origin of Uniform Civil Code (UCC). Discuss the relevance of UCC in India and challenges that may arise in its implementation. [15 Marks] [250 Words]

ELECTORAL BOND SCHEME VERDICT

Why in News: Recently the **Supreme Court of India** declared the **Electoral Bonds Scheme (EBS) unconstitutional** to uphold the right to information and free and fair elections above to anonymity in EBS.

S.C. Observations

- A five-judge bench, led by Chief Justice D.Y. Chandrachud, declared the electoral bond scheme “**unconstitutional**” and “**violative of Article 19(1)(a)**” that guarantees freedom of speech and expression in the case of **the Association for Democratic Reforms & Another Petitioners Versus Union of India & Ors.**
- The Court applied the **proportionality test** to assess whether the scheme's restrictions on free speech were justified in achieving its objectives of curbing black money and protecting donor privacy.
- The Court found the scheme **failed the proportionality test** because:
 - **Limited impact on black money:** The scheme offered an alternative route for anonymous donations, potentially shifting black money from other channels without effectively eliminating it.
 - **Excessive restrictions on free speech:** Anonymity of donors hindered public scrutiny and accountability of political parties, impacting transparency and informed voting.
 - **Alternatives exist:** The Court acknowledged alternative measures like stricter disclosure norms and stricter enforcement of existing laws could address black money concerns without compromising transparency.

What is Electoral Bond Scheme?

- Electoral bonds are like special papers that people can buy and give to political parties instead of money.
- They were introduced through changes in laws like the **Finance Act of 2017**, the Representation of the People Act of 1951, the Income Tax Act of 1961, and the Companies Act of 2013.

Understanding the Proportionality Test

In 2017, during the **K.S. Puttaswamy v. Union of India case**, the court emphasized the importance of the proportionality test, which tests legislation on following ground:

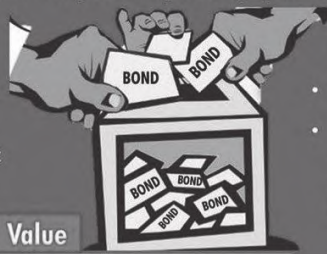
- This test assesses whether a state action infringing on fundamental rights is **justified** based on:
 - **Legitimacy of the aim:** Is the state pursuing a legitimate aim like public interest or security?
 - **Necessity of the action:** Is the action essential to achieve the aim or are less restrictive alternatives available?
 - **Proportionality of the impact:** Is the extent of restriction on rights proportionate to the benefit achieved?
 - **Procedural safeguards:** Are there adequate safeguards against abuse of power?

SC gave following arguments against the Electoral Bond Scheme-

- **EBS Violates Right to Information:** The court ruled that EBS, which allowed anonymous donations to political parties, violates the fundamental right to information under Article 19(1)(a) of the Constitution. Voters have a right to know how parties are funded to prevent undue influence and **quid-pro-quo arrangements**.

Electoral Bonds Scheme Notified

To help cleanse the political funding system in the country



Nature

- Bearer instrument in the nature of a Promissory Note
- Interest free banking instrument

Eligibility

- A citizen of India or a body incorporated in India
- On fulfillment of all the extant KYC norms
- By making payment from a bank account

Value

- Issued/ Purchased in multiples of Rs.1,000, Rs.10,000, Rs.1,00,000, Rs.10,00,000 and Rs.1,00,00,000
- Available from the Specified Branches of the State Bank of India (SBI)

Lifespan

- Shelf life of only 15 days
- Can be used for making donation only to the political parties registered u/s 29A of the Representation of the Peoples Act, 1951

Period of Purchase

- Available for purchase for a period of 10 days each in the months of January, April, July and October, as may be specified by the Government

- **Restrictions on Black Money Disproportionate:** The court disagreed with the government’s argument that anonymity curbs black money. It stated that alternative measures like disclosing donations above a certain amount (Section 29C of Representation of People Act) are less restrictive.
- **Right to Privacy Not Absolute:** The court acknowledged the right to privacy in political affiliation but held that it is not absolute when donations aim to influence policy. Public interest in free and fair elections outweighs individual privacy concerns in such cases.
- **Unlimited Corporate Donations Unconstitutional:** Removing the cap on corporate donations of 7.5% of net profit (via Section 182 of Companies Act) was struck down by the court. The court argued that it allows companies undue influence in elections and violates the right to free and fair elections.
- **Foreign Funding Concerns:** Electoral Bonds, coupled with a retroactive amendment on foreign funding, create loopholes that could potentially allow foreign entities to influence Indian elections, violating existing legal restrictions.
- **Compromising Shareholder Rights:** Companies can donate via Electoral Bonds without shareholder oversight, denying them a say in how their company engages in the political sphere, potentially undermining corporate governance and accountability.

RBI’s Concerns on EBS

- **Undermining Central Bank Authority:** The RBI objected to the proposal of non-sovereign entities issuing bearer instruments like electoral bonds. It argued that this challenged its sole authority in issuing such instruments, potentially eroding public trust in central bank-issued currency if EBs were issued in large quantities.
- **Money Laundering Risk:** The RBI highlighted the anonymity feature of EBs, arguing that it could enable shell companies and individuals to launder illicit funds through political donations.
- **Alternative Solutions:** The RBI suggested alternative methods like cheques, demand drafts, and electronic payments to achieve the objective of eliminating cash donations, arguing that EBs were unnecessary and introduced unnecessary risks.

ECI’s Concerns

- **Opacity of Donors:** The ECI objected to the anonymity of donors under EBS, stating it undermines transparency in political finance. Without knowing the source of funds, it is difficult to trace potential money laundering or undue influence on parties.
- **Reporting Exemption:** The ECI criticized the exemption of EBS donations from reporting requirements under the Representation of the People Act. This opaqueness hinders public scrutiny and accountability of political parties regarding their funding sources.

Other criticism of this scheme

- **Against the ‘Right to Know’:** Electoral Bonds conceal donor identities, violating the citizen’s right to information guaranteed under Article 19(1) and hindering public scrutiny of political funding sources.
- **Information Asymmetry and Potential Misuse:** While anonymous for the public, the government can access donor details through the State Bank of India (SBI), raising concerns about information asymmetry and potential misuse by the ruling party to target opponents’ donors.
- **Crony-Capitalism and Round-Tripping:** Electoral Bonds could enable businesses to “round-trip” funds parked in tax havens to political parties for favors through shell companies, fostering crony capitalism and undermining fair competition.
- **Rise of Large Corporate Donations:** While aimed at encouraging small donations, over 90% of Electoral Bonds issued have been of the highest denomination (Rs. 1 Crore), suggesting continued dominance of large corporate donors.

Positive side of Judgement

- **Transparency and Accountability:** The judgment promotes transparency and accountability in political funding, crucial for a healthy democracy. Anonymous donations raise concerns about corruption and undue influence.
- **Level Playing Field:** Restricting unlimited corporate donations levels the playing field, preventing them from wielding excessive power through financial contributions.
- **Challenges Ahead:** Implementing the judgment requires effective alternative measures to curb black money and ensure transparency. Political parties and Election Commission need to adapt.

Immediate challenge emerged due to this judgement

- **Uncertainties in Political Funding:** Parties might face difficulties raising funds in the short window before the 2024 Lok Sabha elections due to the sudden invalidation of EBS and the need to adapt to the older or new and stricter regime. This could impact their campaigning and outreach activities.

However, the government presented several justifications for introducing the Electoral Bonds Scheme in 2018:

- **Transparency:** The scheme claimed to enhance transparency by channeling donations through authorized banks (SBI) with KYC verification, eliminating anonymous cash contributions.
- **Reduced misuse:** The limited sale window and short maturity period (15 days) aimed to discourage hoarding and misuse of bonds.
- **Donor anonymity:** Bearer bonds offered anonymity to donors, theoretically protecting them from post-poll intimidation.
- **Political accountability:** Parties were obligated to report contributions received through bonds to the Election Commission, promoting accountability.
- **Curbing black money:** The scheme reduced the permissible cash donations from anonymous sources from Rs. 20,000 to Rs. 2,000, potentially deterring black money usage.

Way Forward

<p>Parliamentary Scrutiny</p> <p>Parliament must revisit electoral finance laws considering the SC's observations, ensuring transparency and fairness while addressing concerns about practical implementation.</p>	<p>Strengthening Regulatory Framework</p> <p>Election Commission can strengthen regulations for disclosing donations, verifying sources, and auditing party finances.</p>	<p>State Funding of Elections</p> <p>Partial state funding can reduce dependence on private donations and enhance transparency. The Indrajit Gupta Committee and successful examples from countries like Germany and Canada support this approach.</p>
<p>National Electoral Fund</p> <p>Setting up a national fund with anonymous contributions allocated based on vote share could address donor anonymity and black money concerns.</p>	<p>Capping Anonymous Donations</p> <p>The Law Commission's recommendation to cap anonymous donations aligns with international best practices like the UK's Elections and Referendums Act. This can limit anonymous influence and encourage greater transparency.</p>	<p>Ban on Cash Donations</p> <p>Eliminating cash donations, as recommended by the Venkatachaliah Committee, can curb black money inflow and improve transparency.</p>
<p>Robust Auditing of Accounts</p> <p>Following the Venkatachaliah Committee's recommendations, implementing stricter audit regulations and mandating regular disclosure of party income and expenditure is vital for ensuring accountability and deterring misuse of funds.</p>	<p>Learning from Global Best Practices</p> <p>Studying established systems like the US Publicity Act, French donation caps, and Brazilian corporate funding ban offers valuable insights. Adapting these practices to India's context can contribute to a more robust funding framework.</p>	<p>Public Awareness</p> <p>Raising public awareness about the importance of electoral transparency and encouraging informed voting can further strengthen the democratic process.</p>

ARTICLE 142: POWER TO DO COMPLETE JUSTICE

Why in News: The court invoked its plenary power under Article 142 of the Constitution to ensure “complete justice”, saying that the returning officer’s announced result was clearly in violation of the law.

Key Details

- The **Chandigarh Municipal Corporation mayoral election** held on January 30 was declared void by the Supreme Court.
- The **eight votes cast for the alliance candidate** were declared void by the court because the presiding officer had purposefully invalidated them.
- The Bench, comprising **Chief Justice of India (CJI) D Y Chandrachud and Justices J B Pardiwala and Manoj Misra**, while setting aside the result as “contrary to law” and declaring Kuldeep Kumar as the “validly elected candidate”, refused to quash the election process itself.
- The **bench emphasized their responsibility to keep deceit from compromising the democratic process**. They stated that in order to guarantee the preservation of electoral democracy’s fundamental purpose, the court must intervene when extraordinary circumstances arise.

What is Article 142?

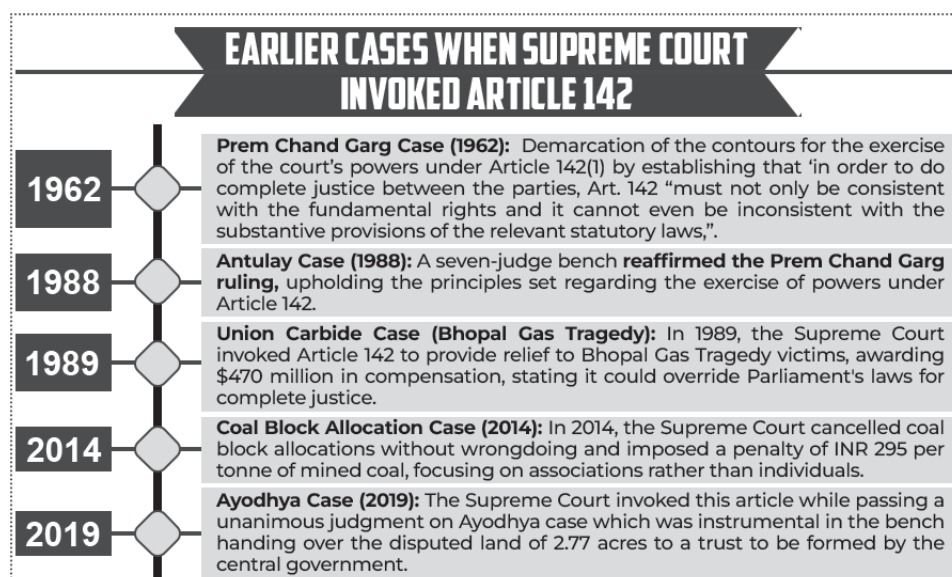
- Article 142(1) of the Constitution bestows the Supreme Court with **extraordinary authority to ensure “complete justice”** in situations where existing laws or statutes may lack adequate remedies.

How does Article 142 give unique power to the Supreme Court?

- In 2017, the Supreme Court used Article 142 to transfer the Babri Masjid case, defining its power and encapsulating the Latin maxim ‘*fiat justitia ruat caelum*’ (Let justice be done though the heavens fall).
- This unique provision grants the court a distinctive power not found in the Government of India Act, 1935, or any other global constitution.
- It empowers the court to ensure complete justice and conclude legal disputes, contradicting the traditional equity principle.
- Article 142 allows the court to deviate from strict legal applications based on the unique circumstances of each case, relaxing the application of law or exempting parties from legal rigors.

Criticism of Article 142

- **Arbitrary and Ambiguous:** Critics argue that Article 142’s sweeping powers are arbitrary and ambiguous, as they lack a standard definition for “complete justice.” The court’s wide discretion allows for arbitrary exercise or misuse due to the lack of a standard definition.
- **No Accountability and overreach:** Another criticism is that unlike the legislature and executive, the judiciary cannot be held accountable for its actions, as it is not subject to the separation of powers doctrine.



Supreme Court’s counter to such criticisms

- In 1998, the Supreme Court in ‘**Supreme Court Bar Association vs Union of India**’ held that Article 142’s powers are supplementary and cannot be used to supplant or override substantive laws.
- In 2006, the Supreme Court in ‘**A. Jideranath vs Jubilee Hills Co-op House Building Society**’ discussed the scope of the power, stating that no injustice should be caused to a person not party to the case.
- The apex court has also imposed checks on its own power under Article 142, as clarified in ‘**State of Karnataka vs Umadevi**’ in 2006. The court will not grant relief that would perpetuate an illegality encroaching into the legislative domain.

Conclusion

Although Article 142 empowers the court to ensure complete justice when deemed necessary. Despite its **expansive power**, the **Supreme Court clarified in the 2023 ruling that Article 142 is not universally applicable** and may not be invoked in every case.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. With reference to the Constitution of India, prohibitions or limitations or provisions contained in ordinary laws cannot act as prohibitions or limitations on the constitutional powers under Article 142. It could mean which one of the following?
- (a) The decisions taken by the Election Commission of India while discharging its duties cannot be challenged in any court of law.
 - (b) The Supreme Court of India is not constrained in the exercise of its powers by laws made by the Parliament.

- (c) In the event of a grave financial crisis in the country, the President of India can declare a Financial Emergency without the counsel from the Cabinet.
- (d) State Legislatures cannot make laws on certain matters without the concurrence of the Union Legislature.

Answer: b

Descriptive Question

Q. In the context of Indian Constitution, critics argue that Article 142's sweeping powers are arbitrary and ambiguous. Discuss. [15 Marks] [250 words]

DECLINING SITTING DAYS IN PARLIAMENT - IMPLICATIONS AND WAY FORWARD

Why in News: The 17th Lok Sabha, which concluded recently, witnessed a drastic decline in its average annual sitting days compared to previous Parliaments, raising concerns about the functioning of our democratic institutions.

Key details

- **Fewer Sittings:** The 17th Lok Sabha held **only 55 sitting days on average per year**, compared to the 135 days of the first Lok Sabha headed by Nehru.
- **First LS Without Deputy Speaker:** This Lok Sabha was

unique for functioning without a Deputy Speaker, despite the constitutional mandate under **Article 93**.

- **Limited Scrutiny:** Only **16% of bills went to Standing Committees for detailed scrutiny**, lower than previous Lok Sabhas. This suggests potential compromises on legislative quality and public participation.
- **Private Members' Bills Ignored:** 729 Private Members' Bills (PMBs) were introduced, the highest except for the 16th Lok Sabha, but **only two were discussed**, highlighting the marginalization of individual MPs' voices.

Chart 1

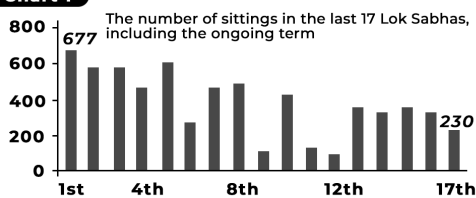


Chart 2

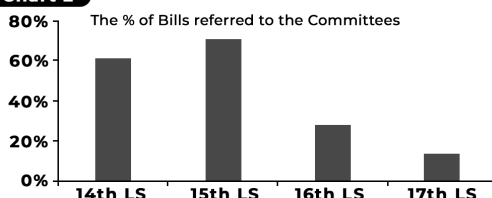


Chart 3

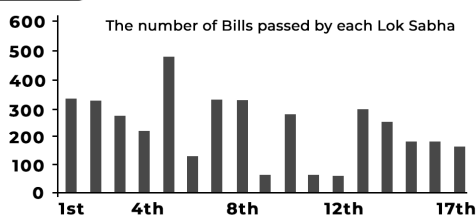
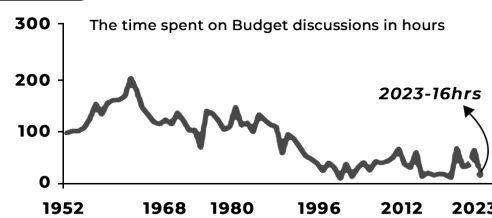


Chart 4



Implication of Reduced Sitting time of Parliament

- **Impact on Lawmaking:** Reduced sittings translate to less time for debate, scrutiny, and deliberation on proposed legislation.
- **Challenge to Accountability:** Limited sittings constrain opportunities for MPs to raise questions, scrutinize government policies, and hold the executive accountable.

- For instance, 58% of bills in 17 LS were passed within two weeks, with some, like the J&K Reorganization Bill, passed in just two days.
- **Articles 75** provides that Council of Ministers (CoM) shall be collectively responsible to the Lok Sabha.
- **Increased delegated legislation:** For Example, since enforcement of Companies Act, 2013 ("2013 Act"), MCA has notified 56 Rules under Act, and issued 181 Circulars.
- **Erosion of Private Member Participation:** The drastic

decline in sitting time of Parliament stifled avenues for individual MPs to raise issues of local or specific concern.

- **Erosion of Checks and Balances:** The absence of a Deputy Speaker and limited committee scrutiny raise concerns about the balance of power and accountability within Parliament.
- **Public trust erosion:** If Parliament is perceived as inefficient or ineffective, it can erode public trust in democratic institutions, leading to disengagement and cynicism.

- The Finance Commission (FC) guides this process.

Divisible Pool of Taxes

- This pool, defined in Article 270, includes taxes like corporation tax, income tax, and Central GST, but excludes cess and surcharge.
- States receive a share of this pool along with grants recommended by the FC.

Finance Commissions

- These constitutional bodies are formed every five years under Article 280 of the Indian Constitution by the President to recommend Centre-State financial relations.
- Recently, the 16th FC has been constituted under chairmanship of Arvind Panagariya.

What is the basis for allocation?

The criteria for horizontal devolution among States over the last five FCs

Criteria	11th FC 2000-05	12th FC 2005-10	13th FC 2010-15	14th FC 2015-20	15th FC 2021-26
Income Distance	62.5	50	47.5	50	45
Population (1971 Census)	10	25	25	17.5	-
Population (2011 Census)	-	-	-	10	15
Area	7.5	10	10	15	15
Forest cover	-	-	-	7.5	-
Forest and ecology	-	-	-	-	10
Infrastructure index	7.5	-	-	-	-
Fiscal discipline	7.5	7.5	17.5	-	-
Demographic performance	-	-	-	-	12.5
Tax effort	5	7.5	-	-	2.5
Total	100	100	100	100	100

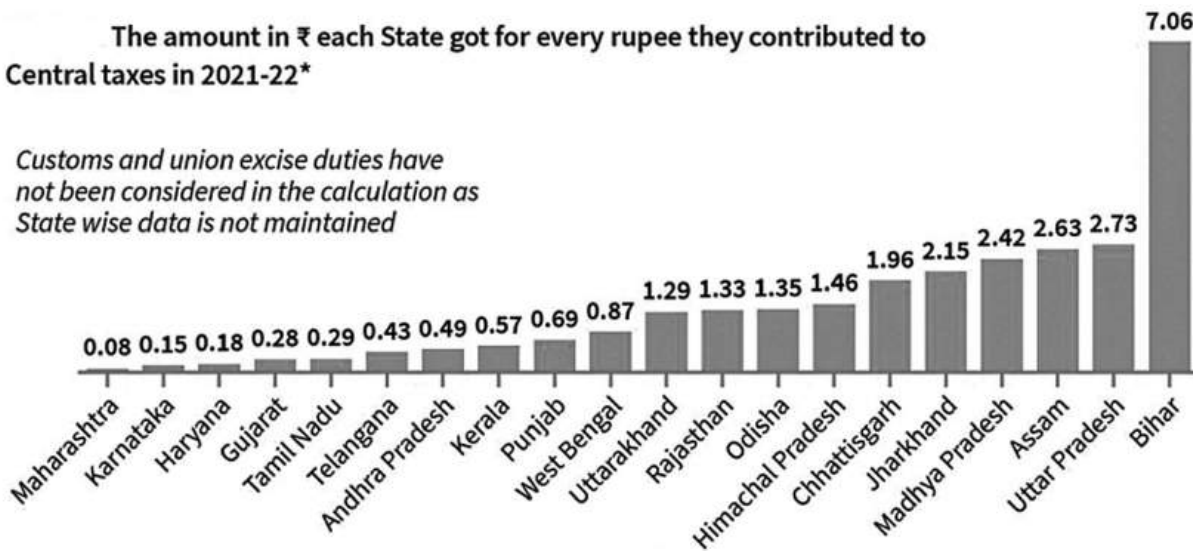
- The share of States from the divisible pool (vertical devolution) stands at 41% as per the recommendation of the 15th FC.
- The distribution among the States (horizontal devolution) is based on the following criteria of the last five successive FCs.
 - **The demographic performance and Tax efforts** criteria have been introduced by 15th FC to reward efforts made by States in controlling their population.

Present challenges and concerns

- **Disproportionate Share of receipt in Tax Revenue:** South Indian states claim they receive less than their fair share and their share is continuously declining.
- **Cess & Surcharge Exclusion:** These, amounting to 23% of Union tax receipts (2024-25), are not part of the divisible pool (not shared with states), reducing states' share.
 - For instance, the 15th Finance Commission recommended a 41% share of states, the actual share hovers around 32%, primarily due to the exclusion of cess and surcharges levied by the Centre, which are not part of the divisible pool.
- **Reduced Transfers:** Financial transfers to states have declined since the 14th FC, despite its recommendation for a 10% increase.
- **State-Wise Variations:** Industrially developed states receive significantly less than they contribute, compared to states like UP and Bihar.

The amount in ₹ each State got for every rupee they contributed to Central taxes in 2021-22*

Customs and union excise duties have not been considered in the calculation as State wise data is not maintained



- **Declining Pool Share:** South Indian states' share in the divisible pool has decreased over time due to higher weightage given to equity (like population, income distance etc.) and needs over efficiency criteria.
- **Increased Union Discretionary Spending:** The Union government has reduced transfers while increasing its own discretionary expenditure, impacting states differently.
- **Against Federal Spirit:** While a strong center is envisaged, states shouldn't feel short-changed in resource distribution.

Measures/Need of the hour

- To address these concerns and strengthen cooperative federalism, several measures can be considered:
- **Expanding the Divisible Pool:** Including a portion of cess and surcharge in the divisible pool would increase the overall resources available for devolution and ensure states receive a fairer share based on their overall tax contribution.
 - **Rebalancing Devolution Criteria:** While addressing

regional disparities remains important, increasing weightage for factors like **tax effort and economic performance** in the devolution formula can incentivize states to focus on efficient resource management and economic growth.

- **Enhancing State Participation:** Establishing a more formal mechanism for state participation in the functioning of the Finance Commission, similar to the GST Council, can foster greater transparency, address concerns, and ensure state perspectives are adequately considered.
- **Strengthening Data Collection and Analysis:** Investing in robust data collection and analysis infrastructure can ensure the accuracy and objectivity of data used in determining devolution criteria. This will enhance the credibility and fairness of the process.
- **Open Dialogue and Collaboration:** Fostering open dialogue and collaboration between the central government and states is crucial. This can involve regular consultations, addressing specific concerns raised by states, and working towards mutually agreeable solutions.
- **Empowering Local Bodies:** Strengthening Panchayati Raj institutions through timely and predictable financial transfers is crucial for achieving vibrant and accountable development at the grassroots level.

Conclusion

There is a need for a balanced approach that ensures equitable resource distribution, strengthens fiscal federalism, and promotes national development while respecting the spirit of the Constitution.

EXPECTED QUESTIONS FOR UPSC CSE

Descriptive Question

Q. In the context of financial devolution among states, what is the role of Finance Commission? What are the issues raised by southern states in financial devolution? What can be the way forward? [15 Marks] [250 words]

REGIONAL BENCHES OF THE SUPREME COURT: A STEP TOWARDS IMPROVED ACCESS TO JUSTICE

Why in News: The Union Law Ministry has recently accepted the recommendation of the Parliamentary Standing Committee on Personnel, Public Grievances, Law and Justice to establish regional benches of the Supreme Court (SC).

Key details

- The Constitution, under **Article 130**, empowers the Chief Justice of India, with the President's approval, to establish the SC's seat at locations other than Delhi.
- The **Standing Committee, in its 133rd report**, suggests

leveraging this provision to set up regional benches in **4-5 locations across the country**.

- These benches **would primarily handle appellate matters**, while interpretation of the Constitution and constitutional matters would remain the domain of the main bench in Delhi.

Law Commission (229th Report):

Proposes a two-pronged approach:

- **Constitution Bench in Delhi:** Deal with constitutional and other allied issues.
- **Four Cassation Benches:** Established in Northern, Southern, Eastern, and Western regions to handle appellate work from specific regions.

Need for Regional Benches

- **Improve Access to Justice:** By bringing the SC closer to the people, it can reduce the cost and time involved in seeking justice, especially for individuals residing in remote areas.
- **Reduce Caseload:** By segregating appellate matters from constitutional ones, regional benches can help address the overflowing caseload in the Supreme Court, leading to faster resolution of cases.
 - There is a **current pendency of cases in SC is over 80,000**, arguing that regional benches can increase the number of judges and lawyers, leading to faster case disposal.
- **Address Language Barriers:** Having regional benches with judges familiar with regional languages can facilitate better communication and understanding during the legal proceedings.
- **Decongesting the Overburdened Judiciary:** Proponents of regional benches argue that they could help alleviate this issue by managing a share of the appellate workload, particularly non-constitutional matters.

Challenges and Concerns

- **Conflicting Interpretations:** Regional benches might deliver judgments with differing interpretations of laws, potentially undermining the uniformity of the judicial system.
- **Impartial Selection and Assignment:** Concerns exist regarding maintaining an impartial process for selecting and assigning judges to regional benches, ensuring fair representation and preventing regional biases.
- **Frivolous Petitions and Resource Constraints:** Establishing regional benches might lead to an **increase in frivolous petitions**, further burdening the already overloaded judicial system.
- **Infrastructure and Resources:** Setting up and maintaining regional benches would require significant

investments in infrastructure and resources, which might pose budgetary challenges.

- **Dilution of Supreme Court's Authority:** Concerns remain regarding the potential weakening of the central Supreme Court's authority and national stature with the establishment of regional benches.

Feasible Approach

While the establishment of regional benches holds some potential benefits, it needs careful consideration due to the associated challenges. A more feasible approach might be to:

- **Invest in technology:** Utilize technology-based solutions like **video conferencing** to facilitate remote hearings and reduce the need for physical travel.
- **Focus on judicial reforms:** Implement reforms aimed at improving judicial efficiency, such as **fast-track courts and alternative dispute resolution mechanisms**, to address case backlog.
- **Hybrid Hearings:** The **success of virtual hearings** during the pandemic signifies their potential as an alternative to regional benches. These hearings could allow litigants to participate remotely, **reducing travel costs and time constraints**.
- **Scrutinizing Petitions:** Experts propose a **mechanism for scrutinizing petitions** before allowing them to reach the Supreme Court. This could involve stricter filtering by High Courts or specialized tribunals, reducing the number of frivolous cases.
- **Empowering High Courts:** Enhancing the decision-making authority and infrastructure of High Courts could enable them to handle a larger share of cases, reducing the need for appeals to the Supreme Court.
- **Encouraging Lok Adalat and Mediation:** Promoting alternative dispute resolution mechanisms like Lok Adalat and mediation can significantly decrease judicial workload and provide litigants with faster and more cost-effective solutions.
- **National Court of Appeal for Special Leave Petitions (SLPs):** Establishing a dedicated appellate court solely for handling special leave petitions filed against lower court decisions could alleviate the Supreme Court's workload, allowing it to focus on constitutional issues.
- **Increasing Working Days:** Implementing recommendations like extending working days and reducing judicial vacations could expedite case disposal and address the backlog.

Conclusion

The argument over the creation of regional Supreme Court benches emphasises how critical it is to address case backlog and enhance judicial effectiveness. To resolve this, **consensus** must be reached between the government, judiciary, and legal community in addition to a **careful assessment of the financial, logistical, and constitutional implications**

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. The Constitution of India authorizes the Chief Justice of India to establish SC's seat at locations other than Delhi under which of the following?
- (a) Article 130 (b) Article 134
(c) Article 136 (d) Article 139A

Answer: a

Descriptive Question

- Q. "Having regional branches of Supreme Court could hamper its independence." In the light of the statement, critically examine the demands of having regional benches of Supreme court. [15 Marks] [250 words]

EPIDEMIC DISEASES ACT, 1897

Why in News: 286th Report of the 22nd Law Commission of India (LCI) has highlighted the limitations of the Epidemic Diseases Act, 1897 (EDA) in effectively addressing future epidemics.

Key details

- The **COVID-19 pandemic unleashed an unprecedented challenge for the Indian health infrastructure**. While the Government was quick to respond to the emerging situation, in the course of dealing with this crisis, certain limitations in the legal framework relating to health were realized.
- The **immediate response to COVID-19** such as the imposition of lockdown was invoked under the Disaster Management Act, 2005. Further, in light of the immediate challenges, especially those faced by the healthcare workers, the **Parliament amended the Epidemic Diseases Act, 1897 in 2020**.
- In this highly globalized and interconnected world, **future outbreaks of epidemics are a real possibility**. Further, given that the **right to health is a fundamental right implicit in Article 21 of the Constitution** and the State is duty-bound to ensure the same to the citizens, it becomes imperative to revisit and strengthen the law in order to effectively tackle any such future health emergency.
- The **22nd Law Commission** holds the view that the **existing legislation does not comprehensively address the concerns** pertaining to the containment and management of future epidemics in the country as new infectious diseases or novel strains of existing pathogens may emerge.

About EDA 1897

- It was enacted in the colonial era (1897) to tackle **Bubonic Plague**.
- It grants powers to **state governments to regulate and control epidemics**.
- It aims to provide measures for the better prevention of the spread of dangerous epidemic diseases.

- It was amended in 2020 (Epidemic Diseases (Amendment) Act) to address violence against healthcare workers.

LIMITATIONS OF EDA 1897

Key limitations identified by the LCI include:

Outdated terminology

The act lacks clear definitions of "epidemic," "infectious disease," and doesn't distinguish between outbreaks, epidemics, and pandemics. This ambiguity hinders effective identification, classification, and response strategies.



Centralized power structure

The EDA grants extensive powers to the central government, leading to challenges in coordinating with state and local authorities, crucial for ground-level implementation of measures.



Lack of specific guidelines

The act lacks specific protocols for isolation, quarantine, and safe disposal of infectious waste and bodies, creating confusion and potential risks.



Limited scope for restrictions

The EDA doesn't have a clear framework for imposing lockdowns or restrictions on movement, hindering containment efforts during major outbreaks.



RECOMMENDATIONS BY LCI

Define Key Terms

Establish clear definitions for outbreaks, epidemics, etc., ensuring better understanding and response measures.



Standard Operating Procedures (SOPs)

Develop dedicated SOPs for epidemic response, outlining actions at different stages. The SOP defines three stages of epidemic spread:

- ▶ **State-level outbreaks:** States have primary responsibility with local authorities empowered for micro-level containment.
- ▶ **Inter-state spread:** Central government frames regulations based on the plan, and states comply.
- ▶ **Extreme threat:** Central government takes over if states fail or there's significant conflict, either directly or through a central agency.



Collaborative Planning

Advocate for states to collaborate with the center in preparing and revising epidemic plans regularly.



Comprehensive Amendments

The report proposes detailed amendments to the EDA or a new law altogether, including:

- ▶ Privacy-friendly disease surveillance.
- ▶ Regulation of medical supplies.
- ▶ Public information dissemination.
- ▶ Medical research and development.
- ▶ Safe disposal of infectious waste.



Framework for restrictions

A clear legal framework for imposing lockdowns and movement restrictions, with safeguards against misuse, is essential for effective containment.



Learning from other countries

- **Canada's Emergency Management:** In Canada, emergency measures and management are guided by two key laws: the Emergency Act of 1988 and the Emergency Management Act of 2007. Additionally, each province has its own health Acts outlining measures for health emergencies. This means that most health crises in Canada are managed at the provincial level, with coordination from the federal government.
- **Australia's National Health Security:** Australia's National Health Security Act of 2007 establishes protocols for anticipating, preventing, and addressing national health emergencies. Designated entities oversee this process at the national level, while provinces implement their own laws and coordination procedures in response to emergencies.

Holistic Strategy calls to go beyond the reforming EDA 1897:

- **Lack of Clarity in Jurisdictional Boundaries:** The absence of a dedicated entry for disaster management in the Seventh Schedule led to reliance on vague entries like "Social Security" and "Public Health", creating ambiguity regarding specific roles and responsibilities of the Centre and States.

Limitations of the Disaster Management Act, 2005:

- **Overly Broad Powers:** The Act vests the Centre with "sweeping powers" during notified disasters, leaving room for subjective interpretations and potential misuse of authority.
- **Misapplication for Epidemics:** The Act wasn't designed specifically for epidemics, raising legal questions about its appropriateness for the COVID-19 response. Reliance on an entry unrelated to pandemics further exposed limitations.

Conclusion

The 286th Law Commission report presents a timely and crucial step towards strengthening India's epidemic response framework. Addressing the identified shortcomings and implementing the recommended measures can significantly improve the country's preparedness and ability to effectively manage future public health emergencies.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. With reference to the Epidemic Diseases Act, 1897, consider the following statements:

1. It was enacted to empower the government to carry out search operations aimed at tackling the Bubonic Plague.
2. It deals with the institutionalization of mentally-ill people in private mental healthcare institutions.

3. It was amended in 2020 to address violence against healthcare workers.

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Answer: (b) and (c) only

Descriptive Question

Q. Discuss the salient features of the Epidemic Diseases Act, 1897. [10 Marks] [150 words]

TRANSFORMING FAIR PRICE SHOPS FOR ENHANCED FOOD SECURITY

Why in News: The Standing Committee on Consumer Affairs, Food and Public Distribution submitted a report on “Transforming Fair Price Shops (FPSs)”, highlighting key issues and recommendations for improvement.

What is FPS?

- As per the **National Food Security Act (NFSA) 2013**, FPSs are outlets licensed to distribute subsidized food grains to ration card holders under the Targeted Public Distribution System (TPDS).
 - Such license is issued by an order under **section 3 of Essential Commodities Act (ECA), 1955**.
- **TPDS, launched in 1997**, aims to provide affordable food to vulnerable sections.

Role of FPS in Food Security

- **Subsidized access to essential food:** FPS offers subsidized food grains, pulses, and sugar to Below Poverty Line (BPL) and Above Poverty Line (APL)

families, particularly crucial during periods of scarcity or price hikes.

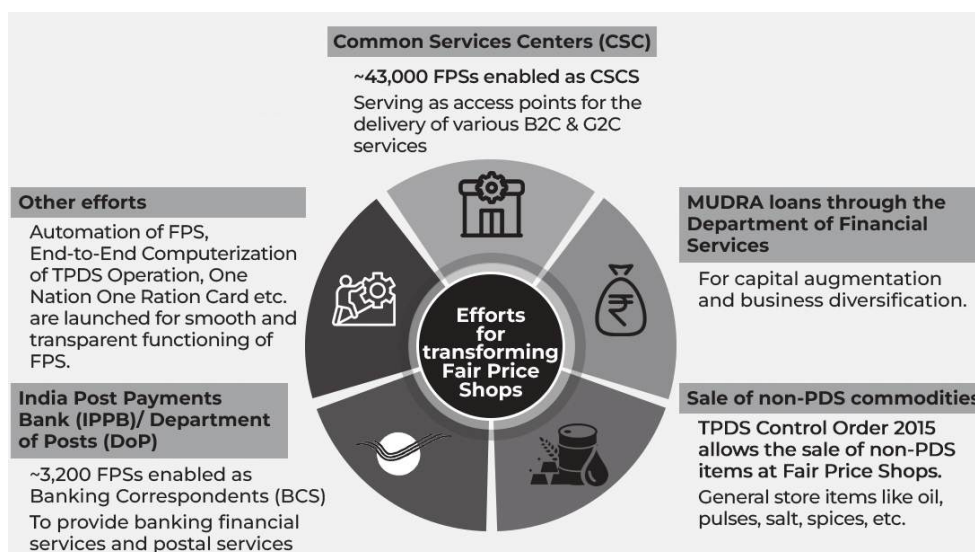
- **Nutritional security:** The inclusion of fortified rice and millets in some states helps address micronutrient deficiencies, contributing to improved health and well-being.
- **Women’s empowerment:** Women often play a key role in managing household food security, and **FPS empowers them** through access and control over essential food items.
- **Economic stability:** Stabilized food prices through FPS **contribute to household economic stability and prevent distress purchases** during market fluctuations.

Key Challenges of FPS

- **Leakages and Diversions:** A 2019 CAG report estimated that **around 35% of food grains meant for the TPDS were diverted**.
- **Financial Non-viability:** Average monthly income for FPS owners in some states is as low as Rs. 2,000. This discourages participation and compromises service quality and pushes them for corruption.
- **Infrastructure and Technology Gaps:** Lack of proper storage facilities, outdated weighing scales, and inadequate connectivity **hinder efficient operations and transparency**. Additionally, the integration of ePoS machines with weighing machines remains incomplete in many regions.
- **Exclusion and Targeting Errors:** Inefficient targeting mechanisms often exclude eligible beneficiaries, while some ineligible individuals may gain access. This undermines the program’s equity and inclusivity.
- **Limited Product Variety:** The focus on a few essential commodities restricts the nutritional choices available to beneficiaries. This limits the program’s contribution to overall dietary improvement.

Recommendations for transformation

- **Strengthening monitoring:** Implementing robust end-to-end electronic Point-of-Sale (ePoS) systems with biometric authentication and real-time data capture will enhance transparency and accountability.
- **Revitalizing VCs: Empowering Vigilance Committees (VCs)** at all levels with adequate resources and training will **strengthen grievance redressal and deter malpractices**.



- VCs are established by State Governments at the State, District, Block and FPS levels to ensure transparency and accountability of the functionaries in TPDS.
- **Diversifying product offerings:** Expanding the range of commodities to include non-PDS items like vegetables, fruits, and locally sourced products can enhance nutritional value and generate additional income for shopkeepers.
 - The **Odisha government's Millet Mission** has successfully integrated millets into the FPS system.
- **Improving financial viability:** Enhancing margins for shopkeepers and exploring Public-Private Partnerships (PPPs) can incentivize participation and improve service delivery.
 - The **Andhra Pradesh government's Rythu Bharosa Kendras**, operated under a PPP model, have shown promising results.
- **Targeted inclusion:** Employing robust targeting mechanisms based on updated socio-economic data can ensure wider coverage and prevent exclusion errors.
- **Community participation:** Engaging communities in the selection and monitoring of FPS operators can foster ownership and accountability.

Transforming fair-price shops in India is a complex but necessary task that **requires a multi-faceted approach, involving technological upgrades, capacity building, infrastructure improvement, and enhanced transparency and accountability.**

EXPECTED QUESTIONS FOR UPSC CSE

Descriptive Question

Q. Write a short note on the role played by Fair Price Shops in ensuring Food security in India. [10 Marks] [150 words]

CRIMINAL DEFAMATION

Why in News: The 22nd Law Commission of India led by Justice Ritu Raj Awasthi has recommended that the offence of **criminal defamation should be retained** in the new legal framework of Bhartiya Nyaya Sanhita.

Key details

- The **285th Law Commission Report**, published on **criminal defamation and its impact on the freedom of speech and expression**, was published in response to a letter from the ministry of law and justice in August 2017, the report states.
- The **Law Commission states that it chose to undertake this extensive study on the law of defamation** following the Supreme Court's decision in the Subramaniam Swamy vs. Union of India (2016) case.
- The **report traces the history of the law of defamation**,

how it is defined and the essential characteristics for it to be proven as an offence.


- The report also **explains how "the right to reputation" is a part of the right to life and dignity under Article 21 of the Constitution.**
- It states that the **right to freedom of speech must be balanced with protecting the right to reputation** through the application of criminal defamation laws.
- The report stresses upon both the constitutional importance of defamation laws and their potential misuse which could have the effect of reducing accountability and transparency while stifling dissent and free speech.

Criminal defamation


- Criminal defamation is a type of crime where **an individual makes a false statement** about someone else that **harms their reputation and does so intentionally or with reckless disregard for the truth.** This false statement must be communicated to others, either verbally or in writing.

Subramaniam Swamy vs. Union of India (2016) case: In this case, the court upheld the constitutionality of defamation as a criminal offence and held that it was a reasonable restriction to the freedom of speech and expression.

Law Commission of India



It is a **non-statutory body** and is constituted by a notification of the Government of India, Ministry of Law & Justice.



It is constituted with a **definite terms of reference** to carry out research in the field of law and the Commission makes recommendations to the Government (in the form of Reports) as per its terms of reference.



It functions to the Ministry of Law and Justice as an **advisory body.**

History of Law Commission of India

- 1** The **first pre-independence law commission** was established in 1834 by the British Government in India.
- 2** It was **established by the Charter Act of 1833** and was chaired by Lord Macaulay.
- 3** The first Law Commission of independent India was established in 1955 under the chairmanship of the **former Attorney General for India C. Setalvad.**
- 4** This Commission was created for a **period of three years** and this practice has persisted ever since then, resulting in the **reconstitution of Law Commissions every three years** via executive orders.
- 5** The executive orders that constitute the Law Commissions also **specify their scope and purpose**, and thus these fluctuate periodically.
- 6** Since then, twenty one more Law Commissions have been constituted, each with a three-year term and with certain terms of reference.
- 7** The Law Commission has taken up various subjects on references made by Department of Legal Affairs, Supreme Court and High Courts.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. The 285th Law Commission Report, recently published by the law commission of India, addresses which of the following issues?
- (a) Verification of the legality of implementing the Uniform Civil Code (UCC) nationwide.
 - (b) Wrongful prosecution and suggested legal remedies for individuals who are wrongly accused and convicted.
 - (c) Establishment of the dedicated commercial courts and divisions within high courts to handle commercial disputes.
 - (d) Criminal defamation and its impact on the freedom of speech.

Answer: d

Descriptive Questions

- Q. "The Indian Penal Code's defamation law has been preserved because criminal law is the only effective means of dealing with these lawbreakers." Explain. [15 Marks] [250 words]

LEGAL DISPUTE OVER MATHURA, VARANASI MOSQUES

Why in News: Various news reports highlighted disputes on places of religious worship in Mathura and Varanasi.

