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 **Science Reporter**

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April (23, 29 & 30) + May (06, 07, 13, 14, 20, 21, 27 & 28)	Geography	Geography	Geography		
June (03, 04, 10, 11, 17, 18, 24 & 25) + July (01, 02 & 08)	Modern History + Post Independent	Modern History + Post Independent	Modern History + Post Independent	Modern History + Post Independent	
July (09, 15, 16, 22, 23 & 30) + August (05, 06, 12, 13 & 19)	Environment & Ecology + Science & Technology + Compulsory Language Paper	Economics	Economics	Economics	Economics
August (20, 26 & 27) + September (02, 03, 09, 10, 16, 17, 23 & 24)	Ancient India + Medieval India + Art & Culture	Ancient India + Medieval India + Art & Culture	Polity	Polity	Polity
September (30) + October (01, 07, 08, 14, 15, 21, 22, 28 & 29) + November (04)	Social Issues & Social Justice + Essay + Disaster Management	Social Issues & Social Justice + Essay + Disaster Management	Social Issues & Social Justice + Essay + Disaster Management	Geography	Geography
November (05, 11, 18, 19, 25 & 26) + December (02, 03, 09, 10 & 16)	Ethics + Governance	Ethics + Governance	Ethics + Governance	Ethics + Governance	Modern History + Post Independent
December (17, 23, 24, 30 & 31) + January '24 (06, 07, 13, 14, 20 & 21)	Internal Security + CSAT	Internal Security + CSAT	Internal Security + CSAT	Internal Security + CSAT	Internal Security + CSAT
January '24 (27 & 28) + February '24 (03, 04, 10, 11, 17, 18, 24 & 25) + March '24 (02)	Focus Prelims	Environment & Ecology + Science & Technology + Compulsory Language Paper	Environment & Ecology + Science & Technology + Compulsory Language Paper	Environment & Ecology + Science & Technology + Compulsory Language Paper	Environment & Ecology + Science & Technology + Compulsory Language Paper
March '24 (03, 09, 10, 16, 17, 23, 24, 30 & 31) + April '24 (06 & 07)	Focus Prelims	Focus Prelims	Ancient India + Medieval India + Art & Culture	Ancient India + Medieval India + Art & Culture	Ancient India + Medieval India + Art & Culture
April '24 (13, 14, 20, 21, 27 & 28) + May '24 (04, 05, 11, 12 & 18)	International Relations + World History	International Relations + World History	International Relations + World History	International Relations + World History	International Relations + World History
31st May to 11th June, 2024	PRELIMS 2024	PRELIMS 2024	PRELIMS 2024	PRELIMS 2024	PRELIMS 2024
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July '24 (07, 13, 14, 20, 21, 27 & 28) + Aug '24 (03, 04, 10 & 11)					Ethics + Governance
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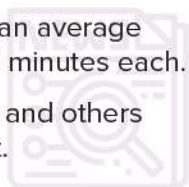


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POLITY

1. Ethics, parliamentary conduct and the Indian MP

Syllabus: GS-2, Indian Polity and Governance – Constitution, Political System, Panchayati Raj, Public Policy, Rights Issues, etc.

Mains: Parliament and State Legislatures – structure, functioning, the conduct of business, powers & privileges and issues arising out of these.

Context:

The Lok Sabha Ethics Committee has initiated proceedings against the All India Trinamool Congress Member of Parliament (MP), Mahua Moitra, to investigate the allegations that she had received money from a businessman for putting questions up in Parliament.

Past Instances of Similar Allegations:

- Taking money for putting up questions in parliament is a breach of privilege and contempt of the house.
- Complaints of this nature are referred to the Committee of Privileges for investigation and the committee will investigate and submit a report about the findings along with the recommendation for action against the MP in question.
- If the allegations are proven the MP in question will be expelled from the House. There have been such instances in the Lok Sabha where MPs were expelled from the House on this ground.
- In 1951 H.G. Mudgal, an MP was found guilty of promoting the interests of a business association in return for financial benefits. A special committee of the House found that his conduct was derogatory to the dignity of the House and inconsistent with the standards that Parliament is entitled to expect of its members.
- In 2005, a sting operation found that 10 Members of the Lok Sabha were accepting money for putting up questions in Parliament and all of them were expelled.
- The Ethics Committee of the Lok Sabha is a relatively new committee which was set up in 2000, with a mandate to examine every complaint related to the unethical conduct of MPs referred to it and to recommend action. It was also tasked with formulating a code of conduct for MPs.

Undefined Nature of the term 'Unethical':

- The term 'unethical conduct' is not defined anywhere and is the discretion of the committee to examine a particular act of conduct and decide whether it is unethical or not.
- In the past the committee suspended an MP for 30 sittings of the house when he was found guilty of taking his close female companion along with him on a parliamentary tour, personating her as his wife.
- He was also barred from taking any companion or his spouse on any official tour till the end of the tenure of that Lok Sabha.
- The more serious cases involving serious misconduct are dealt with by either the Committee of Privileges or special committees, and not by the ethics committee.
- In the case of Ms Moitra, the allegation is about illegal gratification which is more associated with the breach of privilege and cannot be dealt with by the ethics committee.
- Since a public servant accepting a bribe is a criminal offence, it is normally investigated by the criminal investigative agencies of the government. The 10 MPs who were expelled from the Lok Sabha are still facing trial under the Prevention of Corruption Act.

Nature of Parliamentary Probe:

- A parliamentary probe differs from a Judicial probe. A judicial probe is conducted by judicially trained persons and is based on the statutes and Rules.
- Parliamentary committees consist of Members of Parliament who are not experts. Since Parliament has the power to scrutinize the executive, which is accountable to it, it possesses investigative power also.
- Methods followed by Parliament are different from the judiciary in case of investigation and the parliamentary committee functions under the Rules of the House.
- The usual methods are examination of the written documents placed before the committee by the complainant and the witnesses, oral examination of all the relevant witnesses, deposition of experts, if deemed necessary, sifting of the whole volume of evidence placed before the committee, and arriving at findings on the basis of the evidence.
- Ultimately the committee takes decisions on the basis of common sense and the rules of evidence under the Evidence Act are not applicable to a probe by a parliamentary committee.
- It is the Speaker who decides the question of the relevance of evidence of a person or document.

Article 105:

- Article 105 of the Constitution ensures freedom of speech for MPs inside the House.
- This right must also cover the right to tap any source to put up questions and frame bills or resolutions inside the parliament.
- In light of Article 105, the investigation into the source of information of an MP may not have legal sanction.

Nut Graf: A Parliamentary proceeding against an MP is not similar to a judicial probe as the Evidence Act is not applicable to a probe by a parliamentary committee.

2. A leaf out of New Zealand's voting system

Syllabus: Comparison of the Indian Constitutional Scheme with that of Other Countries.

GS- II

Category: Indian Polity

Prelims: Mixed Member Proportional (MMP) system, First Past the Post System

Mains: Critical examination of Mixed Member Proportional system

Introduction

- While Odisha and Auckland have significant differences in socio-economic indicators, they share a common trend of split voting, where voters cast separate ballots for different offices or parties in the same election, resulting in divergent voting patterns.

MMP system

- New Zealand uses the mixed member proportional (MMP) system.
- Under MMP, voters cast two votes: a 'party vote' that determines the overall composition of the 120-seat Parliament and an 'electorate vote' to elect a local MP for their geographical constituency.
- There are 72 electorate seats (filled through electorate vote through first past the post system), and parties fill the other 48 list seats based on the party vote.
- Each party submits a ranked party list to the Electoral Commission of New Zealand before the polls. Parties then elect candidates from this list as list MPs.
- The Mixed-Member Proportional (MMP) voting system provides an opportunity for voters to select a candidate from a different political party than their preferred party, without weakening the overall influence of their vote on their desired party's representation in Parliament.
- This means that even if a voter does not support the local candidate from their preferred party, they can still cast a ballot for another candidate who represents their views, while maintaining the ability to contribute to their preferred party's total number of seats in Parliament.
- Voters can split their vote by giving both votes to one political party (a 'double tick') or allocating votes to two different parties (a split vote).
- For example, in the 2020 Auckland Central parliamentary election, voters chose Chlöe Swarbrick, a Green Party candidate, as their local MP, yet the same constituency favored the Labour Party in their party vote.

Critical Analysis

- The MMP system has faced criticism for encouraging tactical voting, where voters may support a party they don't fully agree with to prevent another party from winning.
- However, the advantages of the MMP system include:**
 - Greater accountability for local representatives, as they must appeal to their constituents directly rather than relying on their party's popularity.
 - A greater focus on policy and ideology, as parties can't simply rely on a charismatic leader or a particular demographic to win.
 - Better representation for historically marginalized groups, such as women, Indigenous peoples, people with disabilities, and others who have been underrepresented in politics.
 - More inclusive democracy that allows voters to express a wider range of opinions without fear of "wasting" their vote.
 - The ability for voters to choose both a party and a candidate separately, giving them more flexibility in their choices.
 - Lower barriers to entry for young politicians, resulting in a lower average age for elected officials.