Key details

- When the Babri-Masjid Ram Janmabhoomi dispute gained momentum, **different organisations took up the case of two other mosques — the Gyanvapi mosque in Varanasi and the Shahi Idgah in Mathura.**
- In September 1991, the then government enacted a **special law to freeze the status of places of worship as they were on August 15, 1947.**

Places of Worship (Special Provisions) Act, 1991

- The **Act declares that the religious character of a place of worship shall continue to be the same as it was on August 15, 1947.**
- It says that **no person shall convert any place of worship of any religious denomination into one of a different denomination or section.**
- It declares that **all suits, appeals or any other proceedings regarding converting the character of a place of worship, which are pending before any court or authority on August 15, 1947, will abate as soon as the law comes into force.**

Exemptions provided

- The **Act will not apply to ancient and historical monuments and archaeological sites** and remains that are covered by the Ancient Monuments and Archaeological Sites and Remains Act, 1958.
- It will also not apply to any suit that has been **finally settled or disposed of.**
- The **disputed site at Ayodhya was exempted from the Act.** Due to this exemption, the trial in the **Ayodhya case proceeded even after the enforcement of this law.**

What is the status of the ongoing cases on the Gyanvapi Mosque?

What was the case?

- A **suit was filed in 2022 in the Varanasi district court** by a group of **Hindu women worshippers seeking to assert their right to worship deities** they claim are still found on the premises of the Gyanvapi mosque.
- Also pending is another batch of **suits filed in 1991** seeking a declaration that a part of the site of the **Gyanvapi mosque belongs to Lord Vishweshwar.**

Court's Judgement

- So far, court orders have **favoured the position that these suits are not barred by the Places of Worship Act.**
- On the district court's order, the **Archaeological Survey of India (ASI) has conducted a survey of the premises.**
- The ASI's report, submitted to the Varanasi district court, **claims that a temple existed there prior to the construction of the mosque.**
- Subsequently, the court has **allowed the conduct of Hindu prayers at a cellar on the premises.**

What is the status of the ongoing cases on the Shahi Idgah Mosque?

- The suits in Mathura pertain to the Shahi Idgah mosque that stands adjacent to the **Krishna Janmabhoomi Temple** there.
- These **suits claim that the mosque was built over the birthplace of Lord Krishna.** The mosque committee, however, denies the allegation.
- The dispute was settled through a **compromise between the Sri Krishna Janmasthan Seva Sansthan and the Shahi Idgah Trust in 1968,** and implemented through a decree in 1974.
- As part of the settlement, **the Sansthan had given up a portion of the land to the Idgah.** The current suits challenge this compromise as 'fraudulent' and seek the transfer of the entire parcel of land to the deity.
- The **Allahabad High Court has transferred to itself all suits pertaining to the Mathura dispute.**

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. Consider the following statements with reference to the Public Examinations (Prevention of Unfair Means) Bill, 2024:
1. It aims to detect and address malpractices and irregularities in competitive examinations for public employment.
 2. It mandates a maximum jail term of 2 years and a fine of up to Rs 10 crore.
 3. All offenses listed under this bill shall be cognizable, non-bailable, and non-compoundable.

How many of the above statements are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Answer: (c) and (d) only

Descriptive Question


Q. Critically examine the provisions of the Public Examinations (Prevention of Unfair Means) Bill, 2024. [15 Marks] [250 words]

NATIONAL JUDICIAL ACADEMY

Why in News: The Supreme Court said that all advocates should undergo compulsory training.

Key details

- If judges can go to the National Judicial Academy for training, why not lawyers, the Supreme Court said while asserting that all advocates should undergo compulsory training and they should not be allowed to practise unless they have a certificate from a recognised law university.



NATIONAL JUDICIAL ACADEMY

About

Established	1993
Legal Status and Governance	Registered under the Societies Registration Act, 1860.
Funded by	It is fully funded by the Government of India , and works under the directions of the Supreme Court of India.
Mandate	It is mandated to strengthen the administration of Justice through judicial education, research, and policy development . It organizes training to aid the judges in their judging roles and in the performance of court administration work.
Location	It is located on the outskirts of Bhopal and has a registered office in Delhi.
Chairman	The Chief Justice of India (CJI) is the Chairman of the General Body of NJA as well as the Chairman of the Governing Council, the Executive Committee, and the Academic Council of NJA.
Director	The Director of NJA is the Principal Executive Officer, appointed by the Chairman, the Hon'ble Chief Justice of India.
Staff	NJA academic staff positions include, in addition to the Director, one position of Additional Director (Research), three positions of Professor , six positions of Assistant Professor, six positions of Research Fellow, and six positions of Law Associate.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. Consider the following statements with reference to the National Judicial Academy:
1. The Director of this academy is appointed by the Chief Justice of India.
 2. It is an independent society established under the Subordinate Courts Act, 1887.

Which of the statements given above is are **incorrect**?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Answer: (d)

INDIA AND UAE - A MULTIFACETED ENGAGEMENT

Why in News: Prime Minister Narendra Modi's recently visited to the UAE to see the **inauguration of a Hindu temple in Abu Dhabi**, signifying strong cultural ties.

Key details

- This is **Modi's 7th visit to the UAE since 2015 and 3rd in the last 8 months**, showcasing the frequent high-level engagement.

Abu Dhabi's First Hindu Temple

The Bochasanwasi Akshar Purushottam Swaminarayan (BAPS) Sanstha temple, **built in the Nagara style**, reflects India's cultural heritage and stands as a **symbol of tolerance and acceptance** in the Muslim-majority nation.

Key Features

<p>Seven shikhars representing the seven emirates of the UAE.</p>	<p>Deities from across India including Lord Ram, Lord Krishna, and regional deities like Lord Jagannath and Tirupati Balaji.</p>	<p>Representation of 15 Indian epics and stories from other civilizations like Mayan, Aztec, and Egyptian.</p>	<p>Inclusion of UAE's national bird, the falcon.</p>
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NOTE: Akshardham Temples in Delhi and Gujarat are run by BAPS.

- PM Modi addressed the Indian community in Abu Dhabi at the **"Ahlan Modi"** event, emphasizing the **"stronger than ever" ties between India and the UAE**.
- He described the partnership as one of **"talent, innovation, and culture,"** rooted in ancient community and cultural links.

- Modi was the **guest of honor at the World Government Summit**, highlighting India's growing global presence.

Agreements were signed in this visit:

- Bilateral Investment Treaty (BIT):** This key agreement aims to promote and protect investments by Indian and UAE companies in each other's territories. It provides a stable and predictable environment for investors, fostering increased foreign direct investment (FDI) flows. Notably, the UAE is the first country with which India has signed both a CEPA and a BIT, highlighting the strategic importance of this partnership.
- National Maritime Heritage Complex (NMHC):** This MoU paves the way for the development of a maritime heritage complex in Lothal, Gujarat. This project will not only preserve India's rich maritime history but also attract tourists and promote cultural exchange.

- Interlinking of Payment Platforms:** This agreement allows seamless cross-border transactions between UPI (India) and AANI (UAE), and RuPay (India) and JAYWAN (UAE) cards. This will benefit businesses and individuals by simplifying and accelerating cross-border payments.
- Cooperation on Archival Material:** This protocol fosters collaboration between the National Library and Archives of both countries for the restoration and preservation of archival materials. This will enhance historical understanding and cultural exchange.

Key pillars of the relationship

- **Economic Partnership:** Trade has reached \$85 billion in 2022-23, making the UAE India’s 3rd largest trading partner after China and USA and India’s second-largest export destination.
 - **CEPA Agreement:** (CEPA) which completed its first year in 2023 and has already seen India’s trade with the UAE grow by 16% to \$85 billion. Aims to increase trade in services to \$115 billion in five years.
 - **Investment:** UAE is the 4th largest investor in India.
- **Fintech:** RuPay card acceptance and rupee-dirham settlement system demonstrate financial cooperation.
- **Energy Security:** UAE is India’s third-largest oil supplier and partner in strategic oil reserves.
 - An agreement was signed in Indian Strategic Petroleum Reserves Ltd (ISPRL) and the Abu Dhabi National Oil Company to invest in the strategic crude oil storage facility in Mangaluru with an initial investment of \$400 million.
- **Strategic Cooperation:** Both countries collaborate on defense, security, and regional issues like the I2U2 and IMEC.
- **Defense and security cooperation:** Joint exercises, intelligence sharing, and counter-terrorism collaboration.
 - Conduct joint military exercise **Desert Cyclone**.
- **People-to-people ties:** Cultural exchange, educational initiatives, and large Indian diaspora in the UAE.
 - Inauguration of a second Hindu temple in the UAE signifies tolerance and inclusivity.
 - The vibrant Indian diaspora in the **UAE (over 3.3 million)** acts as a bridge between cultures. Events like the **“Ahlan Modi”** showcase cultural appreciation and promote people-to-people contact.
- **Regional and global cooperation:** Collaboration in I2U2, IMEC (India-Middle East-Europe Economic Corridor) and addressing regional challenges like the Gaza conflict.
- **Education:** The IIT Delhi Abu Dhabi campus has been established, and the UAE opened a consulate in Hyderabad in June 2023.
- **Unique convergence and mutual respect:** The article emphasizes the rare lack of major divergences and the shared vision of global leadership between the two nations.
 - When the UAE hosted the OIC Foreign Ministers’ Meeting in 2019, it invited India’s External Affairs Minister (the late) Sushma Swaraj as a keynote speaker/guest of honour country despite protests from some nations, including Pakistan while The UAE was one of few nations specially invited for the G-20 summit, in September 2023, under India’s G-20 presidency.

India’s Transformation of Ties with the Gulf: Five Factors Driving the Transformation

- **Diplomatic Engagement:** Modi’s proactive approach contrasts with the UPA’s limited engagement. Increased visits and high-level interactions build trust and cooperation.
- **Beyond “Arab Causes”:** India now engages in broader political and economic partnerships, moving beyond traditional positions like anti-imperialism and anti-Zionism.
- **Discarding the “Pakistan Obsession”:** Shifting focus from competition with Pakistan to building positive relationships with the Gulf has yielded significant benefits.
- **Pragmatism over Ideology:** Recognizing the Gulf’s strategic importance and pragmatic stance has opened doors for wider collaboration.
- **Religious Tolerance:** Decreasing religious conservatism in the UAE and Saudi Arabia opens avenues for interfaith dialogue and potentially reduces extremism in the subcontinent.

CHAHAL’s PERSPECTIVE On INDIA-UAE Relations

Challenges	Way Forward
<ul style="list-style-type: none"> » Balancing relationships: Maintaining neutrality amidst regional conflicts and competing interests. » Managing expectations: Delivering on promises of economic cooperation and investment. » Addressing internal concerns: Ensuring domestic harmony and addressing potential religious tensions. » Addressing trade imbalances and ensuring fair market access for Indian businesses. » Enhancing cooperation on security and counter-terrorism measures. » Pakistan angle: Given Pakistan’s history of funding cross-border terrorism against India, concerns regarding possible misuse of the UAE’s significant financial assistance to Pakistan are raised. 	<ul style="list-style-type: none"> » Sustaining high-level engagement: Regular visits, joint ministerial meetings, and institutionalized dialogues are crucial to maintain momentum and address emerging issues. » Expanding economic cooperation: Implementing CEPA effectively, exploring partnerships in new sectors like renewable energy and digital technologies, and facilitating greater investment flows are key areas of focus. » Strengthening security cooperation: Joint training exercises, intelligence sharing, and maritime cooperation can be further enhanced to combat common threats like terrorism and piracy. » Leveraging regional partnerships: Collaborations like I2U2 and IMEC can be further strengthened to promote regional stability and economic prosperity.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. The BAPS Swaminarayan Sanstha temple, recently inaugurated in UAE is based on
- (a) Vesara Style (b) Dravida Style
- (c) Nagara style (d) Indo-Islamic Architecture

Answer: c

Descriptive Question

- Q. Critically examine the cultural and geo-strategic significance of UAE for India and also suggest some measures that can be taken to strengthen India-UAE Relations. [15 Marks] [250 words]

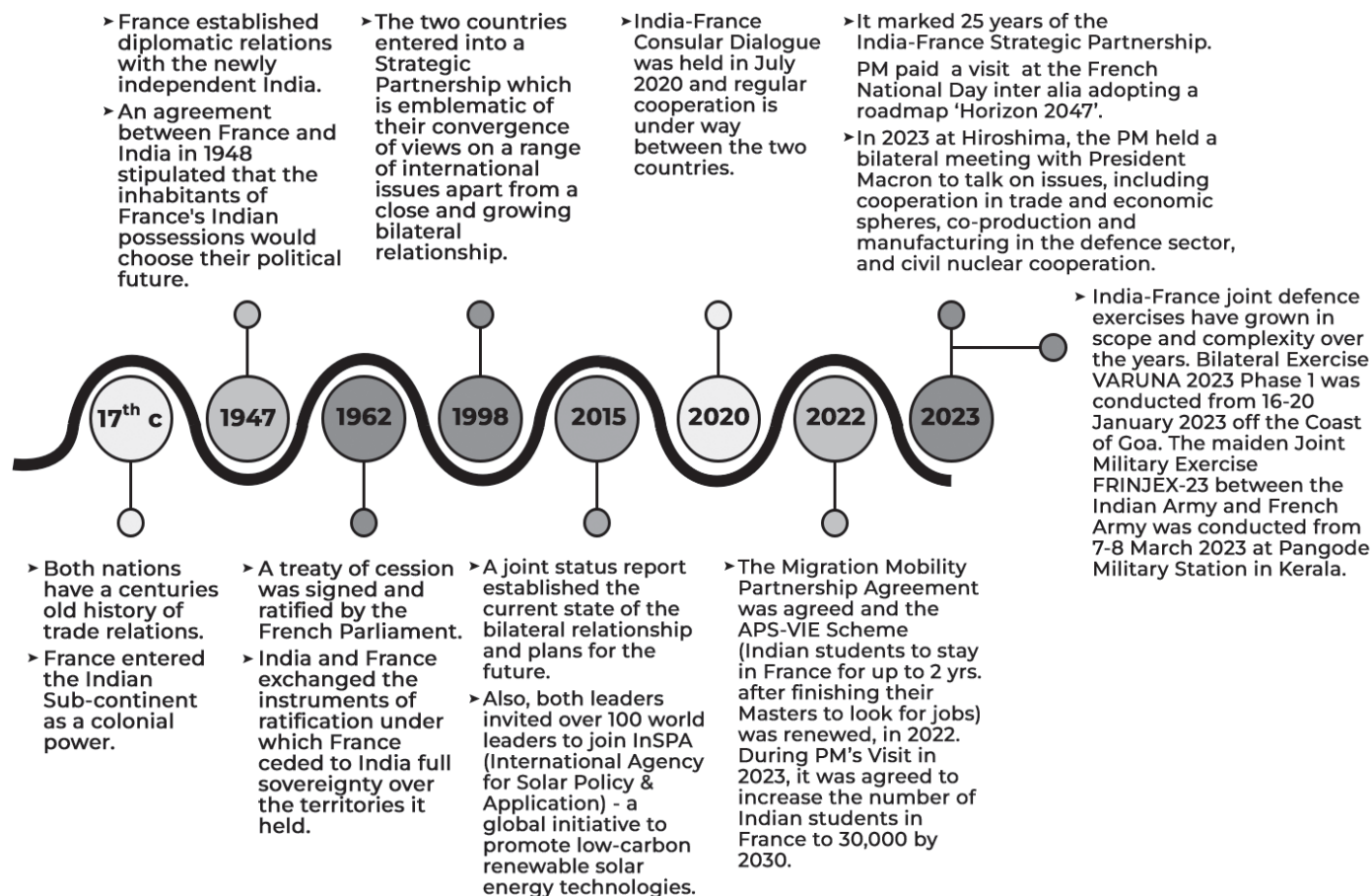
INDIA-FRANCE STRATEGIC PARTNERSHIP

Why in News: President Emmanuel Macron’s recent visit on Republic day of India underscores the strategic partnership between India and France.

Key details

- **India and France had in 2023** already sealed a number of agreements as they marked 25 years of their strategic partnership along with 75 years of friendly relations.
- **Two countries announced a fairly ambitious “Horizon 2047”** relationship road map. They had also stated plans for joint production of military hardware, cutting-edge technology transfers and new purchase deals for French aircraft, engines and submarines.

India - France Relations Timeline

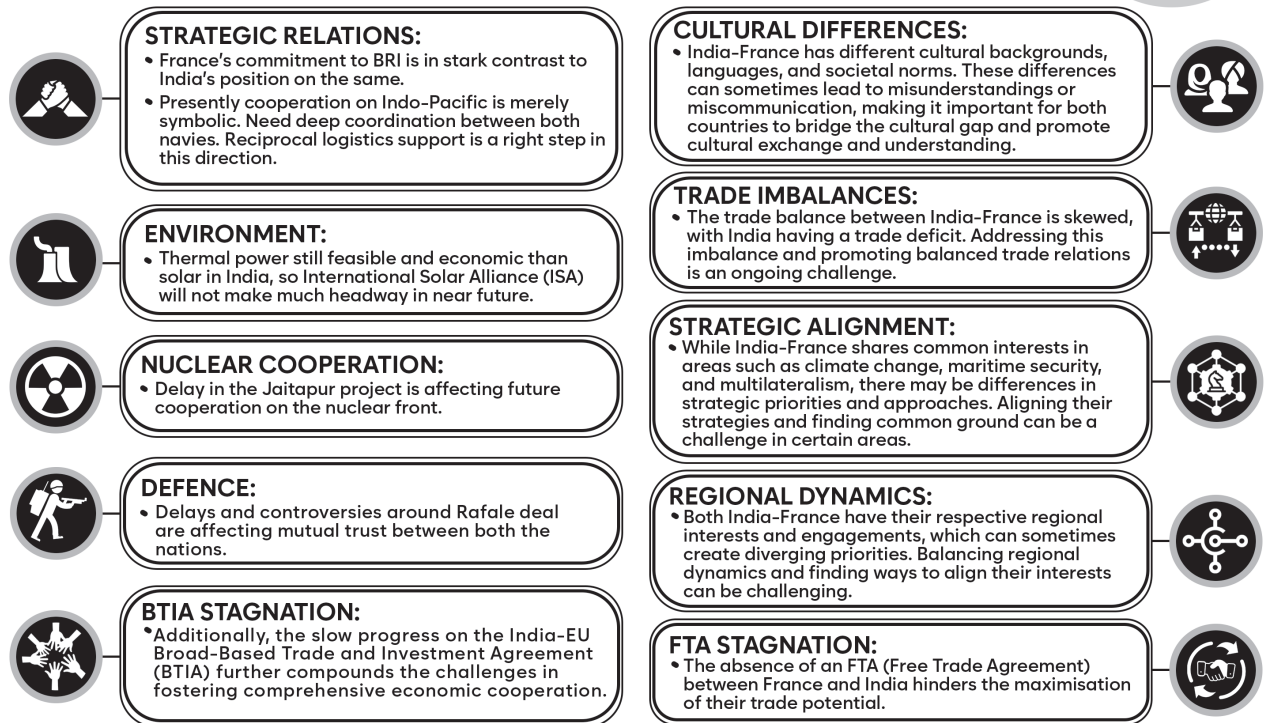


Building the Partnership

- **National Security Advisers**
 - The nuclear dialogue, established in May 1998, grew into a broader strategic dialogue and was elevated to the level of the National Security Advisers.
- **Diversifying Cooperation**
 - From the original three pillars of nuclear, space and defence, the agenda gradually expanded to include counter-terrorism, intelligence sharing and cyber-security issues.
 - **India-France Strategic Dialogue** featured gradual broadening of the partnership to encompass global challenges, demonstrating a shared commitment to address pressing issues beyond regional concerns.
- **Defence Cooperation**
 - **Mazagon Dock Shipbuilders Limited has built six Scorpene submarines** with technology transfer from the Naval Group, and joint exercises between navies, air forces, and armies were instituted in 2001, 2004, and 2011.
 - A government-to-government agreement for **36 Rafale aircraft** has been concluded, with an **offset target of 50%**. Negotiations for the acquisition of three more Scorpenes with enhanced air-independent-propulsion features and 26 Rafale M aircraft for India’s new aircraft carrier are set to end by the end of 2024.

- An **India-France Defence Industrial Road map** has been concluded, with Tata Advanced Systems Ltd. and Airbus agreeing to set up a final assembly line for H125 civilian helicopters by 2026.
- **Safran is collaborating with its Gas Turbine Research Establishment** for designing, developing, and producing an aircraft engine for India's fifth generation aircraft, with 100% transfer of technology.
- **Space**
 - Cooperation in the space domain began in the 1960s with **French assistance to set up the Indian launch facility at Sriharikota** but languished in later years because of export controls.
 - The strategic dialogue helped restart this cooperation and the **Indian Space Research Organization (ISRO) and the French Space Agency (CNES) now work on joint missions.**
 - e.g. **GSAT - 24 Communication satellite (launched in 2022)**

CHALLENGES IN INDIA-FRANCE RELATIONS



Way Forward

- The India-France relationship is primarily driven by government-to-government level relations. It **needs people-to-people and business-to-business relations** to deepen the ties.
- French infrastructure companies are looking for opportunities in Indian projects especially in smart cities and renewable energy. India should leverage this opportunity by improving ease of doing business.
- **Model Bilateral Investment Treaty of India** has drawn sharp criticism from investors, Government should revisit this by taking into account concerns of all the stakeholders.
- India-France should build on reciprocal logistics support agreement to deepen military ties.
- Implementation of migration and mobility agreement.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. India had announced "Horizon 2047" as an ambitious programme of mutual development with which of the following country?

- (a) UAE (b) France
(c) USA (d) Russia

Answer: b

Descriptive Question

Q. What steps are India and France taking to strengthen bilateral relations and what are the potential benefits for both countries? [15 marks] [250 words]

INDIA'S QUEST FOR FULL MEMBERSHIP IN THE INTERNATIONAL ENERGY AGENCY

Why in News: India has begun discussions with the IEA to become a full member, marking a significant step in its global energy and climate leadership aspirations.

Key details

- Ministers from the IEA member countries have initiated discussions with India on its application for full membership, recognizing its “strategic importance” in addressing global energy and climate challenges.
- India joined the IEA as an associate member in 2017 and formally requested full membership in October 2023.

INTERNATIONAL ENERGY AGENCY (IEA)

- It is an autonomous intergovernmental organisation, established in 1974.
- The IEA was set up under the framework of the Organisation for Economic Co-operation and Development (OECD) in the aftermath of the 1973 oil crisis

Aims	Members
<ul style="list-style-type: none"> » Provides policy recommendations, » Analysis and data on the entire global energy sector, » Analysis and data on curbing carbon emissions and reaching global climate targets, including the Paris Agreement. 	<ul style="list-style-type: none"> » 31 member countries and 11 association countries which represent 75% of global energy demand. » Only OECD member states may join the IEA. » India is not a member country but an association country.

Structure

- » Governing Board constitutes the main decision-making body of the organisation.
 - › It is composed of member country representatives and meets three to four times a year.
- » Ministerial Meeting is the biennial gathering of energy ministers who determine the broad direction of the IEA.
- » Standing Groups meet multiple times a year and are made up of officials from member states.

Key Publications of IEA

- World Energy Outlook
- Net Zero by 2050: A Roadmap for the Global Energy Sector
- Energy Technology Perspectives
- Global EV Outlook
- Oil Market Report
- World Energy Investment
- Clean Energy Transitions Programme

India's Strategic Importance is compelling IEA to include India as its permanent member:

- **Growing Energy Demand:** India is the world's **third-largest energy consumer**, this makes India a crucial player in shaping global energy dynamics and a vital partner for the IEA's objectives of energy security and sustainability.
- **Climate Change Leadership:** India's efforts, such as the **International Solar Alliance** and the **2070 net-zero target**, align with the IEA's mission to transition towards a cleaner energy future.
- **Geopolitical Significance:** India occupies a key geopolitical position in Asia, bridging the West and the East. Its membership in the IEA can foster collaboration on energy security concerns, particularly in the context of volatile energy markets and geopolitical uncertainties.

- **Technological Innovation:** India possesses a vibrant startup ecosystem and strong research capabilities in clean energy technologies. Its inclusion in the IEA can create opportunities for knowledge sharing, joint research initiatives, and technology transfer, accelerating the global clean energy transition.

Benefits for India to becoming full member of IEA

- **Enhanced energy security:** Full membership grants India access to IEA’s collective emergency oil response mechanism, allowing coordinated access to strategic oil reserves during supply disruptions.
- India’s current strategic oil reserves are equivalent to 9.5 days of demand, with additional storage of refineries and depots, totaling 66 days’ worth.
- **Boost to climate ambitions:** The IEA is a key player in shaping global energy policies towards sustainability. Membership allows India to influence these policies and gain access to IEA’s expertise and data in clean energy technologies, accelerating India’s transition towards cleaner energy sources.
- **Technological collaboration:** IEA membership facilitates participation in joint research and development projects, enabling India to access advanced clean energy technologies and expertise, fostering domestic innovation and knowledge sharing.
- **Global leadership:** Membership elevates India’s voice on global energy issues, allowing it to contribute to shaping international energy discourse and collaborating with developed economies on crucial energy and climate challenges.

Challenges to India’s IEA membership

- **Strategic oil reserve requirement:** India falls short of the IEA’s mandatory 90-day strategic oil reserve requirement, currently holding only 9.5 days worth of reserves. This necessitates significant investment and infrastructure development to comply with the requirement.
- **Domestic policy alignment:** IEA membership may necessitate adjustments to India’s domestic energy policies to align them with the agency’s sustainability and market-oriented principles. This could involve reforms in subsidies, pricing mechanisms, and energy market regulations.
- **Balancing interests:** India’s energy needs are complex, with a large dependence on affordable coal. Balancing this with the IEA’s focus on clean energy transition could be a challenge, requiring careful negotiation and strategic maneuvering.
- **Internal political considerations:** Opposition from within India, particularly from vested interests in the coal industry, could hinder policy changes necessary for full membership.

Way Forward

- Successful negotiations can strengthen India’s role in shaping global energy policies and responses to energy crises.

- Membership can facilitate technology transfer, investments, and best practices to support India’s clean energy transition.
- India’s inclusion can broaden the IEA’s perspective and enhance its effectiveness in addressing global challenges.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

- Q. World Energy Outlook is published by:
- (a) International Monetary Fund (IMF)
 - (b) World Bank
 - (c) International Energy Agency (IEA)
 - (d) United Nations Development Programme (UNDP)

Answer:

Descriptive Question

- Q. “India’s membership in the International Energy Agency (IEA) can foster collaboration on energy security concerns.” Discuss. [10 marks] [150 words]

INDIAN OCEAN CONFERENCE

Why in News: 7th edition of the Indian Ocean Conference was held in Australia on 9-10 February, 2024.

Key details

- It was held in association with the **Department of Foreign Affairs and Trade, Government of Australia, along with S. Rajaratnam School of International Studies, Singapore** and Perth-US Asia Centre in Australia.
- The **theme of this edition** of the conference is “Towards a Stable and Sustainable Indian Ocean”.

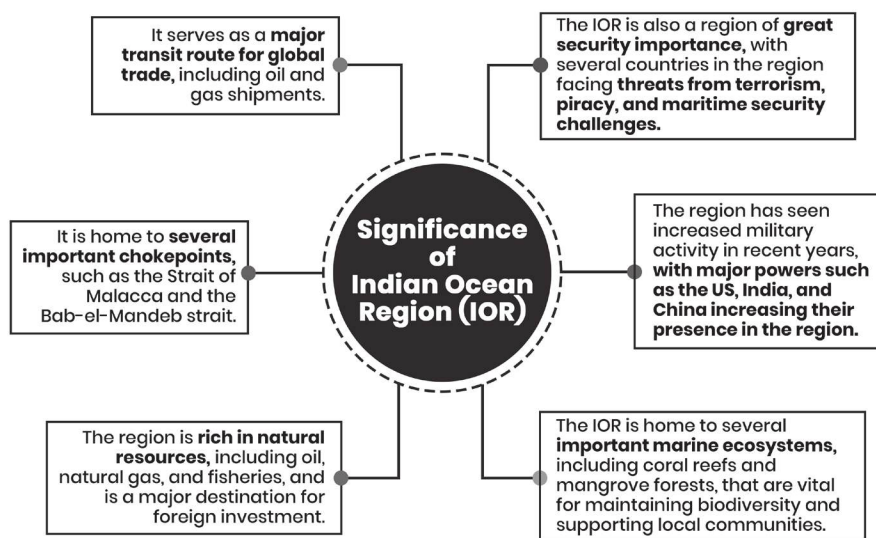
Indian Ocean Conference (IOC)

- IOC is an **annual international conference** that focuses on the geopolitical, economic, and strategic importance of the Indian Ocean region.
- The **conference brings together policymakers, scholars, business leaders, and civil society representatives to discuss issues** related to security, trade, and cooperation in the Indian Ocean region.
- The **first edition of the Conference was held in Singapore in 2016.**
- The IOC aims to foster SAGAR (Security and Growth for All in the Region) by uniting states.

What is Indian Ocean Region (IOR)?

- The Indian Ocean Region (IOR) is a **vital maritime area spanning over 36 littoral and island countries.**
- The region is **strategically important due to its significant trade routes, natural resources, and geopolitical importance.**

- The Indian Ocean is the **world’s third-largest ocean**, covering an area of **approximately 70.6 million square kilometres**.
- It is home to several **important sea lanes of communication**, including the Strait of Malacca, the Suez Canal, and the Bab-el-Mandeb strait, which connect Asia, Europe, and Africa.



Significance for India

- For India, the Indian Ocean is the **lifeline**. Eighty percent of its external trade and 90 percent of the energy trade happens through these ocean lines.
- India has **exclusive rights to explore the Central Indian Ocean** and has the licenses for the Indian Ocean ridge. These have opened new opportunities for deep seabed mining.
- Additionally, the Indian Ocean maritime trade routes are the crucial supply chains managing almost 70 per cent of the world’s container traffic.

- Moreover, the Indian Ocean, the only ocean to be named after a country, is **not just a maritime geography but a civilization**.
 - Over millennia, its waves reached the shores of **many countries carrying India’s cultural and civilizational imprint** and created a vast sphere of Indic civilisational influence.

US HOUSE PASSES STRENGTHENING THE QUAD ACT: BOOSTING INDO-PACIFIC COOPERATION

Why in News: The US House of Representatives’ passage of the “Strengthening the Quad Act” signifies a renewed commitment to the Quadrilateral Security Dialogue (Quad), an informal grouping of the **US, India, Australia, and Japan**.

Quad Act seeks to establish a Quad intra-parliamentary working groups to facilitate cooperation between members

Conclusion

- Realizing the **natural goodwill that India enjoys in this region**, once described as the “British Lake”, the Indian government has **taken several proactive steps towards it**. The 7th Indian Ocean Conference is one such initiative.

About the Quad

- Quad evolved from Shinzo Abe's concept of "Democratic Security Diamond" involving Australia, India, Japan and USA.
- The Quad is an **informal forum, not a military alliance, envisioned in 2004** for post-tsunami relief but gained renewed focus in recent years.
- Its **first formal leaders’ summit occurred in 2021**, highlighting its growing importance.
- The Quad aims to promote a free, open, and inclusive Indo-Pacific region by cooperation in various sectors.

Key Quad initiatives

- **Six Leader-level Working Groups:** Address climate change, critical technologies, cyber security, health, infrastructure, and space.
- **Vision Statement 2023:** “Enduring Partners for the Indo-Pacific” outlines shared goals for regional stability and prosperity.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the Indian Ocean Conference:

1. It was initiated by the Indian Ocean Rim Association (IORA).
2. It is annual multilateral conference that aims to foster cooperation and dialogue among countries bordering the Indian Ocean region.
3. It has 23 member countries bordering Indian Ocean Region except Pakistan.

How many of the above statements are correct?

- (a) Only one (b) Only two
 (c) All three (d) None

Answer: a (2nd statement only)

- **Quad Climate Change Adaptation and Mitigation Package (Q-CHAMP):** Enhances climate and clean energy cooperation.
- **Quad Debt Management Resource Portal:** Helps address unsustainable debt challenges in the region.
- **Quad Investors' Network (QUIN):** Facilitates private sector investments in strategic technologies.

QUAD Act

The Act signifies a **strategic shift** in US Indo-Pacific policy, elevating the Quad from an **informal grouping to a more institutionalized framework**. This is evident in the following key provisions:

- **Mandates the US State Department to develop a comprehensive strategy** for deepening engagement and cooperation with Quad member countries.
- **Establishes a Quad Intra-Parliamentary Working Group** to facilitate regular dialogue and collaboration between legislators.

These provisions **enhance the visibility and legitimacy of the Quad**, fostering closer coordination on issues of shared concern in the Indo-Pacific region.

Potential Benefits for India

The Act's provisions hold promise for India in several ways:

- **Strengthened US commitment:** The Act signifies a stronger US commitment to the Quad, potentially leading to increased political, economic, and security cooperation with India.
- **Enhanced parliamentary engagement:** The proposed working group can foster closer ties between Indian and other Quad member parliaments, promoting deeper understanding and collaboration on shared interests.
- **Increased visibility and legitimacy:** The Act's formal recognition by the US Congress further legitimizes the Quad and elevates its profile, potentially attracting other regional players.
- **Maritime Security:** Joint exercises, information sharing, and capacity building initiatives can bolster regional security and deter maritime threats.
- **Critical and Emerging Technologies:** Collaboration in areas like artificial intelligence, quantum computing, and cybersecurity can enhance collective technological prowess and counter strategic competitors.
- **Climate Change:** Quad's initiatives like Q-CHAMP can **facilitate joint efforts** towards climate adaptation, mitigation, and clean energy transition.

Benefits of India's participation in the Quad

India's participation in the Quad offers several potential benefits:

- **Countering China's growing assertiveness:** The Quad provides a platform for India to **balance China's**

influence in the region, particularly its expansive territorial claims and assertive behavior in the South China Sea.

- **Enhancing security cooperation:** The Quad facilitates **joint military exercises, maritime security patrols, and information sharing**, bolstering India's defense capabilities and regional security architecture.
- **Economic and technological collaboration:** The Quad initiatives like the **Quad Investors' Network (QUIN)** and the **Quad Climate Change Adaptation and Mitigation Package (Q-CHAMP)** promote **economic integration, technological advancement, and joint efforts on climate change**, benefiting India's economic growth and environmental sustainability.
- **Elevating India's global stature:** India's participation in the Quad **projects its influence beyond the Indo-Pacific**, enhancing its position as a **responsible stakeholder in the global order**.

CHALLENGES AND CONSIDERATIONS

<p>Managing expectations</p> <p>The Act's symbolic value should not overshadow the need for concrete action and resource allocation to translate its provisions into tangible outcomes.</p>	<p>Balancing alliances</p> <p>India's participation in the QUAD must be carefully calibrated to avoid antagonizing other strategic partners like Russia.</p>
<p>Maintaining strategic autonomy</p> <p>India must ensure that the QUAD's activities align with its independent foreign policy objectives and do not constrain its strategic choices.</p>	<p>Managing domestic concerns</p> <p>Some sections within India view the QUAD with skepticism, fearing it might entangle India in US-China rivalry and undermine its strategic autonomy.</p>
<p>Ensuring tangible outcomes</p> <p>The QUAD's effectiveness hinges on translating its initiatives into concrete actions and delivering tangible benefits for member countries and the region.</p>	

Conclusion

The 'Strengthening the Quad Act' marks a significant step towards **institutionalizing the Quad and deepening US-India cooperation**. While India stands to gain considerably from its participation, it must **carefully manage the associated challenges** to ensure the Quad's success in promoting a **stable, prosperous, and inclusive Indo-Pacific region**.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. The "Strengthening the Quad Act", recently mentioned in the news is passed by which of the following?

- (a) India
- (b) Australia
- (c) USA
- (d) Japan

Answer: c

Descriptive Question

Q. "The new reality of the modern world, known as QUAD, has advantages and disadvantages for India." Discuss. [15 marks] [250 words]

INDIA-MIDDLE EAST-EUROPE ECONOMIC CORRIDOR

Why in News: Recently, India has taken the first steps with the UAE to begin work on the India-Middle East-Europe Economic Corridor, or IMEC, announced during G-20 Summit in 2023

Key details

- Houthi, the rebellious group in Yemen have significantly attacked on commercial shipping vessels that are travelling through the Red Sea since November 2023 in response to Israel's bombardment of Gaza.
- The volatile situation in the Red Sea increases the need for an alternate trade corridor to ship goods from India to Europe, India's ambassador to the United Arab Emirates said.
- The Red Sea route particularly the Bab-el-Mandab Strait handles almost 12 % of international merchandise trade.

Impact of the crisis

- Many containers and oil carriers have been forced to change their course of shipments through the Cape of Good Hope.
- The change in course has resulted in the rise of ocean freight, increased insurance costs, and longer voyage durations that is leading to delays and shortage of products in many parts of the world.
- It has also boosted up transportation costs.
- The higher cost of shipping will be passed onto consumers in the form of increased prices of the commodity.
- As global supply chains are battling delayed shipments and rising costs, China is actively projecting China-Europe freight trains, which are part of the Belt and Road Initiative (BRI), as an alternate route.

Bordering Countries

- > Yemen and Saudi Arabia border the Red Sea to the east.
- > It is bordered by Egypt to the northwest and by Sudan, Eritrea, and Djibouti to the west.
- > This sea has a surface area of roughly 438,000 sq km and is about 2,250 km in length.
- > The maximum width of the sea is 355 km, and the sea's deepest point is 3,040m at the central Suakin Trough, with the sea's estimated average depth being 490m.

Islands

Two well known islands are Shadwan Island, which is situated at the entrance of the Gulf of Suez, and Tiran Island, which is situated close to the mouth of the Gulf of Aqaba.

Red sea and India

- Nearly 24% of India's exports and 14% of its imports come from trade with countries in Europe and North Africa, which is conducted exclusively through the Red Sea route.
- India's bilateral trade with North Africa and Europe was \$15 billion and \$189 billion, respectively, in 2022-2023.
- Indian exports have already decreased as a result of traders' growing concerns. Roughly 25% of Indian exporters' cargo ships that pass through the Red Sea are being held back due to growing risks, according to the Federation of Indian Export Organizations (FIEO).

Mission Aspides by European Union (EU)

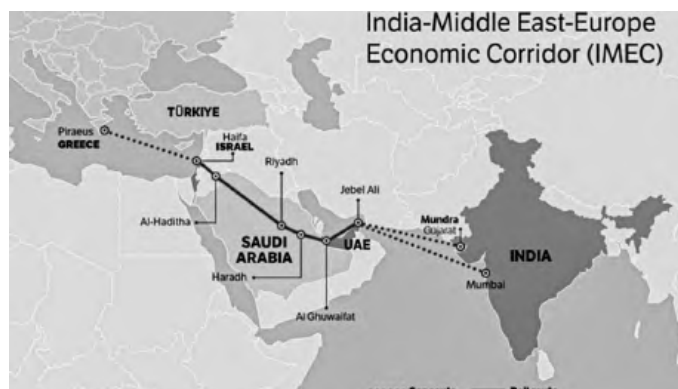
- It is a European Union (EU) naval mission to protect cargo ships in the Red Sea from attacks from Yemen's Houthi rebels.
- It will send European warships and airborne early warning systems to the Red Sea, Gulf of Aden and surrounding waters.
- Aspides vessels, whose operational command centre will be in the Greek city of Larissa, will have orders to fire on the Houthis only if they attack first and will not be authorised to shoot pre-emptively.
- This mission is planned for one year but may be renewed.

About IMEC

- During the G-20 meeting in 2023, the India-Middle East-Europe Economic Corridor (IMEC) was announced.
- The east corridor, which connects India to the Gulf, and the northern corridor, which connects the Gulf to Europe, will make up this system.
- It primarily involves developing a combination of sea rail and road infrastructure.

Red Sea

<p>It is a semi-enclosed inlet (or extension) of the Indian Ocean between the continents of Africa and Asia. It is one of the world's warmest seas.</p>	<p>It is connected to the Arabian Sea and the Indian Ocean to the south through the gulf of Aden and the narrow strait of Bab-el-Mandeb.</p>	<p>The northern portion of the Red sea is bifurcated by the Sinai Peninsula into the Gulf of Aqaba and the Gulf of Suez, where it is connected to the Mediterranean Sea via the famous Suez Canal.</p>
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Importance

- **Aim** : Integration between Asia, Europe, and the Middle East.
- It will offer a reliable and cost-effective network of cross-border ship to rail travel to enhance the current marine routes.
- It is projected to reduce transit expenses by thirty percent and the travel time from India to Europe by forty percent.
- Additionally, IMEC offers an opportunity to counteract China’s expanding geopolitical influence.
- The Middle East will benefit from this Corridor by becoming more cohesive and becoming a center of economic activity rather than the “source of challenge, conflict, or crisis” that it has historically been.
- The project seeks to solve lower and middle-income country’s inadequate infrastructure, which is a requirement for development.

Concerns

- There have been no operations or investments pertaining to the corridor, and the IMEC is not receiving much attention.
- In addition, a crucial component of the multi-nation initiative, the normalization of Arab-Israeli relations has been halted by the Israel-Palestine conflict.
- The Strait of Hormuz’s vulnerability is still another major challenge. Because Iran controls and is close to the Strait of Hormuz, there is always a considerable potential of disruptions to the entire trade of the IMEC architecture.
- The increasing concerns in the Red Sea demands a coordinated response from the international community and is a major worldwide issue.

Way Forward

- The increasing concerns in the Red Sea demands a coordinated response from the international community and is a major worldwide issue.
- It is necessary to carry out an empirical investigation into the economic advantages of the IMEC.
- In order to draw in additional partners, it is important that the economic benefits of the corridor be quantified.
- There is a need of strong financial foundation in place.
- As there are no binding financial commitments on any of the signatories of the IMEC corridor, investments needs to be attracted from governments, international organisations, and private sector entities.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following countries:

1. Yemen	2. Saudi Arabia
3. Sudan	4. Eritrea

How many of the above borders the Red Sea?

(a) Only one (b) Only two

(c) Only three (d) All four

Answer: A

Descriptive Question

Q. The Houthi Rebels have caused serious disruptions in easy flow of goods through the Red Sea and has caused officials around the world to scratch their head. Discuss how it has affected world trade and the initiatives taken to cope with it. [15 Marks] [250 words]

RAISINA DIALOGUE

Why in News: The ninth edition of the Raisina Dialogue was held from February 21 to 23rd in New Delhi.

Key Details

- The ninth edition of the Raisina Dialogue, aimed to engage global leaders on global issues and challenges.
- The conference was inaugurated by Prime Minister Narendra Modi and Greece’s Prime Minister Kyriakos Mitsotakis joined the inauguration session as the chief guest.
- The theme of the 2024 edition is “**Chaturanga: Conflict, Contest, Cooperate, Create**”.
- The Dialogue was discussed in various formats, over six thematic pillars:
 - **Tech Frontiers:** Regulations & Realities
 - **Peace with the Planet:** Invest & Innovate
 - **War & Peace:** Armouries & Asymmetries
 - **Decolonising Multilateralism:** Institutions & Inclusion
 - **The Post 2030 Agenda:** People & Progress; and
 - **Defending Democracy:** Society & Sovereignty

Key Outcomes

- The conference focused on India’s role as a “bridging power” and its rightful place at the high table of global decision-making.
- Discussion on connectivity projects like the India-Middle East-Europe Economic Corridor.
- India’s success in hosting the G-20 last year was cited as a success.
- However, the majority of conversations focused on global conflicts, with European dignitaries focusing on the Russian war in Ukraine and military and naval strategy on handling China.
- There was minimal presence from South East Asia, Latin America, and South Asia, except for Nepal and Bhutan.
- Panels on democracy steered clear of India’s debates on the decline of freedoms, but the lack of non-governmental

civil society organizations produced a narrow view of the challenges democracy faces worldwide.