Way Forward

- In India's current political system, the way votes are cast can limit citizens' ability to freely express their genuine opinions, as they might feel obligated to support either their favored party's candidate or the candidate who is expected to win.
- This can be addressed through a split voting system that allows voters to select individuals based on their qualifications while still ensuring that their party affiliation influences the makeup of the legislature.
- By allowing citizens to distinguish between a candidate's merit and their political party, India can demonstrate a more advanced level of democratic decision making and work towards giving citizens the opportunity to make these types of refined choices.

Nut Graf: Split voting systems like MMP allow voters to choose both a candidate and a party separately, giving them more flexibility and ensuring greater representation of different voices in government.

3. Bihar House passes Bill raising ceiling on caste quota to 65%

Syllabus: Indian Constitution – features, amendments, significant provisions and basic structure; Functions and responsibilities of the Union and the States, issues and challenges pertaining to the federal structure

Mains: Policies and constitutional provisions governing the allocation of reservations to various communities, impacting the federal structure of governance.

Context

The Bihar Assembly passed a bill increasing reservation quotas from 50% to 65%, including provisions for Extremely Backward Classes, Scheduled Castes, and Scheduled Tribes, along with the existing 10% Economically Backward Class quota.

Introduction

- The Bihar Assembly unanimously approved a bill to raise the reservation quota for Backward Classes, Extremely Backward Classes, Scheduled Castes, and Scheduled Tribes from 50% to 65%.
- The move, along with the existing 10% Economically Backward Class (EWS) quota, surpasses the Supreme Court's 50% reservation ceiling.
- The amended Bill will be sent to the Governor for assent before becoming law.

Key Provisions of the Bill

- The Bihar Reservation Amendment Bill increases the quota for the Extremely Backward Class (EBC) from 18% to 25%.
- Backward Class (BC) reservation rises from 12% to 18%.
- Scheduled Caste (SC) reservation increases from 16% to 20%.
- Scheduled Tribe (ST) reservation doubles from 1% to 2%.
- The existing 3% reservation for BC women is abolished.

Additional Bills and Caste Survey

- Bills endorsing the increased reservation in educational institutions and government jobs, based on a recent caste survey in the state, were also passed unanimously.
- The caste survey report indicated that EBCs make up 36%, and BCs constitute 27.1% of the state's population.

Clarifications on EWS Reservation

- In a response to the query regarding the EWS reservation, Parliamentary Affairs Minister Vijay Kumar Choudhary confirmed that the 10% EWS reservation is included in the 35% Open Merit Category.

Financial Burden and Special Status

- Chief Minister Nitish Kumar addressed concerns about the financial burden, stating that the state government would spend over ₹2.5 lakh crore to implement the increased quota.
- The Chief Minister emphasised that if the Centre grants special status to Bihar, the state will experience further development.

Nut Graf: In a landmark move, the Bihar Assembly unanimously approved a bill raising reservation quotas, breaking the 50% limit, addressing socio-economic concerns for various communities, and awaiting the Governor's assent for implementation.

4. Enhancing representation, for a just electoral system

Syllabus: Functions and Responsibilities of the Union and the States, Issues and Challenges Pertaining to the Federal Structure, Devolution of Powers and Finances up to Local Levels and Challenges Therein.

Prelims: Representation in Lok Sabha and Rajya Sabha, Delimitation Commission, 84th amendment act, Census, 74th Amendment act

Mains: Electoral Reforms

Introduction

- India's large population is represented by a limited number of elected officials at the national and state levels.
- This lack of proportional representation weakens democracy and governance.

Limited Representation in India's Democracy

- An Indian MP represents about 2.5 million citizens on average, compared to 700,000 for a US Representative.
- In Pakistan and Bangladesh, the ratio is around 600,000 and 500,000 citizens per representative respectively.
- India has limited parliamentarians and assembly members for its large population (4,126 MLAs, 543 Lok Sabha MPs, and 245 Rajya Sabha MPs).
- India lacks adequate representation at national and state levels to address issues and be held responsible for citizen welfare.

Malapportionment in India's System

- Rajya Sabha makes for an unequal federation i.e. seats in the upper house are also allocated on the basis of population compared to the US system where each State is given two senators in the U.S. Senate.
- In India's diverse political system, this malapportionment can empower certain parties over others which could exacerbate political differences between southern/northeastern states and northern states.

Delimitation

- An independent Delimitation Commission has conducted delimitation 4 times before.
- Delimitation was frozen in 1976 during the Emergency until 2001.
- It was then frozen again until after the 2026 census by the 84th Amendment Act.
- With more seats, southern states may see a 6% rise but northern states could see a 63% increase.
- States with lower population growth due to effective implementation of family planning and population control measures could be punished.

Way Forward: Needed Electoral Reforms

- Implementing direct elections for Rajya Sabha members who must live in the state they represent to strengthen federalism and state representation.
- Proportional representation in Lok Sabha and state elections to improve representative democracy.
- Alternative voting systems like ranked choice (voters rank candidates and the weakest candidates are eliminated until one has a majority) or two-round system (if no one gets a majority in the first round, the top candidates from that round advance to the second round) to ensure legislators have majority voter support.
- Smaller states can be considered to improve governance and limit large state dominance. A new State Reorganization Commission can be considered to evaluate splitting larger states.
- Directly elect mayors with fixed terms for all census towns to improve local democracy and urban governance. Empower mayors to control key urban functions like planning and services as outlined in the 74th Amendment.

Minimizing Negative Effects of Delimitation

- Delimitation should restore proportional representation in Parliament.
- Significantly increase Parliament seats to avoid states losing seats.
- Should consider geography, economics, language, and fairness as criteria for seat allocation and not just population.
- Fiscal impact on future state transfers should be elaborated clearly.

Conclusion

- Overall, enhancing representation at national, state and local levels will strengthen Indian democracy and address concerns across the country.

Nut Graf: India's democracy is weakened by a lack of proportional representation, with MPs representing too many citizens and the Rajya Sabha favouring larger states. Electoral reforms like proportional representation and direct elections for Rajya Sabha members would improve representation and strengthen federalism.

5. Search and seizure

Syllabus: Indian Constitution: Features, Significant Provisions and Basic Structure.

Prelims: ADM Jabalpur case, Justice K.S. Puttaswamy case, Article 20(3) of the Indian Constitution, World Press Freedom Index

Mains: Concerns on Freedom of the Press, Right to Privacy

Context

- The Supreme Court's direction to the government to make rules to protect media professionals when their devices are taken is an important first step.

Impact

- Recent actions against journalists by taking their laptops and phones have implications for freedom of speech and expression and for whistleblowers who talk to journalists anonymously.
- If a journalist's devices can be taken and searched based on weak accusations, it threatens their sources and stops them from doing their job.
- This limits press freedom and the right to livelihood of journalists since digital devices are essential tools for the profession.

Guidelines

- Warrants must be specific about the information being sought by law enforcement agencies.
- Journalists must not be forced to provide passwords or biometrics that would incriminate themselves or their sources.
- Protocols must safeguard devices and data from tampering, leaks, or sharing with third parties.
- Irrelevant data must be deleted in a timely manner after investigation.
- Exploring device cloning allows journalists to continue working while under investigation.

- Devices should be documented at seizure to prevent evidence tampering.
- Guidelines should be developed transparently with inputs from all stakeholders.

6. Persistent Centre-State friction

Syllabus: Functions and responsibilities of the Union and the States, issues and challenges pertaining to the federal structure, devolution of powers and finances up to local levels and challenges therein.

Mains: Centre-state relations, issues related to cooperative federalism, fiscal competition, and parallel policies.

Context

Disputes between India's Centre and States intensify, impacting economic policies. Recent conflicts challenge cooperative federalism, affecting investment, fiscal competition, and policy inefficiencies.

Introduction

- Disputes between the Centre and States over economic policies have a long history in India.
- Recent years have seen an increase in the frequency and intensity of these disputes, leading to persistent frictions in the federal system.

Changing Economic Landscape

- Economic reforms since 1991 have given States more room for investments, but autonomy in public expenditure is constrained by dependence on the Centre for revenue.
- The 'give and take' equation has shifted to a more rigid stance, eroding cooperative federalism.

Areas of Conflict

- Disputes extend beyond resource sharing to issues like homogenization of social sector policies, regulatory institutions' functioning, and central agencies' powers.
- Apex bodies attempt to influence States, challenging the ideal distribution of policies.

Economic Consequences of Incursions

1. Crowding Out of States

- The Centre's expanding span of activities leads to crowding out States in terms of investments, particularly in infrastructure development.
- PM Gati Shakti and State master plans result in underinvestment by States, impacting regional economies.
- The Centre's capex on roads outpaces State spending, leading to a concentration in a few large States.

2. Fiscal Competition

- Frictions lead to fiscal competition between the Centre and States, affecting welfare provisioning.
- Enhanced fiscal space for the Centre creates spending power imbalances.
- States engage in competition with each other and with the Centre, impacting efficiency.

3. Inefficiencies of Parallel Policies

- Federal abrasions lead to duplication of policies by the Centre and States.
- Examples of pension reforms with the National Pension System (NPS) and parallel schemes by some States.
- Trust deficit in the federal system contributes to the emergence of parallel policies, with long-term fiscal consequences.