- Notably absent were conversations focusing on the Israeli war in Gaza.
- Geopolitical shift between USA, China, Russia, European countries.
- Baltic Nordic forum
- Technological innovation such as cyber security, digital transformation, AI etc.

About Raisina Dialogue

The Raisina Dialogue is an annual conference on geopolitics and geoeconomics, which aims to address the most challenging issues faced by the world.

"The Dialogue is structured as a multi-stakeholder, cross-sectoral discussion, involving heads of state, cabinet ministers and local government officials, who are joined by thought leaders from the private sector, media and academia."



The conference is held annually since 2016 in New Delhi and is attended by people from political, business, media, and civil society backgrounds.

Delhi-based think tank Observer Research Foundation, in partnership with the Ministry of External Affairs, hosts the conference.

- It is located in the western part of the Balkan Peninsula on the Strait of Otranto, the southern entrance to the Adriatic Sea.
- **Capital:** Tirana



EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. With reference to the Raisina Dialogue, consider the following statements:

1. It aims to promote the sustainable use of biological resources, and ensure fair and equitable sharing of the benefits arising from the utilization of genetic resources.
2. It is an initiative of the United Nations Framework Convention on Climate Change (UNFCCC).

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Answer: d

Descriptive Question

Q. Raisina Dialogue is created to deal with the most challenging issues faced by the world. As part of India's "Intelligent diplomacy", discuss how far it has achieved its objectives. [15 Marks] [250 words]

INDIA TO OPEN DIPLOMATIC MISSION IN ALBANIAN CAPITAL

Why in News: Recently, Albania's Foreign Minister said that Albania is looking forward to open an Embassy in New Delhi while India will soon have a diplomatic mission in Tirana, the capital of Albania.

Albania location

- **Albania** is country in southern Europe.

Strategic importance

- Albania is at the **crossroads between the European Union and the East.**
- Albania is a **part of many corridors that link India with the European Union.**
- With Albania becoming one of the fastest growing European economies, it will rapidly move to foster stronger economic ties with India.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following:

1. Adriatic sea 2. Ionian sea
3. Black sea 4. Dead sea

The Albania shares borders with how many of the above-mentioned seas?

- (a) Only one (b) Only two
(c) Only three (d) All four

Answer: b (1 and 2)

FARMERS' DEMANDS FOR A LEGAL GUARANTEE FOR MINIMUM SUPPORT PRICE (MSP)

Why in News: With Lok Sabha elections approaching, farmers' demands for a legal guarantee for Minimum Support Price (MSP) are gaining traction.

What is MSP?

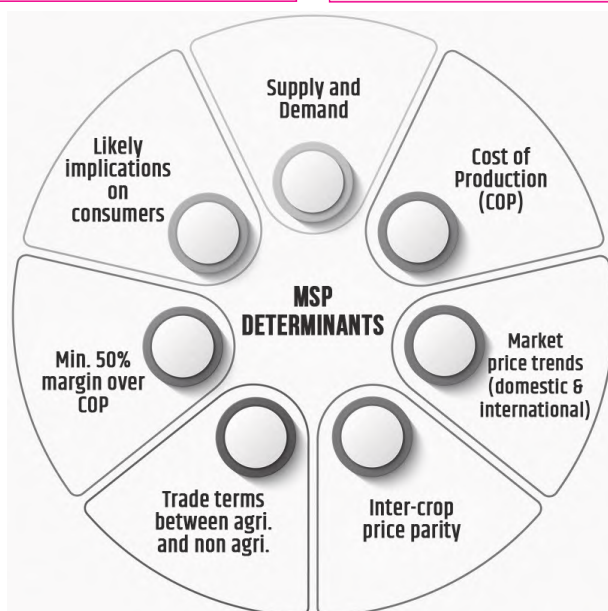
The Minimum Support Price (MSP) is a government-declared price at which it guarantees to purchase crops from farmers if market prices fall below this level. It aims to ensure farmer income stability, incentivize crop production, and promote national food security.

Objectives and Methods to calculate MSP

- **Objectives**
 - Income security for farmers by providing a guaranteed minimum price for their produce.
 - Incentivize production of essential crops and achieve national food security.
 - Promote agricultural development and market stability.
- **Methods**
 - **MSP calculation:** Currently based on A2+FL cost (paid-out costs and imputed value of family labor) with a 50% markup.
 - **Procurement:** Food Corporation of India (FCI) and state agencies undertake procurement operations.
 - **Coverage:** MSP declared for 22 mandated crops and Fair and Remunerative Price (FRP) for sugarcane.

Understanding MSP Allocation Process

- **Recommendations by Agricultural Costs and Prices Commission:** Every year, the Commission for Agricultural Costs and Prices (CACP) provides suggestions on Minimum Support Prices (MSPs). It studies factors like production costs, market demand and supply, and price trends among different crops.
- **Final Decision by Cabinet Committee:** The Cabinet Committee on Economic Affairs (CCEA), led by the Prime Minister, makes the ultimate decision on MSP levels. They review the Price Policy Report along with inputs from state governments and the country's overall supply-demand scenario.
- **Procurement by Food Corporation of India:** At the start of the planting season, the Food Corporation of India (FCI) and state agencies take charge of procurement activities to ensure adequate support for farmers.



CHAHAL's PERSPECTIVE *On* MSP Guarantee Law

Arguments in Favour

<p>Income Security</p> <p>A legally guaranteed MSP would provide farmers with a fixed minimum income, protecting them from price fluctuations and market uncertainty. This could improve their financial stability and encourage investments in agricultural technologies and practices.</p>	<p>Rural Economic Stimulus</p> <p>Increased MSP can lead to higher disposable income for farmers and agricultural laborers, boosting rural demand and contributing to overall economic growth. This can help address rural economic distress, particularly in the wake of demonetization and COVID-19.</p>
<p>Farmers' Right</p> <p>Currently, only 6% of farmers benefit from MSP procurement. A legal guarantee could empower farmers by granting them the right to sell their produce to government agencies at MSP if market prices fall below.</p>	<p>Risk Cover</p> <p>Guaranteeing MSP could mitigate the risks associated with crop failure due to unpredictable weather patterns, pests, or diseases. This can incentivize farmers to take calculated risks and adopt innovative agricultural practices.</p>
<p>Promotion of Crop Diversification</p> <p>MSP for a wider range of crops, particularly water efficient pulses and millets, could encourage farmers to move away from water intensive crops like rice and sugarcane, promoting sustainable resource management.</p>	<p>Benchmark Price</p> <p>MSP acts as a reference price in the market, ensuring market prices don't fall drastically below it. This provides some bargaining power to farmers while negotiating with traders and strengthens their market position.</p>

Arguments Against

<p>Fiscal Burden</p> <p>Implementing a guaranteed MSP for all crops could impose a significant burden on the government's exchequer, potentially jeopardizing fiscal stability and hindering investments in other critical sectors.</p>	<p>Undervaluation of Low-Yield Crops</p> <p>Farmers might prioritize high-yielding crops with guaranteed MSP, even if they are unsuitable for their region, leading to inefficient resource allocation and potential ecological damage.</p>
<p>Food Inflation</p> <p>Higher procurement costs due to guaranteed MSP could translate to higher food prices, disproportionately impacting the poor and lower-middle class.</p>	<p>Market Distortion and Unsustainability</p> <p>Extensive government procurement at fixed prices could distort market dynamics, discourage private investments, and make the system unsustainable in the long run.</p>
<p>Impact on Exports</p> <p>An MSP higher than international market prices could hinder India's agricultural exports, reducing competitiveness and potentially attracting trade disputes.</p>	<p>WTO Violation</p> <p>Guaranteeing MSP might be challenged as a trade-distorting subsidy, leading to potential disputes with trading partners at the World Trade Organization (WTO).</p>
<p>Inducement of MSP Demands</p> <p>Guaranteeing MSP for selecting crops could trigger similar demands from other agricultural sectors, further straining government resources and administrative capacity.</p>	<p>Storage and Disposal Challenges</p> <p>Procuring large quantities of certain crops with limited demand through the Public Distribution System (PDS) could lead to storage and disposal challenges.</p>

CROPS COVERED UNDER MSP

KHARIF CROPS (14)

1. Paddy
2. Jawar
3. Bajara
4. Ragi
5. Maize
6. Arhar
7. Moong
8. Urad
9. Cotton
10. Ground Nuts
11. Sunflower
12. Soyabean
13. Sesamum
14. Nigarseed

RABI CROPS (7)

1. Wheat
2. Barley
3. Gram
4. Masur
5. Rapeseed & Mustard
6. Safflower
7. Torai

CALENDAR YEAR CROPS (4)







1. Copra
2. De-husked Coconut
3. Jute
4. Sugar Cane (FRP)

- CACP recommends MSP for **22** crops before the sowing period each year
- MSP derived for Toria based on MSP for Rapeseeds and Mustard and for De-husked Coconut on the Basis of MSP of Copra.
- Fair and Remunerative prices for Sugar is also declared

Current MSP Regime (A2+FL)

- **A2:** This includes all direct cash and kind expenses incurred by farmers, such as seeds, fertilizers, pesticides, hired labor, leased land, fuel, and irrigation.
- **A2+FL:** This adds the imputed value of unpaid family labor to the A2 cost, recognizing their contribution.
- **C2:** This further incorporates the estimated cost of land rent and interest on borrowings, offering a more comprehensive picture of production costs.

Current MSP Regime (A2+FL)

Arguments for Including C2 Cost		Arguments Against Including C2 Cost	
 <p>Equity: Including land rent and interest reflects the true cost of production for farmers who own their land or borrow capital. This ensures an equitable return for all farmers, regardless of their landownership status.</p>	<p>Fiscal Burden: Implementing C2-based MSP could significantly increase government procurement costs, putting pressure on public finances.</p> 		
 <p>Sustainability: The C2 cost captures the opportunity cost of land and capital, encouraging farmers to utilize resources efficiently and invest in sustainable practices.</p>	<p>Market Distortion: High MSPs for certain crops based on C2 cost could incentivize overproduction, leading to market imbalances and potential inflation.</p> 		
 <p>Expert Recommendations: The Swaminathan Commission, a high-level body studying farmers' issues, recommended MSP based on the C2 cost, acknowledging its comprehensiveness.</p>	<p>Inter-State Disparity: Land rental and interest rates vary significantly across states. Implementing a uniform C2-based MSP might disadvantage farmers in low-cost regions.</p> 		

Important initiatives for the welfare of Farmers

- **PM-KISAN:** Provides Rs. 6000 per year to eligible farmers, benefiting over 12 crore beneficiaries.
- **PM Fasal Bima Yojana:** Offers subsidized crop insurance to protect farmers from crop losses due to natural calamities.
- **PM Krishi Sinchai Yojana:** Aims to improve irrigation infrastructure and expand coverage to ensure water security for farmers.
- **Agri Infrastructure Fund:** Provides financial support for building and upgrading agricultural infrastructure across the country.
- **Kisan Credit Card:** Offers concessional loans to farmers for agricultural and allied activities like dairy and fishery, promoting diversification and income generation.

Way Forward

Instead of a legal guarantee for MSP, alternative approaches could be explored:

- **Price Deficiency Payment Schemes:** Paying farmers the difference between market price and MSP, as suggested by NITI Aayog and Economic Survey.
 - **Madhya Pradesh's scheme:** Launched in 2017 for eight crops, it aimed to bridge the gap between market price and Minimum Support Price (MSP) through direct payments to farmers.
 - **Haryana's Bhavantar Bharpai Yojana (BBY):** Operational since 2016, it focuses on crops like bajra, mustard, and sunflower. Registration happens through the "Meri Fasal, Mera Byaura" portal, and payments are made based on market price differentials.
- **Market Intervention Schemes:** Government procurement of perishable commodities to ensure minimum prices.
- **Improving agricultural infrastructure:** Building modern cold storage facilities and transportation networks to empower farmers.
- **Promoting Farmer Producer Organizations (FPOs):** Enabling collective bargaining and better market access for farmers through FPOs.

- **Gradual expansion of crops under MSP:** Strategically adding more crops like millets, oilseeds to encourage diversification and respond to market demands.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. The economic cost of food grains to the Food Corporation of India is Minimum Support Price and bonus (if any) paid to the farmers plus:

- (a) Transportation cost only.
- (b) Interest cost only.
- (c) Procurement incidentals and distribution cost.
- (d) Procurement incidentals and charges for godowns.

Answer: c

Descriptive Question

Q. "The role played by Minimum Support Price (MSP) in addressing the issue of farmers' income and agricultural distress in India has been significant." Critically examine. [15 Marks] [250 words]

RISING GOVERNMENT DEBT

Why in News: In absolute terms, the Centre's total liabilities has more than doubled from Rs 90.84 lakh crore to Rs 183.67 lakh crore between 2018-19 and 2024-25.

Key details

- According to **International Monetary Fund (IMF) data**, general government debt – the combined domestic and external liabilities of both the Centre and the states – touched 84.4% of GDP in 2003-04.
- That ratio fell to a low of 66.4% in 2010-11. It rose gradually

to 67.7% in 2013-14 and 70.4% in 2018-19.

- The **debt-GDP ratio** soar to 75% in 2019-20 and peak at 88.5% in 2020-21, before easing to 83.8% and 81% in the following two fiscal years (April-March).
- The IMF has projected the ratio at 82% in the **current fiscal and 82.4% for 2024-25**, which is still close to the high levels of the early 2000s.
- The primary reason for this can be **attributed to the COVID-19** pandemic. During the pandemic, governments around the world had to spend more to give fiscal stimulus to the sluggish economy.
 - This meant **borrowing more than usual**. Also, there were some long term effects of the pandemic, which disturbed the fiscal math of the government.

Government debt

- Government debt is basically the **outstanding domestic and foreign loans raised by the Centre and states** – plus other liabilities, including against small savings schemes, provident funds and special securities issued to the Food Corporation of India, fertiliser firms and oil marketing companies – on which they have to pay interest and the principal amounts borrowed.

Other important concepts

- **Fiscal Deficit:** It is the difference between Government's total expenditure and its total receipts excluding borrowings.
- **Debt:** Budgetary deficits can be financed through borrowings from the market. These borrowing creates debt on the government which has to be paid back. Interest payments themselves contribute to debt.
- **Debt-to-GDP Ratio:** Comparison of total debt to the country's Gross Domestic Product (GDP). It indicates the **country's ability to pay back the debt**.

Fiscal Responsibility and Budget Management Act (FRBM Act), 2003

- It was enacted by the Parliament to establish **financial discipline** and ensure **effective debt management**.
- It introduced sets of targets to reduce the fiscal deficit, revenue deficit, and debt-to-GDP ratio.
- It mandates the following fiscal policy statements to be presented at the time of the budget:
 - **Fiscal Policy Strategy Statement**
 - **Macroeconomic Framework Statement**
 - **Medium-term Fiscal Policy Statement**
 - **Medium-term Expenditure Framework**
- All the states have also enacted their own FRBM Acts.
- FRBM targets as set by the **FRBM Review Committee, under N.K. Singh:**
 - **Medium-term ceiling for Gross Government Debt of 60% of GDP (40% for Centre and 20% for states)** by the end of FY23
 - **Fiscal deficit target of 2.5% of GDP by FY 23**
 - **Revenue deficit target of 0.8% of GDP by FY23**
- Due to the COVID-19 pandemic, the government had to use the **escape clause** mentioned in the act to deal with the emergency situation.

Issues associated with high Public Debt

- **Rising Cost of Borrowing:** High public debt may undermine the credit worthiness of the country. This will increase the cost of borrowing as the creditors will demand higher interest on account of the increased risk associated with it.
- **Crowding out of private investors:** Large government borrowing from the domestic market (especially in the case of India) leaves less space for private investors to borrow. This results in the crowding out of private investors and less private investment in the economy.
- **Less fiscal space:** There will be less fiscal flexibility to respond to any economic downturn, which could lead to spending cuts on essential sectors such as education, health, etc.
- **Higher interest payments:** Interest payments become a significant part of budget allocation. This would otherwise have gone towards supporting growth in the economy.
- **Lower credit ratings and investor confidence:** Credit Rating Agencies may downgrade the credit rating of the country due to high public debt. This would seriously disturb investor confidence in the country. Lower investor confidence can trigger volatility in the capital markets and the flight of FPIs (Foreign Portfolio Investment), leading to currency exchange risk.
- **Inflation and currency depreciation:** It has been found that persistently high public debt makes controlling inflation difficult. It can also lead to currency depreciation.

Ways to deal with the debt challenge



Fiscal Consolidation: Fiscal deficit limits as prescribed by the FRBM Act must be adhered to both at the central as well as at the state level.



Structural Reforms: Structural reforms must be undertaken that will support growth in the economy, like the GST reform. **Higher growth in the economy will offset the negative effects of high public debt.**



Coherence among Monetary and Fiscal Policy: There must be **coordination between the government and the Central Bank** to control inflation in the economy and stabilise the currency exchange rate. This would maintain the investor confidence in the economy and would propel growth.



Efficient asset management: New ways of **generating more revenue from public assets** must be explored; for example, National Monetisation Pipeline (NMP) will monetise public assets and generate revenue. This would reduce government borrowing. Also, the government must meet annual divestment targets and enter Public Private Partnership (PPP) wherever possible.



Maintain higher capital expenditure: The Government in recent years has **increased capital expenditure to induce growth**. It is a well-known fact that capital expenditure has a higher growth multiplier effect.



Tax reforms: Although in recent years the country has witnessed healthy growth in tax collection, there is still room for improvement. **Tax reforms must be undertaken to increase tax compliance and broaden the tax base.**



Adopting a Long-Term roadmap for debt sustainability: A **fiscal roadmap for debt sustainability** must be prepared at the national level to avoid any debt crisis. This plan must consider inter-generational equity, which is essential to achieving debt sustainability.



Increase Administrative Efficiency and reduce revenue expenditure: Administrative efficiency should be increased so that revenue expenditure can be reduced.

Conclusion

The Government has dismissed the IMF report and stated that the IMF projections for 2028 are most likely in the 'worst case scenario'. While the IMF projection paints a nightmare picture, their **warnings must be heeded**. India needs a coordinated effort to sustain growth and achieve sustainable levels of debt. This can be achieved through **prudent fiscal consolidation and persistent growth** in the economy.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQs

- Q1. Which one of the following is likely to be the most inflationary in its effect?
- Repayment of public debt
 - Borrowing from the public to finance a budget deficit
 - Borrowing from banks to finance a budget deficit
 - Creating new money to finance a budget deficit

Answer

- Q2. Consider the following statements:

- The Fiscal Responsibility and Budget Management (FRBM) Review Committee Report has recommended a debt to GDP ratio of 60% for the general (combined) government by 2023, comprising 40% for the Central Government and 20% for the State Governments.

2. The Central Government has domestic liabilities of 21% of GDP as compared to that of 49% of GDP of the State Governments.
3. As per the Constitution of India, it is mandatory for a State to take the Central Government's consent for raising any loan if the former owes any outstanding liabilities to the latter.

Which of the statements given above is/are correct?

- (a) Only one (b) Only two
 (c) All three (d) None

(Answers only)

Descriptive Question

Q. Give the reasons for the introduction of Fiscal responsibility and Budget Management (FRBM) act, 2003? While telling new targets, discuss critically its salient features and their effectiveness. [15 Marks] [250 words]

TAX TO GDP RATIO

Why in News: India's tax-to-GDP ratio is expected to hit a record high of 11.7% of GDP in 2024-25.

Key details

- The increase in more "equitable" direct taxes was the driving force behind it, and the government stated that it will keep streamlining and rationalizing the tax system to lessen disagreements, legal action, and invasive enforcement tactics.
- According to CBDT data, India's Direct Tax-to-GDP rose to 6.6%, which is the highest in the last 15 years.

Tax to GDP ratio

- Tax to GDP ratio measures how much tax is collected in relation to the country's GDP. For FY 2023-24, it is 6.6%.
- It provides a metric that analysts and policymakers can use to compare tax receipts year over year.
- The better the country's financial situation, the higher the tax to GDP ratio. The ratio indicates how well the government can afford its expenses.

Other Important concepts

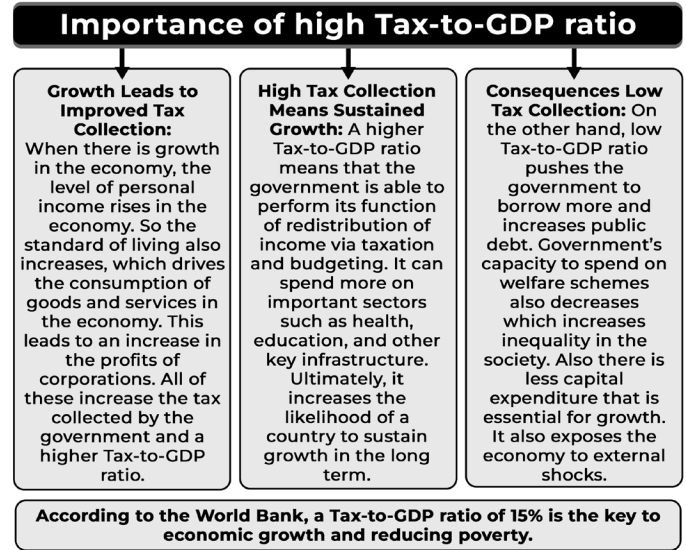
- **Direct Tax** are those in which the incidence and impact of a tax fall on the same person. For example: income tax, corporation tax etc. It is a progressive tax. Net direct collection for FY 2022-23 is INR 16.63 lakh crore. It accounts for 54.62% of the total tax collected in that FY.
 - **Progressive tax:** Rate of tax increases when the value on which tax is imposed increases. In other words, there is a higher tax rate for people who earn more and a lower tax rate for people who earn less.

- **Indirect Tax** are those taxes in which incidence and impact fall on different persons. For example: Goods & Service Tax. It is **regressive in nature**. Because the rate of tax, irrespective of whether one is rich or poor, remains the same. So the poor, who earn less, pay the same rate of tax as the rich.
- **Tax buoyancy:** A tax is said to be buoyant when it increases with the increase in GDP (tax rate being unchanged). It describes the responsiveness of tax collected to changes in GDP. Tax buoyancy greater than 1 indicates that there is faster growth in taxes as compared to GDP. For example, tax buoyancy for FY 2022-23 was 1.18.
- **Tax elasticity:** It refers to the change in tax collection in response to change in tax rate.

Reasons for India's low Tax-to-GDP ratio

Developing Country: Typically, Tax-to-GDP ratio is **low in developing countries** as compared to developed countries because people in developed countries are capable of paying higher taxes. India has low per capita income.

- **Untaxed: Agricultural income** in India is **not taxed**. Thus, a large part of the population (15 crore households out of total 25 crore households) is not taxed.
- **Informal Economy:** Despite government efforts to formalise the economy, it is largely **informal**. This makes it easier for people to evade tax and stay undetected by tax authorities.
- **Exemptions:** To promote savings in the economy, the government gives **several tax exemptions**, which leads to lower tax collection.
 - Due to the generous tax policy of the government, some sectors avoid taxes. For example, corporate tax cuts.
- **Lower tax compliance**



Reasons for recent surge in Tax-to-GDP ratio

- **Simplified Direct Tax:** It is much easier to file direct tax

now. Also, in the new tax regime, there are **no exemptions**, and a more simplified tax structure is in place. Faceless assessment has also increased compliance.

- **Record GST collection:** Since its introduction in 2017, the GST regime has stabilised and the process has been streamlined. This resulted in record GST collections. For the 9-month period of **April-December 2023**, GST collection was **INR 14.97 lakh crore**, a 12% growth year-on-year as against INR 13.40 lakh crore in April-December 2022.
- **Measures taken to increase the tax base and curb tax evasion**, such as taxation on **virtual digital assets (VDA)**, introduced through the Finance Act 2022, PAN-Aadhaar linkage, etc
- **Amnesty schemes** for tax disputes, such as **Vivad se Vishwas**, have also contributed to increased tax collection.

Measure to increase Tax-to-GDP ratio

- **MNC Taxation:** International cooperation to tax multinational companies that resort to **base erosion and profit shifting (BEPS)**.
- Undertake direct and indirect **tax reforms**.
- **Speedy resolution of tax disputes** and provide an **effective dispute resolution** mechanism.
- Take steps to **widen the tax base**, such as **simplifying tax filings**.
- Promote **digitalisation** and **formalisation** of the economy to **expand the tax net**.
- Optimising the tax structure in GST to increase compliance
- **Curb tax money laundering** and **tax evasion** through effective implementation of tax evasion laws.
- Bring about an **attitudinal** and **behavioural change** among the citizens so that they contribute to the nation building through tax payments.

Conclusion

Government efforts to increase tax collection in the last decade are now bearing fruit. An increase in tax collection year after year is a sign of good things to come. But to achieve the World Bank’s recommended target of **15% Tax-to-GDP ratio**, a comprehensive approach is required. The focus should be on **widening the tax base and formalising and digitising the economy**. An increase in Tax-to-GDP is crucial for India to sustain long-term growth and achieve sustainable development.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQs

Q1. Consider the following statements:

1. Tax revenue as a per cent of GDP of India has steadily increased in the last decade.
2. The fiscal deficit as a per cent of GDP of India has steadily increased in the last decade.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer:

Q2. Consider the following statements::

1. Tax to GDP ratio measures how much tax is collected in relation to the country’s overall public debt.
2. India’s Direct Tax-to-GDP was more than 5% in 2023-24.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer:

Descriptive Question

Q. “The better the country’s financial situation, the higher the tax to GDP ratio.” In the light of the statement, discuss how India’s increasing tax to GDP ratio is beneficial for its growth. [15 marks] [250 words]

BOOSTING PULSES PRODUCTION

Why in News: The Global Pulses Conference in India highlighted the need for increased pulses production to meet nutritional requirements and achieve self-sufficiency. **This two-day conference was jointly organized by the National Agricultural Cooperative Marketing Federation of India Ltd. (NAFED) and the Global Pulse Confederation (GPC).**

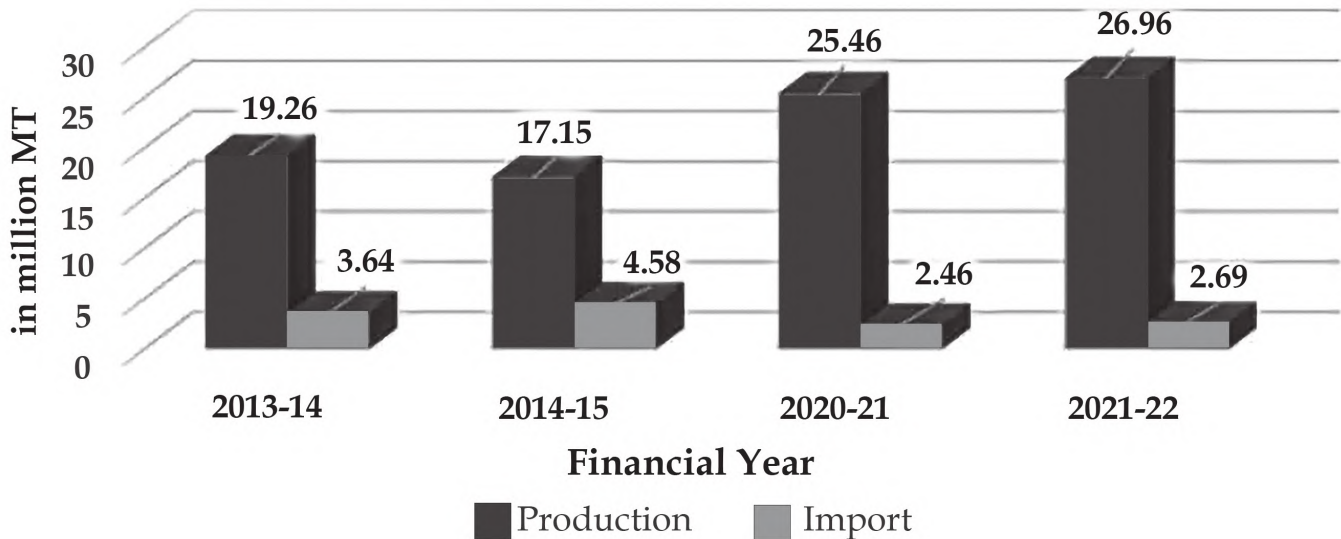
Important observations of the conference

- India had **become self-reliant in chickpeas (chana) and many other pulses crops**, with only a slight deficiency remaining in pigeon peas (tur) and black gram. Consistent efforts are being **made to attain self-sufficiency in pulses by 2027**.
- **From 171 lakh tonnes in 2014 to 270 lakh tonnes in 2024**, the production of pulses increased by 60%.
- **Farmers were assured a price by the Centre that was 50% higher than their actual cost of production**, offering an alluring return on investment.
- In addition to **concentrating on growing the cultivation of black gram and tur**, the government has expanded the supply of new seed varieties.

Status of Pulse Production

- India is the biggest producer of pulses. It produces 25% of all pulses in the whole world.
- About 27% of all the pulses eaten around the world are eaten in India.
- Not only that, but India also brings in a lot of pulses from other countries. It imports around 14% of all the pulses in the world.
- The production of pulses such as tur, urad and other lentils across India was estimated to be around 28 million metric tons in financial year 2023.

Production and Import of Pulse



Factors Contributing to India’s Leading Production Role

- **Large Area Coverage:** Pulses occupy 20% of the gross cropped area under food grains, this extensive land utilization contributes significantly to the overall production volume.
- **Diverse Production Seasons:** India cultivates pulses in both Kharif (summer) and Rabi (winter) seasons, with **Rabi contributing over 60% due to favorable weather conditions for this.** This bi-seasonal production extends the overall period of availability and bolsters output.
- **Dominant Pulse Varieties:** Gram (40%), Tur/Arhar (15-20%), Urad/Black Matpe (8-10%), and Moong (8-10%) constitute the major pulse varieties in India. This focus on high-yielding and popular varieties ensures significant production volumes.

Significance of Pulses Production

- **Contribution to Food Security**
 - **Dietary Staple:** This provides a vital source of protein, particularly in regions with limited access to animal protein.
 - **Meeting Nutritional Needs:** Rich in protein, fiber, vitamins, and minerals, pulses contribute to balanced diets and combat malnutrition, crucial for a healthy population.

Nutritional Needs

- **Combating Malnutrition:** Pulses offer a cost-effective source of protein and essential micronutrients, vital for addressing malnutrition, especially among children and vulnerable populations.
- Pulses are relatively affordable compared to animal protein, making them accessible to a wider population, contributing to inclusive food security.

Sustainable Agriculture

- **Soil Health:** Pulses fix atmospheric nitrogen through symbiosis with bacteria, reducing dependence on synthetic fertilizers and enhancing soil fertility.
- **Climate Resilience:** Their drought tolerance and water efficiency make them ideal for adapting to climate change and mitigating its impact on agriculture.
- **Crop Rotation:** Integrating pulses into crop rotations improves soil health, reduces pest and disease incidence, and promotes sustainable farming practices.

Government Initiatives

- **PM-AASHA:** This scheme provides Minimum Support Price (MSP) to farmers for pulses, ensuring remunerative prices.

- **NFSM (National Food Security Mission)-Pulses:** This mission aims to increase production through area expansion and productivity enhancement in all districts.
- **ICAR Research:** The Indian Council of Agricultural Research (ICAR) collaborates with universities to develop location-specific high-yielding pulse varieties.
- **RKVY (Rashtriya Krishi Vikas Yojna):** This scheme allows states to undertake Pulses Development Programmes.
- **Integrated scheme of Oilseeds, Pulses, Oil Palm and Maize (ISOPOM Scheme):** Launched in 14 major pulse-growing states, it promotes integrated development of oilseeds, pulses, oil palm, and maize.

CHAHAAL'S PERSPECTIVE on

Boosting Pulses Production for Nutritional Security and Economic Opportunities

Reasons for Low Production in India		Way Forward	
	Low Productivity: Traditionally neglected, pulses suffer from yield instability , leading to lower production and discouraging cultivation for instance Pulses account for 20% of the gross cropped area under food grains and contribute 7-10% of total food grain production.	Strengthening Research & Development: Focus on developing disease-resistant, climate-resilient, and high-yielding pulse varieties suited to diverse agro-climatic conditions.	
	Climate Vulnerability: Often grown in rainfed areas, pulses are susceptible to erratic rainfall and droughts , causing yield fluctuations.	Promoting HYV Adoption: Extensive outreach and capacity-building programs are crucial to encourage farmers to adopt HYVs and best agricultural practices.	
	Post-Harvest Losses: Storage challenges like excessive moisture and pest infestations lead to significant post-harvest losses.	Improving Irrigation Infrastructure: Expanding irrigation facilities in rainfed areas and promoting water-efficient technologies like drip irrigation can mitigate climate risks and ensure stable yields.	
	Green Revolution Impact: The Green Revolution's focus on rice and wheat using external inputs pushed pulses to marginal lands, impacting productivity and causing land degradation.	Storage Infrastructure Development: Investing in modern storage facilities with proper moisture control and pest management will minimize post-harvest losses.	
	Limited HYV Adoption: Penetration and adoption of high-yielding varieties (HYVs) of pulses remain low.	Market Access and Price Assurance: Ensuring efficient market linkages, MSP implementation, and exploring alternative marketing channels can incentivize pulse cultivation.	
	Residual Crop Status: Pulses are considered residual crops, grown on marginal lands with minimal attention to pest and nutrient management.	Creating Consumer Awareness: Promoting the nutritional benefits and diverse culinary uses of pulses can increase demand and encourage wider consumption.	
	Cash Crop Preference: Farmers prioritize cultivating cash crops like rice, wheat, and sugarcane due to assured procurement, higher market prices, and perceived lower risks.		

Conclusion

Pulses offer multiple benefits, making them crucial for **nutritional security, sustainable agriculture, and farmer income generation**. By addressing the existing challenges through continued government initiatives, enhanced research, and active farmer engagement, India can **achieve self-sufficiency in pulses production by 2027**, contributing to a healthier, more resilient, and food-secure nation.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the pulses production in India:

1. Pulses occupy 20% of the gross cropped area dedicated to food grains in India.
2. In India, Tur/Arhar occupies 15-20% of the gross cropped area under pulses.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Answer: c

Descriptive Question

Q. "Pulses provides a vital source of protein, particularly in regions with limited access to animal protein." Discuss. [15 Marks] [250 words]

POTENTIAL OF FISHERIES SECTOR - A BOON FOR ECONOMY AND NUTRITION

Why in News: The recent release of the **Parliamentary Standing Committee report on "Employment Generation and Revenue Earning Potential of Fisheries Sector"** highlights the immense opportunities and challenges in this crucial sector.

Current Status

- **India is the third largest fish producer globally**, excelling in **aquaculture fishing (second to China)**. Freshwater and marine fisheries contribute **75% and 25%**, respectively.
- Fisheries are recognized as a **"Sunrise Sector"** due to their rapid growth and future significance. This translates to opportunities in **nutritional security (omega-3 fatty acids), economic benefits (exports), and livelihood generation**.

Opportunities presents fish sector

1. **Nutritional Security and Health:** Fish, rich in **omega-3 fatty acids** and protein, contributes significantly to dietary needs. Increasing fish production can bridge protein deficiencies and improve health outcomes, particularly in coastal communities.

2. **Employment Generation:** Fisheries directly employ about **14 million people**, with **indirect employment exceeding 20 million**. Promoting sustainable fishing practices, developing aquaculture, and value-added processing hold immense potential for creating skilled and unskilled jobs.
3. **Economic Benefits and Exports:** India's fish exports **crossed \$7.75 billion in 2021-22**, contributing significantly to foreign exchange earnings. Expanding aquaculture and focusing on high-value species can further boost exports and economic growth.

Challenges associated with fish sector

- **Post-Harvest Losses (PHL):** As highlighted by the Committee, **PHL of 20-25% due to inadequate infrastructure**, lack of cold storage facilities, and poor handling practices significantly reduce profit margins and discourage investment.
- **Untapped Potential: Large dams remain underutilized for fish production**, and commercially breeding high-value species with medicinal and nutritional properties remains limited.
- **Overfishing and Destructive Practices:** Unsustainable fishing practices like **bull trawling and LED light fishing deplete fish stocks** and damage ecosystems. Effective regulations, enforcement mechanisms, and alternative fishing methods are needed.
- **Inadequate Infrastructure:** The Committee emphasizes the need for better infrastructure, including **modern fishing harbors, fish landing centers, and cold storage facilities**. Private sector participation and improved infrastructure development are critical.
- **Illegal Fishing:** Unauthorized and unreported fishing activities undermine conservation efforts.
- **Lack of Technology and Infrastructure:** Outdated tools and poor facilities make fishing less efficient.
- **Poor Management:** Weak enforcement of rules worsens overfishing and illegal practices.
- **Pollution and Habitat Damage:** Industrial waste and development harm fish habitats.
- **Climate Change:** Changing conditions disrupt fish populations and ecosystems.

Parliamentary Standing Committee Recommendations

- **Improved Infrastructure:** Encouraging **private sector participation** through the Fisheries and Aquaculture Infrastructure Development Fund Scheme and strengthening fishing harbors and landing centers are crucial steps.
- **Cage Culture:** Promoting **cage culture in large reservoirs** can tap into untapped potential and increase production.
- **Research and Development:** Establishing a **separate research council and prioritizing research on breeding, disease control**, and value addition are essential.

- **Financial Support:** Exploring **interest-free loans under KCC** can support small-scale fish farmers and incentivize investment.
- **Sustainable Fishing Practices:** Implementing stricter regulations, promoting responsible fishing methods, and investing in stock assessment and management are crucial.
- **Climate Change Adaptation:** Investing in climate-resilient fishing practices, early warning systems, and alternative livelihoods for vulnerable communities is vital.
- **Technology Adoption:** Encouraging widespread adoption of advanced fishing technologies, data-driven decision making, and precision aquaculture practices will enhance efficiency and productivity.
- **Collaborative Approach:** A collaborative approach involving fishers, scientists, policymakers, and private stakeholders is crucial for sustainable development of the sector.

≡ Government Initiatives ≡

Pradhan Mantri Matsya Sampada Yojana (PMMSY): This flagship scheme aims to address infrastructure gaps, promote aquaculture, and enhance fish production.

National Genetic Improvement Facility: This initiative focuses on breeding high-value species and disease-resistant strains, which can enhance productivity and economic viability. Its long-term impact remains to be seen.

Blue Revolution: Started in 2015 to modernize the fisheries sector.

Sagarmala Programme: Launched in 2015 to develop port infrastructure and support fisheries growth.

National Fisheries Development Board (NFDB): The NFDB plays a crucial role in policy formulation, marketing, and infrastructure development. Its effectiveness depends on strong collaboration with state governments and targeted interventions.

National Surveillance Programme for Aquatic Animal Diseases (NSPAAD): Addressing diseases is crucial for sustainable aquaculture. NSPAAD's efficacy lies in effective disease surveillance, timely outbreak management, and farmer awareness campaigns.

Fish Farmer Producer Organizations (FFPOs): Empowering fish farmers through FFPOs can improve bargaining power, access to inputs and markets, and knowledge sharing.

River Ranching Scheme and Artificial Reefs: These initiatives aim to enhance fish stocks and promote responsible fishing practices.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. Consider the following statements with reference to the Fisheries Sector in India:
1. India's fish exports crossed \$7 billion mark in 2021-22, contributing significantly to foreign exchange earnings.
 2. In India, marine fisheries contribute more to overall fish production as compared to the Freshwater fisheries.

3. India is the fifth largest fish producer globally.

How many of the above are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Answer: a (1 only)

Descriptive Question

- Q. "Fisheries are recognized in India as a 'Sunrise Sector' due to their rapid growth and future significance." Critically examine. [15 Marks] [250 words]

INDIA & WTO ON FARM SUBSIDIES

Why in News: India faces WTO pressure on farm subsidies amid protests for minimum support price.

Key details

- The **Cairns Group**, which is made up of members such as Australia, Brazil, and Canada, has asserted that the public stockholding (PSH) program in India is heavily subsidized and that the agriculture support that India provides is “hurting” other countries’ food security and “distorting” global food prices.
- A permanent solution is important for India and other developing nations to align farm support with **domestic priorities**. The **Peace Clause** temporarily shields India’s subsidies, but uncertainty persists. Clarifying subsidy rules is essential for fair trade, especially for developing countries.

Permanent Solution

- A permanent solution on **public stockholding for food grains is important for India** and other developing nations.
- It would provide them with **greater flexibility in offering farm support**, aligning with domestic priorities such as food security and rural livelihoods.
- This is **particularly relevant in the context of the MSP protests**, where farmers seek assurance of fair prices for their produce.

World Trade Organisation (WTO)

About

- International organization for regulating and promoting global trade.
- Established in 1995 with 164 member countries.
- Aims to negotiate and enforce trade agreements, resolve disputes, and foster economic growth.
- Headquarters located in Geneva, Switzerland.

Origin

- Successor to the General Agreement on Tariffs and Trade (GATT), formed in 1947.
- Creation finalized during the Uruguay Round (1986-94) of GATT.
- Operations commenced on January 1, 1995.
- The Agreement Establishing the WTO, known as the “Marrakesh Agreement,” signed in 1994.
- India was a founding member of GATT and subsequently joined the WTO.

Main Difference with GATT

- GATT focused on trade in goods, while WTO extends to services and intellectual property.

Agreement on Agriculture (AoA)

- The **Agreement on Agriculture (AoA)** came into effect with the formation of the **WTO on January 1, 1995**.
- Aiming to regulate trade-related agricultural measures like **export competition, domestic support, and market access**.
- Its objective is to **promote a fair and market-oriented agricultural trading system** by reducing **subsidies and support** to domestic producers.
- AoA addresses 3 main areas: **market access, domestic support, and export subsidies**.

Peace Clause Dynamics: The **WTO’s Peace Clause** is a temporary agreement made by WTO members in **December 2013** at the **Bali Ministerial Conference**. It allows developing countries to exceed certain limits on subsidies for food stockpiling without facing challenges at the WTO’s dispute settlement forum. This agreement remains in place until a permanent solution to the issue of food stockpiling is reached.

- India keeps using the ‘peace clause’ because it’s spending more on rice subsidies than it’s allowed.
- This shows how complicated the rules of the WTO are. Since these rules aren’t clear, India wants to interpret them more strictly to avoid legal issues.

Subsidies under the WTO are categorized into three types: Amber Box, Blue Box, and Green Box.

- **Amber Box:** These subsidies can distort international trade by making a country’s products cheaper compared to others. Examples include subsidies for inputs like **fertilizers, seeds, electricity, irrigation, and Minimum Support Price (MSP)**. Signatories to the WTO agreement must commit to reducing these subsidies, limiting them to 5-10% of the value of production, with developing countries allowed up to 10% and developed countries up to 5%.
- **Blue Box:** This category includes **subsidies that are similar to those in the amber box but come with conditions aimed at reducing distortion**. Subsidies in this box may require farmers to limit production through quotas or set aside part of their land. Currently, there are no spending limits on blue box subsidies.
- **Green Box:** These subsidies are considered non-distorting or cause minimal distortion to trade. **They include government-funded measures without price support to crops**, as well as initiatives for environmental protection and regional development. Green box subsidies are allowed without limits in most cases.

Why is it important to review subsidy rules?