Interdependence and the Way Forward

- Inevitable interdependence between the Centre and States for implementing laws and policies, particularly in concurrent spheres.
- Preservation of interdependence is crucial for a large, diverse, and developing society.
- There is a need for a balanced approach to ensure cooperative federalism and address persistent frictions.

Nut Graf: Frictions in India's federal system lead to economic consequences, crowding out state investments, sparking fiscal competition, and resulting in policy inefficiencies, challenging the essence of cooperative federalism.

7. Abolition of the Death Penalty

Syllabus: GS-2, Features & Significant Provisions of the Indian Constitution

Mains: Debate around the Death penalty

Context: Disappointment with no death penalty abolition recommendation by the Parliamentary Committee in the Bharatiya Nyaya Sanhita (BNS) replacement of IPC.

Parliamentary Committee's Stance:

- Despite reviewing the bill and deliberating extensively, the committee refrained from suggesting an alternative to the death penalty within the proposed replacement for the IPC, the Bharatiya Nyaya Sanhita (BNS).

Expert Submissions Ignored:

- Statistical data indicate an increase in death penalties by trial courts despite a trend of the Supreme Court leaning away from capital punishment.
- Social scientists highlight the lack of deterrent effect and global support for the abolition of the death penalty.

Dissenting Member Perspectives:

- Capital punishment is not being a deterrent; life imprisonment is seen as a more rigorous punishment allowing for reform.
- The majority of death row inmates hail from underprivileged backgrounds.
- The observation is that proposed Bills for criminal law resemble existing laws.

Reconsideration and Proposed Changes:

- Suggestion for Parliament to revisit the need for retaining the death penalty during the enactment of the draft Bills.
- Advocacy for 'life imprisonment' as the default alternative to death sentences, defined as imprisonment for the remainder of natural life.
- Call for a halt to premature release of life convicts for political reasons and promotion of life terms without remission.
- Remission policies should be humanitarian and devoid of political controversy.
- Removal of capital punishment from the statute book alongside the introduction of a rational and universal remission policy as a substantial reform in the justice system.

Arguments in favour of the Death Penalty:

- **Deterrent Effect:** Proponents argue that the death penalty serves as a strong deterrent against heinous crimes, dissuading potential offenders from committing similar acts due to the severity of the punishment.
- **Justice and Retribution:** Advocates view the death penalty as a means of achieving justice, especially in cases of extreme violence or murder, by providing a form of retribution to the victims' families and society.
- **Cost and Public Safety:** Some believe that executing convicted individuals is more cost-effective than incarcerating them for life and ensures public safety by permanently removing dangerous criminals from society.

Arguments against the Death Penalty:

- **Risk of Executing Innocent Individuals:** One of the most significant arguments against the death penalty is the inherent risk of executing innocent people due to flaws in the judicial system, leading to irreversible miscarriages of justice.
- **Lack of Deterrent Effect:** Critics argue that empirical evidence does not conclusively support the notion that the death penalty deters crime more effectively than other forms of punishment, raising doubts about its deterrent effect.
- **Human Rights and Morality:** Opponents highlight the violation of fundamental human rights, considering the death penalty as a violation of the right to life and an inhumane form of punishment, irrespective of the crime committed.
- **Possibility of Reform:** Many argue for the potential for rehabilitation and reform, suggesting that life imprisonment allows for the opportunity of redemption and change, which the death penalty denies.
- **Social Disparities and Arbitrariness:** Concerns exist regarding disparities in the application of the death penalty, often affecting marginalized or underprivileged individuals disproportionately. Additionally, the arbitrariness in sentencing raises ethical concerns about its fair and just application.

Nut Graf: The absence of a recommendation to abolish the death penalty within the proposed criminal statute replacement sparks disappointment. Despite compelling expert submissions against it, the committee's neutral stance and dissenting voices highlight flaws, urging a shift towards life imprisonment as a robust alternative for justice system reform.

8. Sub-categorisation within castes

Syllabus: Functions and responsibilities of the Union and the States, issues and challenges pertaining to the federal structure, devolution of powers and finances up to local levels and challenges therein. Welfare schemes for vulnerable sections of the population by the Centre and the States.

Mains: The issue of sub-categorization of Scheduled Castes (SCs)

Context

Prime Minister Modi's pledge to explore the sub-categorization of Scheduled Castes (SCs) in Telangana has rekindled the legal and political debate on this issue, with historical attempts and judicial intricacies.

Introduction

- Prime Minister Narendra Modi's promise to explore the sub-categorization of Scheduled Castes (SCs) in Telangana has sparked discussions on the legal and political aspects of this issue.

Legality of Sub-Categorization

1. Historical Attempts

- States like Punjab, Bihar, and Tamil Nadu have attempted sub-categorization of SCs through state-level reservation laws, facing legal challenges.
- The Supreme Court is in the process of forming a larger Constitution Bench to decide on the legality of SC sub-categorization.

2. Judicial History

- In 2004, the Supreme Court ruled that states couldn't unilaterally sub-categorize SCs or STs; only Parliament could decide and notify such lists.
- A 2020 judgement suggested that deciding on benefits within the already notified lists might be permissible, leading to a referral to a larger Bench for clarity.

3. Legal Opinions

- In 2005, the Attorney-General of India opined that sub-categorization was possible with "unimpeachable evidence."
- The Union government formed a National Commission and a constitutional amendment to Article 341 was recommended.

Government Initiatives and Commission Opinions

1. Efforts by the Union Government

- The Union government initiated dialogue with the Law Ministry and considered a constitutional amendment for sub-categorization.
- The National Commission for Scheduled Castes (NCSC) and the National Commission for Scheduled Tribes (NCST) opined against a constitutional amendment.

2. Principal Arguments

- The main argument for sub-categorization is the graded inequalities among SC communities, addressing disparities within marginalised groups.
- The idea is to provide separate reservations for more backward communities within the SC category.

3. Counter Arguments

- SC and ST Commissions argue that separate reservations may not address the root cause of the problem.
- They emphasise the need for existing schemes and government benefits to reach the most backward sections before sub-categorization.

Challenges and Future Steps

- Legal experts highlight the necessity for concrete population numbers and socio-economic data to support sub-categorization decisions.

Nut Graf: The legal and political dynamics of SC sub-categorization in India, spurred by PM Modi's announcement, involve historical attempts, judicial considerations, government initiatives, principal arguments, counter arguments, and data challenges.

9. Challenging the electoral bond scheme

Syllabus: GS-2, Salient Features of the Representation of People's Act, Transparency & Accountability

Mains: Issues with Electoral bond

Prelims: Provision of Electoral bond

Context: Ongoing legal battles challenge India's Electoral Bond Scheme, highlighting opacity in political funding and its potential impact on fair elections.

About Electoral Bonds:

- Electoral bonds are instruments/securities that are used to donate funds to political parties. Electoral Bonds may be purchased by a person who is a citizen of India or incorporated or established in India.
- A person being an individual can buy Electoral Bonds, either singly or jointly with other individuals.
- Only the Political Parties registered under Section 29A of the Representation of the People Act, 1951 (43 of 1951) and which secured not less than one per cent of the votes polled in the last General Election to the House of the People or the Legislative Assembly of the State, shall be eligible to receive the Electoral Bonds.
- The Electoral Bonds shall be encashed by an eligible Political Party only through a Bank account with the Authorized Bank.
- State Bank of India has been authorised to issue and encash Electoral Bonds through its 29 Authorized Branches.
- The bond shall be valid for fifteen calendar days from the date of issue and no payment shall be made to any payee Political Party if the Electoral Bond is deposited after the expiry of the validity period.
- The Electoral Bond deposited by an eligible Political Party in its account shall be credited on the same day.
- Electoral bonds would be issued/purchased for any value, in multiples of Rs1,000, Rs10,000, Rs1,00,000, Rs10,00,000 and Rs1,00,00,000 from the specified branches of the State Bank of India (SBI).

Transparency Advocacy vs. Political Funding Secrecy:

- Traditional resistance exists among political parties to disclose funding sources, creating a barrier to transparency.
- Civil society has actively campaigned to empower voters with information, utilizing Public Interest Litigation (PIL) as a means of achieving greater transparency in political funding.

Evasion Tactics: Electoral Trusts to Electoral Bonds:

- The political establishment responded with strategic moves, introducing the Electoral Trusts Scheme and later the more ambitious Electoral Bond Scheme (EBS).
- Legislative amendments were implemented to obscure the identities of corporate donors, demonstrating a concerted effort to safeguard political funding secrecy.

Legal Challenge Against Amendments:

- Months before the implementation of EBS, the Association for Democratic Reforms (ADR) and Common Cause filed a PIL challenging the constitutionality of amendments made to the legal framework of corporate donations.
- The PIL argued that these amendments compromised the country's autonomy, incentivized corrupt practices, and posed a threat to transparency, thus violating citizens' fundamental right to information.

Impact and Dominance of Electoral Bonds:

- Over time, electoral bonds emerged as the preferred mode of political donation, with a significant total value sold in multiple tranches.
- Research by the Association for Democratic Reforms (ADR) revealed that electoral bonds accounted for a substantial percentage of political donations, with the BJP notably receiving the majority share.