- **Unequal Opportunities:** Since the WTO was formed, there’s been a concern that poorer nations, especially those in Asia, Africa, and South America, aren’t treated fairly in global trade talks compared to richer nations.

- **Food Subsidy Limits:** There's a problem with how much countries can spend on subsidies for food. According to WTO rules, a country's subsidy for food shouldn't be more than 10% of the value of what they produced in 1986-88.
- **Challenges for Global South**
 - Developing countries' subsidies for farming and poor farmers weren't counted and were stopped from increasing by the WTO.
 - Food security is better in rich countries than in poor ones because of unfair trade deals.
- **Growing Food Insecurity:** The Covid-19 pandemic and conflicts like the Russia-Ukraine one have made it clear that we need to review subsidy rules because food and fertilizer security are even more important now.
- **India's Request:** India wants changes to how the food subsidy limit is calculated and wants programs started after 2013 to be included under special protection.

Conclusion

India's participation at the WTO ministerial conference is crucial for its agricultural policies and global trade dynamics. A permanent solution on public stockholding for food grains is vital for addressing farming concerns and ensuring food security.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQs

Q1. Consider the following statements:

1. Headquarters of World Trade Organization (WTO) are in Doha
2. World Intellectual Property Organization is a specialized agency of WTO

Which of the statements given above is/are correct

(a) 1 only (b) 2 only
 (c) Both 1 and 2 (d) Neither 1 nor 2

Answer: d

Q2. The term amber box, blue box, and green box are related with-

(a) WTO affairs (b) SAARC affairs
 (c) UNFCCC affairs (d) India-EU negotiations on FTA

Answer: a

Descriptive Question

Q. What are the direct and indirect subsidies provided to farm sector in India? Discuss the issues raised by the World Trade Organization(WTP) in relation to agricultural subsidies. [15 Marks] [250 words]

GOVT. PRICE CONTROL ON NON-UREA FERTILIZERS

Why in News: The Government of India has brought di-ammonium phosphate (DAP), muriate of potash (MOP) and all other such fertilisers that receive nutrient-based subsidy (NBS) support under "reasonable pricing" controls.

Key details

- Unlike Urea, whose **maximum retail price (MRP) is fixed by the government**, the NBS Fertilisers are technically **decontrolled**.
- Under the NBS scheme, introduced in April 2010, their **MRPs** are supposed to be **market-determined** and **set by the individual companies** selling them.
- The government merely pays a fixed per-tonne subsidy on each of these fertilisers, linked to their nutrient content or specific percentage of **nitrogen (N), phosphorous (P), potassium (K) and sulphur (S)**.

About:

- A fixed rate of subsidy (in ₹per Kg) **decided on an annual basis**
- Being implemented since 2010

Aim:

- Ensure the **availability of fertilisers** to farmers at an **affordable price**
- Increase consumption of P&K fertilizers to achieve optimum NPK ratio (4:2:1)

Implemented by:

- Department of Fertilisers, Ministry of Chemicals & Fertilizers

Ambit of NBS:

- Given on nutrients - **Nitrogen, Phosphate, Potash and Sulphur**
- For Phosphatic and Potassic (P&K) fertilisers
- **Doesn't include Urea based fertilisers**
- NBS is available for **imported complex fertilisers** except Ammonium Sulphate

Fertilisers in India:

- 3 basic fertilisers – Urea, Diammonium Phosphate (DAP), and Muriate of Potash (MOP)
- Urea is the **most – produced, consumed, imported and physically regulated** fertiliser of all
- Urea is subsidised only for agricultural uses

Nutrient	Main Source
Nitrogen (N)	Urea
Phosphorus (P)	DAP
Potassium (K)	MOP

Guidelines issued by the Government

- The **Department of Fertilizers (DoF)** has now, issued detailed guidelines for the evaluation of "reasonableness" of the MRP's for all non-urea fertilisers covered under NBS.
- The **guidelines prescribe maximum profit margins** that will be allowed for fertiliser companies – 8% for importers, 10% for manufacturers and 12% for integrated manufacturers (those producing finished fertilisers as well as intermediates such as phosphoric acid and ammonia).

- Companies earning “unreasonable profit”, i.e. over and above the stipulated percentages, in a particular financial year (April-March) will have to refund the same to the DoF by October 10 of the following fiscal.
- If they don’t return the money within the said time limit, “an interest @12% per annum on pro-rata basis would be charged on the refund amount from the next day of end of financial year.

What will happen with Unreasonable Profits?

- The unreasonable profits would also get adjusted against subsequent fertiliser subsidy payments by the government.
- The new guidelines impose indirect MRP controls on non-urea fertilisers by capping the profits that companies can earn from their sales.
- These will be based on their “total cost of sales”, which would cover cost of production/ import, administrative overheads, selling and distribution overheads, and net interest and financing charges.
- Deduction for dealer’s margin will be allowed to the extent of 2% of the MRP for DAP and MOP, and 4% for all other NBS fertilisers.

Who will assess unreasonable profits by companies?

- The guidelines have mandated fertiliser companies to “self-assess” unreasonable profits, based on the cost auditor’s report along with audited cost data approved by their board of directors.
- This report and data have to be furnished to the DoF by October 10 of the following fiscal year. The DoF will then scrutinise the “reasonability of MRPs”, as submitted by the companies, “by 28th February for each completed previous financial year (i.e. for FY 2023-24 by 28th February 2025)”.
- Following that, it will finalise a report on unreasonable profits earned, if any, to be recovered from the companies. Following that, it will finalise a report on unreasonable profits earned, if any, to be recovered from the companies.

Issues with the move

- The flip side to this move is that it takes the fertilizer industry back to the full-control era before the introduction of the nutrient-based subsidy (NBS) system in April 2010.
- Fertilizers are basically food for crops. NBS was supposed to foster product innovation, with newer and better fertilizers providing more balanced nutrition.
- That dream didn’t materialise, as urea was excluded from NBS; its fixed MRP led to over-application, worsening nutrient imbalance and declining crop yield response.
- Farmer interest is better served by freeing up MRPs, encouraging balanced nutrient use and fertiliser products customised to different crop and soil-type requirements.

The new guidelines basically extend the regime of detailed cost monitoring and price control currently applicable on urea to other fertilisers. With the MRP of urea per tonne remained unchanged since 2012, only change that has taken place is companies being permitted to charge 5% extra for neem-coating of urea, made mandatory from 2015 and Non-urea fertilisers already under informal price control. The new guidelines will definitely help in controlling the prices of fertilisers.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following fertilizers:

1. Phosphatic and potassic (P&K) fertilizers
2. Ammonium Sulphate
3. Urea based fertilizer

How many of the above are covered under the nutrient-based subsidy (NBS) support?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Answer: a (1 only)

Descriptive Question

Q. In context of the impact on economic efficiency and environmental sustainability, what are the primary challenges India faces in managing its fertilizer subsidy? What can be the way forward? [15 Marks] [250 words]

100% FDI IN THE INDIAN SPACE SECTOR

Why in News: The Union Cabinet, approved a significant decision to allow 100% Foreign Direct Investment (FDI) in the Indian space sector. This move aims to attract investments, boost innovation, and propel India’s spacefaring ambitions further.

India’s Space Sector

- **Economic Potential:** The Indian space economy is estimated at around \$8.4 billion, contributing 2-3% to the global market.
- **Privatization and Growth:** India has privatized space launches, aiming for a five-fold increase in its share of the global launch market, highlighting its ambition in the commercial space sector.
 - For instance, Skyroot Aerospace, a private Indian space company, has launched its first commercial rocket, Vikram-1, in early 2024.

- **Budgetary Considerations:** Despite this ambition, the Department of Space received a modest **4% hike in its budget allocation**, raising concerns about resource allocation for achieving its ambitious goals.
- **Policy Push:** The implementation of the **Indian Space Policy 2023** is expected to unlock the sector's potential, aiming for a \$44 billion space economy by 2033.
- **Start-Up Boom:** The space sector has seen a surge in start-ups, increasing from just 1 in 2014 to 189 in 2023, and attracting significant investments of \$124.7 million in 2023.

Key Details

- **100% FDI through Automatic Route:** The FDI under the automatic route for **manufacturing of components and systems/sub-systems for satellites, ground segment, and user segment**. This simplifies the investment process and encourages foreign companies to set up manufacturing facilities in India.
- **Graded FDI for Other Activities:** The policy implements a **tiered system** for other space-related activities:
 - **Up to 74% FDI under the automatic route:** This applies to **satellite manufacturing and operation, satellite data products, and ground/user segment**. Investments exceeding 74% will require government approval.
 - **Up to 49% FDI under the automatic route:** This applies to **launch vehicles and associated systems/subsystems, and creation of spaceports**. Investments exceeding 49% will require government approval.

Boosting participation of private players in India's Space Sector: Key Initiatives

- **Indian Space Policy 2023:** The Indian Space Policy 2023 outlines the tasks and duties of organizations like ISRO, **NewSpace India Limited (NSIL)**, and private sector firms. Its goal is to involve more research, academic, startup, and industrial entities in space-related endeavors.
- **IN-SPACe:** IN-SPACe emerged to create fairness for private companies wanting to utilize India's space infrastructure. It serves as the main connection between the Indian Space Research Organization (ISRO) and any entity seeking involvement in space activities or utilizing India's space assets.
- **New Space India Limited (NSIL):** It is a registered under the Companies Act, 2013, is a wholly owned Government of India company, under the administrative control of Department of Space (DoS). It is the commercial arm of Indian Space Research Organisation (ISRO) with the primary responsibility of enabling Indian industries to take up high technology space related activities. It is also responsible for promotion and commercial exploitation of the products and services emanating from the Indian space programme.

POTENTIAL BENEFITS

- **Private Sector Participation**
This can **integrate Indian companies into global supply chains**, as envisioned in the **Indian Space Policy 2023**.
- **Increased employment**
Investments are expected to **generate new jobs in the space sector**.
- **Technological advancement**
Foreign collaboration will **facilitate the absorption of modern technologies** and **improve the overall capability** of the sector.
- **Self-reliance**
Increased private sector participation will **contribute to the long-term goal of making the Indian space program self-sufficient**.
- **Global Integration**
The policy aims to integrate Indian companies into global space value chains, **fostering international collaboration and market access**.
- **Boosting Manufacturing**
Setting up manufacturing facilities within India by foreign players can further the "Make in India" initiative. This will **create jobs, contribute to economic growth, and strengthen the domestic space ecosystem**.
- **Ease of Doing Business**
Streamlined FDI regulations can **improve India's Ease of Doing Business ranking**, attracting more foreign capital and promoting investment, income, and employment generation.
- **Promoting Research and Innovation**
FDI can **facilitate technology transfer and foster domestic research capabilities**, leading to further innovation in the space sector.

Challenges and Concerns

- **Security concerns:** Stringent regulations are necessary to ensure national security interests are not compromised with increased foreign involvement.
- **Job displacement:** While the policy aims to create jobs, there might be concerns regarding potential job losses in certain sectors due to increased automation and competition.
- **Technological dependence:** Overreliance on foreign technology could hamper the development of indigenous capabilities in the long run.
- **Limited Investor Interest:** The high-risk nature and long-term returns of space investments may deter potential investors, particularly at later development stages.
- **Talent Pool:** Building a robust talent pool for space tech startups is crucial. India needs to invest in creating more skilled professionals in this field.
- **Policy Clarity and Simplification:** Clear, consistent, and simplified FDI procedures are essential to attract foreign investors and avoid confusion.
- **Capital-Intensive Requirements:** Space technology requires significant investment, posing a challenge for startups and smaller players. Addressing this through

funding mechanisms and fostering public-private partnerships can be beneficial.

- **Conflict of Interest with ISRO:** Foreign investors may still harbor apprehensions due to potential conflicts of interest with ISRO as a competitor. Addressing these concerns through transparent regulations and fostering cooperation can be crucial.

Measures for Successful Implementation

- **Targeted incentives:** Tax breaks, concessions, and accelerated depreciation for space-related companies can incentivize investment.
- **Skilling initiatives:** Collaborative efforts between the government, academia, and industry can foster skill development and address the talent gap.
- **Streamlining procedures:** Simplifying the FDI approval process can reduce bureaucratic hurdles and expedite investment decisions.
- **Promoting public-private partnerships:** Fostering collaboration between ISRO, private players, and foreign investors can leverage expertise and resources efficiently.
- **Regular policy review:** Periodic reviews of the FDI policy framework and addressing emerging challenges can ensure its effectiveness over time.

Conclusion

The 100% FDI approval in the Indian Space Sector presents a unique opportunity for accelerated growth. Addressing concerns through well-defined policies, fostering an innovation-driven environment, and building a skilled workforce can unlock the sector’s potential.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQs

Q1. Consider the following statements with reference to the Foreign Direct Investment (FDI) in India:

1. 100% FDI is allowed in space sector.
2. FDI is not allowed in manufacturing of the Cigars and cigarettes.

Which of the statements given above is/are correct?

(a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Answer: c

Q2. Consider the following:

1. Foreign currency convertible bonds
2. Foreign institutional investment with certain conditions
3. Global depository receipts
4. Non-resident external deposits

Which of the above can be included in Foreign Direct Investments?

(a) 1, 2 and 3 (b) 3 only
(c) 2 and 4 (d) 1 and 4

Answer: a

Descriptive Question

Q. Discuss the significance of allowing 100% Foreign Direct Investment (FDI) in the Indian space sector. [10 Marks] [150 words]

BILATERAL INVESTMENT TREATIES

Why in News: While presenting the interim Union budget, Finance Minister Nirmala Sitharaman stated that India will be negotiating Bilateral Investment Treaties (BITs) with its trade partners to boost the inflow of foreign direct investment.

Key details

- This announcement comes at a time when India’s bilateral treaties have dried up, more so, since the adoption of the Model BIT in 2016.
- The FDI equity inflows in India declined 24 per cent to \$20.48 billion in April-September 2023.
- The total FDI — which includes equity inflows, reinvested earnings and other capital — contracted 15.5 per cent to \$32.9 billion during the period under review against \$38.94 billion in April-June 2022.

About Bilateral Investment Treaties

- BITs are agreements between two countries for the reciprocal promotion and protection of investments in each other’s territories by individuals and companies.
- It was in the mid-’90s that BITs were initiated by the Indian government.
- The pretext was to offer favourable conditions and treaty-based protection to foreign investors and investments.
- The first BIT signed by India was with the UK on March 14, 1994.

Model Bilateral Investment Treaty

- India has been the target of numerous instances where an International Dispute Settlement (ISDS) tribunal’s penalty was imposed. For instance, when it comes to situations where regulatory actions are taken, like imposing retroactive taxes or revoking telecom and spectrum licences.
- This led to a review of the BITs. and India introduced the Model BIT in 2016.
- States, as well as for re-negotiation of the existing ones.

- India changed its **stance on foreign investments** from being unduly investor-friendly to being somewhat protectionist in accordance with Model BIT in 2016.
- India unilaterally terminated **roughly 66-billion-dollar bilateral investment treaties (BITs)** between 2016 and 2019, sending negative signals to the world's investor community.

CHAHAL'S PERSPECTIVE On

Model Bilateral Investment Treaty

Issues	Recommendations
<div style="display: flex; align-items: center;"> <div> <p>It was seen more as a knee-jerk protectionist measure rather than a nuanced and calibrated approach to encouraging foreign investment.</p> </div> </div>	<div style="display: flex; align-items: center;"> <div> <p>In 2021, the Parliamentary Standing Committee on External Affairs made several recommendations to revisit the existing BIT regime.</p> </div> </div>
<div style="display: flex; align-items: center;"> <div> <p>It narrowed the definition of investment that needed to qualify for BIT protection. Model BIT indicates that India proposes a narrow 'enterprise-based' definition for investment, whereby only direct investments are protected under the treaty.</p> </div> </div>	<div style="display: flex; align-items: center;"> <div> <p>It has also called for the development of local expertise in the field of investment arbitration to not only ensure good representation in investor-state disputes but also to ensure timely review of treaties to align with the global best practices.</p> </div> </div>
<div style="display: flex; align-items: center;"> <div> <p>The Model BIT contains a clause mandating exhaustion of domestic remedy prior to initiating international arbitration proceedings. It surely does little to increase confidence in foreign investors.</p> </div> </div>	<div style="display: flex; align-items: center;"> <div> <p>This included the timely settlement of disputes through pre-arbitration consultations and negotiations.</p> </div> </div>

Way Forward

- India's **pursuit of a \$5-trillion economy** requires robust international trade and stable investments.
- A **progressive approach to BITs is crucial** for attracting and sustaining long-term foreign investments.
- The government's renewed push is a step in the right direction, but it **must move away from a one-size-fits-all approach.**

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. Discuss the concept of the Bilateral Investment Treaties (BITs). Why have the Bilateral Investment Treaties come under criticism? [15 Marks] [250 words]

RBI: THE PAYTM CASE

Why is News: The Reserve Bank of India (RBI) barred Paytm Payments Bank Ltd (PPBL) from accepting new deposits, top-ups, and conducting several banking activities, raising concerns about the fintech giant's future and regulatory compliance in the industry.

Key details

The RBI's audit revealed "**persistent non-compliances**" and "**material supervisory concerns**" in PPBL, leading to the restrictions. These include:

- **Licensing:** PPBL's indirect lending activities through third parties might have violated licensing guidelines.
- **Governance & related party transactions:** OCL's 49%

ownership and founder's involvement raise concerns about potential influence on PPBL's operations.

- **Regulatory compliance:** Repeated non-compliance with KYC norms and potential money laundering activities raise questions about Paytm's commitment to regulations.

What is a Payment Bank?

Based on the recommendation of '**Nachiket Mor committee**', Payment Bank was set up to operate on a smaller scale with minimal credit risk.

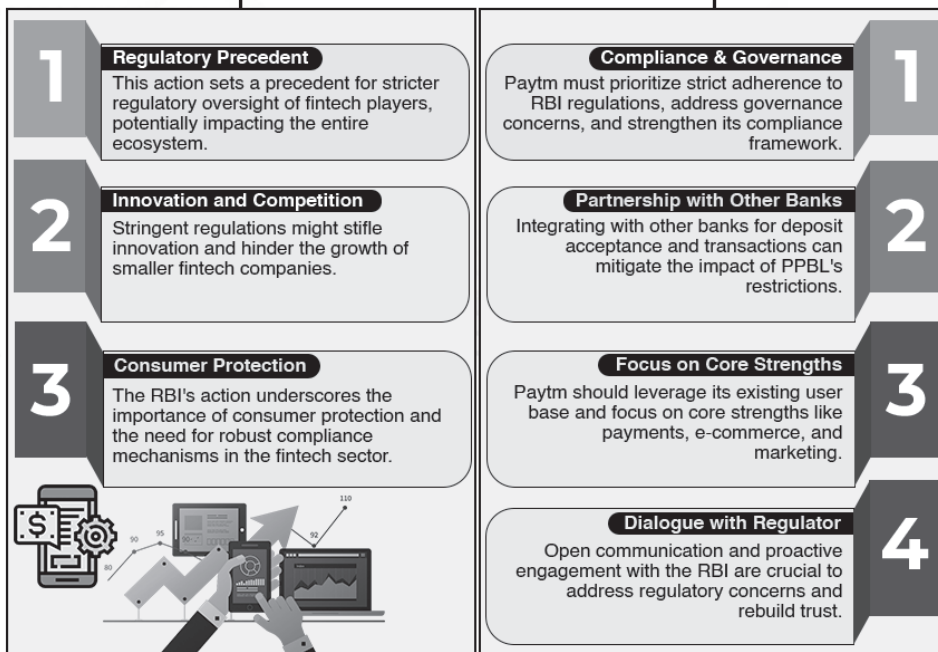
Features

- They are differentiated banks rather than Universal Banks.
- The minimum paid-up capital requirement is Rs 100 crore.
- For the first five years, the stake of original promoters should not be less than 40%.
- They cannot give loans and issue credit cards.
- They can accept a limited deposit of Rs 2 lakh per customer.
- 75% of deposited money should be invested in government securities in the form of Statutory Liquidity Ratio (SLR) and the remaining 25% in time deposits of other scheduled commercial banks.
- They cannot accept time deposits and NRI deposits.
- They are allowed to issue debit cards and third-party funds transfers.
- They are allowed to carry out banking services like IMPS, NEFT, RTGS and UPI.

CHAHAL'S PERSPECTIVE ON RBI's Action

Impact on Fintech Ecosystem

Possible Solutions and Way Forward



EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the Payment Banks:

1. They were set up based on the recommendations of the Nachiket Mor Committee.
2. They cannot issue credit cards.
3. They can accept demand deposits up to Rs 10 lakh.

How many of the above statements are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Answer: b (1 and 2 only)

DIGITAL PAYMENTS LANDSCAPE IN INDIA

Why in News: The Standing Committee on Communications and Information Technology submitted a report highlighting the dominance of foreign fintech apps in India's digital payments ecosystem and recommending steps to promote local players.

Committee noted following observations about fintech sector of India

- **Dominant players:** The report identifies PhonePe (Walmart-backed) and Google Pay as the leading players, controlling 46.91% and 36.39% market share in terms of volume respectively (Oct-Nov 2023). Meanwhile, NCPI's BHIM UPI app holds a meager 0.22% share.
- **Regulatory concerns:** The Committee emphasizes the need for effective regulation, considering the rising use of digital payments and the difficulty in controlling foreign apps compared to local ones.
- **Fraud and money laundering:** The report cites instances of fintech platforms being used for money laundering, highlighting regulatory challenges in cross-jurisdiction cases.
 - **For instance, an Abu Dhabi-based app called Pyypl.** This made it difficult for Indian law enforcement agencies to track the trail of money collected through scams on the platform.

What is Fintech?

- Fintech, short for **financial technology**, is the use of technology to improve and automate the delivery and use of financial services.
- It is a broad term that encompasses a wide range of companies and applications, from mobile banking and payment apps to robo-advisors and cryptocurrency exchanges.
- **Types/examples of FinTech companies:** Bharatpe, CRED, Digit Insurance, Zerodha, Razorpay etc.

India's Fintech Sector

- The Indian fintech market boasts a **staggering CAGR of ~24.56%**, projected to reach INR 8.35 trillion by 2026.
- This growth is fueled by a robust digital infrastructure, with **over 676 million smartphone users** and 825 million internet subscribers.

Distinctive Features of Indian Fintech

- **High Adoption Rate:** India leads the globe in fintech adoption, with a staggering 87% compared to the global average of 64%. This indicates a population receptive to and actively engaging with fintech solutions.
- **Untapped Potential:** Despite its progress, India remains an untapped market with 14.6% of the population unbanked. This presents a tremendous opportunity for fintech to bridge the financial inclusion gap.

- **Diverse Ecosystem:** Indian fintech thrives in its variety, spanning payments, lending, wealth management, and more. This diversity fosters competition and ensures solutions cater to various financial needs.
- **Global Impact:** India's role in global fintech is undeniable, accounting for 46% of all real-time transactions worldwide in 2022. This highlights its increasing significance in the global financial landscape.

Roles Played by Fintech Players

- **Digital Payments:** Fintech has revolutionized payments, drove cash-to-digital transactions and contributed to a cashless economy. UPI platforms like BHIM facilitate instant, secure payments, transforming financial transactions.
- **Customer Engagement:** Fintech players possess a "natural advantage" in understanding customers, ecosystem participants, and broader market infrastructure. This enables them to develop solutions tailored to specific needs and enhance customer engagement.
- **MSMEs growth:** Providing easier access to credit and financial tools for small and medium-sized enterprises, fueling their expansion and job creation.
- **Collaboration with Government:** To build trust and enhance transparency, increased collaboration between

fintech players and the government is crucial. This can involve joint initiatives to tackle challenges and promote responsible innovation.

- **Digital Lending:** Fintech players like Paytm and digital app of banks offer quick, hassle-free loans, reaching previously underserved sections of the population. This democratizes access to credit and fuels economic growth.
- **Wealth Management:** Investment platforms like Zerodha and Groww empower individuals to invest in mutual funds and stocks with ease. This promotes financial literacy and wealth creation.
- **Insurance (InsurTech):** Fintech ventures like Policybazaar and Acko simplify insurance buying, making it more accessible and affordable for millions. This strengthens financial security and risk mitigation.
- **Regulatory Compliance (RegTech):** Companies like Truelancer and SignDesk assist businesses in navigating regulatory requirements efficiently, ensuring compliance and reducing risks.
- **Financial Inclusion:** Fintech acts as a powerful tool for financial inclusion. Initiatives like PMJDY have been leveraged by fintech startups to create products catering to unbanked populations, promoting financial access and participation.

CHAHAL'S PERSPECTIVE

Foreign Fintech Dominance in India's Digital Payments Landscape

Challenges and Concerns	Measures for Sustainable and Inclusive Growth
<p>Cybersecurity and Data Privacy As digitization advances, cybersecurity threats and data privacy concerns grow. Robust security measures and stringent data protection regulations are essential to ensure trust and user safety.</p> <p>Technological Challenges Keeping pace with rapid technological advancements is crucial for fintech players to maintain relevance and competitiveness. Constant innovation and adaptation are essential.</p> <p>Non-Performing Assets (NPAs) High NPAs in the lending sector pose a risk to the stability of the financial system. Mitigating NPAs through robust risk assessment and credit underwriting practices is critical.</p> <p>Competition The highly competitive fintech market poses challenges for new entrants. Establishing themselves and carving a niche requires innovative solutions and strategic differentiation.</p>	<p>Regulatory framework Establishing a clear and balanced regulatory framework that fosters innovation while mitigating risks.</p> <p>Data privacy Implementing robust data protection laws and ensuring responsible data handling practices by Fintech companies.</p> <p>Consumer education Raising awareness among consumers about potential risks and best practices for using Fintech services.</p> <p>Financial literacy Promoting financial literacy programs to empower individuals to make informed financial decisions.</p> <p>Focus on inclusion Designing Fintech products and services that cater to the needs of diverse segments, including rural populations and underserved communities.</p>
<p>Regulatory Challenges Regulatory hurdles, as exemplified by Paytm's initial public offering (IPO) challenges, highlight the need for a balanced approach that fosters innovation while ensuring compliance and financial stability.</p> <p>Financial Inclusion Despite progress, bridging the financial inclusion gap remains a challenge. Reaching remote areas and developing products suited to underbanked populations will be crucial for achieving inclusive growth.</p> <p>Trust Issues Cash-reliant segments of the population might still distrust online transactions. Building trust through secure platforms and financial literacy initiatives is vital to foster wider adoption.</p>	

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. With reference to report submitted by the Standing Committee on Communications and Information Technology' consider the following statements:

1. NCPI's BHIM UPI app holds maximum share in digital payments landscape in India.
2. India has the highest fintech adoption as compared to the global average.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: b

Descriptive Question

Q. Critically analyse the challenges faced by the India's Fintech sector. What can be the ways to tackle those challenges? [15 Marks] [250 words]

CONVENTION ON MIGRATORY SPECIES

Why in News: The 14th Meeting of the Conference of the Parties to the Convention on the Migratory Species of Wild Animals (CMS COP14) concluded at Samarkand, Uzbekistan with significant decisions impacting the conservation of migratory species worldwide.

The first-ever State of the World's Migratory Species report, launched at the 14th CMS by UNEP World Conservation Monitoring Centre:

Key Findings

- Nearly half (44%) of the migratory species listed under CMS are experiencing population reductions, despite the fact that some are doing better.
- Approximately 22% of the species on the CMS list are in danger of going extinct.
- Fish, almost entirely 97% are threatened with extinction.
- Worldwide migration poses an increasing threat of extinction for all species, even those not included in the CMS.
- Of the Key Biodiversity Areas designated to be important for migratory animals on the CMS list, half (51%) lack protected status, and 58% of the sites under observation that are regarded as significant for these species are under unsustainable pressure from humans.
- The two biggest risks to all migratory species, including those on the CMS list, are habitat loss brought on by human activities and overexploitation. Seven out of ten CMS-listed species are affected by overexploitation, and three out of every four are affected by habitat loss, degradation, and fragmentation.
- Migratory species are also being significantly impacted by pollution, climate change, and invasive species.
- 399 migratory species that are endangered or very close to going extinct worldwide are not on the CMS list as of yet.

Major outcome of summit

- **Expanding the Safeguard Net**
 - **Species Listing and Concerted Actions:** The addition of 14 species to the CMS Appendices, including the Eurasian lynx, sand tiger shark, and Pallas's cat, provides them with much-needed legal protection and international cooperation.
 - **Recognition of the Central Asian Flyway:** The official recognition of the Central Asian Flyway, stretching from Siberia to the Maldives, underscores the importance of this critical migration route for numerous bird species.
- **Addressing Emerging Threats**
 - **Insect Decline and Insectivorous Animals:** The endorsement of a report on insect declines and its potential impact on insectivorous migratory animals brings much-needed attention to this critical issue.
 - **Deep-Sea Mining and Aquatic Species:** The introduction of a mandate on understanding the impacts of deep-sea mining on migratory aquatic species, their prey, and ecosystems underlines the potential risks associated with this activity.
 - **Bycatch and Illegal Taking:** The strengthened mandate to address bycatch and illegal taking of aquatic wild meat acknowledges the significant threat these practices pose to small cetaceans, sharks, marine turtles, and seabirds.
- **Bridging the Gaps**
 - **Global Partnership on Ecological Connectivity (GPEC):** This initiative, focusing on identifying, protecting, and connecting key migratory corridors, can significantly enhance the ecological connectivity and resilience of ecosystems.
 - **One Health Central Asia Project:** The launch of this project under the leadership of IUCN acknowledges the growing concern about zoonotic diseases and the role of biodiversity loss and human-animal interactions.
- **Setting the Future Course**
 - **Samarkand Strategic Plan for Migratory Species (2024-2032):** It outlines key priorities, including species protection, habitat conservation, research, capacity building, and mainstreaming migratory species conservation into national policies and planning processes.

- **Guidelines on Light Pollution:** The introduction of new guidelines on mitigating the impacts of light pollution on migratory species acknowledges the growing concern about this issue’s potential disruption of migration patterns and ecological processes.

What are Migratory Species?

- Migratory species are the wild species that **move across national borders**, either as entire populations or specific groups, in a predictable and cyclical manner.
- The term “cyclically” refers to regular patterns in nature, such as daily, yearly, or climatic cycles, while “predictably” means that these movements can be anticipated under certain conditions, though not necessarily at fixed intervals.

What is the Convention on Migratory Species (CMS)?

- The Convention on Migratory Species, also known as CMS or **the Bonn Convention**, is an international agreement **facilitated by the United Nations Environment Programme (UNEP)**.

Key Facts about CMS

- Origin: Signed in 1979, came into effect in 1983.
- Membership: As of March 1, 2022, CMS has 133 member countries, including India since 1983.

Objectives of CMS

- CMS aims to protect various migratory species, whether they’re found on land, in the sea, or in the air, across their entire migratory routes. It provides a legal framework for global conservation efforts.

Legal Framework

- Under CMS, various legal tools are employed, **ranging from binding agreements to less formal memoranda of understanding (MoUs)**.

Appendices

CMS has two appendices

- **Appendix I:** Lists migratory species that are threatened.
- **Appendix II:** Lists species that require international cooperation for their conservation.

India’s Role in CMS

- India has engaged with **CMS since 1983**.
- These agreements focus on the conservation and management of specific species like **Siberian Cranes (1998), Marine Turtles (2007), Dugongs (2008), and Raptors (2016)**.

India, recognizing the importance of migratory species, has undertaken various initiatives to ensure their survival and well-being

The **National Action Plan for the Conservation of Migratory Birds (2018-2023)** stands as a testament to this commitment. It aims to

- **Reduce pressure:** Mitigate threats like habitat loss, hunting, and pollution along migratory routes.
- **Reverse the decline:** Aims to halt the decline of migratory birds and increase their populations by 2027.
- **Transboundary cooperation:** Collaborate with other Central Asian Flyway countries for coordinated conservation efforts.
- **Enhanced database:** Improve data collection and analysis to understand migratory needs better.

Beyond Birds: India’s efforts extend to other migratory species

- **Marine turtles:** Dedicated policies address their protection and stranding issues.
- **Transboundary protected areas:** Promote collaboration for species like tigers and elephants.
- **Sustainable infrastructure:** Guidelines ensure development minimizes ecological impact.
- **Project Snow Leopard (PSL):** Launched in 2009, it advocates for inclusive conservation of this majestic creature and its habitat.
- **Dugong Conservation Reserve:** India established the first reserve for this vulnerable marine mammal in Tamil Nadu.
- **Wildlife Protection Act, 1972:** Provides legal framework for protecting migratory birds and their habitats.

Additional Initiatives

- **Amur Falcon protection:** Focused community-driven measures in Nagaland safeguard these migratory birds.
- **Vulture conservation:** Bans on harmful drugs and breeding centers aim to revive declining vulture populations.
- **Wildlife Crime Control Bureau:** Combats illegal wildlife trade, protecting species from exploitation.

CHAHAL's PERSPECTIVE ON Migratory Species

CHALLENGES

- **Habitat Loss and Fragmentation:** Infrastructure development, deforestation, agriculture expansion, and urbanization fragment and destroy vital habitats, disrupting migration routes and access to vital resources.
- **Climate Change:** Rising temperatures, shifting weather patterns, and extreme weather events disrupt migratory timings, food availability, and reproduction, putting immense pressure on already stressed populations.
- **Illegal Hunting and Poaching:** Unsustainable hunting, poaching, and bycatch in fisheries pose a major threat to many species, particularly those with high commercial value or facing habitat competition with humans.
- **Light and Noise Pollution:** Artificial light disrupts nocturnal migration patterns and foraging behavior, while noise pollution can interfere with communication and navigation.
- **Disease and Invasive Species:** Diseases spread by humans and livestock can devastate migratory populations, while invasive species introduced through trade or travel can compete for resources and spread diseases.
- **Limited Awareness and Funding:** Despite growing recognition, public awareness and political will for migratory species conservation often lag behind, leading to insufficient funding and enforcement efforts.

WAY FORWARD

- **Habitat Protection and Restoration:** Prioritizing the protection and restoration of critical habitats across national borders, creating corridors for safe passage, and mitigating human-wildlife conflict are crucial.
- **Climate Change Action:** Reducing greenhouse gas emissions and implementing adaptation strategies to help migratory species cope with shifting climates are essential.
- **Sustainable Resource Management:** Sustainable fishing practices, tackling illegal wildlife trade, and promoting responsible tourism are necessary to minimize human impact on migratory species.
- **Community Engagement and Education:** Raising public awareness about the importance of migratory species and engaging local communities in conservation efforts are vital for long-term success.
- **Global Collaboration and Funding:** Strengthening international cooperation through treaties, information sharing, and joint conservation initiatives, along with increased funding for research, management, and enforcement, are key.
- **Technological Solutions:** Utilizing innovative technologies like satellite tracking, remote sensing, and acoustic monitoring can enhance research, monitoring, and anti-poaching efforts.
- **Addressing Climate Change and Pandemics:** Integrating migratory species conservation into climate change mitigation and adaptation strategies, and fostering One Health approach to address zoonotic diseases, are crucial aspects of a holistic approach.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQs

- Q1. Consider the following statements with reference to the World's Migratory Species Report:
1. It is first of its kind of the report launched at the 14th Convention on the Migratory Species of Wild by UNEP's World Conservation Monitoring Centre.
 2. According to this report, more than 80% of Convention on the Migratory Species of Wild-listed species face extinction.
 3. It mentions that, Eurasian Lynx is one of the species recently included in the Appendices of the Convention on the Migratory Species of Wild.

How many of the above statements are correct?

- (a) Only one (b) Only two

- (c) All three (d) None

Answer: (b) and (c) only

- Q2. The "World's Migratory Species Report" has been published by which of the following?

- (a) World Wide Fund for Nature
- (b) Wildlife Conservation Society
- (c) United Nations Environment Programme
- (d) Trade Records Analysis of Flora and Fauna in Commerce (TRAFFIC)

Answer: c

Descriptive Question

- Q. "India, recognizing the importance of migratory species, has undertaken various initiatives to ensure their survival and well-being." Discuss. [15 Marks] [250 words]

WORLD RESTORATION FLAGSHIP PROGRAMME

Why in News: Recently Seven initiatives from Africa, Latin America, the Mediterranean, and Southeast Asia have been named UN World Restoration Flagships by the UN.

Key details

- It aims to combat ecosystem degradation resulting from wildfires, drought, deforestation, and pollution through comprehensive restoration efforts.
- The UN first unveiled the **World Restoration Flagship** initiatives at the **UN Biodiversity Conference (COP15)** in Montreal, Canada in **2022** to honor best examples of **large-scale and long-term ecosystem restoration** projects.

World Restoration Flagship Programme

- The World Restoration Flagships Programme is under the **UN Decade on Ecosystem Restoration** which is jointly led by the UN Environment Programme (UNEP) and FAO (Food and Agriculture Organization).
- Its mission is to prevent, cease, and reverse ecosystem degradation globally, spanning every continent and ocean.
- The flagships initiatives are recognised by the UN through its **World Restoration Flagship Award**. This award is also part of the UN Decade.
- The Programme is aimed to track the notable initiatives that support global commitments to restore one billion hectares – an area larger than China.
 - There are in total 17 Flagships.

List of Restoration Flagships

- **Terai Arc Landscape Initiative - Nepal:** This initiative is geared towards the protection of a biodiversity hotspot shared by India and Nepal, focusing on the restoration of 350,000 hectares of forests by 2030. (Explained in Detail below)
- **Restoring Mediterranean Forests Initiative - Lebanon, Morocco, Tunisia, Türkiye:** This initiative aims for an ambitious restoration target of over 8 million hectares by 2030.
- **Living Indus Initiative - Pakistan:** With the goal of restoring 25 million hectares of the Indus river basin by 2030, this initiative seeks to enhance the health of this vital water system.
- **Mangrove Regeneration Initiative - Sri Lanka:** Targeting the restoration of 10,000 hectares of mangroves by 2030, this initiative focuses on the preservation of crucial coastal ecosystems.
- **Regreening Africa - Ethiopia, Ghana, Mali, Niger, Rwanda, Kenya, Senegal, Somalia:** This initiative aims to restore 5 million hectares by 2030, fostering biodiversity and supporting local communities.

- **Acción Andina - Argentina, Bolivia, Chile, Ecuador, Perú:** This initiative focuses on securing land titles for local communities and protecting forests from mining and timber exploitation across the Andean region.
- **African Farmers Transforming Food Systems - Mali, Senegal, Tanzania, Uganda, Kenya:** This initiative collaborates closely with farmers on degraded lands, aiming to counteract the impacts of unsustainable agriculture, deforestation, pollution, and climate change.

Selection Mechanism

- The World Restoration Flagships are chosen as the **best examples** of ongoing, large-scale and long-term ecosystem restoration.
- They are chosen by the **Task Forces for Science and Best Practices** of the UN Decade on Ecosystem Restoration.
- The **initial restoration success criteria** includes compliance with the **ten principles** for ecosystem restoration. Selection follows a thorough **review process** with **over 60 indicators and criteria**, based on the the 10 Restoration Principles of the UN Decade.
- They must then be **approved by its Executive Board** to be chosen as Flagships.

Earlier Flagships (2022)

- **Namami Ganga - India:** This flagship is an Integrated Conservation Mission which focuses on reforesting parts of the river's basin and promoting sustainable farming practices.
- **Building with Nature in Indonesia:** Adopting an innovative approach, this initiative utilizes **semi-permeable sea walls** made of natural materials to trap mud and sediments, rather than solely relying on planting mangroves.
- **Central American Dry Corridor - Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama:** Aiming to scale up restoration efforts, this flagship utilizes lessons learned from on-the-ground initiatives to counter land degradation, poverty, and emigration in the region.
- **Small Island Developing States - Vanuatu, Comoros, Saint Lucia:** Focused on small island developing states, this flagship aims to scale up ridge-to-reef restoration and leverage blue economic growth for post-pandemic recovery.
- **Multi-country Mountain Flagship - Democratic Republic of the Congo, Kyrgyzstan, Rwanda, Serbia, Uganda:** Showcasing initiatives in diverse regions, this flagship aims to enhance the resilience of mountain ecosystems, benefiting both people and unique upland wildlife.
- **Great Green Wall - Burkina Faso, Djibouti, Eritrea, Ethiopia, Mali, Mauritania, Niger, Senegal, Sudan, Chad:** This grand initiative seeks to restore savannas, grasslands, and farmlands across Africa.

- **Shan-Shui Initiative - China:** Comprising 75 large-scale initiatives, this ambitious project aims to restore ecosystems from mountains to coastal estuaries across China.
- **Altyn Dala Conservation Initiative - Kazakhstan:** This initiative focuses on restoring steppe, semi-desert, and desert ecosystems within the historic range of the critically endangered saiga antelope.
- **Trinational Atlantic Forest Pact - Argentina, Brazil, Paraguay:** Aiming to restore 1,000,000 hectares by 2030, this pact focuses on the preservation of the Atlantic Forest.
- **Abu Dhabi Marine Restoration - United Arab Emirates:** With the goal of safeguarding the world's second-largest **dugong population**, this initiative focuses on restoring seagrass beds, coral reefs, and mangroves along the Gulf coast.

How many of the above are recently recognized as the World Restoration Flagships Initiative by the United Nations World Restoration Flagships Programme?

(a) Only one (b) Only two
(c) Only three (d) All four

Answer: d

PLASTIC WASTE POLLUTION IN INDIA

Why in News: The Public Accounts Committee (PAC) report on “pollution caused by plastic” tabled in Parliament highlights the increasing plastic waste problem in India and calls for urgent action.

Conclusion

The World Restoration Flagships collectively represent a significant programme in combating ecosystem degradation. These initiatives showcase the feasibility and efficacy of large-scale ecosystem restoration efforts, and demonstrate their tangible benefits for biodiversity, human well-being, and climate resilience. The World Restoration Flagships signify a pivotal step toward a more sustainable and resilient future for our planet.

Challenges and Concerns highlighted by PAC

- **Alarming Growth:** India’s plastic waste generation has significantly increased from 15.9 lakh tonnes per annum (TPA) in 2015-16 to a staggering 41.2 lakh TPA in 2020-21, reflecting a 160% increase in just five years.
- **Waste Management Woes:** Nearly half (50%) of this plastic waste remains uncollected and unprocessed, polluting our air, water, and soil. This mismanagement not only harms ecosystems but also poses significant health risks to humans.
- **Data Deluge:** The Report highlights that many State Pollution Control Boards (SPCBs) did not provide data on plastic waste for 2016-18 to the Central Pollution Control Board (CPCB).
- **Recycling Inefficiency:** The existing recycling system, largely informal and unregulated, delivers subpar results with limited environmental benefits. Low-quality recycled plastic finds its way back into the waste stream, perpetuating the cycle of pollution.
- **Public Perception:** A lack of widespread awareness about the detrimental effects of plastic pollution impedes responsible waste management practices.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQs

Q1. Consider the following statements with reference to the World Restoration Flagships Initiatives:

1. United Nations first unveiled these initiatives at the UN Biodiversity Conference (COP15) in Montreal, Canada in 2022.
2. They are the first, best, or most promising examples of large-scale and long-term ecosystem restoration.

Which of the statements given above is/are correct?

(a) 1 Only (b) 2 Only
(c) Both 1 and 2 (d) Neither 1 nor 2

Answer: c

Q2. Consider the following initiatives

1. Terai Arc Landscape Initiative
2. Living Indus initiative
3. Sri Lanka Mangrove Regeneration Initiative
4. Regreening Africa initiative

Policy Landscape and its Limitations

- **Implementation Hurdles:** The effective implementation remains a challenge. The ban on single use plastics (SUPs), for instance, faces loopholes and inconsistent enforcement. Data gaps hinder effective monitoring and accountability. Furthermore, the informal sector involved in waste collection and recycling often operates outside the regulatory framework.
- **Technological Gaps:** Technological advancements are crucial for efficient plastic waste management. While India has seen improvements in waste processing facilities, scaling up advanced recycling technologies like chemical recycling and pyrolysis requires further investment and research.