Judicial Response and Challenges:

- Despite the growing influence of electoral bonds, a PIL challenging the constitutionality of these bonds faced a prolonged legal battle.
- The Supreme Court, in an order dated June 23, 2021, declined the petitioner's request for an interim stay on the scheme, suggesting that voters could potentially pierce the scheme's secrecy by cross-referencing electoral bond expenditure disclosed in corporate filings with political party accounts.

Argument for Anonymity and Hopes for Resolution:

- The government has defended the anonymity of donors, citing privacy rights and the need to protect them from potential retribution.
- Questions persist about why corporate donors receive greater protection and the potential implications for transparency.

Nut Graf: In India's political landscape, a clash unfolds between transparency advocates and entrenched secrecy in funding sources. From the resistance of political parties to disclose finances to the contentious Electoral Bond Scheme, this conflict accentuates the struggle for transparency, shaping the narrative around fair and informed electoral processes.

10. State funding of elections

Syllabus: GS-2, Salient Features of the Representation of People's Act, Transparency & Accountability

Mains: State funding of election is viable or not

Context: The discussion revolves around the viability of public funding of elections in India as a means to enhance transparency, with a focus on recent judicial scrutiny of the electoral bonds scheme and its implications on election funding.

Public vs. State Funding:

- **Clarifying Terminology:** "State funding" is better termed as "public funding," emphasizing that it's the people's money allocated for elections.
- **Transparency Potential:** Public funding can introduce transparency, but the mechanics of implementation are crucial to its effectiveness.

Viability and Conditions:

- **Reports Insights:** Noteworthy reports such as the Indrajit Gupta Committee Report, the Law Commission of India Report of 1999, the Report of the Second Administrative Reforms Commission in 2008, and the National Commission to Review the Working of the Constitution Report of 2001 advocate public funding to some extent. They stress conditions like internal party democracy and financial transparency as prerequisites for successful implementation.
- **Quantifying Funding:** Determining the allocated amount requires understanding past election expenditures, both by the Election Commission and political entities.

Mechanisms and Distribution:

- **In-Kind Funding:** Suggestions exist for non-cash support like free transport, but detailed planning is essential.
- **Distribution Model:** Parties' participation in deciding how funds are allocated is critical, but clarity on criteria for distribution remains a challenge.

Challenges and Comparison:

- **Current Party Dynamics:** Rising family-oriented regional parties raise questions about fair fund distribution.
- **Global Practices:** Insights from other democracies show varying models of state funding, often tied to stringent transparency regulations.

Conclusion:

- **Accountability and Transparency:** Public funding necessitates complete financial disclosure from parties or candidates, highlighting the need for accountability and transparency in election finances.

Nut Graf: Amidst judicial scrutiny of electoral bonds in India, discussions on public funding of elections emerge. Insights from pivotal reports stress prerequisites like party democracy and financial transparency. Global models showcase varying approaches. The state funding of elections involves complexities and there is a need for emphasizing accountability and transparency in reshaping election funding mechanisms.

11. Tamil Nadu government plans to 're-enact' Bills as Governor R.N. Ravi withholds assent

Syllabus: Indian Constitution, Issues and challenges related to the Federal Structure

Prelims: Powers of Governor

Mains: Issues in passing bills by the Governor

Context: The Tamil Nadu Governor has chosen to "withhold assent" for certain Bills passed by the Legislative Assembly, rather than returning them for reconsideration. This move presents a challenge for the state government, as these Bills cannot be easily "readopted" by the House. The Tamil Nadu Chief Minister is expected to address this issue in a resolution during a Special Session of the House.

Similar incidents in other states:

- **Kerala:** Filed two separate petitions – Governor is seen to be undermining the rights of the people by indefinitely delaying crucial Bills addressing post-COVID public health concerns.
- **Punjab:** Seven of its Bills have been awaiting the Governor's consideration since June, posing a threat to the functioning of the administration.
- **West Bengal:** A group of academicians, including former Vice Chancellors, recently urged the government to approach the Supreme Court regarding pending Bills with the Governor – Led to a halt in the activities of search and selection committees for 31 Universities.

Issues

- **Withholding Assent Unusual:** The act of withholding assent by the Governor is relatively uncommon, and its implications are significant. This move disrupts the legislative process and poses a challenge to the authority of the elected legislature.
- **Bills on University Statutes:** The Bills in question relate to the proposed amendment of statutes of certain State universities. The key contention involves the Chief Minister assuming the role of Chancellor, replacing the Governor in this capacity.
- **Constitutional Provisions (Article 200):** The Governor, under Article 200 of the Constitution, has the power to grant assent, withhold assent, reserve a Bill for consideration by the President, or return the Bill for reconsideration by the House. The unusual choice of withholding assent requires careful examination.
- **Constitutional Dilemma:** The withholding of assent challenges the constitutional balance between the elected legislature and the Governor's appointed position. This raises questions about the autonomy of the state legislature.
- **Governor's Authority:** The Governor's action has the potential to limit the effectiveness of the legislative exercise, which is a product of the democratic mandate enjoyed by the elected representatives.
- **Impact on Governance:** The Bills, if not enacted, may have consequences for the governance structure, particularly in the context of university administration and the distribution of powers between the Chief Minister and the Governor.

What is the process of granting assent?

- Legislature-passed Bill to transform into law – Approval of the Governor or the President is imperative.
- The Constitution explicitly addresses Money Bills, deeming them to automatically possess the Governor's assent.
- Bill – Approved by both Houses of the Legislature – Submitted to the Governor for approval.
- Article 200 – Grants the Governor the authority to choose from four options—granting assent, refraining from assent, sending the Bill back to the Legislative Assembly for reconsideration, or reserving it for the President's consideration.
- Governor – Withhold assent, return the Bill 'as soon as possible,' requesting the Assembly to reconsider the proposed law or any specified provisions or suggest amendments.
- The Assembly is not obligated to accept these recommendations and can pass the Bill again in its original form.
- Governor is constitutionally bound to either give assent to it or reserve it for the President's consideration.
- Primacy of the legislature comprising elected representatives of the people over the constitutional head of the State in the legislative exercise.

No Timeline Prescribed for Governors/President

- This loophole is often misused to delay legislation – employing a tactic known as a 'pocket veto'.
- A time period of six months is prescribed for the State Assembly to reconsider a Bill if the President decides to refer it back to the House.
- **States:**
 - Tamil Nadu's plea has urged the SC to fix a time limit by which Governors should assent or return a Bill.
 - Kerala has also challenged a Kerala High Court ruling of November 30 last year, which declined to fix a timeline for the exercise stating that Article 200 falls under the discretionary powers of the Governor.

Can the Governor use discretionary powers to withhold assent?

- The extent to which the Governor can exercise his discretion to withhold assent to a Bill has been a subject of judicial scrutiny but there lacks an authoritative pronouncement in this regard.
- **Purushothaman Nambudiri v State of Kerala (1962)** – The Supreme Court – no time limit prescribed under Article 200.
- **Shamsher Singh v. State of Punjab (1974)** – Second provision of Article 200 (the Governor's power to reserve Bills for the President's consideration) that the Governor exercises discretion independent of the Council. It also highlighted that such an exercise of discretion must be made only in exceptional circumstances.
- **Nabam Rebia and Bamang Felix v. Dy. Speaker (2016)** – Governor exercises discretion only with regard to whether a Bill ought to be reserved for consideration of the President or not.

By when should Bills be returned to the State Assembly for reconsideration?

- The first provision of Article 200 stipulates that the Governor should send back Bills to the Assembly for reconsideration 'as soon as possible' – however, it is silent on what exactly this phrase means.
- **Durga Pada Ghosh v. State of West Bengal (1972)** – The Supreme Court interpreted the phrase to mean "as early as practicable without avoidable delay".
- 1988 Sarkaria Commission report on Centre-State relations – prior consultation with the Governor at the stage of the drafting of the Bill itself, and by prescribing time limits for its disposal.
- **The National Commission to Review the Working of the Constitution set up in 2000** –
 - 6 months – To give assent or to reserve a Bill for consideration of the President.
 - 3 months – Bill is reserved for the consideration of the President

Is judicial review permissible?

- **Article 361** – prohibits courts from initiating proceedings against a Governor or the President for any act done in the exercise of their powers.
- **Article 361(1)** – Does not take away the power of the Court to examine the validity of the action including on the ground of mala fides.
- The Supreme Court in the **Nabam Rebia case** expressed the view that the Governor's discretionary powers to withhold assent are subject to judicial review.

Solutions

- **Legal Challenge:** Given the unusual nature of withholding assent, the State government may consider challenging this action in the Supreme Court. Legal experts could explore the constitutional validity of such a move.
- **Legislative Response:** While challenging, a legislative response may be explored to express disagreement with the Governor's decision, although this might be limited in its effectiveness.
- **Dialogue and Explanation:** The Chief Minister could use the Special Session to provide a comprehensive explanation of the government's reasoning behind the Bills. Open communication might help bridge the gap between the executive and the Governor.