Government Initiatives

- **Plastic Waste Management Rules, 2016:** Bans certain SUP items like carry bags, straws, and cups.
- **National Policy on Solid Waste Management, 2016:** Emphasizes waste minimization, segregation, and scientific processing, including plastic waste.
- **EPR Rules:** Streamline collection and recycling of plastic waste through Extended Producer Responsibility (EPR) rules.
- **Ban on Single Use Plastic (SUP):** Prohibited hard-to-collect/recycle SUP items from July 1, 2022.
- **Prohibition of Thin Plastic Bags:** Banned manufacture, import, sale, and use of plastic carry bags thinner than 120 microns from December 31, 2022.
- **Swachh Bharat Abhiyan:** Promotes waste segregation, composting, and waste processing facilities, indirectly contributing to plastic waste management.
- **Indian Swachhata League:** Engages youth in Swachhata-related activities.

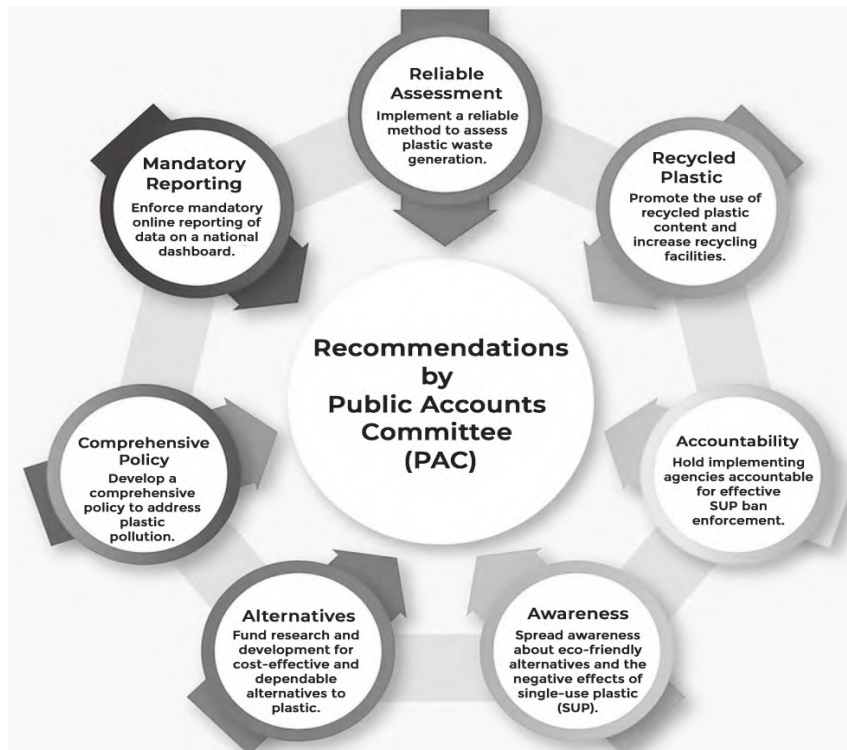
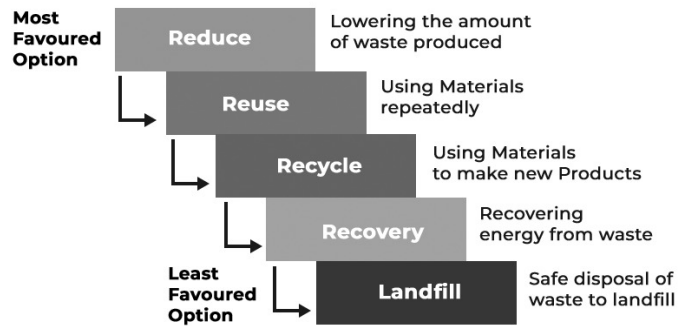
to incentivize manufacturers to adopt sustainable packaging and support robust waste collection systems. Additionally, promoting compostable and biodegradable alternatives as viable replacements for SUPs is critical.

- **Public Awareness:** Fostering widespread awareness through targeted campaigns, educational programs, and community engagement is vital. Individuals need to understand the impact of plastic pollution and embrace responsible waste management practices like source segregation and responsible disposal.
- **Technological Innovation:** Investment in research and development for advanced recycling technologies holds immense potential. Additionally, exploring bioplastics and compostable alternatives alongside promoting the use of recycled plastic content can create a circular economy for plastics.
- **International Collaboration:** International cooperation and knowledge sharing are crucial. Learning from the successes and failures of other nations, fostering technology transfer, and collaborating on research efforts can accelerate India’s progress towards a plastic-free future.

A Multi-Pronged Solution is need of hour

Moving towards a plastic-free future requires a holistic approach encompassing

- **Data-Driven Decisions:** Bridging the data gap is crucial. Implementing mandatory online reporting for waste generation by industries and local bodies will create a robust data ecosystem for informed decision-making.
- **Strengthening Policies:** Existing regulations need stricter enforcement. The EPR framework requires revisiting



EXPECTED QUESTION FOR UPSC CSE

Prelims MCQs

Q1. In India, extended producer responsibility was introduced as an important feature in which of the following?

- (a) Biomedical Waste (Management and Handling) Rules, 1998
- (b) The Recycled Plastics Manufacture and Usage Rules, 1999
- (c) e-waste Management and Handling Rules 2011
- (d) Food Safety and Standards Regulation, 2011

ANSWER: c

Q2. With reference to the Plastic Waste Management Rules, 2016, consider the following statements:

1. It increases the minimum thickness of the plastic carry bags from 40 to 50 microns.
2. It mandates the producers to keep record of their vendors to whom they have supplied raw materials for manufacturing of carry bags.
3. It states that plastic carry bag will be available only with street vendors who are pre-registered with local bodies on payment of certain registration fees.

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

ANSWER: c

Descriptive Question

Q. "The most common issue affecting the marine environment is plastic pollution." Critically examine. [15 Marks] [250 words]

ERAVIKULAM NATIONAL PARK

Why in News: The internationally-renowned Eravikulam National Park near Munnar in Kerala will be closed for visitors in February-March this year in view of the breeding season of the Nilgiri tahr.

Key Details

- The authorities decided to close the park after noticing the birth of three Nilgiri tahr fawns at Rajamala in Munnar, which is the primary habitat of the species, a week ago.
- Wildlife officials expect an increase in births this year, compared to the previous breeding season's number of 25.

Eravikulam National Park

- Eravikulam National Park is located in the Southern Western Ghats near Idukki, Kerala.

- It was declared a **Sanctuary in 1975** with the intention of protecting the indigenous population of Nilgiri Tahr (highly endangered mountain goat). However, in **1978**, it was declared as a **National Park** considering its ecological, faunal, geomorphological and Zoological significance.
- This is also the land of "Neelakurinji", the flower that blooms once in twelve years.
- The Park receives heavy showers during the southwest (June/July) and retreating (October/November) Monsoons and is one of the wettest areas of the World.

Significance of Eravikulam National Park

- Eravikulam National Park is a significant **cultural, ecological, and sociological site** in India.
- It houses the **largest population of the endangered Nilgiri Tahr** and is **home to various animals** such as **Nilgiri Marten, Ruddy Mongoose, Small Clawed Otter, and Dusky Striped Squirrel**.
- The park is also **crucial for fish and freshwater**, as it has tributaries from the River Pambar, River Periyar, and Chalakuddy, which maintain the climate and provide drinking water.
- **Anamudi**, the **highest peak of the Indian Peninsula** {2695 meters}, is located in the park, with its unique microclimate due to its altitudinal influence.
- The park is also known for **medicinal plants** like *Drosera peltata* and wild species of cultivated plants like *Piper schmidtii* and *Elettaria cardamomum*.
- The park is a major tourist destination in Munnar, India, with the aesthetic grandeur of the forest.
- **Fauna**
 - The park has a large variety of mammals, birds, and butterflies, with about 17 mammals, 11 birds, and seven butterflies indigenous to the region.
 - There are a total of 48 species of Mammals present at the park, including **Nilgiri Tahr** and **Nilgiri Marten**, out of which 17 are endemic to the Western Ghats.
 - There are a total of one hundred and thirty-three species of birds in the National Park out of which almost eleven species are endemic to the Western Ghats. E.g. **Jungle Bush Quail (*Perdica Asiatica*)**, **Small Green Barbet (*Megalaima Viridis*)**, **Indian Lorikeet (*Loriculus Vernalis*)** etc.
- **Flora**
 - Important flora includes *Actinodaphne bourdillonii*, *Microtropis ramiflora*, *Pittosporum tetraspermium*, *Syzygium aronottianum*, *Chrysopogon Zelanicus*, *Eupatorium adenophorum*, *Strobilanthus Kunthianus* (Neela Kurinji), *Eulalia phaeothrix*, *Tripogen bromodes*, *Arundinella fuscata*, *Cyanotis Species* etc.
 - The shola grasslands are exceptionally rich in balsams and orchids including the long thought extinct variety *Brachycorythis wightii*.

NILGIRI TAHR

About	Habitat
<ul style="list-style-type: none"> It is an endangered mountain ungulate endemic to the southern part of the Western Ghats. Locally, the animal is called 'Varayaadu'. Known for their gravity-defying skills in climbing steep cliffs, earning them the nickname Mountain Monarch. It is the state animal of Tamil Nadu. 	<ul style="list-style-type: none"> They inhabit the open montane grassland habitats at elevations from 1200 to 2600 metres of the South Western Ghats.

Distribution

- ▶ Their present distribution is limited to approximately 5% of the Western Ghats in southern India (Kerala and Tamil Nadu).
- ▶ **Eravikulam National Park** in Kerala has the highest density and largest surviving population of Nilgiri tahr.



Features	Important Facts
<ul style="list-style-type: none"> It has a stocky body with short, coarse fur and a bristly mane. Both sexes have curved horns, which are larger in the males, reaching up to 40 cm in males and 30 cm in females. Adult males develop a light grey area or 'saddle' on their backs and are hence called 'saddlebacks'. It has a short grey-brown or dark coat. 	<p>IUCN Red List: Endangered</p> <p>Wildlife (Protection) Act of India, 1972: Schedule I</p> <p>Scientific Name: <i>Nilgiritragus hylocrius</i></p>

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. With reference to the Eravikulam National Park, consider the following statements:

- It is located along the Western Ghats in the Idukki district of Kerala.
- The highest peak south of the Himalayas, Anamudi, is located on the southern side of this park.
- Half of the world's population of the endangered Nilgiri Tahr is found in this park.

How many of the above statements are correct?

- (a) Only one (b) Only two
(c) All three (d) None

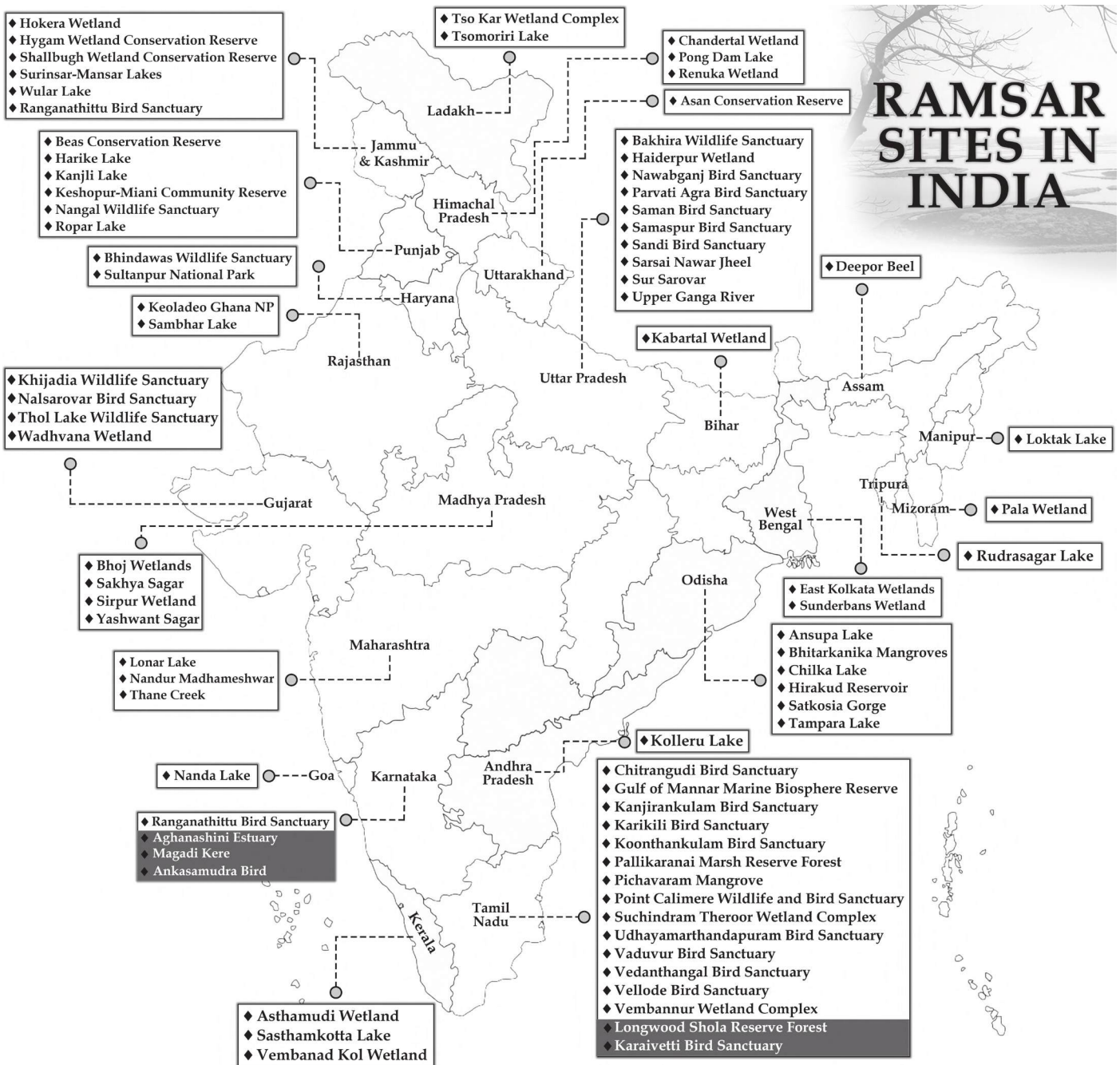
Answer: c

5 NEW RAMSAR SITES IN INDIA

Why in News: Five more Indian wetlands have been added to the global list of wetlands of international importance under the Ramsar Convention.

Key details

- With these addition, the total number of such highly recognised waterlogged ecosystems in the country is now 80.
- The news was released the night before **World Wetlands Day**, which is observed on **February 2nd** of every year worldwide.
- The theme for World Wetlands Day 2024 is '**Wetlands and Human Wellbeing**,' emphasizing the critical role wetlands play in enhancing human lives.
- With **16 sites**, **Tamil Nadu** still holds the record for the most Ramsar Sites, followed by **Uttar Pradesh with 10**.



5 new Ramsar Sites in India			
	Wetlands	Location	Description
1	Longwood Shola Reserve Forest	Tamil Nadu	<ul style="list-style-type: none"> The term "Solai" in Tamil, which meaning "tropical rainforest" The upper portions of the Nilgiris, Anamalais, Palni hills, Kalakadu, Mundanthurai, and Kanyakumari in Tamil Nadu are home to the "Sholas." The globally endangered Black-chinned Nilgiri Laughing thrush (<i>Strophocincla cachinnans</i>), the vulnerable Nilgiri Wood-pigeon (<i>Columba elphinstonii</i>), and the Nilgiri Blue Robin (<i>Mylomela major</i>) all make these forested wetlands their home.

2	Karaivetti Bird Sanctuary	Tamil Nadu	<ul style="list-style-type: none"> It is spanning 453.72 hectares of area and is one of Tamil Nadu's largest inland wetlands. A total of 198 bird species have been observed in this area, with the Bar-headed Goose, Pin-tailed Duck, Garganey, Northern Shoveler, Common Pochard, Eurasian Wigeon, Common teal, and Cotton teal among the more notable visitors.
3	Aghanashini Estuary	Karnataka	<ul style="list-style-type: none"> It is formed on an area of 4801 hectares at the confluence of the Aghanashini River and the Arabian Sea. It offers a variety of ecosystem services, such as livelihood support, biodiversity protection, and flood and erosion risk mitigation. It is also home to approximately 43,000 waterbirds from over 66 species in the estuary.
4	Magadi Kere Conservation Reserve	Karnataka	<ul style="list-style-type: none"> It is a man-made wetland that covers around 50 hectares and was created to hold rainwater for irrigation. Two vulnerable species and four near-threatened species are found there, and approximately 8,000 birds spend the winter months there. The two vulnerable species : Common pochard (<i>Aythya ferina</i>) and River tern (<i>Sterna aurantia</i>) The four near threatened species are Oriental Darter (<i>Anhinga melanogaster</i>), Black-headed Ibis (<i>Threskiornis melanocephalus</i>), Woolly-necked Stork (<i>Ciconia episcopus</i>) and Painted Stork (<i>Mycteria leucocephala</i>).
5	Ankasamudra Bird Conservation Reserve	Karnataka	<ul style="list-style-type: none"> It is a man-made, 244.04 acre village irrigation tank that borders the Ankasamudra community. It was constructed centuries ago. Additionally, it provides habitat for over 1% of the Painted Stork and Black-headed Ibis biogeographic populations.

About Ramsar Convention

- Adopted on February 2, 1971, in the Iranian city of Ramsar, on the southern border of the Caspian Sea, it is an intergovernmental convention.
- It came into effect in India on February 1st, 1982, designating wetlands of worldwide significance as Ramsar sites.
- India is a party to the Ramsar Convention, which was signed in 1971 at Ramsar, Iran.
- In the last ten years, India has added 80 Ramsar sites, with 38 of those additions occurring in the last three years alone.

World Wetlands Day (WWD)

- It is celebrated to commemorate the adoption of this international agreement on wetlands on 2nd February 1971.
- It emphasizes how wetlands support clean water, biodiversity, recreational possibilities, and flood protection—all of which are critical to the health and prosperity of people.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following pairs:

Wetland	State
1. Longwood Shola Reserve Forest	Karnataka
2. Karaivetti Bird Sanctuary	Tamil Nadu
3. Aghanashini Estuary	Karnataka
4. Magadi Kere Conservation Reserve	Tamil Nadu

How many of the pairs given above is/are correctly matched?

- (a) Only one (b) Only two
(c) Only three (d) All four

(Answer: (d) and (c) only)

HUMAN-WILDLIFE CONFLICTS

Why in News: A radio-collared wild elephant trampled a man to death in Wayanad in Kerala.

Key details


- Kerala has large forest area. It covers nearly 30% of the State's geographical area.
- In 2022-23 itself, Wayanad has recorded around 9000 wild animal attacks. It has lost around 40 lives to elephant attacks and seven to tiger attacks over the last ten years.


What is Human-Wildlife conflict?

- The IUCN Species Survival Commission (SSC) Human-Wildlife Conflict & Coexistence Specialist Group defines human-wildlife conflict as: **struggles that emerge when the presence or behaviour of wildlife poses an actual or perceived, direct and recurring threat to human interests or needs, leading to disagreements between groups of people and negative impacts on people and/or wildlife.**

CHAHAL's PERSPECTIVE

Human-Wildlife Conflicts



Reasons for human-wildlife conflict	Way Forward
<p>Habitat fragmentation Habitat loss and fragmentation are results of human actions such as expanding the area under cultivation, changing the patterns of cropping, and moving people and livestock across wildlife</p>	<p>Effective planning Effective planning and implementation of measures is required and consideration of good principles in community led-conservation, in collaboration with the communities affected.</p>
<p>Changing Agricultural Practices The changes in agricultural practices, such as leaving farmland unattended because of poor returns and high wage costs, have made agricultural areas appealing and attractive targets for wildlife looking for food.</p>	<p>Early warning systems Systems that use drones and watchers to follow the movements of elephants and other dangerous animals must be installed.</p>
<p>Decline in Habitat Quality The quality of forest habitats has been deteriorated by the commercial cultivation of invasive foreign plant species such as eucalyptus, mangium, and acacia in forest tracts.</p>	<p>Plantation of indigenous plants To ensure food security of wild animals and deter them from accessing agricultural areas, plants such as wild mango, wild gooseberry, and wild jackfruit should be planted in the forest.</p>
<p>Invasive Species Planted by the forest department have also put a halt on the growth of natural vegetation in forests.</p>	<p>Eco-restoration Programmes The state is implementing a scheme to buy farmers' land and turn it into a forestland.</p>
<p>Conservation Efforts Due to competition for few resources in shrinking habitats, it has resulted in significant increase in the populations of wildlife species, including tigers and elephants, raising the possibility of encounters with humans.</p>	<p>Rapid Response Teams Fifteen Rapid Response Teams have been established in areas with the highest frequency of human-animal conflict; eight of these teams are permanent, and the remaining seven are temporary.</p>
	<p>Measures by the state The state is implementing measures such as building solar-powered electric fences, stone barriers impervious to elephants etc.</p>

Reason of Wayanad being worst-affected

- Wayanad has around **37 percent** forest cover.
- Wayanad's forests are a part of a greater forested area comprising of Nagarhole Tiger Reserve, Bandipur National Park, and Biligiri Rangaswamy Temple Tiger Reserve in Karnataka, and Mudumalai Tiger Reserve and Sathyamangalam Forest in Tamil Nadu.

Government initiatives to curb Human-Wildlife conflict

- Advisory for management of Human-Animal Conflict:** The Standing Committee of National Board for Wildlife (NBWL) approved the advisory for management of HWC in India.
- It has following important points:**
 - Empowering Gram Panchayat
 - Augmenting fodder and water sources
 - Compensation for the crop under Pradhan Mantri Fasal Bima Yojana
 - Interim Relief within 24 hours
- Wildlife (Protection) Act of India (WPA), 1972:** The WPA, 1972 provides the legal framework for the protection of various species of wild animals and plants.

- **Declaration of Vermin Animal:** It also deals with the labelling of some wild animals as vermin for any area and for a particular amount of time if their population is extremely large and they pose a risk to humans. Examples include Himachal Pradesh's monkey population and Bihar's wild boar and nilgai.
- Population growth can be managed through mass sterilization programs.

of Wayanad, Kerala, highlights the **urgent need for comprehensive approaches that address habitat degradation**, community involvement, and other issues that are contributing to the increased conflicts.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

Q. Human-wildlife conflicts are on the rise. What are the reasons? What solutions are there to help humans and wildlife coexist? (15 marks, 250 words)

Conclusion

- The increasing human-animal conflict in the district

SPECIES IN NEWS

SPECIES IN NEWS

INDIAN TENT TURTLES

Why in News:

The Directorate of Revenue Intelligence (DRI), Lucknow, seized 436 baby Indian Tent turtles from a person illegally transporting them interstate.



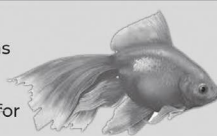
About Indian Tent Turtles :-

- **Scientific Name:-** Pangshura tentoria
- Primarily a Riverine Turtle.
- **Habitat:-** Still water pools on river side and slow running water on river banks.
- **Distribution:-** Native to India, Nepal and Bangladesh
- **Protection Status:-**
 - ▲ IUCN Red List of Threatened Species status – **Least Concern**,
 - ▲ CITES – **Appendix II**, Wild Life (Protection) Act, 1972: **Schedule-I**

GOLD FISH

Why in News:

Recently, in research, it has been found that Goldfish can grow to a monstrous size and destroy habitats for native species.



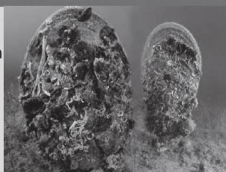
About :-

- **Native:-** East Asia
- **Invasive species:-** kill off native marine wildlife and help destroy fragile and economically valuable ecosystems.
- **Highly Susceptible:-** highly susceptible to water temperatures, reach sexual maturity quickly,
- **Absence of Predator:-** Their football-shaped bodies can swell to 16 inches long, making them too large for predators to eat.
- **Destroys Ecosystem:-** They destroy ecosystems by uprooting and consuming native plants, promoting harmful algal blooms, and expending nutrients that promote growth
- **Protection Status:-**
 - ▲ IUCN Red List Status – **Least Concern**

PINNA NOBILIS

Why in News:

Pinna Nobilis, a huge clam who were on the verge of extinction, has made a return with a surge in numbers in waters off Croatia.



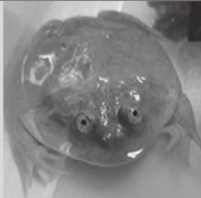
About Pinna Nobilis :-

- Pinna nobilis is a long-lived Mediterranean endemic species, primarily found in seagrass meadows and rocky bottoms.
- Its survival relies on adult survival, with larval settlement concentrated between July and October.
- Pinna nobilis plays a crucial ecological role by filtering water and retaining organic matter.
- It attracts scuba-divers and is colonized by other benthic species, increasing local biodiversity.
- However, a mass mortality event in 2016 caused by Haplosporidium pinnae has affected Pinna nobilis populations, causing mortality rates of 80-100%.
- **Threats:-** Overexploitation, habitat loss, pollution and invasive species
- **IUCN Red List Status:-**
 - ▲ Critically Endangered

BUDGETT'S FROG

Why in News:

Researchers from the Indian Institute of Science's (IISc.) molecular biophysics unit in a study have identified that peptides (short proteins) produced from Budgett's frog can combat enzymes of disease-causing pathogens.



About Budgett's Frog :-

- It's a member of the horned frog family.
- It is a unique and distinctive species of frog native to South America.
- It can be found in Savanna, Shrubland, Wetlands (inland), Artificial/Terrestrial, Artificial/Aquatic and marine. It is known for its unique vocalisations, which can include grunts and growls.
- **IUCN Red List Status:-** **Least Concern**

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following pairs:

Species of Organism	Status on IUCN Red List
1. Indian Tent Turtle	Threatened
2. Gold Fish	Least Concern
3. Budgett's Frog	Critically Endangered

How many of the pairs given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Answer: a (2 only)

OLIVE RIDLEY TURTLE & OTHER SEA TURTLES

Why in News: The Andhra Pradesh government has imposed a month-long ban on fishing, in the 5-km radius of the Hope Island to prevent death of Olive Ridley turtles off Kakinada coast.

Key Details

- Over the past several days, nearly 12-km stretch of the coastline including Coringa Wildlife Sanctuary (CWS) has witnessed mortalities of Olive Ridley turtles, leading to the fishing ban until the breeding season ends.

- **Breeding grounds** - Sakhinetipalli, Malikipuram, Mamidikuduru and Allavaram
- The effluents being released from the aqua ponds along the coastline and the discharges from the pipelines of the onshore oil exploration facilities are also blamed for the mass mortality of the turtles.
- Since early January, as many as 70 Olive Ridley turtles have been found dead in their breeding grounds between Kakinada and Antarvedi.

OLIVE RIDLEY TURTLE

(LEPIDOCHELYS OLIVACEA)

They are known as Olive Ridley due to its olive-green colored shell.

Size
2 to 2.5 feet
(62-70 cm)

Weight
77 and
100 pounds
(35-45 kg)

Diet
Omnivore
diet



Habitat
Coastal bays and Estuaries, but can be very Oceanic. They typically forage off shore in surface waters or dive to depths of 500 feet (150 m) to feed on bottom dwelling crustaceans.

Nesting

They are the best known of their unique mass synchronized nestings called **Arribada** (Spanish for "arrival"), where thousands of females come together on the same beach to lay eggs. Nests 2 times each season. An average clutch size is over 110 eggs which require a 52-to-58-day incubation period. **Gahirmatha beach** off the Bay of Bengal coast in Kendrapara, **Odisha** is the **world's largest nesting ground** for Olive Ridley Turtles.

Range
Inhabit tropical and subtropical waters of the Pacific, Indian and Atlantic Oceans.

Threats

- Human Consumption
- Marine Pollution and Waste
- Fishing Trawlers

Protection Status

- IUCN Status: Vulnerable
- Indian Wildlife (Protection) Act: Schedule I
- CITES: Appendix I

About other sea turtles in India

LEATHERBACK TURTLE

- **Habitat-** It is found in all oceans except the Arctic and the Antarctic.
- **IUCN Status-** Vulnerable
- **Indian Wildlife (Protection) Act-** Schedule I.

LOGGERHEAD TURTLE

- **Habitat-** Found in Atlantic, Pacific, & Indian Oceans, as well as the Mediterranean Sea.
- **IUCN Status-** Vulnerable
- **Indian Wildlife (Protection) Act-** Schedule I.

HAWKSBILL TURTLE

- **Habitat-** They are primarily found in tropical coral reefs.
- **IUCN status-** Critically Endangered
- **Indian Wildlife (Protection) Act-** Schedule I

GREEN TURTLE

- **Habitat-** They are found mainly in tropical and subtropical waters.
- **IUCN status-** Endangered
- **Indian Wildlife (Protection) Act-** Schedule I

Initiatives to Protect Olive Ridley Turtles

- **Operation Olivia**
 - Every year, the **Indian Coast Guard's "Operation Olivia"**, initiated in the early 1980s, helps **protect Olive Ridley turtles as they congregate along the Odisha coast** for breeding and nesting from November to December.
 - It also **intercepts unlawful trawling activities**.
- **Mandatory use of Turtle Excluder Devices (TEDs)**
 - To reduce **accidental killing in India**, the Odisha government has made it mandatory for trawls to use **Turtle Excluder Devices (TEDs), a net specially designed with an exit cover** which allows the turtles to escape while retaining the catch.
- **Tagging**
 - The **tagging of the endangered Olive Ridley turtles** using non-corrosive metal tags is done to enable scientists to chart their movements and also know the areas they visit in order to protect the species and their habitats.

Sea turtles serve as flagship species, inspiring broader efforts to conserve marine life and ecosystems. By saving sea turtles, we indirectly protect countless other marine species.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQs

Q1. Consider the following statements with reference to the Olive Ridley Turtles:

1. They are currently the most abundant of all sea turtles.
2. They are listed as vulnerable under IUCN Red List of threatened species.
3. The sex of their hatchlings is determined by the temperature of the sand where their eggs incubate.

How many of the above statements are correct?

- (a) Only one (b) Only two (c) All three (d) None

Answer: c

Q2. Consider the following statements:

1. Some species of turtles are herbivores.
2. Some species of fish are herbivores.
3. Some species of marine mammals are herbivores.
4. Some species of snakes are viviparous.

How many of the statements given above is/are correct?

- (a) Only one (b) Only two (c) Only three (d) All four

Answer: d

BLACK-NECKED CRANE

Why in News: The Wildlife Institute of India and the Zoological Survey of India have been carrying out assessment of the black-necked cranes.

Black-Necked Crane

(*Grus nigricollis*)



Steps taken by the Government of India

- The **Black-necked Crane (*Grus nigricollis*)** is listed in **Schedule I of the Wild Life (Protection) Act, 1972**, thereby according them the highest degree of protection.
- The important habitats of the Black-necked Crane have been **notified as Protected Areas**, for example, **Changthang Sanctuary, Ladakh**.
- The **Tso Kar Wetlands Complex**, an important foraging and breeding ground for Black-necked Crane, has been designated as a Ramsar Site in December 2020.

Key details

Familia	Breeding Ground	Habitat	Geographic Range
The Black-Necked Crane (<i>Grus nigricollis</i>) is classed as a medium-sized member of the crane family.	The high-altitude wetlands in the Tibetan plateau are the main breeding ground of the species.	These wetlands with small mounds provide an excellent habitat for the birds to breed.	Black-necked Crane geographic range includes the Himalayan mountains, as well as parts of central China and northern India. Their wintering range includes parts of southern China and Bhutan, where they descend from higher elevations.

Conservation Status

- **IUCN:** Near Threatened
- **The Wild Life (Protection) Act, 1972:** Schedule I
- **CITES:** Appendix I
- **TREND:** Eastern and central populations stable; western population increasing



Threats

- Habitat loss and degradation related to climate change
- Changes in agriculture practices
- Pollution
- Environmental contamination

- The **National Wildlife Action Plan (2017-2031)** released by the Ministry in October 2017 provides for specific Chapters and priority actions on various aspects of wildlife conservation.
- The **Central Government provides financial assistance to State/Union Territory Governments** under the Centrally Sponsored Scheme 'Development of Wildlife Habitats' for the management of wildlife and its habitat in the country.
- The **Government of India has initiated the Mission LiFE (Lifestyle for Environment)** programme, which aims to generate public awareness about the environment, and conservation.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. With reference to the Black-Necked Crane, consider the following statements:
1. The high-altitude wetlands in the Tibetan plateau are the main breeding ground of this species.
 2. They are listed as "Vulnerable" on the IUCN Red List of Threatened Species.
 3. They are included in Schedule I of the Wildlife (Protection) Act, 1972.

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Answer: b (1 and 3 only)

GATHERING OF MANATEES

Why in News: Blue Spring State Park of USA reported a gathering of nearly 1,000 manatees.

Key details

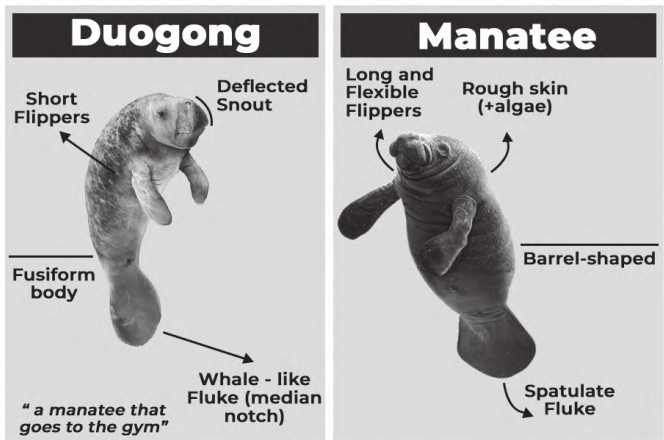
- This gathering of manatees may be due to **several reasons**, such as drop in temperature to 14.1°C, a decline in seagrass (manatees' primary food), due to algae blooms on Florida coast, to seek protection from watercraft collisions.
- Manatees (sea cows) are typically **solitary animals**.
- Sea cows comprising of manatees and dugongs, consist of four manatee species and one dugong species, belonging to the **herbivorous Dugongidae family**.

Habitat and conservation status

- Manatees dwell in zones such as the Caribbean, Gulf of Mexico, Amazon, East and West Africa, while dugongs inhabit coastal regions of the Indian and Pacific Oceans.
- **IUCN Status:** Manatees and dugongs are both are **Vulnerable**.
- **Dugongs:** Schedule I of the Wild Life (Protection) Act, 1972.

Difference between Manatees and Dugongs

- **Dugongs never leave saltwater.** They spend their entire life in shallow, sheltered coastal areas such as bays and mangrove swamps. **Manatees, on the other hand, can be found both in fresh and saltwater.** West Indian and West African reside primarily in salt water but migrate to warmer freshwater areas in the winter. The Amazonian manatee lives only in fresh water.
- **Manatees have horizontal, paddle-shaped tails** with only one lobe to move up and down when the animal swims; it's **similar in appearance to that of a beavertail**. **Dugongs have a fluked tail**, meaning it is made up of two separate lobes joined together in the middle.
- **Manatees are devout polygamists.** A male manatee can have several female partners. **Dugongs, on the other hand, have only one mate**, and they live as a couple for life.



EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements:

1. The Dugong is included in Schedule I of the Wild Life (Protection) Act, 1972, but manatees are not included in this Act.
2. Manatees and Dugongs are both listed as 'Critically Endangered' on the IUCN Red List.
3. Dugongs can be found in both fresh and saltwater habitats, whereas Manatees are exclusively found in saltwater environments.

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Answer: a (1 only)

GREEN ROOFS

Why in News: According to recent research, green roofs treated with mycorrhizal fungi foster a more diverse soil community that is more likely to support long-term green roof sustainability.

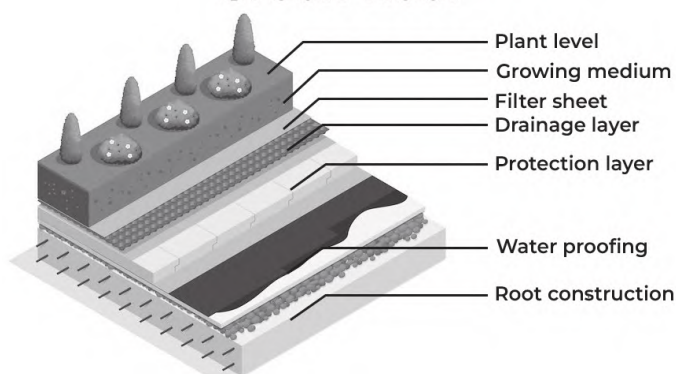
Key details

- Green roofs, also known as ‘vegetated roofs’ or ‘living roofs’ — are ballasted roofs consisting of a waterproofing membrane, growing medium (soil), and vegetation (plants) overlying a traditional roof.
- The layers of green roof systems must, like any roof, accommodate drainage, and stormwater management, and protect the building from the elements with a waterproof membrane.

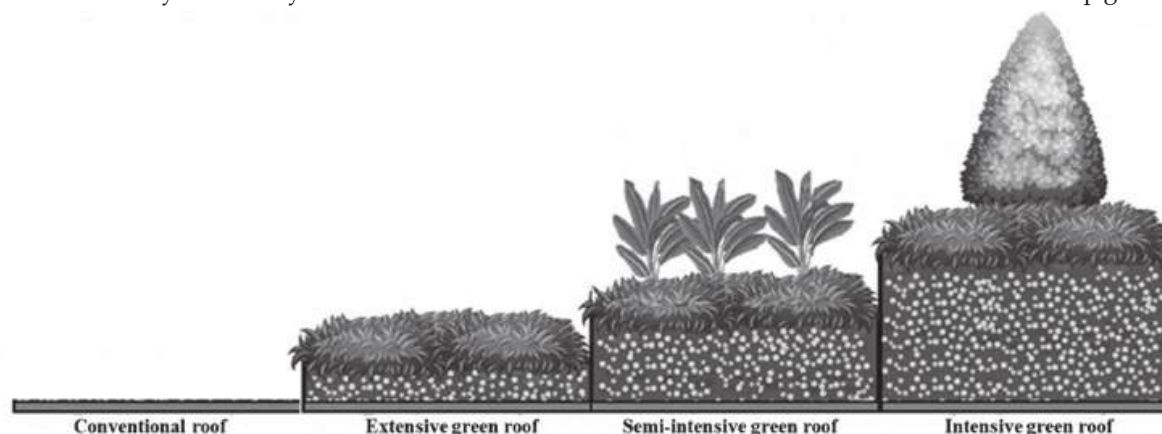
Two types of green roofs exist: intensive and extensive.

- Intensive green roofs are essentially elevated parks.** They can sustain shrubs, trees, walkways and benches with their complex structural support, irrigation, drainage, and root protection layers.
- Extensive green roofs are relatively light.** They support hearty native ground cover that requires little maintenance. Extensive green roofs usually exist solely for their environmental benefits and don’t function as accessible rooftop gardens.

Green Roof




- But they also must create a growing area and potentially provide support, irrigation, and root protection barriers while staying as light as possible.




	Conventional roof	Extensive green roof	Semi-intensive green roof	Intensive green roof
System Build-up Height	30–80 mm	60–200 mm	120–250 mm	150–400 mm
Weight	10–30 kg/m ²	60–150 kg/m ²	120–250 kg/m ²	180–500 kg/m ²
Initial Cost	Very Low	Low	Medium	High


Benefits of Green Roofs




▶ Green roofs last longer than conventional roofs, reduce energy costs with natural insulation, create peaceful retreats for people and animals, and absorb storm water, potentially lessening the need for complex and expensive drainage systems.




▶ On a wider scale, green roofs improve air quality and help reduce the Urban Heat Island Effect.



▶ Green roofs remove heat from the air through the process of evapotranspiration, and also act as insulators for buildings, reducing the energy needed to provide cooling & heating.



▶ Green roofs, by reducing heat transfer through the building roof, can improve indoor comfort, and lower the incidence of heat stress associated with heat waves.



▶ Green roofs provide aesthetic value and habitat for plant and animal species. They improve human interaction with nature by introducing green space into the built environment.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. Which of the following statements well describes the term 'Green Roof'?
- (a) Shelter homes established in National Parks to provide medical and rehabilitation services to the wild animals.
 - (b) Transparent roofs of the houses in cold regions that capture solar energy to keep interiors warm during harsh winters.
 - (c) Roof of the house that is equipped with solar panels to harness solar energy for electricity generation.
 - (d) Roof of the building that features fully grown vegetation and plants in a soil medium, achieved through waterproofing the roof.

Answer d

Descriptive Question

- Q. What do you understand by the concept of Green roofs? What are its types, and also elaborate on the benefits arising from them. [15 Marks] [250 words]

NAGOYA PROTOCOL

Why in News: Cameroon recently adopted the Nagoya Protocol on Access and Benefit Sharing.

Key details

- According to **Dingom Aurelie Taylor** Patience, the Cameroon focal person for the Nagoya Protocol, **foreign companies buy a kilogramme of Prunus Africana in Cameroon for 1300 Central African CFA franc (\$2.11), but sell the drugs made from it for 250,000 CFA (\$405).**
- Adoption of the Nagoya Protocol on Access and Benefit Sharing is **evidence of the nation's resolve to promote sustainable practices and address historical exploitation.**
- The **objective of this protocol, which is a byproduct of the Convention on Biological Diversity**, is to create a fair system for allocating advantages obtained from traditional knowledge and genetic resources.

About Cameroon

- Cameroon in **central Africa is home to vast biological resources**, which have long been exploited by foreign firms, without fair and equitable benefits to the communities that own them.
- Cameroon is a **biodiversity hotspot, with an estimated 11,000 plants, animals, and microorganism species.**
- Many of them **contain useful genetic information or genetic resources**, such as genes for producing medicines or crops. The knowledge, innovations and practices of indigenous and local communities related to these resources are called traditional knowledge.
- **Prunus Africana**, a plant endemic to Cameroon, is used to make drugs for prostate cancer.

Nagoya Protocol

- **Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation** (the Protocol) is a legally **binding** global agreement that implements the access and benefit-sharing obligations of the Convention on Biological Diversity (CBD).
- It was **adopted by the CBD in Nagoya, Japan, in October 2010.**
- **Entered into force on October 12, 2014**, 90 days after the deposit of the fiftieth instrument of ratification.
- It **provides a transparent legal framework for the effective implementation** of one of the three objectives of the CBD: the fair and equitable sharing of benefits arising out of the utilization of genetic resources.
- It **applies to genetic resources that are covered by the CBD**, and to the benefits arising from their utilization.
- It also **covers traditional knowledge (TK) associated with genetic resources** that are covered by the CBD and the benefits arising from their utilization.

Advantages

- ✓ It establishes a **framework that helps researchers access genetic resources** for biotechnology research, development, and other activities, in return for a fair share of any benefits from their use.
- ✓ This provides **the research and development sector** with the certainty they need to invest in biodiversity-based research.
- ✓ **Indigenous and local communities may receive benefits** through a legal framework that respects the value of traditional knowledge associated with genetic resources.