Conclusion: The Governor's decision to withhold assent to the Bills presents a constitutional challenge for the Tamil Nadu government. The resolution to be moved by the Chief Minister during the Special Session could be a critical step in addressing this issue.

Nut Graf: *The potential legal and constitutional implications of a state governor withholding assent to bills necessitate careful consideration and, possibly, intervention by the judiciary to uphold the principles of democratic governance.*

12. Office of Governor & Article 200

Syllabus: GS-2, Issues and Challenges Related to the Federal Structure

Mains: Office of Governor & Article 200

Context:

- Recent actions by Governors in two Indian states, Tamil Nadu and Kerala, have raised concerns regarding the interference of political appointees in Raj Bhavan (Governor's House) with elected regimes' decisions.
- This issue has highlighted the need for a more transparent and efficient working relationship between elected governments and appointed Governors in the Indian federal structure.

Issues:

- **Delay in Granting Assent to Bills:**
 - Governors have been criticized for delaying the granting of assent to bills passed by the legislature.
 - In some cases, these delays have undermined the legislative process and the authority of elected regimes.
- **Blocking Decisions and Bills:**
 - In states not governed by the ruling party at the Centre, Governors have been accused of blocking decisions and bills.
 - This includes resistance to amendments to university laws that seek to reduce the power of Governors, who often serve as Chancellors in universities.
- **Absence of Time-frames:**
 - The absence of a specific time frame for Governors to give assent allows some of them to stymie laws passed by the legislature.
 - The recent Supreme Court observations emphasized the importance of prompt consideration of bills.
- **Discretionary Space and 'Aid and Advice':**
 - Governors are explicitly bound by the 'aid and advice' clause in the Constitution, restricting their functioning.
 - Concerns arise when Governors misuse their discretionary space, affecting the functioning of elected governments.

Significance:

- The relationship between Governors and elected regimes is crucial in India's federal structure.
- Delays and interference by Governors can hinder the democratic process and create tensions between state governments and the central authority.
- The role of Governors should align with the constitutional framework and uphold democratic principles.

Solutions:

- **Defining Time Frames:**
 - Establish clear and reasonable time frames within which Governors should provide assent to bills, preventing undue delays.
- **Dispute Resolution Mechanism:**
 - Implement a dispute resolution mechanism to address conflicts between elected governments and Governors, ensuring transparency and adherence to the Constitution.

- **Role of Governors in Universities:**

- Consider removing the practice of Governors serving as Chancellors of universities, thus avoiding conflicts of interest and unnecessary delays in educational reforms.

- **Training and Guidelines:**

- Provide Governors with specific guidelines and training on their roles, responsibilities, and the constitutional limitations of their authority.

Nut Graf: The role of Governors in India's federal structure must be defined and executed within the constitutional framework.

13. Governors cannot sit on Bills passed by House: SC

Syllabus: Indian Constitution, Issues and challenges related to the Federal Structure

Prelims: Powers of Governors

Mains: Role of governors in passing bills

Context: The Supreme Court, in response to a writ petition by the Punjab government, has clarified that a Governor in a parliamentary democracy does not possess the authority to withhold assent to key Bills passed by a State Legislature. This ruling emphasizes the paramount role of elected representatives in governance.

Background:

- The Punjab government complained that Governor Banwarilal Purohit had held back crucial Bills on Sikh gurdwaras, police, and higher education.
- The Governor cited doubts about the validity of the Assembly session in which these Bills were passed.

Significance:

- The Supreme Court asserted that real power lies with elected representatives in a parliamentary democracy.
- Emphasized the role of the Governor as a constitutional statesman, guiding the government on constitutional matters.
- The court warned the Governor against withholding Bills and directed him to make a decision on the pending Bills presented for assent.
- Clarified that the Governor's power is limited to acting on the aid and advice of the Council of Ministers, except in areas where the Constitution allows discretion.

Recommendations on the Governor's right to withhold assent

- **SC's Stance:** The Supreme Court's judgement in Nabam Rebia and Bamang Felix vs Dy. Speaker clarified that the Governor's discretion under Article 200 is limited to deciding whether a bill should be reserved for the President's consideration. Therefore, withholding assent to a bill indefinitely is unconstitutional, and a Governor's action or inaction in this regard can be subject to judicial review.
- **Punchhi Commission (2010):** It recommended that it is necessary to prescribe a time limit within which the Governor should make the decision whether to grant assent or to reserve it for consideration of the President.
- **National Commission to Review the Working of the Constitution (NCRWC):** It laid down a time limit of four months within which the Governor should take a decision whether to grant assent or reserve it for the consideration of the President.

Conclusion:

- The court affirmed the right of each legislative house to be the sole judge of the lawfulness of its proceedings, making it constitutionally impermissible for the Governor to question the Speaker's decisions.
- Reiterated that the Governor can assent to Bills, withhold assent with a message for reconsideration, or refer them to the President.

Nut Graf: This Supreme Court ruling clarifies the constitutional limits of a Governor's powers, emphasizing the supremacy of elected representatives in shaping legislation. It reaffirms the principles of parliamentary democracy and the distinct roles of the Governor and the legislative Speaker.

14. Governor can't withhold repassed Bills, says SC

Syllabus: GS 2- Polity

Prelims: About the Governor's powers

Introduction

- The Supreme Court examined the constitutional authority of Governor R.N. Ravi in withholding assent to 10 Bills passed by the Tamil Nadu Legislative Assembly.
- The State argued that once Bills are re-passed by the House, they are equivalent to Money Bills, and the Governor cannot withhold assent.

Constitutional Provisions and Chief Justice's Remarks

- Chief Justice of India D.Y. Chandrachud notes the State's reference to Article 200's provision, emphasising that once a Bill is repassed, the Governor must not withhold assent.
- The Chief Justice questions whether the Governor must send the Bills back to the House for reconsideration after withholding assent.
- State's senior advocates argue that returning Bills to the House is a necessary step following the withdrawal of assent.

State's Grievance and Governor's Actions

- Tamil Nadu complains that the Governor is indefinitely holding back Bills, depriving the people of the state of the benefits of crucial laws.
- The Governor had withheld assent and returned the Bills on November 13, 2023; subsequently, the Assembly re-passed them on November 18, 2023.

Court's Observations

- The court acknowledges the State's submission that the Governor, having withheld assent once, cannot refer the reiterated Bills to the President.
- The Chief Justice questions the delay in the Governor's actions, suggesting that governors shouldn't wait for court interventions to take necessary steps.

Governor's Request for Deferment and Transparency Concerns

- The Attorney-General requests a deferment to provide the Governor time to consider the re-passed Bills.
- The Attorney General's note asserts a lack of transparency in the selection process for members of the Tamil Nadu Public Service Commission.
- Concerns are raised about the qualifications and suspension for maladministration of a recommended member.

15. Governor holds no veto power over Bills, says SC

Syllabus: GS 2- Polity

Prelims: About Governor's powers

Introduction

- While examining the constitutional authority of the Governor in withholding assent to a bill, the Supreme Court has issued a crucial verdict outlining a governor's obligations when withholding assent to a Bill.
- Chief Justice Chandrachud highlighted that keeping a Bill duly passed for indeterminate periods contradicts constitutional principles, emphasising the importance of prompt action.

Governor's Obligation

- The Supreme Court ruled that when a governor withholds assent to a Bill, it's mandatory to promptly send it back to the State legislature.
- This action must be accompanied by a message necessitating the legislature to reconsider the Bill.

Legislature's Authority

- The court emphasised that the ultimate decision on accepting the Governor's advice belongs exclusively to the legislature.
- The Governor's message does not bind the legislature, as indicated by the expression "if the Bill is passed again... with or without amendments."

Constitutional Democracy Principles

- The court warned against the risk of a Governor virtually vetoing a duly elected legislature's functioning by withholding assent without further recourse.
- Such a scenario contradicts the fundamental principles of constitutional democracy.

Expedition Requirement

- The court stressed that the Bill should be sent back to the Legislature "as soon as possible" with the mandatory message.
- The expression "as soon as possible" was deemed a "constitutional imperative of expedition," and failure to act promptly was deemed inconsistent with constitutional language.

16. Haryana's employment reservation law

Syllabus: Indian Constitution: historical underpinnings, evolution, features, amendments, significant provisions, basic structure doctrine; **Social Justice:** Welfare schemes for vulnerable sections of the population by the Centre and the States and the performance of these schemes

Mains: Reservation Policies in India, Constitutional Rights and Guarantees and Employment Laws.

Context

The Punjab and Haryana High Court has struck down Haryana's 75% job reservation law for locals in the private sector, citing constitutional concerns and infringement of fundamental rights.

Introduction

- The Punjab and Haryana High Court declared the Haryana State Employment of Local Candidates Act, 2020, unconstitutional, which mandated 75% reservation for locals in private sector jobs.

Haryana's Reservation Law

- Haryana State Employment of Local Candidates Act, 2020 mandated private employers in Haryana to reserve 75% of jobs with a monthly salary below ₹30,000 for local residents.
- It is applied to various private entities, including companies, trusts, societies, partnerships, and limited liability partnerships.
- A 'local candidate' was defined as someone domiciled in Haryana for the past five years, with mandatory registration on a designated portal for job benefits.
- Exemptions were allowed if suitable local candidates were not found, subject to government approval.
- Violating the Act could result in fines ranging from ₹10,000 to ₹2 lakh.

Legal Challenges:

- Industry associations challenged the law, asserting violations of constitutional articles, including Article 19 (freedom to reside and settle) and Article 14 (equality before the law).
- The law was deemed to create distinctions between individuals domiciled in different states, contradicting the concept of common citizenship.

State's Defence

- The Haryana government argued that the law aimed to protect locals' livelihoods in the face of rising unemployment.
- Cited Article 16(4) of the Constitution, asserting the state's power to provide reservations for any backward class not adequately represented in public employment.

Similar Laws in Other States

- States like Maharashtra, Karnataka, Andhra Pradesh, and Madhya Pradesh have enacted laws providing reservations for local residents in the private sector.
- The Andhra Pradesh law faced a constitutional challenge, but the matter is yet to be heard on its merits.

Supreme Court's Intervention

- The Supreme Court initially stayed the law in February 2022, but later set aside the stay, directing the High Court to expedite the case.
- The Haryana government was instructed not to take coercive actions against companies during the pendency of the matter.

High Court's Decision

- The court ruled the law unconstitutional, impairing the right to carry on occupation, trade, or business under Article 19(1)(g) of the Constitution.
- It emphasised that the law created artificial walls, discriminating against individuals based on their state of origin.
- Referring to Article 35, the court highlighted that only Parliament, not State legislatures, can legislate on matters falling under Article 16(3) (equality of opportunity in public employment).
- Sections 6 and 8 of the Act were criticised for imposing undue restrictions on private employers, amounting to an 'Inspector Raj.'

Nut Graf: The court's ruling, based on constitutional grounds, invalidates Haryana's law mandating 75% job reservations for local residents in the private sector, deeming it a violation of fundamental rights.

17. Why is Bihar demanding the Special Category Status?

Syllabus: Functions and responsibilities of the Union and the States, issues and challenges pertaining to the federal structure, devolution of powers and finances up to local levels and challenges therein.

Mains: Fiscal federalism, regional development, and state finances.

Prelims: About Special category state

Context

Bihar Chief Minister Nitish Kumar's demand for Special Category Status (SCS) stems from socio-economic challenges highlighted in the "Bihar Caste-based Survey, 2022," seeking financial aid for welfare initiatives.

Introduction

- Bihar's Chief Minister Nitish Kumar has pushed for Special Category Status (SCS) based on the findings from the "Bihar Caste-based Survey, 2022," indicating a substantial poverty rate in the state.
- Special Category Status is a classification aimed at assisting states facing geographical or socio-economic disadvantages.

Special Category Status Criteria and Benefits

- Special Category Status, introduced in 1969, considers factors like hilly terrain, low population density, tribal population, strategic location along borders, economic and infrastructural backwardness.
- SCS states receive specific grants, favourable funding ratios, and incentives like concessions in customs and excise duties, income tax rates, and corporate tax rates.
- However, after the abolition of the Planning Commission and recommendations of the 14th and 15th Finance Commission, assistance to SCS states has been subsumed into increased devolution funds.

Bihar's Socio-economic Challenges and Rationale for SCS

- Bihar's demand is rooted in its lack of natural resources, water supply challenges, floods, and droughts, aggravated by the bifurcation of the state in 2000.
- Per-capita GDP around ₹54,000 and consistently being one of the poorest states contribute to the demand.
- CM Nitish Kumar emphasises that SCS could generate ₹2.5 lakh crore for welfare measures over the next five years, addressing the needs of approximately 94 lakh poor families.

Comparison with Other States

- Andhra Pradesh and Odisha have also sought SCS, citing revenue loss and vulnerability to natural calamities.
- The Central government, referring to the 14th Finance Commission's report, has consistently denied these demands.

Justification of Bihar's Demand

- Bihar meets most criteria for SCS but lacks hilly terrain, a primary criterion for infrastructural development challenges.
- The Raghuram Rajan Committee in 2013, categorising Bihar as "least developed," recommended a new methodology based on a multi-dimensional index, indicating an alternative to SCS.

NutGraf: Bihar, facing substantial poverty and economic hurdles, pushes for Special Category Status (SCS), a classification offering financial benefits, highlighting the state's unique challenges and demanding special consideration.

18. It's time to revamp the structure of the Supreme Court

Syllabus: Structure, Organization and Functioning of the Judiciary

Prelims: Master of Roster, Supreme Court and its jurisdictions, Division Benches, Constitution Benches, Indian High Courts Act of 1861, Government of India Act, 1935, Art 124 and 130, Law Commission of India

Mains: Reform of the Supreme Court of India

Introduction:

- Legal experts and civil society groups have highlighted a need for a revamp in the structure of the Supreme Court.

Jurisdictions:

- The Supreme Court of India has 3 jurisdictions under the Constitution: original, appellate, and advisory.
- It serves as both a Constitutional Court and a Court of Appeal.
- It hears cases between the centre and states, between multiple states, rules on civil and criminal appeals, and advises the President on legal and factual issues.
- Anyone can immediately petition the Supreme Court if they believe their fundamental rights have been violated.

Composition of Benches:

- Cases are heard by benches of varying sizes, as directed by the Chief Justice of India (CJI) who acts as the Master of Roster.
- Constitution Benches typically have 5, 7, or 9 judges and rule on constitutional law issues.
- At least 5 judges are required for Constitution Bench cases involving substantial questions of constitutional interpretation.
- Typical cases are heard by 2-judge Division Benches or 3-judge full Benches on a range of topics.
- As the workload grew over the decades, Parliament increased the number of Supreme Court judges from 8 in 1950 to 34 by 2019.

Caseloads and Pending Cases:

- There are currently 79,813 cases pending before the Court's 34 judges.
- The Supreme Court issues around 8-10 decisions each year through Constitution Benches made up of 5 or more judges.
- It is mainly serving as an appeals court.
- Only 4 out of 1,263 total decisions issued in 2022 came from a Constitution Bench.

Historical Evolution

- During colonial rule, Supreme Courts existed in Bombay, Calcutta, and Madras.
- The Indian High Courts Act of 1861 replaced the Supreme Courts with High Courts overseeing separate regions.
- The Government of India Act, 1935 established the Federal Court of India to hear appeals from the Privy Council and High Courts.
- Article 124 of the new Constitution called for the creation of a Supreme Court.
- The modern Supreme Court of India was founded in Delhi under Article 130.

Proposed Reforms:

- In 1984, the Tenth Law Commission of India proposed splitting the Supreme Court into two divisions: a Constitutional Division and a Legal Division.
- The Eleventh Law Commission reiterated this in 1988, stating it would make justice more available and decrease litigation costs.
- In 1986, the Supreme Court said establishing a National Court of Appeal to handle special leave petitions was desirable in the "Bihar Legal Support Society v. Chief Justice of India" case.
- The 229th Law Commission Report in 2009 recommended four regional Supreme Court benches to hear non-constitutional cases.
- It is observed that the majority of appeals in the top court consisted of cases from High Courts in closer proximity to the Supreme Court and the regional Supreme Court benches could correct this anomaly.

Way Forward

- The Supreme Court's work could be divided to create a Final Court of Appeal and a permanent Constitution Bench. This would ensure more consistency in rulings.
- A Constitution Bench is currently examining these issues and looking at measures to protect citizens' access to the Supreme Court.
- There is an opportunity to address the structural gap in the Supreme Court by designating several appeal benches as regional benches.

Nut Graf: The Supreme Court of India's structure has remained largely unchanged since its inception in 1950, despite a significant increase in caseload. This has led to concerns about the court's efficiency and effectiveness in handling constitutional matters. Proposed reforms include establishing a Final Court of Appeal and permanent Constitution Benches, as well as designating regional appeal benches.

19. A non-starter

Syllabus: GS-2, Executive and Judiciary, Structure, Organization and Functioning

Mains: Significance of All-India Judicial Service

Context: President Droupadi Murmu's proposal for an All-India Judicial Service (AIJS) as a means to diversify the judiciary by recruiting bright individuals from diverse backgrounds raises questions about its feasibility and effectiveness.

Issues with the All-India Judicial Service (AIJS)

- **Lack of Consensus**
 - **Historical Discussions:** The idea of AIJS has been discussed in the past and has been part of policy discussions in the Union government.
 - **Lack of Consensus:** Despite its consideration, there is no consensus on the proposal, with only two High Courts supporting the idea and 13 expressing opposition.

- **Diversity and Recruitment Process**

- **Current Recruitment System:** The existing system, wherein district judges are recruited through High Courts and other judicial officers through public service commissions, is seen as more conducive to ensuring diversity.
- **Reservation Possibility:** The current system allows for reservations and a nuanced understanding of local practices and conditions, which may be challenging in a centralized AIJS.

- **Constitutional Hurdles**

- **Article 312:** The creation of AIJS requires an amendment to Article 312 of the Constitution, with a resolution adopted by the Council of States and a parliamentary law.
- **State Resistance:** States may be reluctant to relinquish control over the recruitment process for judges, as it involves a transfer of authority from the state to the centre.