Convention on Biological Diversity (CBD)

- With 196 signatory states, **the CBD is the most extensive legally binding international agreement** concerning the preservation of natural environments and the wise use of natural resources.
- It was **opened for signing at the UN Conference on Environment and Development in Rio de Janeiro in 1992.**
- It has three **overarching objectives**:
 - The conservation of biological diversity (genetic diversity, species diversity, and habitat diversity).
 - The sustainable use of biological diversity.
 - The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.
- It covers **biodiversity at all levels**: ecosystems, species, and genetic resources.
- The **Conference of the Parties (COP) is the highest political decision-making body** of the Convention.
- India enacted **Biological Diversity Act, 2002** for giving effect to the provisions of the CBD.

- Secretariat is based in Montreal, Canada.
- To support the implementation of the CBD objectives, two internationally binding agreements were adopted within the framework of the Convention on Biological Diversity.
- **Cartagena Protocol**, which was adopted in 2000 and entered into force in 2003, regulates the **transboundary movement of living modified organisms (LMOs)**.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the Nagoya Protocol:

1. This protocol applies retrospectively to all research and development activities that took place before its entry into force.
2. This protocol applies to traditional knowledge and to the benefits arising from the utilization of such knowledge.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Answer: b

WEATHER INFORMATION NETWORK & DATA SYSTEM (WINDS)

Why in News: Recently, the Ministry of Agriculture & Farmers Welfare has initiated the Weather Information Network and Data System (WINDS) to generate long-term, hyper-local weather data.

Key details

- It will **collect detailed weather data**. This data will be helpful for farming and other areas too. The system will make a **big national database**.
- This will make it easier for everyone to access weather information. **Over 200,000 ground stations will be set up under this program**. These stations will help with getting better weather forecasts and making better decisions.

Weather forecasting in India

- Weather forecasting is very important for a country. It **helps to predict rain, cyclones, heatwaves, and drought accurately**. This information is crucial for making decisions about managing disasters.
- In India, the **Indian Meteorology Department (IMD)** is the main government agency responsible for meteorology. They specialize in predicting weather

patterns by observing, modeling, and interpreting many different factors.

Indian Meteorological Department

- The Indian Meteorological Department (IMD) was established in **1875**.
- It's part of the **Ministry of Earth Sciences** of the Government of India.
- Its HQ is in **New Delhi**.
- The IMD is also one of six special weather centers recognized by the World Meteorological Organization.

Current Challenges in prediction accurate weather forecasting

- **Lack of Ground Stations:** One big problem is not having enough weather monitoring stations on the ground.
 - Right now, the IMD (India Meteorological Department) runs about 800 automatic weather stations (AWS), 1,500 automatic rain gauges (ARG), and 37 doppler weather radars (DWR).
 - But we need way more than that – over 3,00,000 ground stations for AWS/ARG and about 70 more DWRs.
- **Lack of utilization of existing infrastructure:** Surprisingly, some Indian state governments and private companies have a lot of ground stations, more than 20,000, but IMD doesn't use many of them. There are a few reasons for this, like not being able to get the data easily or not being sure if the data is reliable.
- **Outdated Technology:** Right now, the software we use to predict the weather isn't very modern. Most of it relies on older systems like the global forecasting system and weather research and forecasting models.

Why weather forecasts still go wrong?

IMD's forecasts have improved vastly in the last few years due to technological upgradation

■ IMD currently operates only around 800 automatic weather stations, 1,500 automatic rain gauges, and 37 doppler weather radars

■ Over 300,000 ground stations (either automatic weather stations or automatic rain gauges) and around 70 doppler weather radars are required for reliable weather forecast

■ Several State governments and private companies together operate over 20,000 ground stations, many of which are not currently used by IMD

■ New ground stations need to be installed by IMD and the available data need to be shared seamlessly with IMD to improve the accuracy of forecasts

■ The Ministry of Agriculture & Farmers Welfare has initiated the WINDS system to generate long-term, hyperlocal weather data

■ Under the WINDS programme, over 200,000 ground stations will be installed

- Many new companies are starting to use **artificial intelligence and machine learning (AI/ML)** to make better predictions. However, these new technologies can only work well if they have good data to start with.

Other steps have been taken by Government in this direction

- **National Monsoon Mission (NMM):** The National Monsoon Mission (NMM) was started by the Government of India in 2012. Its aim is to make a modern system that can predict monsoon rains accurately over different time periods.
- **Mausam App:** The Mausam App is a tool to share weather information and warnings in a way that's easy to understand and attractive for users.
- **Doppler Weather Radars:** Doppler Weather Radars (DWR) work using the Doppler principle. They have a dish antenna and a spherical radome to improve weather forecasting and surveillance over long distances. DWR can measure rainfall intensity, wind shear, wind velocity, and even pinpoint the center of storms or the direction of tornadoes and gust fronts.

Way Forward

- **Expand Data Collection Infrastructure:** Prioritize installing the remaining 220,000+ ground stations under WINDS and explore partnerships with private and state actors to integrate their existing data, ensuring accessibility and reliability.

- **Invest in Cutting-edge Technologies:** Allocate resources for research and development of advanced weather prediction models incorporating AI/ML and high-resolution regional data for improved accuracy. Foster innovation in affordable, accurate air quality monitoring sensors for wider deployment.
- **Strengthen Data Sharing and Integration:** Establish robust data sharing protocols and platforms to seamlessly integrate information from various sources (IMD, WINDS, private/state networks, air quality sensors) for holistic analysis and forecasting.
- **Build Capacity and Expertise:** Upskill personnel in data analysis, AI/ML applications, and system management to effectively utilize the new technologies and infrastructure. Encourage collaboration between IMD, research institutions, and private companies for knowledge sharing and capacity building.

These way forwards, if implemented effectively, can propel India towards a world-class weather and air quality information network, empowering various sectors and citizens to navigate environmental challenges more effectively.

EXPECTED QUESTION FOR UPSC CSE

Descriptive Question

- Q. Explain the concept of Weather Forecasting. What are the steps taken by the Government of India for improving weather forecasting in India? [15 Marks] [250 words]

HIGH-ALTITUDE PSEUDO-SATELLITE TECHNOLOGY

Why in News: India's successful test flight of a High-Altitude Pseudo-Satellite (HAPS) by The National Aerospace Laboratories (NAL) in Bengaluru marks a significant development in the realm of surveillance, disaster management, and communication technologies.

Key details

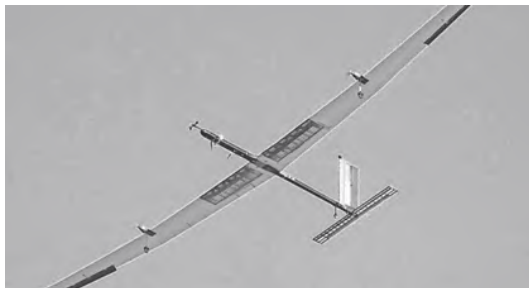
- NAL developed a **prototype HAPS capable of flying at 20 km** for months powered by solar energy.
- This technology offers advantages over traditional UAVs (limited range, battery life) and satellites (high cost, fixed position).
- HAPS can provide persistent surveillance, map large areas, and relay communication in remote regions.

The National Aerospace Laboratories (NAL)

- It was established in **1959**, stands as a cornerstone of India's endeavor to become a global leader in the aerospace domain.
- It functions **under the aegis of the Council of Scientific and Industrial Research (CSIR)**.
- NAL has played a pivotal role in design, development, and testing of diverse aerospace technologies, fostering indigenous capabilities and propelling India's aerospace ambitions.

What is HAPS?

- High Altitude Platform Stations (HAPS) are a **revolutionary class of unmanned aerial vehicles (UAVs)** designed to **operate in the stratosphere** (17-23 km above Earth) for **extended durations, powered primarily by solar energy**.
- While promising diverse applications, from internet connectivity in remote areas to environmental monitoring, HAPS development faces significant engineering hurdles.



Limitations of Existing Technologies

- **UAVs:** Primarily **battery-powered**, they suffer from **limited flight duration and range**, restricting their **ability for continuous monitoring**. Additionally, their low flying altitudes limit their observational scope.
- **Satellites:** While satellites, **particularly geostationary ones**, offer **wider coverage**, their high cost, inflexibility, and inability to constantly monitor specific areas pose challenges.

Advantages of HAPS

- **Extended Loiter Time:** HAPS, **designed to operate in the stratosphere** (20km above ground), can stay airborne for months, enabling continuous monitoring for applications like border surveillance, disaster management, and environmental monitoring.
- **Wider Coverage:** Compared to UAVs, **HAPS can observe significantly larger areas** (200-400 sq km with high resolution) due to their higher altitude.
- **Flexibility:** Unlike geostationary satellites, HAPS can be **repositioned and reconfigured with different payloads**, offering greater adaptability to diverse needs.
- **Cost-Effectiveness:** While **costing less than traditional satellites**, HAPS offer similar functionalities, making them a cost-effective solution for specific applications.

Potential Applications in Indian Context

- **Border Surveillance:** HAPS can provide **persistent surveillance along India's extensive borders**, deterring trans-border infiltration and illegal activities.
- **Disaster Management:** Real-time data from HAPS can be **crucial for monitoring natural disasters like floods and cyclones**, enabling timely response and relief efforts.
- **Environmental Monitoring:** HAPS can be **deployed to monitor environmental changes, track pollution levels**, and assess forest cover, aiding in conservation efforts.
- **Communication Infrastructure:** HAPS can **provide internet connectivity to remote areas**, bridging the digital divide and promoting inclusive development.
- **Precision Agriculture:** High-resolution data from HAPS can be used for **crop health monitoring, yield prediction, and precision agriculture practices**.
- **Bridging the digital divide:** HAPS can **provide high-speed internet connectivity to remote and underserved areas in India**, bridging the digital divide and boosting socio-economic development.

- **Scientific research:** HAPS can serve as platforms for scientific research in various fields like atmospheric studies, climate change monitoring, and space exploration, contributing to advancements in these areas.

CHAHAL'S PERSPECTIVE 01

High-Altitude Pseudo-Satellite Technology

Challenges associated with HAPS

Power Generation and Management:



▶ **Limited solar power:** The stratosphere's thin atmosphere presents a challenge in generating enough solar power for sustained flight and payload operation. Advanced, lightweight solar cells with high efficiency are crucial.



▶ **Energy-dense batteries:** HAPS require batteries with exceptionally high energy density (e.g., 500 Wh/kg) to store excess solar energy and power nighttime operations.



▶ **Current batteries fall short** (truck battery has an energy density of 75 watt-hour/kg, satellites sent by ISRO have batteries with an energy density of about 190-200 watt-hour/kg), necessitating further research and development.

Design and Aerodynamics:



▶ **Lightweight yet robust airframe:** Balancing minimal weight for efficient solar energy utilization with structural integrity for stable flight in the stratosphere is a complex design challenge. Composite materials play a crucial role in achieving this balance.



▶ **Low air density:** The low air density (7% of sea level) at high altitudes necessitates innovative aerodynamic designs to generate sufficient lift and thrust. This may involve unconventional wing configurations and advanced propulsion systems.

Environmental Factors:



▶ **Extreme temperatures:** Stratospheric temperatures can plummet to -50°C or lower, requiring specialized insulation and thermal management systems to protect sensitive electronics and ensure their functionality.



▶ **Harsh weather:** HAPS needs to withstand harsh weather conditions like strong winds and turbulence, demanding robust design and control systems.



Communication and Control:

▶ Maintaining reliable communication links with ground stations over long distances and ensuring autonomous flight control in a dynamic stratospheric environment.

Way Forward



Advancements in **ultra-lightweight, high-efficiency solar cells** and energy-dense **batteries with improved specific energy (Wh/kg)** are crucial. Current lithium-ion batteries fall short, requiring innovations like solid-state batteries or alternative chemistries.

Example: Project Loon by Google utilized solar panels and high-altitude balloons; however, the energy density of their batteries limited their operational viability.



Utilizing advanced composite materials with high strength-to-weight ratios and innovative aerodynamic designs for efficient lift and drag management are essential.

Example: Airbus Zephyr S HAPS prototype utilizes a carbon-fiber composite structure for lightweight stability.



Developing electronics resistant to extreme temperatures, **efficient thermal management systems, and innovative airfoils** for efficient lift in low-density environments are crucial.

Example: HAPS Mobile's HAPSMobile One prototype utilizes a unique wing design for efficient lift in the stratosphere.

Conclusion

HAPS hold immense potential for India in diverse sectors. Continued research and development efforts, coupled with strategic collaborations, can unlock the benefits of this technology for the nation's progress. By **addressing the power, design, and environmental challenges**, HAPS can become a game-changer in areas like communication, disaster management, and scientific research, contributing significantly to India's aspirations in the 21st century.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the High-Altitude Pseudo-Satellite (HAPS):

1. It is unmanned aerial vehicle that operate in the earth's atmosphere using solar energy.
2. It orbits the earth in medium Earth orbit (MEO).

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer a

Descriptive Question

Q. Discuss the challenges and advantages associated with the High-Altitude Pseudo-Satellite Technology. [15 Marks] [250 words]

INSAT-3DS

Why in News: The Indian Space Research Organisation’s meteorological satellite, INSAT-3DS was successfully placed into its intended orbit Geosynchronous Launch Vehicle F14.

Key details

- INSAT-3DS satellite aims to augment the study of the Earth’s surface and oceanic observations.

- This is a crucial mission for the rocket nicknamed “naughty boy” for its spotty record.
- The mission’s success is crucial for the GSLV, which is scheduled to carry later this year the Earth observation satellite, NISAR, which is being jointly developed by NASA and ISRO.

About INSAT-3DS

- INSAT-3DS Satellite is a follow-on mission of Third Generation Meteorological Satellite from Geostationary Orbit.
- GSLV-F14/INSAT-3DS mission is fully funded by the Ministry of Earth Sciences (MoES).
- It is designed for enhanced meteorological observations and monitoring of land and ocean surfaces for weather forecasting and disaster warning.
- The satellite will augment the Meteorological services along with the presently operational INSAT-3D and INSAT-3DR satellites.

GSLV-F14/ INSAT-3DS MISSION

16th

Flight of India's Geosynchronous Satellite Launch Vehicle GSLV

10th

Flight with Indigenous Cryo Stage

7th

Operational Flight with Indigenous Cryo Stage

GSLV-F14 Vehicle characteristics

Vehicle Height	51.7 m
Lift off mass	420 t
Stages	3
First Stage (GS1)	S139+4L40H
Second Stage (GS2)	GL40HT
Third Stage (GS3)	CUS 15 (Indigenous)

- ▶ Geosynchronous Satellite Launch Vehicle (GSLV) is a three-stage 51.7 m long launch vehicle having a liftoff mass of 420 tonnes.
- ▶ The first stage (GS1) comprises a solid propellant (S139) motor having 139-ton propellant and four earth-storable propellant stages (L40) strap ons which carry 40 tons of liquid propellant in each.
- ▶ The second stage (GS2) is also an earth-storable propellant stage loaded with 40-ton propellant.
- ▶ The third stage (GS3) is a cryogenic stage with a 15-ton propellant loading of liquid oxygen (LOX) and liquid hydrogen (LH2).
- ▶ During the atmospheric regime, the Satellite is protected by Ogive payload fairing.
- ▶ GSLV can be used to launch a variety of spacecraft capable of performing communications, navigation, earth resource surveys, and any other proprietary mission.



Satellite salient features

Mission	Meteorological services Data relay and Satellite Aided Search & Rescue services
Payloads	6 channel Imager 19 channel Sounder Data Relay Transponder (DRT) Satellite Aided Search & Rescue transponder (SAS&R)
Orbit	Geostationary orbit
Structure	I-2k platform
Thermal	6 channel Imager Passive and active thermal control system Bi-annual yaw flip to reduce the thermal load on the passive coolers
Power generation	42 V Sunlit regulated single bus Power generation 1505W (Equinox) I-2k Solar panels and Li-Ion 100Ah Battery for eclipse support
Launch vehicle	GSLV with 4 m diameter. Metallic Ogive Payload Fairing Standard 937mm diameter. interface

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the INSAT-3DS satellite:

1. It aims to augment the study of the Earth’s surface and oceanic observations.
2. It is a follow-on mission of Third Generation Meteorological Satellite from Geostationary Orbit.
3. It collects and analyzes particles of solar, interplanetary, interstellar and galactic origins.

4. It is fully funded by the Ministry of Earth Sciences (MoES).

How many of the above statements are correct?

(a) Only one (b) Only two
(c) Only three (d) All four

Answer: c (1, 2 and 4 only)

Descriptive Question

Q. Discuss in detail about the features of the Indian Space Research Organisation’s meteorological satellite, INSAT-3DS. [10 Marks] [150 words]

GAGANYAAN MISSION

Why in News: ISRO has successfully completed the human rating of its CE20 cryogenic engine, which represents a major boost to India's attempt to launch humans into space under the Gaganyaan mission.

About Gaganyaan Mission

- Gaganyaan is a mission by the **Indian Space Research Organisation (ISRO)**.
- Under the Gaganyaan Mission:
 - A **total of three flights** will be sent into orbit.
 - There will be **one human spaceflight and two unmanned flight**.
 - **Four Indian astronauts** will be stationed in the Gaganyaan system module, also known as the Orbital Module.
 - It will **spend five to seven days traveling in a low-Earth orbit** around the planet at a height of 300 to 400 kilometers.

About CE20 cryogenic engine

- The **ISRO subsidiary Liquid Propulsion Systems Centre (LPSC)** is responsible for its design and development.
- It will **supply energy to the LVM3 launch vehicle's cryogenic upper stage**.
- It will be **used by ISRO for "Mission Gaganyaan,"** which aims to launch a man into space in 2024.
- It has a **gas-generator cycle**, making it the first cryogenic engine of such type in India.
- It is **among the world's most powerful upper-stage cryogenic engines**.
- In vacuum, this engine produces a nominal thrust of 186.36 kN.

About Cryogenic stage

- The **cryogenic stage is technically a very complex system** due to its use of **propellants at extremely low temperatures** and the associated thermal and structural problems.
- It **runs on liquid fuels that are cooled to extremely low temperatures** (hydrogen liquifies at -253 degrees Celsius and oxygen at -183 degrees Celsius).
- Compared to **solid and earth-storable liquid rocket stages**, cryogenic rocket stages are more effective and produce greater thrust per kilogram of fuel burned.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the Gaganyaan Mission:

1. Its objective is to demonstrate the human spaceflight capability by launching crew members to the high earth orbit.
2. The astronauts for this mission have undergone training at the Astronaut Training Facility located at NASA's Johnson Space Center.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Answer:

Descriptive Question

Q. With the recent success of 'Chandrayaan III' and 'Aditya L1' mission and upcoming 'Gaganyaan mission', discuss how these achievements is putting India on equal footing with other advanced space agencies of the world. [15 Marks] [250 Marks]

NATIONAL RESEARCH FOUNDATION

Why in News: Despite approving a Bill to set up a National Research Foundation (NRF) to boost scientific advancement in the country just eight months earlier, the Union government was silent on allocation for the institution or progress made so far in the interim budget for 2024-25.

Key details

- **First proposed under the National Education Policy (NEP) in 2020**, the NRF aims to centralise scientific research funding in the country.
- It would **replace the currently established governmental funding agencies** such as the Department of Science and Technology, Department of Atomic Energy, Department of Biotechnology, Indian Council of Agriculture Research, Indian Council of Medical Research and the University Grants Commission.
- In the **Union budget for 2021-22**, the Centre had announced that it would set aside Rs 50,000 crore for NRF over five years.
- However, the following year, it was allocated a budget of just Rs 1 lakh. **Further in 2023-24, the Union budget allocated Rs 2,000 crore for the NRF**, which was then revised to Rs 258.60 crore.

CHAHAL'S PERSPECTIVE ON NEURALINK IMPLANTATION

Impact and Challenges

Ethical concerns

- **Data privacy and ownership**
Who owns the recorded brain data and what can it be used for.
- **Transparency and replicability**
Lack of public data and pre-clinical testing results raise concerns about safety and efficacy.
- **Informed consent**
Are participants fully aware of the risks and potential consequences?
- **Equity and access**
Will this technology be accessible to everyone or exacerbate existing inequalities?
- **Human enhancement and potential misuse**
Concerns about altering healthy brains and unintended consequences.

Scientific concerns

- **Safety**
Potential for micro-injuries, seizures, and long-term neurological impacts.
- **Efficacy**
Maintaining recording capacity and ensuring the device effectively translates intentions.
- **Regulatory oversight**
Adequacy of FDA approval and transparency of clinical trial protocols.

Way forward

Enhanced transparency and data sharing
Publish research data, register trials, and engage independent researchers.

Stronger ethical frameworks
Develop clear guidelines on data ownership, privacy, and responsible development of BCIs.

Robust safety and regulatory measures
Conduct rigorous pre-clinical testing, ensure patient safety, and establish independent oversight mechanisms.

Open dialogue and public engagement
Discuss ethical implications, potential risks and benefits, and involve diverse stakeholders in decision-making.

Conclusion

Neuralink's human implantation marks a significant step in BCI technology, but ethical and scientific concerns need to be addressed before widespread adoption. **Openness, transparency, and responsible development** are crucial for ensuring the technology benefits humanity without compromising safety, privacy, or ethical principles.

EXPECTED QUESTION FOR UPSC CSE

Q. "There are ethical concerns associated with the Neuralink implanatation." Discuss. [15 Marks] [250 words]

VOICE CLONING BY USING ARTIFICIAL INTELLIGENCE

Why in News: Music composer A.R. Rahman used AI to recreate the voices of deceased singers Bamba Bakya and Shahul Hameed for a song, raising ethical questions about the use of AI in music and its impact on creativity.

What is Voice Cloning?

- Voice cloning is a modern technology that uses advance computer programs to copy the way people talk. This means making a computer sound like a person.
- A report by Market US says that the worldwide market for voice cloning applications is worth \$1.2 billion in 2022.
- The report estimates that by 2032, this market could reach nearly \$5 billion. They predict this growth to happen steadily, with a Compound Annual Growth Rate (CAGR) ranging from 15% to 40%.

How Voice Cloning Works?

To make voice cloning possible, special computer programs use something called artificial intelligence (AI). These AI programs learn from large sets of recordings of people speaking. They study these recordings to understand how human speech works. **Voice cloning primarily utilizes two methods:**

- **Concatenative Synthesis:** This approach involves assembling snippets of a person's recorded voice to form new utterances. Platforms like Murf and Resemble employ this technique, offering free trials and subscription plans.
- **Neural Networks:** Advanced AI models analyze vast amounts of audio data to learn the nuances of a voice. This allows for more natural and expressive clones, as exemplified by ElevenLabs' AI Dubbing tool, capable of translating and dubbing speech across 20 languages.



CHAHAL's PERSPECTIVE

Voice Cloning by using Artificial Intelligence

Arguments in Favor

Preserving artistic legacies

AI offers a chance to bring back the voices of beloved artists who are no longer with us, keeping their memories alive and enriching the future generations with their unique talent.

Creative possibilities

This technology expands artistic possibilities by allowing artists to collaborate with historical figures or use iconic voices in their work, potentially leading to innovative and transformative creations.

Economic benefits

Properly compensated use of AI-cloned voices can benefit artist families and estates, offering them a sustainable source of income.

Personalized Music Experiences

By analyzing user preferences and listening habits, AI algorithms curate playlists and suggest new artists, fostering deeper engagement and discovery for music enthusiasts.

Enhanced Efficiency and Productivity

AI-powered tools like auto-tunes and dynamic processors offer musicians and engineers greater efficiency and control over the production process.



Arguments Against

Ethical concerns

Some raise concerns about the potential for unauthorized use of voices, deepfakes, and manipulation, which could violate the artist's intellectual property rights and ethical consent.

► **Loss of Control and Ownership:** The increased use of AI raises questions about ownership and copyright of AI-generated music.

Impact on human artists

Fears exist that overreliance on AI-cloned voices might overshadow and devalue the talent and expression of living singers, hindering their careers and artistic fulfillment.

Homogenization and Mediocrity

Overreliance on AI tools for composition and production could lead to a homogenization of sound and a decline in artistic originality.

Accessibility and Equity

Access to expensive technology and AI tools can exacerbate existing inequalities within the music industry.

Legal frameworks

The absence of clear legal frameworks regarding intellectual property rights, permissions, and compensation for using AI-cloned voices creates uncertainty and potential for exploitation.

Why India is a Major Target for AI Voice Clone Scams?

India presents a fertile ground for AI voice clone scams, as evidenced by the “The Artificial Imposter” report, which revealed a staggering 47% of Indians either being victims or knowing someone impacted by such scams. This figure significantly surpasses the global average of 25%, highlighting India’s vulnerability.

India has emerged as a prime target for AI voice clone scams due to a confluence of factors

- **High Vulnerability to Trust-Based Scams:** Indian society is deeply rooted in trust and respect for authority figures, making individuals more susceptible to scams that exploit these sentiments.

gas and dust, and it spirals inwards towards the black hole.

- As the material in the **accretion disk spirals inwards**, it releases a tremendous amount of energy in the form of X-rays and ultraviolet radiation.
- TDEs are often **observed as bright flares of radiation from the centre of a galaxy**. These flares can last for several months to years, gradually fading as the disrupted star's material is consumed by the black hole.

Black Hole

- Black holes are **regions of space-time where gravity is so strong that nothing**, not even light, can escape from them.
- They are formed when a **massive star collapses in on itself at the end of its life**, creating an incredibly dense object with a gravitational pull that is so strong that it warps space-time around it.
- **Because no light can get out**, people can't see black holes. **Space telescopes with special tools can help find black holes**.
- Supermassive black holes are **extremely large and incredibly dense regions** in the centers of most galaxies, including our own Milky Way galaxy.
 - They are **characterized by their immense gravitational pull**, which is so strong that nothing, not even light, can escape from them once it crosses a point called the event horizon.
 - These **black holes have masses that range from hundreds of thousands to billions** of times that of our sun.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. Which of the following statements well describe the term "Tidal Disruption Event"?
- A climate pattern characterized by unusually cool ocean temperatures in the central and eastern equatorial Pacific Ocean.
 - A belt around the Earth near the equator characterized by calm winds and light, variable breezes.
 - A phenomenon in which star ventures too close to a supermassive black hole and gets ripped apart by the black hole's immense gravitational forces.
 - A temporary disturbance of Earth's magnetosphere caused by a solar wind shock wave.

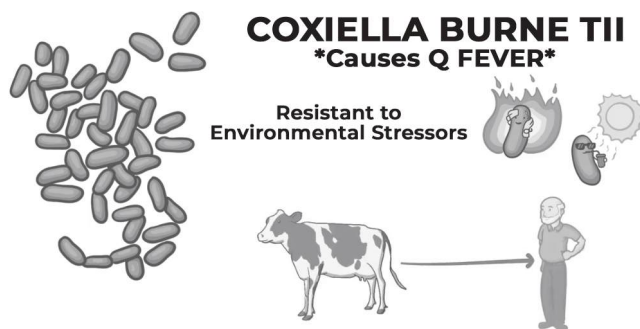
Answer: c

MITOCHONDRIAL COXIELLA EFFECTOR F (MCEF)

Why in News: Researchers discovered a **previously unidentified protein named mitochondrial coxiella effector F (Mcef)** with antioxidant properties produced by *Coxiella burnetii*, a Gram-negative intracellular bacterium.

Mitochondrial coxiella effector F (Mcef)

- It is a **bacterial protein** capable of keeping human cells healthy even when the cells have a heavy bacterial burden.
- It is produced by *Coxiella burnetii*, a **Gram-negative intracellular bacterium**.
- After invading host cells, *Coxiella burnetii* releases Mcef into cells.
- It interacts with glutathione peroxidase 4 (GPX4), an **anti-oxidant enzyme** located in the mitochondria, **to improve mitochondrial function by promoting an anti-oxidizing effect** that averts cell damage and death, which may occur when pathogens replicate inside mammalian cells.



It is the **cause of Q fever**, a dangerous zoonotic infection that can affect both humans and animals.

The bacterium is primarily **transmitted to humans through the inhalation of contaminated aerosols from infected animals**, particularly through the air-borne particles from placental tissues, urine, feces, and milk of infected domestic animals like cattle, sheep, and goats.

It **causes atypical pneumonia in humans** and coxiellosis in some animals, such as cattle, sheep, and goats.

It is highly **adapted to invade and control macrophages** and monocytes—white blood cells that are part of the organism's front-line immune defense—inhibiting the host's responses to the infection.

Unlike other bacteria, which cause disease only when they multiply to reach large numbers, a single *C. burnetii* is enough to make a healthy person sick.

Q fever

- Q fever is a disease caused by the bacteria *Coxiella burnetii*. This bacterium naturally infects some animals, such as goats, sheep, and cattle.
- *C. burnetii* bacteria are found in the birth products (i.e. placenta, amniotic fluid), urine, feces, and milk of infected animals.
- People can get infected by breathing in dust that has been contaminated by infected animal feces, urine, milk, and birth products of infected animals.
- Some people never get sick; however, those who do usually develop flu-like symptoms including fever, chills, fatigue, and muscle pain.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. The 'Mitochondrial coxiella effector F (MceF),' recently mentioned in the news in context of

- (a) Viruses
- (b) Fungi
- (c) Bacteria
- (d) Lichens

Answer: c

GUINEA WORM DISEASE

Why in News: Recently, countries like **South Sudan and Mali**, where Guinea Worm disease was once more common have made remarkable progress in its eradication.

Key Details

- As the globe gets closer to eliminating Guinea worm disease, **public health triumphs are imminent**.
- **Only three African nations—Chad, Ethiopia, and South Sudan—remain endemic today**, out of the twenty that were endemic globally in the early 1980s.

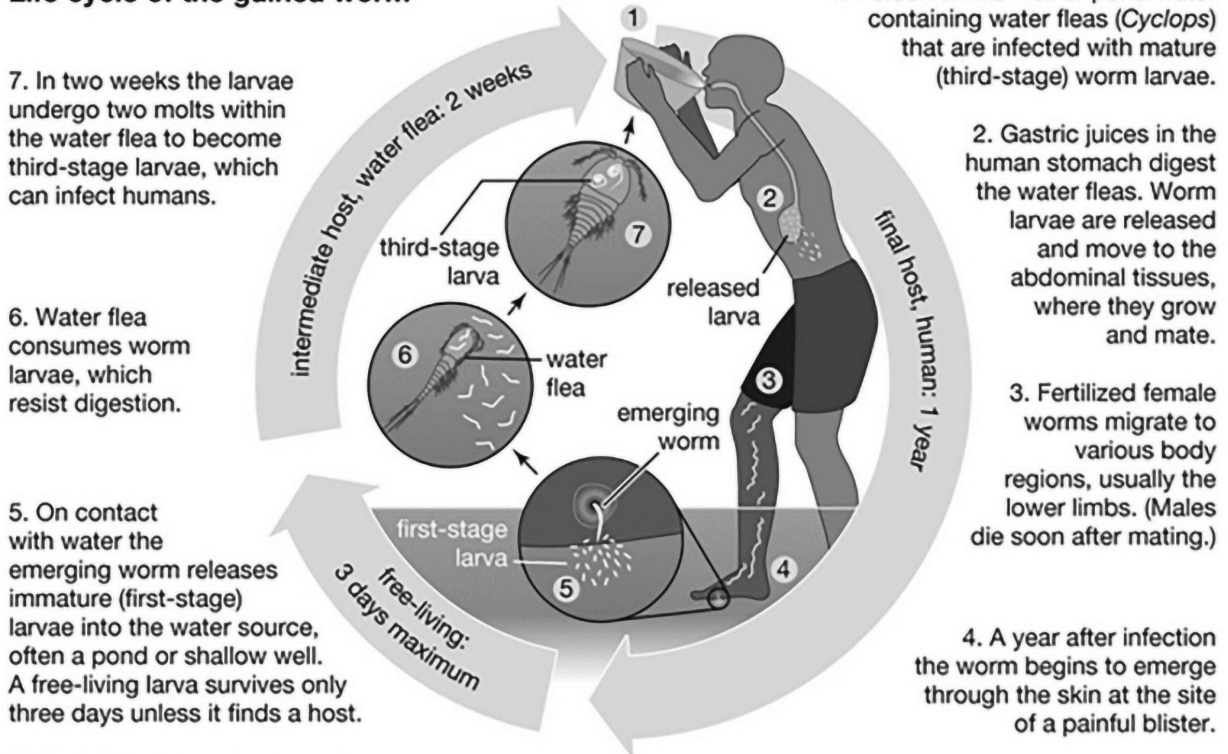
- The **World Health Organization's (WHO) weekly epidemiological report** states that there were over 3.5 million instances of this disease in the 1980s, but that number dropped to 14 cases in 2021, 13 cases in 2022, and just six cases in 2023.

About Guinea Worm



- Guinea worm is a large nematode, *Dracunculus medinensis*, which is **ingested through drinking contaminated water**. The condition is known as guinea-worm disease or dracunculiasis.
- The **worm eventually results in a painful and severe infection** that usually starts as a blister on the leg.
- The person may **have significant pain, fever, swelling, itching, and a burning** feeling around the time of the eruption.

Life cycle of the guinea worm



Treatment

- Guinea worm disease has **no treatment or vaccine**.
- The worm can only be removed by winding it around gauze or a stick, sometimes within days. The **process usually takes weeks**, and care must be taken not to break the worm.

- More advanced imaging techniques like ultrasound or magnetic resonance imaging (MRI) may be used to obtain detailed images of the joints.

How is RA treated?

- Although there is **no proven cure for rheumatoid arthritis (RA)**, there are medications that can help manage symptoms and stop joint degeneration.
- **NSAIDs, corticosteroids, DMARDs, and biologic medicines** are among the medications used to treat symptoms.
- **Joint function and mobility are enhanced by physical therapy**, which includes exercises, stretches, massages, and heat/cold therapy.
- **Occupational therapy** improves everyday activities and quality of life by using ergonomic advice, adaptable equipment, and assistive gadgets.
- **Surgery**, such as joint replacement, fusion, or repair to relieve pain and enhance joint function, may be an option in cases of severe joint injury or deformity.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the Rheumatoid Arthritis (RA):

1. It is a chronic (long-lasting) autoimmune disease that mostly affects joints.
2. X-ray imaging is the only test that can diagnose this disease.
3. Women are two to three times more likely to develop this disease than men.

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

(Answer: b (1 and 3 only))

ARTIFICIAL INTELLIGENCE IN CANCER THERAPIES

Why in News: The AI model, powered by a supercomputer, has been tested on 1,500 breast and ovarian cancer patients from AIIMS and was found to be over 75 percent accurate.

Key Details

A supercomputer and AI, **iOncology**, developed by researchers from the All India Institute of Medical Sciences (AIIMS) Delhi, can help doctors identify the best cancer therapy.

How does the AI tool work?

- iOncology AI, uses a supercomputer and a high-capacity server called **Charak I** to help oncologists determine the most common genetic mutation in their patients.

- This helps **doctors make informed, faster, and precise treatment choices**, such as treating breast cancer patients with specific subtypes like HER2 by cross-referencing data from previous treatments.
- The **platform, developed with Pune’s Centre for Development of Advanced Computing**, allows doctors to store cancer patients’ blood test and lab reports, scans and ultrasound reports and their history.
- **Along with collecting and collating data**, the AI-enabled platform is also capable of reading the different types of datasets and helping the doctors make decisions.

What does it means for treatment?


As a result of research into the genomic changes associated with cancer, drugs have been developed to fight the disease in several ways:

- Inhibiting enzymes that trigger the abnormal growth and survival of cancer cells.
- Blocking aberrant genes
- Halting signals from cancer cells



How does this help in breast cancer for example?

Breast cancer is classified based on molecular characteristics into distinct subgroups – Luminal A, Luminal B, Triple-negative/basal-like, and HER2 type – that vary in their aggressiveness and respond differently to therapies. A doctor treating someone with breast cancer of the HER2 subtype can, for instance, cross-reference data related to therapy that has worked for patients of the similar genetic makeup, thus helping the doctor make informed, faster and precise therapy choices.



Can the tool address all types of cancer?

- The research will focus on **five types of cancers that are the commonest**, deadliest or have immunotherapies available —
 - breast cancer
 - ovarian cancer
 - head and neck cancer
 - colorectal cancer and
 - two types of blood cancers.
- Presently, the **platform is trained only for breast and ovarian cancer**. It already has various models on CT scan prediction, ultrasound image, histopath prediction, mammogram image prediction and detection and classification of the tumour.

Recent trends of AI in Cancer Treatment

- Globally, there is an increasing interest in the use of AI for cancer treatment as it can help doctors – from **developing new therapies to diagnosing patients** at early stages of the disease and selecting appropriate treatments.
- Studies have shown that **certain AI-based models were able to identify individuals at high risk of developing pancreatic cancers** up to three years earlier..
 - Similar results have been observed for breast and lung cancers as well.
 - For example, the AI tool being developed by the Harvard Medical School, which is similar to AIIMS, but is specific for colon cancers.
- The model is being trained to **accurately predict survival, provide insights for treatment response based on tumour pathology, radiology images and genomic data**.

Conclusion

Though **AI offers immense potential**, it's important to balance technological advancements with human knowledge and expertise for **address regulatory considerations** to ensure the best possible care for patients.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following pairs with reference to various types of Blood cancers:

1. Lymphoma starts in infection-fighting lymphocytes.
2. Leukemia starts in blood-forming cells inside bone marrow.
3. In leukemia, there is an increased number of white blood cells compared to red blood cells.

How many of the above statements are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Answer: c

HYPERVELOCITY EXPANSION TUNNEL

Why in News: Indian Institute of Technology Kanpur has successfully established and tested **Hypervelocity Expansion Tunnel Test Facility**.

Key details

- The facility named **S2 or 'Jigarthanda'**, is a **24-meter-long facility located at IIT-Kanpur's Hypersonic Experimental Aerodynamics Laboratory (HEAL)** within the Department of Aerospace Engineering.
- It is **India's first Hypervelocity Expansion Tunnel Test Facility**.
- It was **indigenously designed and developed** with funding and support from the Aeronautical Research and Development Board (ARDB), the Department of Science and Technology (DST), and IIT Kanpur.
- The **Facility can generate flight speeds between 3-10 km/s**, simulating the hypersonic condition usually encountered during atmospheric entry of vehicles, asteroid entry, scramjet flights, and ballistic missiles.

Importance of Hypervelocity Expansion Tunnel Facility

- The facility will **enable more aerospace engineers and researchers to pursue hypersonic research**.
- It will **help ISRO with its Gaganyaan mission and to test the Reusable Launch Vehicle and DRDO with its development of hypersonic cruise missiles**. The research activities and data generated in the facility will serve as an input for optimization of existing vehicles as well as futuristic defense and Space Missions.
- It will **provide domestic hypersonic testing capabilities for crucial projects and missions**, enabling India's space and defence organisations.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. With reference to the Hypervelocity Expansion Tunnel Test Facility, consider the following statements:

1. It is indigenously designed tunnel capable of generating flight speeds between 3-10 km/s.
2. Its aim is to investigate fundamental questions about the nature of the universe and the fundamental particles that compose it.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Answer: a

DEFENCE & INTERNAL SECURITY

INDIA'S DEFENCE EXPORTS

Why in News: India's defence Industry has seen eightfold increase into the defence exports within nine years and now India comes in the top 25 global defence exporters, with dominating role of private players.

About Global and India's defence Industry

- The **global defence industry is on an upward trajectory**, projected to reach \$1.38 trillion by 2030.
- Recognizing this potential, India has made significant strides in defence exports, surging from **Rs. 686 crore in 2013-14 to nearly Rs. 16,000 crore in 2022-23**.
- **Private sector dominates India's defence Industry** like 80% of export growth is attributed to private industry.
- Major Exports from India are **missiles, rockets, torpedoes, artillery guns, drones, etc.**
- India exports its defence equipments in 75+ countries, including major players like Italy, Sri Lanka, France, UAE, etc.

SIPRI Report

- Among the **top 10 arms exporters for the period 2018-22**, India was the biggest arms export market to three countries — Russia, France and Israel and the second largest export market to South Korea. India was also the third largest market for South Africa which was **ranked 21 in the list of arms exporters**.
- Data from the think tank that tracks the import of weapons over a five-year period shows that, at 11%, **India accounted for the largest share of global arms imports over the previous five years**, ahead of Saudi Arabia (9.6%), Qatar (6.4%), Australia (4.7%), and China (4.7%).
- According to new SIPRI data, the **US exported 40% of all military goods globally over the last five years**, followed by Germany (4.2%), France (11%), China (5.2%), and Russia (16%). US armament exports rose 14% between 2013–17 and 2018–22, while Russian exports fell 31% during that same period. **37% less goods were imported by India from Russia.**

Potential Benefits of defence export

- **Economic benefits:** Defence exports generate foreign exchange and create jobs. Exporting defence equipment also reduces import dependence, as seen in the **Atma Nirbhar Bharat initiative reducing import dependency from 46% to 36.7%**.

- **Integration with global supply chain:** Participating in defence exports integrates Indian companies with global firms, fostering technology transfer and knowledge sharing. Collaboration with countries like the **US and France strengthens the domestic industry**.
- **Strategic interdependence: By exporting platforms and equipment**, India creates dependencies for maintenance and upgrades, fostering closer strategic partnerships and technological linkages with partner nations.
- **Enhanced military cooperation: Selling defence equipment promotes interoperability and compatibility**, facilitating joint exercises, operations, and broadening military collaboration opportunities.
- **Geopolitical influence and diplomatic leverage:** Defence exports influence the geopolitical outlook of partner countries, enhancing India's strategic position and diplomatic relations as a reliable supplier.
- **Self-reliance in defence:** Focusing on indigenization for exports strengthens the domestic defence sector, **reducing dependence on foreign imports and bolstering India's role as a key Indo-Pacific power**.

Factors Contributing to India's Emergence as a Defence Exporter

- **Geopolitical Uncertainties: The dependence on foreign suppliers exposes vulnerabilities**, particularly during crises like the Ukraine war (India imports ~60% from Russia). This necessitates diversification and self-reliance, prompting India to explore domestic capabilities.
- **External Opportunities**
 - **China's Export Challenges:** China's **declining arms exports** due to quality issues (Myanmar, Nigeria, Pakistan) create a gap in the market, offering opportunities for India.
 - **Growing Indo-Pacific Importance:** India's strategic location in the Indo-Pacific region makes its shipyards attractive for servicing US and European naval forces.
- **Domestic Strengths and Initiatives**
 - **Expertise in Russian Equipment:** India's proven capability in servicing Russian platforms attracts buyers with similar inventories.
 - **Technological Edge:** India's prowess in defense software and AI aligns with the shift towards tech-driven warfare, attracting global OEMs.
 - **Government Support:** Initiatives like IDEX, DPEPP, and Positive Indigenization Lists promote R&D, innovation, and private sector participation.

CHAHAL's PERSPECTIVE ON India's Defense Export Growth



Challenges

Regulatory and Bureaucratic Hurdles

Red tape, outdated practices, and resistance to private sector integration hinder innovation and export growth.

Project Delays and Cost Overruns

Delays in crucial projects (DRDO's 'mission mode' projects) and cost overruns hamper competitiveness.

Funding and Investment Shortfalls

Insufficient R&D funding (India's GERD is 0.65% compared to 4.8% for Israel) and lack of attractive investment mechanisms pose challenges.

Infrastructural Deficit

Deficient infrastructure increases logistics costs, impacting India's cost-competitiveness and efficiency.

Quality perception

Some Indian products face the perception of inferior quality compared to established players. This requires stricter quality control and sustained performance improvement.

Lack of standardization

Multiple versions of equipment used by the Indian forces hinder logistics and maintenance, making them less attractive for exports. Standardization within the armed forces is crucial.

Geopolitical considerations

Navigating complex international relations and balancing strategic partnerships with export opportunities is essential.

Way Forward

Simplify Government-to-Government Sales

Streamlining rules for government-to-government sales can facilitate procurement by foreign governments from Indian firms.

Innovation and Technology Licensing

A robust licensing framework that protects national interests while supporting startups with innovative technologies is critical.

Integrating Defense and Education Sector

Fostering closer ties between academia, industry, and R&D labs can accelerate innovation and attract talent. Curriculum updates and attractive career paths are essential.

Framework for International Sales

Developing a broader framework similar to the US's foreign military framework can facilitate smoother international transactions.

Defense Lines of Credit (LOC)

Allowing empanelled defense firms to access defense LOCs and reducing interest rates can provide financial support for exports.

Think Tank Establishment

Creating a dedicated think tank with national and international experts can dynamically update defense strategies based on global requirements.



Government's Initiatives to increase the defence export

Policy and Support

- **Innovation for Defence Excellence (IDEX):** This initiative has nurtured hundreds of startups offering innovative defense technologies, ready for global licensing, fostering indigenous R&D and entrepreneurship.
- **Defence Production & Export Promotion Policy (DPEPP):** This policy envisions an ecosystem that incentivizes R&D, rewards innovation, and promotes a self-reliant defense industry, boosting export potential.
- **Positive Indigenization List:** This list identifies key weapon systems for domestic production, reducing reliance on imports and encouraging indigenous capabilities.
- **India's Defence Exports Steering Committee:** This body actively coordinates and promotes defense exports, facilitating interactions between stakeholders.

Infrastructure and Innovation

- **Private Sector and Startup Engagement:** Encouraging private participation and streamlining export permissions are crucial. The government recognizes this and is taking steps in the right direction.
- **Export Facilitation Measures:** Implementing online systems for export inquiries, opening general export licenses, and promoting defense exports through defense attaches are positive initiatives.
- **Financial and Promotional Support:** Liberal defense lines of credit and repositioning key events like DefExpo and Aero India as global showcases for Indian innovations are impactful strategies.
- **Defence Industrial Corridors:** These initiatives in Uttar Pradesh and Tamil Nadu aim to increase indigenization and exports by creating dedicated manufacturing zones.

Conclusion

India's defense export potential holds significant strategic and economic benefits. Addressing existing challenges and implementing the suggested roadmap can ensure sustained growth in this sector, **enhancing India's global standing, strengthening strategic partnerships,** and creating economic opportunities.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements:

1. Defence Research and Development Organisations Helicopter Factory is the largest helicopter manufacturing facility in India.

2. The defence production in India have crossed ₹1 lakh crore mark.
3. The defense exports of India have crossed the ₹10,000 crore mark.

How many of the above statements are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Answer: b (2 and 3 only)

Descriptive Question

Q. Discuss the potential benefits of defence export for India. What are the factors Contributing to India's Emergence as a Defence Exporter? [15 Marks] [250 words]

MQ-9B DRONES

Why in News: The United States has approved a USD 3.99 billion agreement for India to purchase 31 of the latest, armed Predator drone, namely MQ-9B.

Key Details

- The MQ-9B SkyGuardian Aircraft (land version) being sold to India by the US would be equipped with highly sensitive surveillance and lethal attack equipment including hellfire missile, and laser small diameter bombs.
- US claimed MQ9-B sale will **enhance India's maritime security,** awareness capability

About MQ-9B

- The MQ-9B Predator drone is an **unmanned aerial vehicle. MQ-9B SeaGuardian is a maritime-focused version of the SkyGuardian remotely piloted aircraft system (RPAS).**
- The MQ-9B drone is a **variant of the MQ-9 "Reaper"** that was utilized to take out Ayman al-Zawahiri, the leader of al-Qaeda, in Kabul by launching a modified Hellfire missile.
- There are **two versions of the MQ-9B: SeaGuardian and SkyGuardian.** The MQ-9B Sea Guardian has been in operation with the Indian Navy from 2020.

Features

- The **drone's operating height of over 40,000 feet allows the Indian military to conduct surveillance in the high-altitude frontier regions** of the Himalayas.
- The **Predator can endure up to 40 hours at a time,** which makes it suitable for long-term monitoring.
- Advanced features including **automated takeoff and landing, a detect and avoid system, anti-spoofing GPS, and encrypted communication channels** are all standard on MQ-9B drones.



MQ-9B
Predator Drones

Max Gross Takeoff Weight: 5,670 kg
Fuel Capacity: 2,721 kg
Payload Capacity: 2,177 kg across 9 hardpoints (8 wing, 1 centerline)

Crew:
Two pilots in ground control stations

Weapons
Laser guided missiles
Anti-tank missiles
Anti-ship missiles

Missions

- Humanitarian Assistance/Disaster Relief
- Search and Rescue
- Law Enforcement
- Border Enforcement
- Defensive Counter Air
- Airborne Early Warning

Missions

- Electronic Warfare
- Anti-Surface Warfare
- Anti-Submarine Warfare
- Airborne Mine Counter Measures
- Long-Range Strategic ISR
- Over-the-Horizon Targeting

Need for India

- Considering the **current deadlock with China in Ladakh and the escalating tensions with Pakistan**, India requires MQ-9B armed drones to improve its observation and strike capabilities across its land and sea frontiers.
- In order to **support its counter-terrorism and counter-insurgency operations in Kashmir** and other areas, India requires MQ-9B armed drones.
- In order to defend its **crucial sea routes of communication and trade and to resist the increasing number of Chinese warships** and submarines in the Indian Ocean region, India needs MQ-9B armed drones.

Benefits of acquiring MQ-9B

- India will have a **strategic advantage over its adversaries** if it acquires MQ-9B armed drones because it will be able to carry out long-range surveillance and precision strikes without endangering its manned aircraft or pilots.
- Getting MQ-9B armed drones will **also strengthen India’s defense relations with the United States**, an increasingly important Indo-Pacific partner for India. Along with the US, Japan, and Australia, the agreement will help enhance India’s standing in the Quad of Democracies.
- The **acquisition of MQ-9B armed drones will involve knowledge transfer** and cooperative manufacture under the Made in India initiative, it will also present chances for India’s defense industry.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following Missions:

1. Electronic warfare
2. Anti-submarine Warfare
3. Anti-Surface Warfare
4. Airborne Mine Counter measures
5. Over-the-Horizon Targeting

The MQ-9B armed drones can be used to execute how many of the above?

- (a) Only two (b) Only three
(c) Only four (d) All five

Answer: d

Descriptive Question

Q. Discuss the salient features of MQ-9B drones. [10 Marks] [~150 words]

ABHYAS by DRDO

Why in News: The Defence Research and Development Organisation (DRDO) successfully conducted four flight trials of the high-speed expendable aerial target ‘ABHYAS’ recently.

ABHYAS

- It is a **high-speed expendable aerial target (HEAT)**, designed by the DRDO’s Aeronautical Development Establishment (ADE).
- It is the **ideal platform for the validation of Armed Forces equipment slated for induction** (only those that require aerial engagement).
- It has a **radar cross-section and a visual and infrared augmentation system** required for weapon practice.
- The **target drone has a laptop-based Ground Control System** with which the aircraft can be integrated and pre-flight checks, data recording during the flight, replays after the flight and post-flight analysis can be carried out.

Significance

- ABHYAS provides a **realistic threat scenario for weapon system practice**, and the vehicle can be used as a target for testing different missile systems.
- Utilising a native autopilot system, ABHYAS is **built for autonomous flight and offers flexibility** for independent flight operations.
- The **creation of this system will satisfy the Armed Forces’ needs** for aerial targets.

DEFENCE RESEARCH AND DEVELOPMENT ORGANISATION (DRDO)

...It is India's largest research organisation



Headquarters: New Delhi



It is the R&D wing of the Ministry of Defence, Govt. of India, with a vision to empower India with cutting-edge defence technologies and a mission to achieve self-reliance in critical defence technologies and systems.



The organisation was formed in 1958 from the amalgamation of the then-existing Technical Development Establishment (TDEs) of the Indian Army and the Directorate of Technical Development and Production (DTDP) with the Defence Science Organisation (DSO).



It has a network of laboratories engaged in developing defence technologies covering various fields, like aeronautics, armaments, electronics, land combat engineering, life sciences, materials, missiles, and naval systems.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which of the following statements well describes the 'ABHYAS' conducted by the Defence Research and Development Organization (DRDO)?

- (a) Workshop to engage students and encourage their interest in defense-related research and technology.
- (b) Joint military exercise conducted by the Indian Navy with the Royal Navy of Canada.
- (c) An ideal platform for validating Armed Forces equipment intended for aerial engagement, which is scheduled for induction into service.
- (d) An undergraduate and postgraduate scholarship provided exclusively for female students.

Answer: c

- Aim is to train troops of both sides for Joint Operations in Semi Desert terrain under Chapter VII of the United Nations Charter.
- The Exercise allows both sides to share their best practices in the tactics, techniques and procedures of conducting operations in sub-conventional domain.
- It includes setting up Mobile Vehicle Check Posts, conducting Cordon & Search Operations, House Intervention Drills, Reflex Shooting, Slithering, and Sniper Firing.
- The Exercise will provide an opportunity to both the contingents to strengthen their bond.

EXERCISE SADA TANSEEQ

Why in News: The militaries of India and Saudi Arabia are conducting their first Joint Military Exercise named as Sada Tanseeq.

About Exercise Sada Tanseeq

- It is the inaugural edition of India-Saudi Arabia Joint Military Exercise 'SADA TANSEEQ' commenced at Mahajan, Rajasthan.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. The joint military exercise 'Sada Tanseeq' is conducted between which of the following countries?


- (a) India & Bangladesh
- (b) India & Nepal
- (c) India & Saudi Arabia
- (d) India & USA

Answer: c

INS SANDHAYAK

INS SANDHAYAK

Why in News? The Indian Navy commissioned its latest survey vessel, Sandhayak at Naval Dockyard in Vizag in the presence of defence minister.



The image shows the INS Sandhayak, a large survey vessel of the Indian Navy, at sea. The ship is white with a dark hull and has the number 'J18' visible on its side. It is equipped with various antennas and sensors on its upper decks.

- 1** It is the first in a series of four Survey Vessel (Large) ships being constructed at Garden Reach Shipbuilders & Engineers (GRSE), Kolkata
- 2** The primary purpose of the ship is to conduct comprehensive coastal and deep-water Hydrographic Surveys for Port and Harbour approaches, as well as determining navigational channels and routes.
- 3** The operational zone extends up to maritime limits, covering the Exclusive Economic Zone (EEZ) and extended continental shelf.
- 4** Equipped with cutting-edge hydrographic tools, including a Data Acquisition and Processing System, Autonomous Underwater Vehicle, Remotely Operated Vehicle, DGPS Long-range positioning systems, and Digital side-scan sonar.
- 5** Additionally, the vessel is equipped to gather oceanographic and geophysical data, serving both defence and civil applications.
- 6** The ship can offer limited defence capabilities and serve as a hospital ship during wartime or emergencies.
- 7** Powered by two diesel engines, the vessel boasts a speed capability exceeding 18 knots.
- 8** Measuring 110 meters in length and displacing 3400 tons, INS Sandhayak has an indigenous content of over 80 per cent by cost.
- 9** This ship is re-incarnated in its present avatar from erstwhile Sandhayak, which was decommissioned in 2021.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Which of the following statements best describes the primary function of the INS Sandhayak, which was recently commissioned into service by the Indian Navy?

- (a) Coastal and offshore surveillance and intelligence gathering.
- (b) To conduct multi-role operations including anti-air, anti-surface, and anti-submarine warfare.
- (c) To conduct comprehensive hydrographic surveys of coastal and deep-water areas for port and harbor approaches.
- (d) Transportation of the troops, equipment, and vehicles for beach assault operations and humanitarian missions.

Answer: c

LEFT-WING EXTREMISM (LWE)

Why in News: The Union Ministry of Home Affairs (MHA) released a booklet titled “Decisive Battle with Left Extremism” outlining the government’s strategy to tackle Left-wing Extremism (LWE) in India.

Key details

The booklet provides insights into the current status of LWE, the government’s multi-pronged strategy to address it, and the challenges that persist.

Current Status of LWE

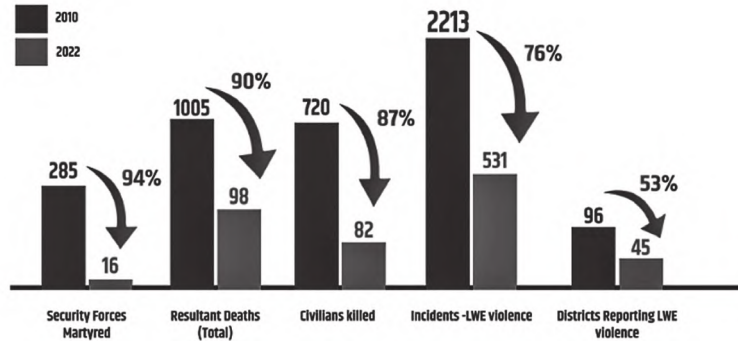
- **Reduction in LWE-affected areas:** The number of LWE-affected districts has significantly decreased in recent years, dropping from 96 in 2010 to 45 in 2022.
- **Decline in violence:** LWE-related violence has also seen a significant decline, with a 76% reduction in incidents between 2010 and 2022.
- **Concentration of LWE activity:** Most LWE violence is now concentrated in 25 districts, highlighting the progress made in controlling the spread of the insurgency.
- **Reduced Casualties:** Notably, the number of deaths associated with LWE has also declined significantly.

There has been a 69% decrease in total fatalities, with the number falling from 6,035 in 2004-14 to 1,868 in 2014-23. This represents a decrease of over 4,100 lives saved.

- **Improved Security Personnel Safety:** The data reveals a positive trend in terms of security personnel casualties. Deaths among security forces due to LWE activities have significantly declined by 72%, dropping from 1,750 in 2004-14 to 485 in 2014-23.
- **Reduced Civilian Impact:** Furthermore, civilian casualties have also shown a substantial decrease of 68%. The number of civilian deaths due to LWE violence fell from 4,285 in 2004-14 to 1,383 in 2014-23.

Great Downfall in Violent acts and area Limit of Left Militants in India

In the last 8 years, Three-Dimensional strategy of Home Ministry has achieved historic success in controlling left extremism. This success can be understood by these data.



LEFT WING EXTREMISM

- ★ **Origin:** LWE emerged in **1967 from a Naxalbari uprising in West Bengal**, led by a faction within the Communist Party of India (Marxist).
- ★ **Ideology:** Naxals adhere to a Maoist ideology advocating violent revolution to overthrow the existing socio-political order.
- ★ **Affected States:** LWE primarily affects ten states – Chhattisgarh, Jharkhand, Odisha, Bihar, West Bengal, Andhra Pradesh, Telangana, Maharashtra, Madhya Pradesh, and Kerala. The intensity varies across these regions.



Challenges Associated with LWE

<p>Socio-Economic Issues</p> <p>LWE thrives in areas with high levels of poverty, unemployment, land disputes, displacement, and lack of basic infrastructure like roads and communication networks. These issues create fertile ground for recruitment and fuel resentment against the government.</p>	<p>Security Threats</p> <p>LWE poses a significant security threat, involving violence against civilians and security forces. While 2022 saw a historic low in casualties (under 100), the threat persists.</p>	<p>Hindrance to Development</p> <p>LWE groups often oppose development initiatives like road construction and mobile tower installation, hindering economic growth and improved connectivity in affected areas.</p>	<p>Legal and Institutional Challenges</p> <p>Effective legal and institutional frameworks are crucial to combat LWE. Agencies like the National Investigation Agency (NIA) and Enforcement Directorate (ED) are working with state agencies to tackle LWE financing, but challenges remain.</p>
<p>Ideological Challenges</p> <p>LWE's core ideology promotes violence, hindering peaceful progress and jeopardizing India's future. This has resulted in a cycle of violence in affected regions.</p>			

Multi-pronged Strategy and its Success

The MHA's strategy, outlined in the booklet, is commendable. It acknowledges various dimensions of the issue and employs a holistic approach. Key aspects include:

- **Security Measures:** Schemes like the Security Related Expenditure scheme, construction of fortified police stations, and targeted deployment of security forces have led to a significant decrease in LWE violence. Between 2010 and 2022, LWE-affected districts have reduced from 96 to 45, with incidents of violence dropping by 76%.
- **Development Initiatives:** Schemes like the Civic Action Programme, Road Connectivity Project, and Eklavya Model Residential Schools address the socio-economic grievances exploited by LWE groups. This focus on development fosters inclusive growth, reducing vulnerability to radicalization.
- **Operational Strategy (SAMADHAN):** This strategy emphasizes smart leadership, aggressive action against LWE groups, motivation and training of security personnel, and close coordination between various stakeholders. This enhances operational effectiveness.

Other responses of government to LWE encompasses

- **Legal Framework:** Strengthening laws like the Unlawful Activities (Prevention) Amendment Act to deter extremist activities.
- **National Policy and Action Plan (2015):** This comprehensive strategy focuses on **security measures, development initiatives, and addressing the needs of local communities.**
- **Security Measures**
 - **Centralized Support:** The central government deploys **Central Armed Police Forces (CAPFs)**, provides training and equipment to state police forces, and constructs fortified police stations in affected areas.
 - **Improved Intelligence Sharing:** Strengthening intelligence collection and sharing is emphasized for **proactive action against LWE groups.**

Development Initiatives

- **Infrastructure Development:** This includes building roads (9356 km constructed in 8 years) and improving telecommunication connectivity (2,343 mobile towers installed) in LWE-affected regions.
- **Financial Inclusion:** Expanding access to banking facilities (1,258 branches, 1,348 ATMs, 22,202 banking correspondents) and postal services (4,903 new post offices) aims to integrate these communities into the mainstream economy.
- **Skill Development:** Schemes like **Kaushal Vikas Yojana (43 ITIs and 38 Skill Development Centres)** aim to equip youth with employable skills, thereby reducing their vulnerability to LWE recruitment.
- **Education:** Initiatives like **Eklavya Model Residential Schools (245 sanctioned, 121 functional)** aim to provide quality education in tribal-dominated areas.
- **Tribal Youth Exchange Program:** This program exposes tribal youth to developed areas, fostering **awareness and opportunities** and potentially **countering LWE narratives.**

Measures for Further Improvement

Sustained Efforts

Continued focus on security operations alongside development initiatives is critical to eliminate LWE completely.

Addressing Root Causes

Addressing issues like poverty, lack of education, and healthcare in LWE-affected areas can help break the cycle of violence.

Strengthening Intelligence Gathering

Enhanced human intelligence, improved technological capabilities, and better coordination between agencies can provide valuable insights into LWE activities and enable proactive action.

Effective Grievance Redressal

Prompt and sensitive redressal of grievances at the local level can prevent frustration and alienation, reducing the space for LWE recruitment.

Community engagement

Engaging local communities in the development process and ensuring their security concerns are addressed is essential for building trust and fostering long-term peace.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the Left-Wing Extremism (LWE) in India:

1. It emerged in 1967 from a peasant uprising in Gadchiroli district in Maharashtra.
2. Kerala is one of the LWE affected states in India.
3. Naxals adhere to Maoist ideology advocating violent revolution to overthrow the existing socio-political order.
4. Eklavya Model Residential Schools addresses the socio-economic grievances of the people exploited by LWE groups.

How many of the above statements are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Answer: c (2, 3 and 4 only)

Descriptive Question

Q. Discuss the current status of Left Wing Extremism (LWE) in the country. What are the challenges associated? What can be the way forward? [15 Marks] [250 words]

NATIONAL CYBERSECURITY REFERENCE FRAMEWORK (NCRF)

Why in News: The government plans to draw up a guiding policy called the National Cybersecurity Reference Framework (NCRF) to help manage cybersecurity better.

Key details

- The government has drawn up a guiding policy called the **National Cybersecurity Reference Framework (NCRF)** in an attempt to provide an implementable measure – with clear articulation of roles and responsibilities for cybersecurity – **based on existing legislations, policies and guidelines.**
- The action comes as India faces a barrage of cybersecurity-related incidents – most recently a **high-profile attack on the systems of AIIMS Delhi in 2022**– which pose a major challenge to New Delhi's national security imperatives.

Cyber security

- Cyber security is the **application of technologies, processes, and controls to protect systems, networks, programs, devices and data from cyber attacks.**
- It aims to **reduce the risk of cyber attacks and protect against the unauthorised exploitation of systems, networks, and technologies.**

Types of cyber threats

- **Malware, such as ransomware, botnet software, RATs (remote access Trojans), rootkits and bootkits, spyware, Trojans, viruses, and worms.**
- **Backdoors, which allow remote access.**
- **Formjacking, which inserts malicious code into online forms.**
- **Cryptojacking, which installs illicit cryptocurrency mining software.**
- **DDoS (distributed denial-of-service) attacks, which flood servers, systems, and networks with traffic to knock them offline.**
- **DNS (domain name system) poisoning attacks, which compromise the DNS to redirect traffic to malicious sites.**

National Cybersecurity Reference Framework (NCRF)

- NCRF is a framework that sets the **standard for cybersecurity in India.** "It is an important document that **supersedes the National Cyber Security policy 2013.**
- It **focuses on critical sectors and provides guidelines to help organizations develop strong cybersecurity systems.**
- The government has **identified telecom, power, transportation, finance, strategic entities, government entities and health as critical sectors.**
- The framework has been drawn up by the **National Critical Information Infrastructure Protection Centre (NCIIPC)** with support from the National Cybersecurity Coordinator (NCSC).

More about the NCRF

- **Non-binding in nature:** The NCRF is a guideline, meaning that its **recommendations will not be binding.**
- **Greater powers to the regulators:** The NCRF might suggest that regulators overseeing critical sectors can:
 - set rules for information security;
 - define information security requirements to ensure proper audit.
- **Separate budget allocation:** It recommends that **enterprises allocate at least 10 per cent of their total IT budget towards cybersecurity.**
- **Common but Differentiated Responsibility (CBDR):** The policy is **based on a CBDR approach, recognising that different organisations have varying levels of cybersecurity needs and responsibilities.**
- **Evolution of ways to use machines to analyse data from different sources:** The framework **might suggest that national nodal agencies evolve platforms and processes**

for machine-processing of data from different entities. This would help check if audits are done properly and rate auditors based on their performance.

- **Effective Information Security Management System (ISMS):** The regulators may also need to access sensitive data and deficiencies related to the operations in the critical sector.
 - Hence, they also would need to have an **effective Information Security Management System (ISMS).**

Need for National Cybersecurity Reference Framework (NCRF)

- From 2013 till 2023, the world has changed as new threats and new cyber organisations have emerged calling for new strategies.
- India faces a barrage of cybersecurity-related incidents which pose a major challenge to New Delhi’s national security imperatives.
- Many ministries feel hamstrung by the lack of an overarching framework on cybersecurity when they are formulating sector-specific legislations.

- In recent years many threat actors backed by nation-states and organised cyber-criminal groups have attempted to target Critical Information Infrastructure (CII) of the government and enterprises.
- In addition, availability of cyber-attacks-as-service has reduced the entry threshold for new cyber criminals, thus increasing the exposure to individuals and organisations.

National Cybersecurity Coordinator (NCSC)

- The NCSC provides guidance and support to state governments and private industry to help formulate policies.
- They also provide guidance on internet governance, network management, and response strategies for cyberattacks.
- It works under National Security Council Secretariat (NSCS) and coordinates with different agencies at the national level for cyber security matters.

NATIONAL CRITICAL INFORMATION INFRASTRUCTURE PROTECTION CENTRE (NCIIPC)

- NCIIPC is a government organization that protects critical information infrastructure for the public.
- It was established in 2014 and is based in New Delhi.
- **Mission:** To protect critical information infrastructure from unauthorized access, modification, use, disclosure, disruption, incapacitation, or destruction.
- It also provides advice to reduce the vulnerabilities of critical information infrastructure from cyber terrorism, cyber warfare, and other threats.
- The NCIIPC defines critical information infrastructure (CII) as computer resources whose incapacitation or destruction would have a debilitating impact on national security, economy, public health, or safety.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the National Cybersecurity Reference Framework (NCRF):

1. It has been shared with public via smartphone app-based service.
2. Its recommendations are binding on the government of India.
3. The government has identified Agriculture as one of the critical sectors.

How many of the above statements are correct?

(a) Only one (b) Only two

(c) All three (d) None

Answer: d

Descriptive Question

Q. Discuss in detail about the different types of cyberthreats. What is the need for National Cybersecurity Framework? [15 Marks] [250 words]

SOCIAL ISSUES

EQUAL OPPORTUNITY POLICY FOR TRANSGENDER PERSONS

Why in News: The Ministry of Social Justice and Empowerment (MoSJE) has taken a significant step towards promoting inclusivity and combating discrimination against transgender individuals by issuing the **first-ever 'Equal Opportunity Policy for Transgender Persons'** in India.

Key details

The policy has been formulated in accordance with the **Transgender Persons (Protection of Rights) Act, 2019** and the **Transgender Persons (Protection of Rights) Rules, 2020**. It outlines several key aspects:

- **Objectives**
 - To create an atmosphere free from discrimination, harassment, and bias based on gender identity.
 - To establish a robust grievance redressal mechanism.
- **Policy Statements**
 - **Non-discrimination:** Prohibits discrimination in recruitment, appointment, promotion, and other work-related aspects based on gender identity.
 - **Privacy and Confidentiality:** Ensures non-disclosure of gender identity without explicit consent.
 - **Access to Facilities:** Guarantees access to necessary infrastructure and amenities such as unisex toilets and hygiene products.
 - **Grievance Redressal Mechanism:** Provides a system to address instances of discrimination or harassment faced by transgender individuals.

Timeline of Reforms for Transgender Persons

- **2009:** Election Commission allows "others" option in voter registration forms.
- **2014:** Supreme Court recognizes transgender persons as the "Third Gender" in **National Legal Services Authority Vs. Union of India**.
- **2014:** Rights of Transgender Persons Bill introduced in Rajya Sabha by DMK MP.
- **2019:** Transgender Persons (Protection of Rights) Act enacted.

Key Provisions of the Transgender Persons (Protection of Rights) Act, 2019

- **Prohibition against discrimination:** Ensures access to education, employment, healthcare, and public services.

- **Right to be recognized as transgender:** Allows self-identification and issuance of a certificate by the District Magistrate.
- **National Council for Transgender Persons (NCT):** Established for advising the government on transgender issues.
- **Right of residence:** Protects against forced separation from family.
- **Healthcare:** Provides separate HIV surveillance centers, sex reassignment surgeries, review of medical curriculum to address their health needs, and comprehensive medical insurance schemes.
- **Penal provisions:** Criminalizes begging, forced labor, denial of public services and residence, physical/verbal/emotional/economic abuse.

Challenges Associated with the Act

- **Definition:** The definition of transgender persons is vague and does not include self-determination of gender.
- **Reservations:** The Act is silent on reservations in education and jobs, despite the NALSA judgment mandating it.
- **Criminalization of begging:** Ignores their livelihood dependence on performance-based income and lacks alternative support mechanisms.
- **Lighter penalties:** Penalties for discrimination and assault are less severe than for similar offenses against cis-gender people.
- **Victim-centric approach:** Positions transgender persons as solely victims, neglecting their agency and empowerment.
- **Unresolved concerns:** The Act does not address marriage, divorce, and adoption rights as recommended by the Standing Committee.
- **Right to residence violation:** Mandating residence with family or seeking court intervention potentially violates Article 19's freedom of residence.

Global Efforts

- 1) Anti discrimination laws - **Canada**
- 2) Public Awareness Campaigns - **Sweden**
- 3) Public Participation - **New Zealand**
- 4) Corporate Diversity Program - **USA**

CHAHAL'S PERSPECTIVE

Equal Opportunity Policy for Transgender Persons

Challenges Faced by Transgender Persons

Social stigma and discrimination

- › Transgender individuals often experience prejudice and exclusion in various spheres of life.

Mental Health Challenges

- › Due to discrimination, stigma, and lack of support, transgender people experience higher rates of mental health issues such as depression, anxiety, and suicidal ideation.

School Bullying and Harassment

- › Transgender students are all too often targets of bullying and harassment within the school environment, leading to lower academic achievement and negative mental health outcomes.

Limited access to essential services

- › They may face difficulties accessing basic amenities like healthcare, education, and proper housing.

Homelessness

- › Transgender people experience homelessness at alarmingly high rates due to discrimination, family rejection, and economic hardship.

Vulnerability to abuse

- › Transgender persons are more susceptible to physical, verbal, and sexual abuse, further marginalizing them.

Poverty and Unemployment

- › Transgender people have significantly higher rates of poverty and unemployment, a direct result of systemic discrimination.



Measures Taken for Welfare and Empowerment

National Council for Transgender Persons

- › Established under the Transgender Persons (Protection of Rights) Act, 2019, to advise the government on issues related to the community.

Transgender Persons (Protection of Rights) Rules, 2020

- › Enacted under the **Transgender Persons (Protection of Rights) Act, 2019**, these rules aim to:
 - Recognize the **identity** of transgender persons.
 - **Prohibit discrimination** in various spheres like education, employment, healthcare, and access to public services.

National Portal for Transgender Persons

- › Launched in line with the 2020 Rules, this portal facilitates:
 - Digital application for certificates and ID cards, eliminating physical interaction with officials.
 - Tracking application status, rejections, grievance redressal, ensuring transparency.

Garima Greh Shelter Homes

- › Launched by the Ministry of Social Justice and Empowerment in November 2020.
- › Provides comprehensive support to transgender persons:
 - Shelter, food, clothing, recreation, skill development opportunities, legal aid, and support for gender transition (if desired).

Capacity building of trans-friendly organizations

- › Aims to rehabilitate a minimum of 25 individuals per shelter home.

Recognition in Indian Prisons

- › In January 2022, the Ministry of Home Affairs issued an advisory to states and union territories to:
 - Ensure the privacy and dignity of transgender inmates.
- › **The Prisons Act, 1894** doesn't recognize transgender individuals as a separate class of prisoners.
- › As of 2020, there were **70 transgender prisoners in Indian jails** (NCRB data).

- The number of people in their working years is increasing, but so is the number of people in their senior years, which adds to the overall ageing population and **creates both opportunities and challenges**.
 - Providing healthcare and social support to the elderly presents challenges, but there is also opportunity to use their knowledge and experience to advance society.
- As per the most recent United Nations projections, **India's population is expected to reach 1.46 billion by 2030**, which represents a significant 17% of the projected global population.
 - This highlights India's significant demographic presence on the global stage. The population is still increasing, but at a slower rate, which indicates that the demographic profile is maturing.



Improving the accuracy and availability of demographic data

- India needs to **invest in modernising its data infrastructure**, which includes **establishing robust systems for data collection, management, and analysis**. This involves upgrading data collection methods, adopting digital technologies for data processing, and ensuring data security and privacy.
- **Implementing rigorous validation and quality assurance mechanisms** is essential to ensure the reliability and accuracy of population data. Independent audits, **data validation exercises, and peer review processes** can help identify and rectify data errors and inconsistencies.
- Another promising area is **the promotion of open data initiatives and transparency in data sharing**, which can facilitate access to population data for researchers, policymakers, and the public.
- Collaboration with **international organisations such as the United Nations Population Division, World Bank, and academic institutions** can provide access to global best practices, technical expertise, etc.

What should be the role of committee?

- The **committee should identify emerging issues and evaluate existing interventions** through research, data analysis, and monitoring demographic trends.
- **Collaboration with stakeholders like government agencies, NGOs, civil society, academia, and the private**

sector is crucial for implementing population-related policies and programs.

- The committee should also **focus on public awareness and education campaigns**, promoting responsible family planning practices and improving health outcomes.
- It should **facilitate international collaboration and exchange best practices** in population management.

Conclusion

- India's demographic landscape **presents opportunities and challenges for socio-economic development**. By adopting a holistic approach to population management, **prioritizing investments in health, education, employment, and statistical systems**, and promoting gender equality and social inclusion, India can realize its demographic potential and become a global leader in inclusive and sustainable development.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following specific stages of demographic transition associated with economic development:

1. Low birthrate with low death rate
2. High birthrate with high death rate
3. High birthrate with low death rate

The Surrogacy (Regulation) Act, 2021, is a crucial legislation governing the practice of surrogacy in India.

Key Points of the Act

- **Altruistic Surrogacy Only:** The Act allows **only altruistic surrogacy**, where the surrogate mother carries the pregnancy without any financial compensation beyond medical expenses and reasonable insurance coverage. This is aimed at preventing exploitation and commercialization of surrogacy.
- **Eligibility for Intending Couple:** The Act restricts availing surrogacy to **legally married couples**, with

the female partner aged between **23 to 50 years** and the male partner aged between **26 to 55 years**. Additionally, the couple **must not have a surviving biological child**. This aims to ensure responsible parenthood and address concerns about surrogacy being used for non-medical purposes by couples already having children.

- **Eligibility for Surrogate Mother:** The Act mandates the surrogate mother to be a **married woman with at least one child of her own** and aged between **25 to 35 years**. This requirement aims to ensure that the surrogate mother is mature, understands the implications of the process, and has already experienced motherhood.

CHAHAL's PERSPECTIVE ON

Surrogacy (Regulation) Amendment Rules, 2024

Implications for Stakeholders

Expanded Access for Infertile Couples

The amendments potentially provide greater access to surrogacy for infertile couples struggling with both male and female infertility.

Increased Options for Single Women

Single women facing infertility or lacking a male partner can now consider surrogacy as an option to build a family. This caters to the evolving social realities and aspirations of single women who may choose motherhood.

Ethical Considerations

The amendments raise ethical concerns regarding potential exploitation of both surrogate mothers and donor gametes.

Recommendations for Further Reforms

Counselling and support

Providing mandatory counselling and support services to both intending parents and surrogate mothers, addressing emotional, psychological, and legal aspects.

Ensuring Donor Rights and Transparency

Clear guidelines on informed consent, compensation, and anonymity for gamete donors are crucial to protect their rights and ensure ethical practices.

Strengthening Regulation and Oversight

Robust regulations are needed to ensure the safety and well-being of surrogates, children, and intended parents. This includes stricter medical screening, counseling, and long-term follow-up for all stakeholders involved.

Promoting Inclusive and Ethical Surrogacy

Public awareness campaigns and ethical guidelines can promote informed decision-making, respect for all stakeholders' rights, and prevent potential exploitation in surrogacy arrangements.

ALL INDIA SURVEY ON HIGHER EDUCATION (AISHE)

Why in News: The Ministry of Education, Government of India, released the All-India Survey on Higher Education (AISHE) 2021-2022.

Important highlights

- The **estimated GER for the age group 18-23 years in India is 28.4**, based on 2011 census data. States with the

highest GER include Chandigarh (64.8%), Puducherry (61.5%), Delhi (49%), and Tamil Nadu (47%).

- **From 1.5 crore women enrolled in 2014-15, there has been a jump of 32% to 2.07 crores enrolled in 2021-22.** In the last five years, the number of women enrolled increased by 18.7%, from 1.74 crore in 2017-18.
- The **GER of Schedule Caste (SC) and Schedule Tribe (ST) students** has also increased by around 2%. In 2020-21, the GER of SC students was 25.6% and ST was 23.4%, while in

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the Surrogacy (Regulation) Amendment Rules, 2024:

1. It permits married couples to use donor eggs or donor sperm for surrogacy.
2. It does not allow the widowed or divorced women to use the donor sperm for surrogacy.
3. It states that, a married couple where both partners are unable to use their gametes due to an existing medical condition cannot opt for surrogacy.

How many of the statements given above is/are correct?

- (a) Only one (b) Only two
(c) All three (d) None
- Answer: (1 and 3 only)

Descriptive Question

Q. Discuss the salient features of the Surrogacy (Regulation) Amendment rules, 2024. [10 Marks] [150 words]

2021-22 it increased to 27.2% and 25.8% respectively. The enrolment of OBC students has also increased to 1.63 crore in 2021-22 from 1.13 crore in 2014-15.

- About 78.9 per cent of the total students are enrolled in undergraduate level courses and 12.1 per cent are enrolled in postgraduate level courses.
- Among disciplines at undergraduate level, in 2021-22, the enrollment is highest in Arts (34.2%), followed by science (14.8%), commerce (13.3%) and engineering and technology (11.8%). BA(Hons) accounts for 20.4 lakh (6.2%).
- Among streams at postgraduate-level in AISHE 2021-22, maximum students are enrolled in Social Science (21.1%), followed by science (14.7%).
- In the government sector, state public universities have the largest share of enrolment, accounting for around 31% of the total enrolment for universities. In actual numbers, government-owned universities have an enrolment of 71.06 lakh, whereas enrolment in privately managed universities is 25.32 lakh.

All-India Survey on Higher Education (AISHE)



AISHE report has been published by the Ministry of Education since 2011.

Aim: To portray the status of higher education in the country. The survey covers all the institutions in the country engaged in imparting higher education.

Data is being collected on several parameters, such as:

- ▶ Teachers
- ▶ Student enrolment
- ▶ Programmes
- ▶ Examination results
- ▶ Education finance
- ▶ Infrastructure

Indicators of educational development such as:

- ▶ Institution Density
 - ▶ Gross Enrolment Ratio
 - ▶ Pupil-Teacher Ratio
 - ▶ Gender parity index
 - ▶ Per student expenditure
- will also be calculated from the data collected through AISHE.

♦ For the purpose of this survey, higher education is defined as education that is obtained after completing 12 years of schooling or equivalent.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. With reference to the All-India Survey on Higher Education (AISHE) 2021-2022, consider the following statements:
1. The overall gross enrolment ratio (GER) in higher education for the age group 18-23 years age group has been increased.
 2. The overall gross enrolment ratio (GER) has been decreased for females.
 3. Only 57 per cent of the total students are enrolled in undergraduate level courses.

How many of the above statements are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Answer: a (1 only)

KILKARI INITIATIVE

Why in News: Union Ministers of State for Health and Family Welfare virtually launched the Mobile Health Service 'Kilkari' programme.

Key details

- The Kilkari programme was launched in the two states – Maharashtra and Gujarat.
- The launch of the Kilkari Programme is in line with the Government's commitment to prioritize the public health infrastructure and strengthen citizen-centric health services by leveraging India's expanding mobile phone penetration.
- Currently, the Kilkari programme is under implementation in 18 states and UTs.

Features

- The Kilkari programme is a centralised interactive voice response (IVR) based mobile health service which delivers 72 weekly and time-appropriate audio messages about pregnancy, childbirth and childcare directly to families' mobile-phones from the second trimester of pregnancy until the child is one-year-old.
- A weekly call with pre-recorded audio content is sent straight to the mobile phones of expectant mothers and mothers of children under one year old who are registered on the Reproductive Child Health (RCH) portal based on the mother's LMP (last menstrual period) or the child's DoB (date of birth).
- The Kilkari programme is centrally hosted by Union Health Ministry for all states and UTs, and no further investment in the technology, telephony infrastructure or operational costs is required to be borne by them.
- This service is free of cost for states, UTs and beneficiaries.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. Consider the following statements with reference to the Kilkari Initiative:
1. It is a centralized interactive voice response based mobile health service.
 2. It is integrated with the centralized Reproductive Child Health (RCH) portal.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Answer: c

MORODHARO HARAPPAN SITE

Why in News: Archaeologists recently discovered a Harappan-era fortified settlement named Morodharo.

Key Details

- A **research scholar working with his professor**, both from Oxford's School of Archaeology, were the lead archaeologists in this discovery.
- They said **architectural details at the new site bear striking resemblance to Dholavira**.

About Morodharo

- It is a **fortified settlement dating back to the Harappan era, located in the Kutch District of Gujarat**
- The settlement looks **mature (2600 – 1900 BCE) to late (1900-1300 BCE) Harappan**.
- The fortification **measures 102 m east to the west and 58 m north to the south**.
- The **thickness of the wall is an average of 3.3 m**.
- It has a **10x10 platform on the south-west size and a well on the north-east**.
- **Burial cairns**, which are mounds of stones to demarcate a boundary, are also found here.
- Harappan pottery with **perforated jar sherds, reserved slipware, and terracotta cakes** were unearthed. All these items have a striking resemblance to those found in Dholavira.

Key Facts about Harappan Civilization

- The Indus Valley/Harappan civilisation was the **first urban civilisation in South Asia, coexisting with Mesopotamia and Egypt**.
- The Harappan civilisation occupied the largest area (approximately 8,00,000 sq. km) among the three civilisations.
- **Harappa (Punjab, Pakistan), Mohenjodaro (Sindh, Pakistan), Dholavira, Lothal, and Surkotada (Gujarat, India), Kalibangan in Rajasthan, and Banawali and Rakhigarhi (Haryana, India)** are the major cities in the Harappan period.

Significance of the Site

- Given Morodharo's closeness to the sea and its location next to the Rann of Kutch, it is likely that the region was navigable in the past, facilitating trade and connectivity.

- The finding of Morodharo underscores the importance of local efforts in unearthing archaeological treasures and advances our knowledge of the scope and impact of the Harappan civilization in the area.

Conclusion

Featuring a sizable fortification, platform, well, and burial cairns, Morodharo is a Harappan-era fortified settlement in Gujarat that exhibits mature to late Harappan features. Similar artefacts to those from Dholavira demonstrate the connections between cultures.

EXPECTED QUESTION FOR UPSC CSE**Prelims MCQs**

Q1. Which one of the following is not a Harappan site?

- (a) Chanhudaro (b) Kot Diji
(c) Sohgaura (d) Desalpur

Answer: c

Q2. Consider the following pairs:

Site of Indus Valley Civilisation	Located on river
1. Harappa	Indus
2. Mohenjo-Daro	Ravi
3. Kalibangan	Ghaggar

How many of the pairs given above is/are correctly matched?

- (a) Only one (b) Only two
(c) All three (d) None

Answer: a (3 only)

SANT GURU RAVIDAS

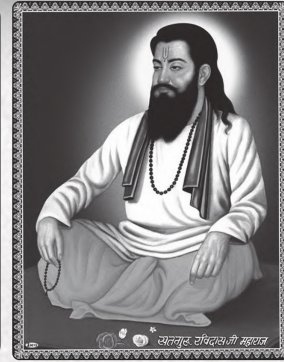
Why in News: The Prime Minister of India paid tributes to Sant Ravidas on his birth anniversary.

Key Details

- In accordance with the Hindu lunar calendar, Ravidas Jayanti is observed on Magh Purnima, the full moon day in the month of Magh.
- The well-known saint of the Bhakti Movement is honored on this day of his birth.
- This year marks his 646th anniversary.

Sant Guru Ravidas

- Guru Ravidas was born into an untouchable caste of leather workers in Varanasi
- Ravidas, mystic and a poet was one of the most well-known saints of the North Indian bhakti movement during 15 or 16th century.
- Other Names : He is also popularly known as Raidas, Rohidas, and Ruhidas.



His Contributions

- He was the founder of the Ravidassia religion and a disciple of Sant Kabir. His disciple was Mirabai.
- His poems and songs of devotion have a lasting impression on the Bhakti Movement.
- The Sikh scripture, Guru Granth Sahib, has forty-one of his devotional songs and poems.
- Our constitutional values are infused with the social justice, equality, and fraternity ideologies of Guru Ravidasji.
- One of Ravidas's greatest moral and intellectual accomplishments was the idea of "Begampura," a city devoid of sorrow and a society in which caste and status are irrelevant.