- **Challenges in Legal Education**

- **Lack of Uniformity:** Legal education lacks uniformity across the country, making it challenging to have a standardized national examination for judicial recruitment.
- **Practical Experience vs. Academic Brilliance:** Lawyers often consider practical experience more valuable than academic brilliance when contemplating a career in judicial service.

- **Career Progression and Attractiveness**

- **Career Progression Uncertainty:** The limited number of district judges elevated to High Courts and uncertainty in career progression may deter candidates from opting for a national judicial service.
- **Attractiveness to Top Law Graduates:** Top law graduates may find other career options, such as litigation, law firms, or the corporate sector, more beneficial than pursuing a national judicial service.

Significance of the All-India Judicial Service (AIJS)

- **Intent for Diversity:** The proposal is aimed at diversifying the judiciary by attracting candidates from varied backgrounds.
- **Merit-Based System:** The focus on merit-based recruitment is an attempt to ensure a high standard of judges in the judiciary.

Solutions and Considerations

- **Strengthening the Current System**

- **Enhanced Diversity in Existing System:** Consider measures to enhance diversity within the current system of district judge recruitment through High Courts and public service commissions.
- **Training and Sensitization:** Introduce training and sensitization programs for judges to foster a better understanding of diverse local conditions.

- **Addressing Constitutional and State Concerns**

- **Constitutional Amendments with Consensus:** Seek consensus among states for constitutional amendments required for the creation of AIJS.
- **State Involvement:** Ensure meaningful involvement of states in the AIJS framework to address concerns related to centralization.

- **Reassessing Legal Education**

- **Standardized Legal Education:** Work towards standardized legal education to facilitate a more uniform approach to judicial recruitment examinations.
- **Practical Training Integration:** Integrate practical training components in legal education to align academic brilliance with practical experience.

- **Career Progression Certainty**

- **Clear Career Path:** Establish a clear career progression path within the AIJS to address concerns about uncertainty and attractiveness.
- **Appealing Incentives:** Introduce appealing incentives to make the national judicial service an attractive option for top law graduates.

Nut Graf: While the intention behind an All-India Judicial Service (AIJS) is commendable for aiming to diversify the judiciary and ensure a merit-based system, the proposal faces significant challenges and opposition.

ECONOMY

1. \$5 trillion economy, but for whom?

Syllabus: GS-3, Inclusive Growth and issues arising from it

Mains: Issues of divergence between economic growth and inequality

Introduction: The Promise of a \$5 Trillion Economy

- Prime Minister Narendra Modi announces an extension of the Pradhan Mantri Garib Kalyan Ann Yojana, providing free foodgrains to beneficiaries.
- India is also expected to achieve a \$5 trillion economy by 2028, making India the third-largest economy globally.

Japan's Growth Story: Lessons and Challenges

- Japan, once the world's second-largest economy, faced challenges after the 2008 financial crisis.
- **Economic diplomacy:** Japan embraced China's rise, fostering economic ties despite losing its ranking.
- **The dark side:** High suicide rates, social withdrawal, and loneliness amid economic growth reveal the human cost.

The Indian Scenario: Who Bears the Burden?

- **Capital disparity:** In 2021, 1% of the population owned 41% of the nation's wealth, while the bottom 50% owned only 3%.
- **Funding the dream:** The low-resource citizens contribute significantly to the \$5 trillion economy, with 64% of GST coming from the bottom 50%.
- **Labour challenges:** Dubious educational and skill attainment, along with limited digital literacy, hinder the contribution of labour to economic growth.

Government's Strategies and Sectors for Growth:

- Minister of State for Finance, Pankaj Chaudhri outlines key sectors for growth, including the digital economy, fintech, energy transition, and climate change.
- **Inclusive growth mantra:** Emphasis on tools such as GST, Insolvency and Bankruptcy Code, decreased corporate tax, Make in India, Start-Up India, and Production Linked Incentives.
- However, accessibility issues remain a concern as many marginalized citizens lack the means to participate in cutting-edge sectors like AI, data science, robotics, and fintech.

Challenges to government \$5 Trillion Guarantee:

- **Per capita income:** India ranks 149th globally with a per capita income of \$2,400 in 2022, raising questions about the well-being of its population.
- **Inequality index:** India's index value of 21.9 suggests a less egalitarian society compared to China and Japan.
- **Unknown projections:** Lack of official estimates on India's per capita income at \$5 trillion raises concerns about the distribution of economic gains.

Conclusion: The Divide Amid Economic Growth

- India may be on track to achieve the \$5 trillion goal, but concerns linger about the deepening divide between different segments of the population.
- As the government prioritizes economic milestones, a substantial segment of the population continues to be marginalized, witnessing the missed opportunities for their inclusion in the new economic landscape.

Nut Graf: India's pursuit of a \$5 trillion economy by 2028 raises concerns about equitable growth. Amidst government emphasis on economic milestones, stark disparities persist, with capital concentration, labour challenges, and accessibility issues for marginalized citizens. The evolving narrative reflects a nation grappling with the tension between economic advancement and social inclusivity.

2. Listen to the people, not the numbers

Syllabus: GS-3, Indian Economy and Issues Relating to Planning

Mains: How to create quality jobs and policy suggestions related to it

Introduction:

- The Indian economy faces an income problem rather than a growth problem.
- Overall GDP growth is good, but incomes for a significant population are not growing sustainably.
- Increasing pressure for job reservations for economically weaker sections, irrespective of caste or religion.

Job Debate in India:

- Economists on both (against and in favour of government) sides debate whether the economy is generating enough jobs.
- Questions raised about the accuracy of government data on job creation.
- Some attribute the issue to current government policies, while others argue it's a longstanding problem.

U.S. Economic Dissatisfaction:

- Despite positive economic indicators, a majority of U.S. citizens express dissatisfaction with their economy.
- Worker discontent with income inequality highlighted, leading to political implications.
- President acknowledging issues of excessive CEO compensation and worker belt-tightening.

Job Quality in India:

- India's challenge is insufficient movement from agriculture to manufacturing for sustainable growth.
- The 1990s shortcut from agriculture to IT services has limitations.
- Need for jobs that match present abilities, offer upward mobility, and require skills attainable by rural workers.

Quality of Jobs Issue:

- Current jobs in India, across sectors, are deemed inadequate: low pay, temporary, lacking social security.
- Even in modern manufacturing, contract employment is prevalent, offering little job security or skill development support.
- There is a need for a shift towards creating "good" jobs with fair pay, stability, and skill development opportunities.

Changing Economic Paradigm:

- The world is at a turning point requiring new economic ideas for sustainability.
- Emphasis should be given to local, environmentally friendly enterprises over global supply chains.
- Value attributed to smaller, socially conscious enterprises over large corporate entities.

Recognizing Caregiving:

- Shift towards recognizing and valuing caregiving as a significant form of work.
- Traditional economic measurements often overlook the value of informal caregiving, particularly by women.
- There is an urgent need to reevaluate economic theories to align with the social aspects of caregiving.

Listening to the Marginalized:

- Paradigm shift requires policymakers to listen to marginalized voices—workers, small farmers, entrepreneurs, and women.
- Current decision-making is often dominated by economic experts and large corporations.
- Emphasis on not relying solely on historical statistics but actively seeking input from those directly affected by economic policies.

Nut Graf: The global economy faces an income crisis despite growth metrics, highlighted in India's job reservations and U.S. dissatisfaction. The shift from agriculture to insufficient jobs affects India, emphasizing the dire need for quality employment. A paradigm shift towards valuing caregiving and listening to marginalized voices is crucial for meaningful economic reform.

3. Carbon Border Adjustment Mechanism

Syllabus: GS 3- Economy

Prelims: European Union's Carbon Border Adjustment Mechanism

Introduction

- The European Union's plan for a carbon tax on imports was criticised by India.
- India's Commerce and Industry Minister, Piyush Goyal asserts that the tax could harm the EU's manufacturing sector and may not be effective for India.
- India prepared to counter the EU's carbon tax with its own measures.

EU's Carbon Border Adjustment Mechanism (CBAM)

- The EU's Carbon Border Adjustment Mechanism (CBAM) is a key component of the EU's Green Deal, aimed at reducing carbon emissions.
- CBAM aims to ensure that imported goods to the EU meet similar carbon emission standards as EU-produced goods.
- Under CBAM, exporters are required to report and pay for the carbon emissions associated with the production of their goods.
- The mechanism is set to become operational from 2026, and reporting requirements for exporters, including steel, have already begun.

India's Response

- Minister Goyal labels the EU's CBAM as "unfair" because it assumes uniform carbon pricing between India and Europe, which is not the case.
- India plans to neutralise the EU's carbon tax by implementing its own carbon tax, aligning with its national carbon reduction goals.
- Goyal suggests that European producers, facing the carbon tax, may consider shifting their production to India to avoid the added cost.

Opportunities for India

- Goyal believes that the European auto sector may decline as a result of the carbon tax, offering India an opportunity to develop a competitive auto industry.
- Increased production costs in Europe could give India a competitive edge in the global market, attracting foreign investments and expanding its manufacturing sector.