Bhakti movement

- The Bhakti movement was a reform movement in medieval religion that advocated for direct devotion to God without the need for a priest to mediate.
- By eliminating the barriers of caste, creed, and gender between the devotee (bhakta) and God (bhagwan), it sought to transform society.
- From the sixth to the tenth century CE, the Bhakti movement first appeared in South India, mostly through the poetry of Alvars and Nayanars.
- Later, it made its way throughout India, particularly the North and East, thanks to puranic texts like the Bhagavata-Purana and the Bhagavad Gita.
- It reached its peak between the 14th and 17th centuries CE.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. With reference to the Sant Guru Ravidas, consider the following statements:

1. Sant Kabir was his contemporaries.
2. Mirabai was his disciple.

3. His devotional songs and poems are included in the Guru Granth Sahib.

How many of the above statements are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Answer: c

Descriptive Question

Q. Discuss in detail about the contributions of Sant Guru Ravidas to Indian culture. [10 Marks] [150 words]

MARTAND SUN TEMPLE

Why in News: Some people forced their way into the Archaeological Survey of India (ASI)-protected Martand Sun temple.

MARTAND SUN TEMPLE

About

- ▶ The Martand Temple was built by the **Karkota dynasty king Lalitaditya Muktapida**, who ruled Kashmir from 725 AD to 753 AD.
- ▶ It is a **Hindu temple located near the city of Anantnag** in the Kashmir Valley of Jammu and Kashmir.
- ▶ It is **dedicated to the Sun God**.
- ▶ Martand is another Sanskrit **synonym for Surya**.
- ▶ The temple is **believed to have been demolished by Sultan Sikandar Shah Miri**, who ruled Kashmir from 1389 to 1413.

Features

<p>1 The temple is influenced by Classical Greco-Roman, Buddhist-Gandharan, and North Indian styles</p>	<p>2 The temple is located on top of a plateau and has been constructed entirely out of stone.</p>
<p>3 It stands in the middle of a large courtyard with 86 fluted columns. The courtyard is connected to the main shrine, where Sun God's idol was installed.</p>	<p>4 The construction of the main shrine was such that during most of the days' time, especially during sunrise and sunset, the rays would directly fall on the idol.</p>
<p>5 The central shrine, or vimana, stands tall at around 60 feet. It features intricate carvings and sculptures that depict various Hindu gods and goddesses.</p>	<p>6 There are 84 smaller shrines around the main Sun Temple. They are lined along the perimeter of the complex.</p>
<p>7 The Martand Temple has three distinct chambers—the mandapa, the garbhagriha, and the antralya—probably the only three-chambered temple in Kashmir.</p>	

Other Prominent Sun Temples in India



EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

- Q. Consider the following statements with reference to the Martand Sun temple:
1. It was built by King Lalitaditya Muktapida of Karkota Dynasty.
 2. It is located near the city of Anantnag in the Kashmir Valley of Jammu and Kashmir.
 3. It contains the temple architectural styles of both Gupta and Gandhara.

How many of the above statements are correct?

- (a) Only one (b) Only two
(c) All three (d) None

Answer

Descriptive Question

- Q. Enumerate the famous Sun temples across India. What are the salient features of Martand Sun temple? [15 Marks] [250 words]

MOHAMMED QULI QUTB SHAH'S TOMB

Why in News: A reality technology company, Hexagon unveiled digital twin of the Mohammed Quli Qutb Shah's tomb in Hyderabad.

Key details

- A digital twin is an exact replica of a real-world physical object, system, or process that exists only in the virtual realm.
- It is an effective tool that supports testing, modeling, and decision-making by helping to comprehend and analyze physical entities.
- The presentation by Hexagon showed how heritage brings value to the community, make it virtually available and accessible to people across the world.

Muhammed Quli Qutb Shah's tomb



The grandest of the Qutb Shahi tombs is Muhammad Quli Qutb Shah's tomb, which is situated inside the Qutb Shahi tombs complex.

It was constructed in 1602 AD.

The tomb is 4 meters high and 65 meters square on a terrace.

The tomb has been carved with Persian and Naskh script inscriptions.

About the Qutb Shahi Dynasty

- The Qutb Shahi dynasty was a **Persianate Shia Islamic dynasty of Turkoman origin**, ruled the Sultanate of Golkonda in south India.
- Main Locations : **Karnataka, Odisha, Telangana and Andhra Pradesh.**
- The dynasty was established in 1512 AD by **Sultan-Quli Qutb-ul-Mulk, also known as "Quli Qutb Shah"**.
- The **Qutb Shahis were forced to pay tributes when Mughal ruler Shah Jahan** established Mughal suzerainty over them in 1636.
- When Aurangzeb, the Mughal emperor, **conquered Golconda and imprisoned Abul Hasan Qutb Shah**, the last sultan, the dynasty came to an end in 1687.

About the tombs

- The Qutub Shahi Tombs are **located in Hyderabad**, close to the popular Golconda Fort.

- This **complex is notable for housing the tombs and mosques** built by various rulers of the Qutub Shahi dynasty.
- It **contains 30 tombs, mosques and a mortuary bath**, spanning the 130-year period between 1543 to 1672.

Architecture of the tombs

- **Structure:** The tombs are **constructed on an elevated platform** and have pointed arches encircling square bases with domed constructions that combine elements of Indian and Persian architecture.
- **Designing elements:** Only a few shards of the domes' original blue and green tile decoration remain. The **buildings are encircled by beautifully designed gardens** and feature elaborately carved stonework.
- **Interior of the tomb:** Each tomb **contains a sarcophagus in the middle, covering the burial vault in a crypt below**. The smaller tombs are characterized by single-story galleries, while the larger ones are two-storied.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the Muhammed Quli Qutb Shah's tomb:

1. It was constructed in 1602 AD.
2. It was carved with Persian and Naskh script inscriptions.
3. It is located in Fatehpur Sikri.

How many of the above statements are correct?

- | | |
|---------------|--------------|
| (a) Only one | (b) Only two |
| (c) All three | (d) None |
- (Answer: 1 and 2 only)

Descriptive Question

Q. What are the salient features of Muhammed Quli Qutb Shah's tomb? Discuss in detail about the architecture of Qutab Shahi's tombs. [15 Marks] [250 words]

JNANPITH AWARD

Why in News: Renowned Urdu poet Gulzar and Sanskrit scholar Jagadguru Rambhadracharya have been named the recipients of the 58th Jnanpith Award, considered by many to be the country's highest literary honour.

Key Details

- This is the **58th edition of the Jnanpith Award** given annually for outstanding contributions to Indian literature since 1965.
- It is the **second time the award is being given for Sanskrit and the fifth time for Urdu.**

About the Awardees

Gulzar

- **Gulzar or Sampooran Singh Kalra** was born in 1934.
- He is considered one of the finest Urdu poets of his generation and is a top director and writer of Hindi cinema.

Achievements

- Sahitya Akademi Award for Urdu (2002)
- Dadasaheb Phalke Award (2013)
- Padma Bhushan (2004)
- 5 National Film awards, an Oscar in 2009 and Grammy in 2010

Jagadguru Rambhadracharya

- Rambhadracharya, is a **renowned Hindu spiritual leader, educator and writer of more than 240 books and texts**, including four epics. He was born in 1950 in Jaunpur in Uttar Pradesh.
- He is also the **founder and head of Tulsī Peeth in Chitrakoot in Madhya Pradesh.**
- He **speaks 22 languages, is one of the present four Jagadguru Ramanandacharyas** of the Ramananda sect and has been holding this position since 1982.
- A **poet and writer in several Indian languages including Sanskrit, Hindi, Awadhi and Maithili**, he received the Padma Vibhushan in 2015.

Jnanpith Award



- ➔ **Instituted by the Bharatiya Jnanpith in 1961.**
- ➔ **The Jnanpith Award is given annually for outstanding contributions to Indian literature since 1965.**
- ➔ **It is the highest literary honour in India.**
- ➔ **The award carries a cash component of ₹11 lakh, a statue of Vagdevi and a citation.**



Bharatiya Jnanpith is a research and cultural institute which was established by Shahu Shanti Prasad Jain in 1944.

EXPECTED QUESTION FOR UPSC CSE	
Prelims MCQ	
Q. Consider the following pairs with reference to the Awards:	
1. Jnanpith Award	For outstanding contributions to Indian literature
2. Padma Vibhushan	To the most outstanding books of literary merit published in any of the major Indian languages


3. Sahitya Akademi Award	For exceptional and distinguished service
How many of the pairs given above is/are correctly matched?	
(a) Only one	(b) Only two
(c) All three	(d) None
Answer: a (1 only)	

DOGRI FOLK DANCE

Why in News: Union Government of India conferred Padma Shri award to Jammu’s Dogri folk dancer Romalo Ram.

Dogri Folk Dance

It is a dance performed in **Duggar region** of Jammu. It is performed in **functions and social gatherings**.



Dogra folk-dances have an **important role as a part of worship, ceremonies and a pastime** but the main force behind the folk-dances is the celebratory mood.

It is **generally performed by a group of artists** whose **main leader sings the song as well as dances** while **others are in the sitting position** providing beats of Drums and Chimta.

There are other varieties of this dance with the **men and women or only women performing** dance in groups to the music of some famous folk song in **colourful traditional dresses**.

Other dance forms of Jammu region: Dheku, Phummani, jagran, Ckauki, Chhajja, Kuddha, Hirana etc. are the main dances. Bhagtan, Raas, Chandrauli etc. are main folk-drama styles.

EXPECTED QUESTION FOR UPSC CSE			
Prelims MCQ			
Q. Consider the following pairs:			
Sl. No.	Folk dance	:	State / Union Territory
1.	Dogri folk dance	:	Jammu and Kashmir

2.	Kattaikoothu	:	Tamil Nadu
3.	Kuchipudi	:	Kerala
How many of the above pairs are correctly matched?			
(a) Only one	(b) Only two		
(c) All three	(d) None		
Answer: b (1 and 2 only)			

GOVERNMENT SCHEMES

PRADHAN MANTRI MATSYA KISAN SAMRIDHI SAH-YOJANA

Why in News: The Union Cabinet has approved the Pradhan Mantri Matsya Kisan Samridhi Sah-Yojana (PM-MKSSY).

Key details

- **PM-MKSSY:** This central sector sub-scheme is a part of the larger Pradhan Mantri Matsya Sampada Yojana (PMMSY), will invest ₹6,000 crore over four years (2023-24 to 2026-27).
- **Focus on MSEs:** The scheme offers financial and technical assistance to small-scale fish farmers and entrepreneurs involved in aquaculture, inland fisheries, and post-harvest activities like processing and marketing.

Key features

- **Activities covered:** Inland fish farming, brackish water aquaculture, and cage culture.

- **Eligibility:** Individual fish farmers, fish farmer groups, and Self-Help Groups (SHGs).
- **Extension of Fisheries and Aquaculture Infrastructure Development Fund (FIDF):** The Cabinet also approved the extension of FIDF till 2026. This fund provides financial assistance for developing critical infrastructure like fishing harbors, landing centers, cold storage, and fish transport facilities.

Fisheries in India

- India is the **3rd biggest fish producer and 2nd biggest aquaculture producer** globally.
- It's also the **4th largest exporter of fish**, with exports growing by 26.73% from FY 2021-22 to FY 2022-23.
- Over 30 million people in India rely on the fishing sector for their livelihood.
- The government runs a key program called "Pradhan Mantri Matsya Sampada Yojana (PMMSY)" to boost the fisheries sector sustainably.

CHAHAL's PERSPECTIVE on Indian Fisheries Sector

Challenges Facing Indian Fisheries

- **Overfishing:** Too much fishing is depleting fish stocks.
- **Illegal Fishing:** Unauthorized and unreported fishing activities undermine conservation efforts.
- **Lack of Technology and Infrastructure:** Outdated tools and poor facilities make fishing less efficient.
- **Poor Management:** Weak enforcement of rules worsens overfishing and illegal practices.
- **Pollution and Habitat Damage:** Industrial waste and development harm fish habitats.
- **Climate Change:** Changing conditions disrupt fish populations and ecosystems.
- **Social and Economic Issues:** Poverty and lack of resources affect fishing communities.

Government Efforts to Improve the Sector

- **National Fisheries Development Board (NFDB):** Established in 2006 to plan and promote fisheries development.
- **Pradhan Mantri Matsya Sampada Yojana (PMMSY):** A scheme launched in 2020 to enhance fish production and farmer income.
- **Blue Revolution:** Started in 2015 to modernize the fisheries sector.
- **Sagarmala Programme:** Launched in 2015 to develop port infrastructure and support fisheries growth.
- **National Fisheries Policy:** Introduced in 2020 for sustainable fisheries development.
- **Fish Farmers Development Agencies (FFDAs):** District-level agencies providing support to fish farmers.
- **Coastal Aquaculture Authority (CAA):** Regulates and promotes sustainable coastal aquaculture.

Way Forward

- **Sustainable Fishing Practices:** Implementing stricter regulations, promoting responsible fishing methods, and investing in stock assessment and management are crucial.
- **Infrastructure Development:** Upgrading infrastructure, including cold storage facilities, processing units, and harbors, is essential for reducing post-harvest losses and maximizing value addition.
- **Climate Change Adaptation:** Investing in climate-resilient fishing practices, early warning systems, and alternative livelihoods for vulnerable communities is vital.
- **Empowering Fishers:** Enhancing access to credit, insurance, and social security, along with addressing gender disparities, will improve the lives of fishers and their families.
- **Technology Adoption:** Encouraging widespread adoption of advanced fishing technologies, data-driven decision making, and precision aquaculture practices will enhance efficiency and productivity.
- **Collaborative Approach:** A collaborative approach involving fishers, scientists, policymakers, and private stakeholders is crucial for sustainable development of the sector.



EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following statements with reference to the Pradhan Mantri Matsya Kisan Samridhi Sah Yojana:

1. It is Central Sector Sub-scheme under the Pradhan Mantri Matsya Sampada Yojana (PMMSY).
2. It is funded by the Asian Development Bank (ADB).

How many of the above statements are correct?

- (a) 1 only (b) 2 only
 (c) Both 1 and 2 (d) Neither 1 nor 2

Answer: a

Descriptive Question

Q. What are the challenges faced by Fisheries sector in India? Discuss in detail about the features of the Pradhan Mantri Matsya Kisan Samridhi Sah-Yojana (PM-MKSSY). [15 Marks] [250 words]

SUSTAINABLE AND INCLUSIVE DEVELOPMENT OF NATURAL RUBBER SECTOR SCHEME

Why in News: For the upcoming two fiscal years (2024–2025 and 2025–2026), the financial assistance for the rubber sector under the “Sustainable & Inclusive Development of Natural Rubber Sector (SIDNRS)” has increased by 23%, from Rs 576.41 crore to Rs 708.69 crore.

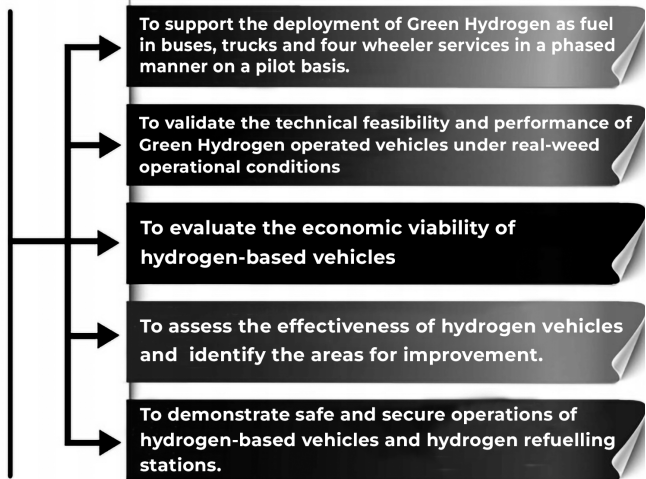
Key Details

- In an effort to **encourage the growth of rubber-based sectors in the Northeast**, the government has also announced plans to establish three nodal Rubber Training Institutes there.
- In order to empower rubber growers, it would also **encourage the establishment of Rubber Producers Societies (RPS)**.

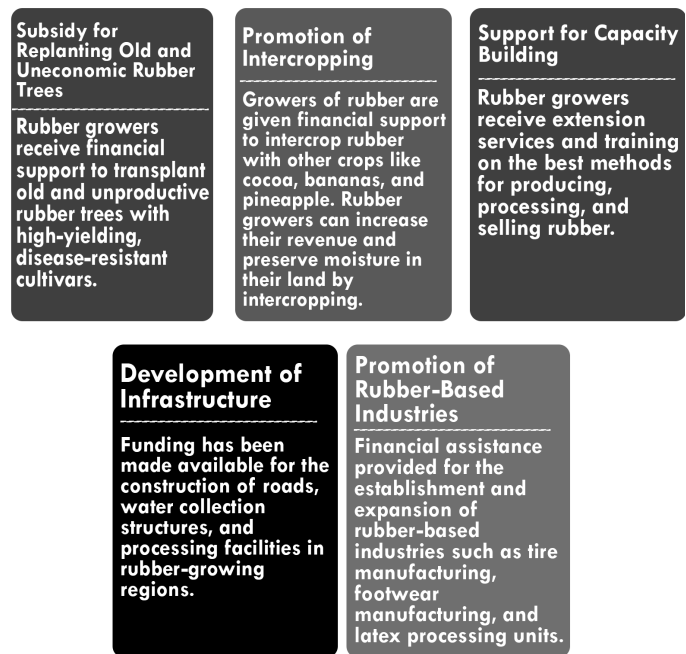
What is Sustainable & Inclusive Development of Natural Rubber Sector (SIDNRS) Scheme?

- The Government of India launched the SIDNRS plan in an effort to encourage the **inclusive and sustainable growth of the country’s natural rubber industry**.
- The FY 2017–18 first introduced the **SIDNRS** program.
- Rubber Board is a **statutory body** and **Ministry of Commerce and Industry** is responsible for its implementation.

OBJECTIVES OF THE SCHEME

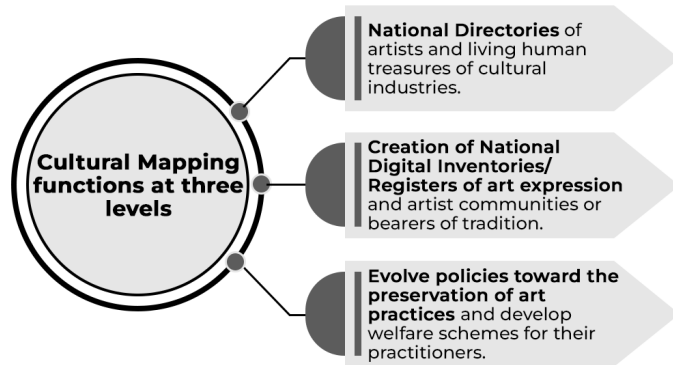


COMPONENTS OF THE SCHEME



About Natural Rubber

- The **rubber tree**, formally known as *Hevea brasiliensis*, produces the latex, or milky sap, that is used to make natural rubber, which is a useful and necessary raw material.
- The **main constituent of this latex is a polymer known as polyisoprene**, which is part of a complex mixture of chemical molecules.
- In the latter half of the 1800s, the **British Government brought it to tropical Asia and Africa**.
- **Growing Conditions:**
 - Tropical climate having **annual rainfall of 200 – 450 cm** is best suitable for rubber cultivation.
 - It needs **deep and lateritic fertile soil having acidic pH of 4.5 to 6.0** and highly deficient in available phosphorus.



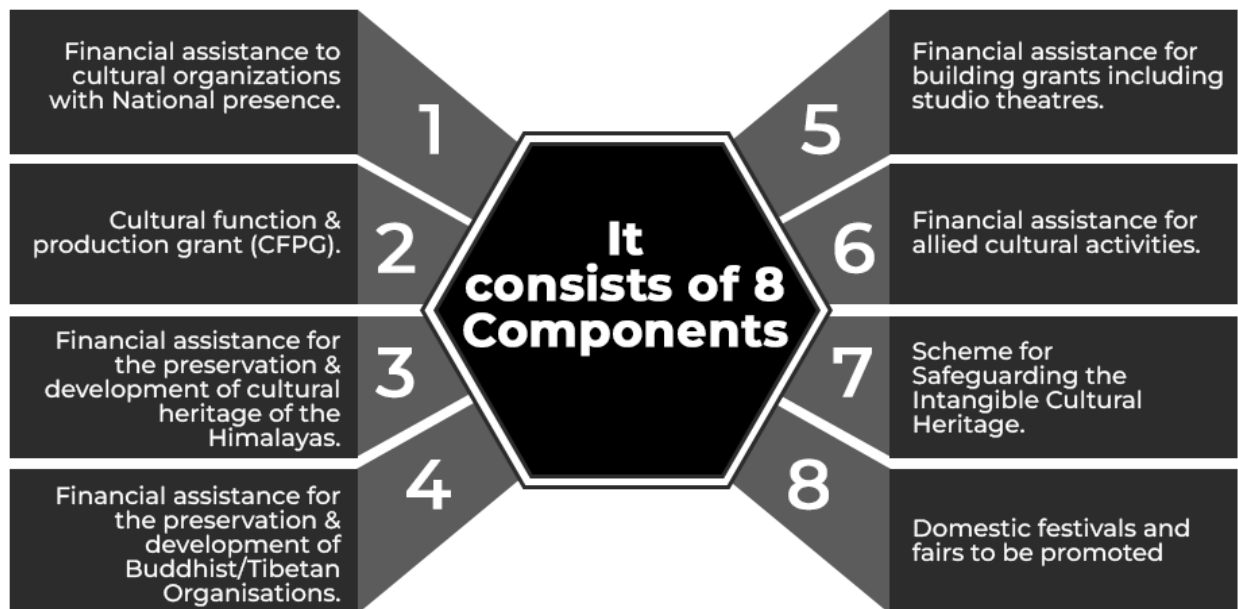
- To **preserve, safeguard, revitalise and disseminate** the rich cultural heritage of this country for future generations.
- To create a strong **“Cultural Vibrancy”** throughout the nation with the help of digital platforms and outreach activities.

Scheme of Financial Assistance for the Promotion of Art and Culture

- It is a **central sector scheme**.
- Aims to support various cultural activities and organizations in the country.
- **It consists of 8 Components: -**

NMCM Mandate

- To create a **national database** through Cultural Mapping.



EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Consider the following villages:

1. Fishing village
2. Ecologically Oriented Village
3. Historical Village linked National History
4. Epic Village linked with Ramayana
5. Architectural Heritage Village

Information of how many of the above will be made available on online portal under Mera Gaon, Meri Dharohar (MGMD) Programme?

(a) Only two (b) Only three

(c) Only four (d) All five

Answer: d

Descriptive Question

Q. Elaborate on the components of the scheme of Financial Assistance for the Promotion of Art and Culture. [10 Marks] [150 words]

PM SURYA GHAR MUFT BIJLI YOJANA

Why in News: The Union Cabinet approved PM Surya Ghar Muft Bijli Yojana in order to promote rooftop solar installation and sustainable development..

About the Scheme

- The scheme aims to **provide free electricity up to 300 units every month to the one crore households of the country**.
- The scheme will give **people financial assistance to put solar panels** on their rooftops.
- To get benefits under the initiative, households must register on the PM Surya Ghar website.

Financial Assistance

- **Up to 40% of the cost of the solar panels will be covered** by the subsidy. The prospective customer is responsible for covering the remaining expenses.
- The Center will pay **40% of the installation costs for systems** with a capacity of 2-3 kW and 60% of the cost for systems with a capacity of 2 kW.
- **Higher wattage systems will not qualify** for central subsidy.

Other Features of the Scheme

- In order to serve as an example for the **adoption of rooftop solar in rural areas**, a **Model Solar Village will be constructed in each district** of the whole country.
- **Incentives for encouraging RTS installations** in their regions will also be provided to Panchayati Raj Institutions and Urban Local Bodies.
- The scheme offers a **subsidy for creative RTS initiatives** in addition to a payment security component for models based on renewable energy service companies (RESCOs).

Benefits of PM Surya Ghar Muft Bijli Yojana

It involves more use of renewable energy, lower carbon emissions, free electricity for homes, and lower electricity expenses for the government.

It is an important step in the right direction to encourage India to use renewable energy.

The program is expected to directly generate over 17 lakh new employment in manufacturing, supply chain, logistics, sales, installation, and other services.



EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. With reference to the PM Surya Ghar Muft Bijli Yojana, consider the following statements:

1. It subsumed the Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY).
2. It will offer financial aid to people for installing solar panels on their rooftops.
3. It aims to provide free electricity up to 300 units every month to the one crore households of the country.

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Answer: b (2 and 3 only)

Descriptive Question

Q. Bring out the aims and objectives of the PM Surya Ghar Muft Bijli Yojana. What are the benefits of this scheme? [15 Marks] [250 words]

INDIAN STAMP BILL 2023

Why in News: The Centre has proposed **repealing the Indian Stamp Act, 1899** and bringing in a new law for the stamp duty regime in the country. The Ministry of Finance invited suggestions on the draft 'Indian Stamp Bill, 2023' from the public.

Key Details

- The 'Indian Stamp Bill, 2023' is expected to **pave way for a modern stamp duty regime primarily by bringing in provisions for "digital e-stamping"**. The proposed Bill is expected to facilitate ease of doing business by removing the colonial law and increase government's revenue.
- **Need for the new Bill** – A number of provisions contained in the Indian Stamp Act, 1899 have become redundant/inoperative and hence, there is a need to re-orient the Indian Stamp Act, 1899.

Key features of the bill

- The bill includes **provisions for digital e-stamping**. It also includes **provisions for digital signatures**.
- The bill also **defines an electronic stamp or e-stamp as an electronically generated impression** denoting the payment of stamp duty by electronic means or otherwise.
- It **proposes to raise penalties**.

What is Stamp Duty?

- A stamp duty is **essentially a government tax, which is levied to register documents**, like an **agreement or transaction paper** between two or more parties, with the registrar.
- Usually, the **amount specified is fixed** based on the document's nature or is **charged at a certain percentage of the agreement value** stated in the document.
- Stamp duties **can be levied on bills of exchange, cheques, promissory notes, bills of lading, letters of credit, policies of insurance, transfer of shares, debentures, proxies and receipts**.
- Stamp duties are accepted as valid evidence in a court of law.
- Stamp duties are **levied by the Central Government**, but within the States are **collected and appropriated by the concerned States** in terms of provisions of Article 268 of the Constitution.

E-stamping: It is referred to as an online method of paying non-judicial stamp duty on the concerned property to the government. This has made the stamp duty and franking process much more convenient than the traditional methods.

EXPECTED QUESTION FOR UPSC CSE**Prelims MCQ**

Q. Consider the following:

1. Bills of exchange
2. Cheques, promissory notes, bills of lading
3. Letters of credit
4. Policies of insurance
5. Debentures

Stamp duties can be levied on how many of the above?

- (a) Only two (b) Only three
(c) Only four (d) All five

Answer: d

RATLE HYDRO ELECTRIC PROJECT

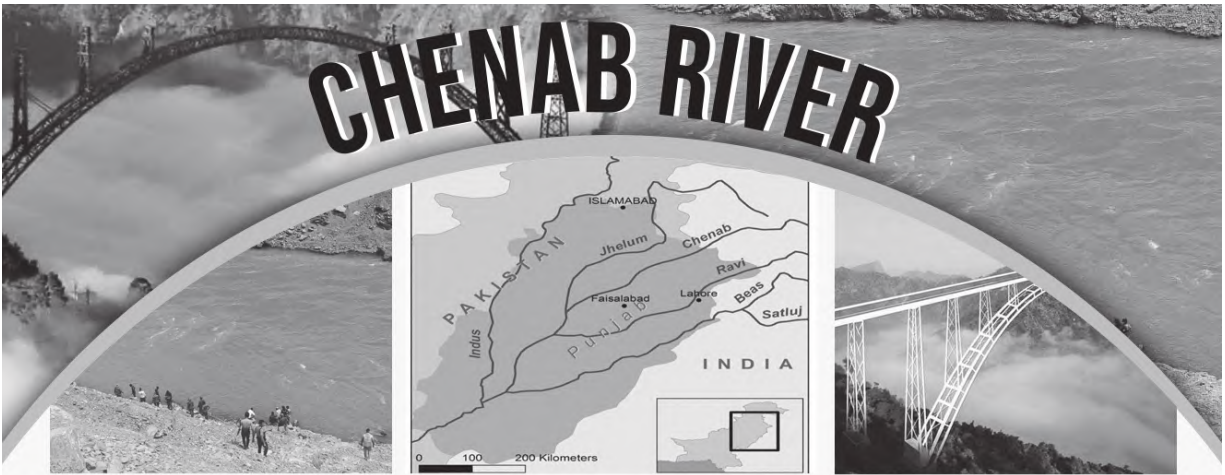
Why in News: The government announced diversion of Chenab river water through diversion tunnels to expedite the 850-MW Ratle Hydro Electric Project in Jammu & Kashmir.

Key details

- It is an **850 MW run-of-river hydroelectric power project** being built on the Chenab River in the **Kishtwar District** of Jammu and Kashmir.
- The project is being developed by Ratle Hydroelectric Power Corporation (RHPCL), which was formed as a joint venture (JV) between Jammu & Kashmir State Power Development Corporation (JKSPDC) and India's state-owned National Hydroelectric Power Corporation (NHPC).
- The project **comprises a 133-metre-tall and 194.8-meter-long concrete gravity dam**, a diversion dam, and an underground powerhouse on the right bank of the river.

Runoff river project

- Run-of-river hydro projects **use the natural downward flow of rivers and micro turbine generators** to capture the kinetic energy carried by water.
- **Typically, water is taken from the river at a high point** and diverted to a channel, pipeline, or pressurized pipeline (or penstock).
- The **technology is applied best where there is a considerably fast-moving river** with steady seasonal water.
- How much electrical energy can be generated by a **hydroelectric turbine** depends on the flow / quantity of water, and the height from which it has fallen (the head).
- The **higher the head**, and the larger the flow, the **more electricity can be generated**.



Key Features

- » It is a **major river of India and Pakistan**.
- » **Origin:** It is formed by the confluence of two streams, Chandra and Bhaga, at Tandi in the upper Himalayas in the Lahaul and Spiti Districts of Himachal Pradesh.
- » It is a tributary of the Indus River.
 - › It flows west through **Jammu and Kashmir union territory**, between the steep cliffs of the Siwalik Range (south) and the Lesser Himalayas (north).
 - › Turning southwest, it continues into Pakistan, descending from the uplands into the broad alluvial lowlands of Punjab province.
- » In its upper reaches, it is also known as the **Chandrabhaga**.
- » After receiving the Jhelum River near Trimmu, the **Chenab empties into the Sutlej River**, a tributary of the Indus River.
- » Its **total length is about 605 miles (974 km)**, and it feeds several irrigation canals.
- » The tributaries of the Chenab River include **Miyar Nalla, Sohal, Thiro, Bhut Nalla, Marusudar, and Lidrari**.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. The Ratle Hydro Electric Project is constructed on which of the following rivers?

- (a) Ravi river
- (b) Godavari River
- (c) Brahmaputra River
- (d) Chenab River

Answer: d

ECONOMIC COMMUNITY OF WEST AFRICAN STATES

Why in News: Recently, the military regimes in Burkina Faso, Mali and Niger announced their immediate withdrawal from the West African bloc ECOWAS.

Economic Community of West African States

- It is also known as **CEDEAO In French**.
- It is the regional group which was established in 1975 through the **Lagos Treaty**.
- **Mandate:** Promoting economic integration among its members.
- **Vision of ECOWAS:** Creation of a “borderless region” that is well-integrated and governed in accordance with the principles of democracy, rule of law and good governance.
- **Membership:** Benin, Cape Verde, Cote d’Ivoire, The Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Nigeria, Sierra Leone, Senegal and Togo.
- **ECOWAS’ larger aims are to have a single common currency** and create a single, large trading bloc in areas of industry, transport, telecommunications, energy, financial issues, and social and cultural matters.
- Along with the **goals of economic cooperation, it has attempted to quell military conflicts in the region.**
- It also operated a regional peacekeeping operation known as ECOMOG, led by Nigeria in the 1990s and early 2000s.
- **Headquarter:** Abuja, Nigeria.

EXPECTED QUESTIONS FOR UPSC CSE

Prelims MCQ

Q. Consider the following countries:

- | | |
|-----------------|------------|
| 1. South Africa | 3. Ghana |
| 2. Benin | 4. Nigeria |
| | 5. Egypt |

How many of the above are members of the Economic Community of West African States (ECOWAS)?

- (a) Only two (b) Only three
(c) Only four (d) All five

Answer: b (2, 3 and 4 only)

WORLD SUSTAINABLE DEVELOPMENT SUMMIT

Why in News: The Vice-President inaugurated the World Sustainable Development Summit in New Delhi.

Key details

- The 23rd edition of the annual flagship event of The Energy and Resources Institute (TERI)—the World Sustainable Development Summit (WSDS) was held in New Delhi.
- The Summit deliberations focused on the umbrella theme: **Leadership for Sustainable Development and Climate Justice**.

About World Sustainable Development Summit (WSDS)

- The World Sustainable Development Summit (WSDS) is the **annual flagship multistakeholder** convening organized by The Energy and Resources Institute (TERI).
- **Instituted in 2001**, the Summit series has a legacy of over two decades for making ‘sustainable development’ a globally shared goal.
- The **Summit series has established itself as a responsible and an effective platform** for mobilizing opinion-makers to drive ambition and advance pioneering actions to address some of the most relevant issues concerning sustainable development and climate change.
- It is the **only independently convened international**

summit on sustainable development and environment, based in the Global South.

- **WSDS strives to provide long-term solutions** for the benefit of global communities by assembling the world’s most enlightened leaders and thinkers on a single platform.
- The Summit has an **important role to play in not just providing a platform for dialogues**, but also to create new **knowledge outputs through Act4Earth** that was launched during WSDS 2022.

The Energy and Resources Institute (TERI)

HQs:
New Delhi

- TERI is a **leading think tank** dedicated to **conducting research** for the sustainable development of India and the Global South.
- It is an **independent, multi-dimensional organisation**, with capabilities in research, policy, consultancy, and implementation.
- TERI was **established in 1974** as an information centre on energy issues.

TERI remains committed and ambitious to help India and the world create a sustainable, healthy and equitable future for all.

TERI works across:

 <p>Promoting efficient use of resources.</p>	 <p>Increasing access to and uptake of sustainable inputs and practices.</p>	 <p>Reducing the impact on the environment and climate.</p>
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National Human Rights Commission (NHRC) of India

Established

12 October, 1993
under Protection of Human Rights Act (PHRA), 1993, later amended in 2006.

It is in conformity with the Paris Principles, adopted at the first international workshop on national institutions for the promotion and protection of human rights held in Paris in October 1991, and endorsed by the General Assembly of the United Nations by its Regulations 48/134 of 20 December, 1993.

Powers and Functions

The National Human Rights Commission (NHRC) has the powers of a civil court and judicial proceedings.

It investigates human rights violations, either suo moto or after receiving a petition.

The commission can interfere in judicial proceedings and use government agencies for investigations.

Its functions are mainly recommendatory, with no power to punish violators or award relief.

It has limited jurisdiction for armed forces violations and cannot act on private parties.

The commission can visit jails and review safeguards for human rights protection.

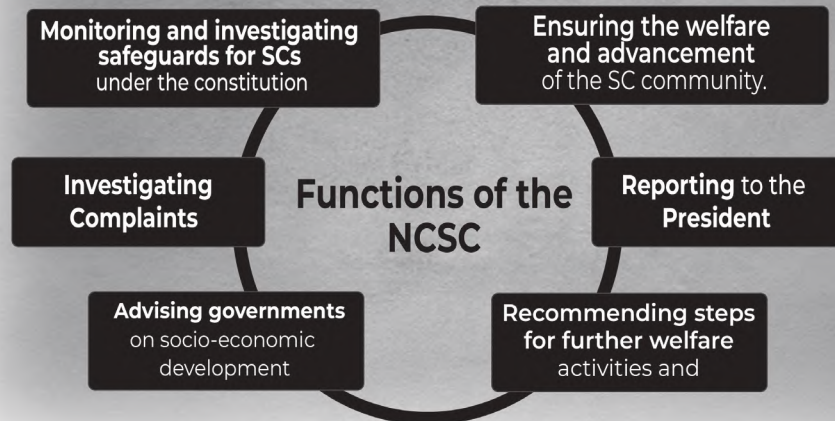
National Commission for Scheduled Castes (NCSC)



The National Commission for Scheduled Castes is an Indian constitutional body established with a view to provide safeguards against the exploitation of Scheduled Castes and Anglo-Indian communities to promote and protect their social, educational, economic and cultural interests, special provisions were made in the Constitution.

Article 338 of the Indian constitution deals with National Commission for Scheduled Castes.

The National Commission for Scheduled Castes comes under the jurisdiction of Ministry of Social Justice and Empowerment, Government of India.



President's Rule

- President's Rule refers to the suspension of a state government and the imposition of direct rule of the Centre.
- It is also called **State Emergency or Constitutional Emergency**.
- According to **Article 356** of the Indian Constitution, President's Rule can be imposed on any state of India on the grounds of the failure of the constitutional machinery. This is of two types:
 - If the **President receives a report from the state's Governor or otherwise** is convinced or satisfied that the state's situation is such that the state government cannot carry on the governance according to the provisions of the Constitution.
 - **Article 365:** As per this Article, **President's Rule can be imposed if any state fails to comply with all directions given by the Union** on matters it is empowered to.

EXPECTED QUESTION FOR UPSC CSE

Prelims MCQ

Q. Other than the Fundamental Rights, how many of the following parts of the Constitution of India reflect/reflects the principles and provisions of the Universal Declaration of Human Rights (1948)?

- Preamble
- Directive Principles of State Policy
- Fundamental Duties

Select the correct answer using the code given below:

- (a) None (b) Only one
(c) Only two (d) All three

Answer: d

Introduction

Artificial Intelligence (AI) has gained prominence in recent years, with the advent of **Generative AI** and the launch of **ChatGPT** by **OpenAI**. This has **enabled AI to solve societal challenges** in healthcare, education, and agriculture, **build innovative products and services, increase efficiency, and enable economic growth.**

Advances in AI

The recent advances in AI have also enhanced its potential to **transform governance, public service delivery, citizen engagement, and catalyze large-scale socio-economic transformation.** A recent industry report suggests that **GenAI could contribute up to 1.5 trillion dollars to India's GDP by 2030.** India's startup ecosystem is also thriving, with a robust startup ecosystem ranking 5th in newly funded AI companies and significant investments exceeding \$475 million in GenAI startups in the past two years.

India's Approach

- The Indian government is **promoting responsible domestic AI adoption** and building public trust in its use, aiming for 'AI for All'.
- The **technology offers productivity gains and empowers citizen participation in governance**, making it a ubiquitous part of India's approach to governance and public service delivery.
- The Government of India flagship initiative, the **National Programme on Artificial Intelligence (NPAI)**, aims to nurture the building blocks of the domestic AI ecosystem through four key interventions:
 - **National Data Management Office (NDMO):** The NDMO aims to **improve data quality, utilization, and accessibility, modifying government practices** to unlock the potential of data and the AI innovation ecosystem.
 - **National Centre on AI (NCAI):** NCAI is a sector-agnostic organization that **identifies and facilitates the nationwide deployment of AI solutions for public sector** problem statements, aiming to drive significant socio-economic transformation.
 - **Skilling for AI:** The pillar aims to **improve technical education infrastructure, particularly in IMs and polytechnics**, by constructing data labs to equip the workforce with AI-ready skills and mitigate disruptions.
 - **Responsible AI:** The text emphasizes the **need to combat potential biases and discrimination in AI adoption** by creating indigenous tools, guidelines, frameworks, and suitable governance mechanisms.
- The government is **leveraging Artificial Intelligence (AI) to enhance public sector services, leading to increased efficiency and improved outcomes.**

Key Government Initiatives Leveraging AI

- **UMANG (Unified Mobile Application for New-Age Governance)**
 - UMANG serves as a **unified platform**, offering all Indian citizens a **singular point of access to pan-India e-government services**, spanning from central to local government bodies.
 - The **platform provides access to 1836 vital government services** encompassing a wide spectrum of areas such as education, Covid-19 vaccinations, public transport, employment guidance, passport applications, utilities, cybercrime reporting, and more.
 - Launched in 2017, **UMANG aims to propel India towards mobile governance by enabling citizens to access all public services with one super app.**
 - **To eliminate technology and language barriers** and enhance long-term adoption of key government programs, the government has introduced a **voice-based chatbot, or virtual assistant**, developed using conversational AI technologies. This chatbot enables users to inquire about various government services in Hindi and English using voice or text inputs.
- **DigiYatra**
 - The DigiYatra initiative, led by the Ministry of Civil Aviation, is a **biometric-based boarding system for Indian airports.**
 - The system **uses facial recognition technology** to enhance security and expedite boarding.
 - Users **verify their mobile numbers and integrate DigiLocker** or offline Aadhaar for secure authentication.
 - The system **maps each passenger to their Passenger Name Record (PNR)**, ensuring only legitimate passengers gain entry.

- **Digital India Bhashini**

- Digital India Bhashini is an initiative by the Ministry of Electronics and Information Technology to **develop speech-to-speech machine translation systems for various Indian languages and dialects.**
- The mission aims to create a **'voice-based internet'** accessible in vernacular Indian languages and build multilingualism by developing the next generation of 'conversational' government apps and websites.
- The Bhashini app is available on the Play Store and App Store, and it has enabled **voice-based UPI transactions.**
- The initiative leverages AI to **establish building blocks** such as language and speaker identification, precise speech-to-text conversion, and sophisticated speech synthesis.

- **Applications of AI in Urban Governance**

- Government departments, including municipal corporations and police, are **using image recognition and AI for near-real-time monitoring of traffic and infrastructure in cities.**
- **The AI model detects 1,000 violations per hour and reports over 50,000 catastrophic issues.**
- It also **detects traffic infractions like over speeding and rash driving.**

- **Applications of AI in Health Care**

- DRDO's Centre for Artificial Intelligence and Robotics (CAIR) has developed **ATMAN AI, an AI-based Covid detection software that classifies Chest X-rays into normal, Covid-19, and pneumonia classes.**
- The ATMAN backend uses a Deep Convolutional Neural Network to accurately identify Covid-19.

- **AI-Based Pest Management System**

- **CottonAce**, an AI-driven early warning system, is helping farmers in **safe-guarding their crops by providing timely, localised advice on pesticide application.**
- **Developed by Wadhvani AI**, the system is currently operational in Gujarat, Maharashtra, and Telangana, benefiting over 18,000 farmers. Following integration, farmers have seen a **25% increase in cotton crop yields.**

- The CottonAce app **allows farmers to upload photos of pests collected in pheromone traps, and the AI algorithm identifies and counts the pests,** determining the infestation level, and providing actionable advice.
- The app **functions on simple smartphones and is available in nine languages.**

- **AI Applications in Agriculture**

- The Telangana government has implemented an **Artificial Intelligence (AI) solution to improve crop yield.**
- The solution accurately delineates field boundaries for 60,000 agriculture fields, **providing precise data on acreage, forested areas, and irrigation structures.**
- It also **enables landscape monitoring and event detection models to provide valuable information on crop types,** sow and harvest schedules, and water bodies.
- Additionally, sensors in crop fields **estimate soil moisture content, predicting irrigation needs** based on weather data. This solution could save up to 42% of water for paddy.

- **AI-Based Attendance Monitoring (Shiksha Setu)**

- The Assam government has developed a mobile application called **'Shiksha Setu'** to **record digital attendance of students and teachers.**
- The system uses an **AI-based facial recognition system,** which has been implemented across 44,000 schools in the state.
- The system **records attendance in real-time, eliminating proxy attendance and allowing teachers to attend punctually.**

Conclusion

As the largest Global South economy, India leads efforts towards global cooperation on AI, ensuring a more balanced and inclusive discourse. India has **reiterated its commitment to promoting innovation and regulating AI misuse** on international forums, including as the Lead Chair for the **Global Partnership on Artificial Intelligence (GPAI).**

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