4. A verdict that hampers international law obligations

Syllabus: GS-3, Indian Economy and issues relating to Planning, Mobilization of Resources, Growth, Development and Employment.

Prelims: Double taxation avoidance agreement, Most-Favored Nation, Organization for Economic Co-operation and Development, Section 90 of the Income-Tax Act

Mains: Tax uncertainty as a major challenge to foreign investment in India

Context

- A major challenge for foreign investors in India is uncertainty in taxation measures.
- A recent judgment by the Supreme Court of India in the Assessing Officer Circle (International Taxation) New Delhi vs M/s Nestle SA case highlights this issue.

What is the case?

- The case involves corporations like Nestle (a Swiss multinational company) and Steria (a European company).
- India has double taxation avoidance agreements (DTAAs) with several countries, including the Netherlands, France, Switzerland, Slovenia, Colombia, and Lithuania.
- The DTAAs with the Netherlands, France, and Switzerland require a 10% withholding tax on dividends paid by Indian entities to residents of those countries.
- These DTAAs also contain a most-favoured-nation (MFN) provision, which means that if India gives preferential tax treatment to any other country that is a member of the Organization for Economic Co-operation and Development (OECD), it must also give the same treatment to the Netherlands, France, and Switzerland.
- The DTAAs with Slovenia, Colombia, and Lithuania have a lower withholding tax requirement of 5%.
- When India signed the DTAAs with these countries, they were not members of the OECD, but they joined later.
- The Delhi High Court initially ruled that the preferential tax treatment given to Slovenia under its DTAA with India should also apply to the India-Netherlands DTAA due to the MFN provision.
- However, the Supreme Court overruled this decision, stating that since Slovenia was not an OECD member when the India-Netherlands DTAA was signed, the benefits given to Slovenia do not apply to the India-Netherlands DTAA.
- This ruling will result in a tax burden of approximately ₹11,000 crore on foreign investors and may lead to the reopening of past cases.
- A key question in the case was whether the Most Favoured Nation (MFN) clause in tax treaties like Double Taxation Avoidance Agreements (DTTAs) can be applied in India without notification under Section 90 of the Income-Tax Act.
- This section allows India to sign tax treaties with other countries to avoid double taxation.

Critical Analysis of the Judgement

- The Supreme Court's decision freezes the provisions of the treaty and doesn't take into account that one of the reasons for the MFN provision was to make sure that any advantages given to a country in the future would automatically be shared with the other countries that signed the treaty.
- The Supreme Court ruled that the government must issue a notification under Section 90(1) of the Income Tax Act to give effect to the Most Favoured Nation (MFN) provision in Double Taxation Avoidance Agreements (DTAAs).
- The court's decision was based on the idea of dualism, which states that international law isn't automatically part of a country's laws unless the government passes laws to make it so.
- However, the court has sometimes used a different approach called monism, which says that international law can be part of a country's legal system even if it hasn't been specifically included, as long as it doesn't go against national laws.
- Critics are worried that this decision goes backwards from the progress made in earlier cases, like PUCL vs India, Vishakha vs State of Rajasthan, and Puttaswamy vs Union of India, where the court recognized the importance of international law in protecting citizens' rights.
- The court's interpretation also allows the executive to undermine India's international law obligations by not issuing the relevant notifications domestically, making India vulnerable to international claims under other instruments of international law.

Way Forward

- The government should clarify the uncertainty surrounding the taxation measures for foreign investors, particularly with regard to the application of the MFN provision in DTAA's.
- India should review and amend its DTAA's with various countries to ensure that they are fair and equitable for all parties involved.
- Dispute resolution mechanisms should be strengthened to address conflicts arising from taxation measures and prevent judicial uncertainty.

Nut Graf: The Supreme Court of India's ruling in the Nestle SA case highlights the uncertainty in taxation measures for foreign investors in India. The court ruled that the MFN provision in DTAA's cannot be applied without notification under Section 90 of the Income Tax Act. This decision goes against the idea of automatic application of international law and may lead to international claims against India. The government should clarify the uncertainty surrounding the taxation measures for foreign investors and review its DTAA's to ensure fairness and equity.

5. Acknowledge India's economic successes too

Syllabus: GS-3, Indian Economy and issues relating to Planning, Mobilization of Resources, Growth, Development and Employment.

Mains: India's Economic achievements in the past few decades

Introduction:

- India's post-COVID-19 economic growth has been impressive, with a YoY growth rate of 7.2% in FY2023, the fastest among major economies.
- The IMF projects India's YoY growth at 6.3% in FY2024, maintaining its status as the fastest-growing major economy.
- India is currently the fifth-largest economy globally and is projected to become the third-largest by 2027.

COVID-19 and Growth Rates:

- Some argue that post-COVID-19 growth rates should be replaced by compound annual growth rates from the pre-pandemic year of 2019-20.
- The YoY growth rate of 7.2% in FY2023 reflects both annualized progress over the pre-pandemic year and the recovery of output lost to the pandemic.

Government's Measures Since 2014:

- In the first decade of the 21st century, India faced economic challenges due to a global financial crisis, a trade slowdown, and a domestic credit bubble.
- The government implemented measures since 2014 to boost the economy, including calibrated liberalization, the Insolvency and Bankruptcy Code (IBC), demonetization, and the Goods and Services Tax (GST).
- Reforms like the reduction in the corporate tax rate and a focus on fiscal discipline have stimulated private corporate investment.
- In FY22, a large Capex program was initiated, and the central government's Capex budget increased from 1.6% of GDP in FY19 to 2.7% in FY23, with a further increase to 3.3% projected in FY24.
- The government aims to "crowd-in" private corporate investment by enhancing physical infrastructure.

Poverty Alleviation, Rural Welfare:

- The government is committed to inclusive growth, reflected in initiatives like Sabka Saath Sabka Vikas.
- Various measures have been taken for poverty alleviation, skill development, women's empowerment, and infrastructure development.
- A recent NITI Aayog report indicates a significant decline in multidimensional poverty, with 13.5 crore Indians escaping poverty between 2015-16 and 2019-21.
- Rural areas have played a crucial role in reducing the Multidimensional Poverty Index headcount ratio.
- The National Family Health Survey for 2019-21 shows improvements in rural living standards, including access to electricity, drinking water, and health insurance.
- Government support for agriculture has led to unprecedented growth in fruits, vegetables, dairy and livestock products, and fishery.
- The share of fruits and vegetables in the food basket has increased to 19.4% in 2021, contributing to a more nutritious food basket.
- Despite the progress, India acknowledges the long road ahead to achieve high-income status and a high quality of life for its citizens.

Nut Graf: India's economic resilience post-COVID shines with a 7.2% YoY growth in FY2023, the fastest among major economies. Government measures since 2014, including liberalization, tax reforms, and a substantial Capex program, have fueled this growth. Poverty alleviation and rural welfare initiatives reflect India's commitment to inclusive development. Challenges acknowledged, India's progress is noteworthy.

6. Should Indians work longer hours?

Syllabus: GS-3, Development and Employment

Mains: Should Indian workers work for 70 Hours, debate around working hours of 70 hours.

Context: Debate of Working 70 Hours a Week After Narayana Murthy's Statement.

India's and Global Scenario:

- Narayana Murthy has proposed that young Indians should commit to working 70 hours a week, positioning it as a necessity to compete globally.
- In the context of India's crucial juncture, marked by a large population and a demographic dividend, it's essential to examine India's standing globally.
- India's working hours, when compared with other nations, highlight distinct patterns. In 2019, Indians worked an average of 6-7 hours per day, which is notably lower than countries like Germany and South Korea during their industrial development phases.
- India's Gross Domestic Product (GDP) and productivity metrics, when compared with global counterparts, reveal challenges. In 2019, the output per worker was \$74 for the U.S., \$69 for Germany, and only \$8.7 for India.
- A comparison is drawn with post-war Germany and Japan, emphasizing the importance of taking ownership and seizing opportunities.
- India's productivity growth over the last five decades has been slower, and this is a key concern in the push for increased working hours.
- Recognizing variations across sectors and historical contexts is crucial, especially when comparing India's economic landscape with that of other nations.

The rationale for Working 70 Hours a Week:

- Murthy's recommendation is intricately linked to India's potential for growth and the imperative to ascend the value chain.
- Historical instances from countries like Germany and South Korea, where longer working hours were prevalent during pivotal developmental phases, are cited.
- India's position concerning other nations in terms of productivity and output is a driving force behind the suggestion to work longer hours.
- The suggestion aims to address concerns about India's comparatively sluggish productivity growth over the last five decades, particularly when compared with global economic leaders.

Issues in Working 70 Hours a Week:

- The International Labour Organization's standard of 8 hours a day and 48 hours a week is positioned as a benchmark.
- Potential ramifications on unemployment is another concern, particularly in the context of a labour-surplus economy.
- Gender disparity in work hours is a concern, with implications for the participation of women in the workforce. India's female labour force participation is already one of the lowest in South Asia.
- Worries about diminishing returns associated with extended work hours are other such concerns.
- The impact on work-life balance, mental health, and physical well-being is considered, especially concerning India's social and cultural context.

Way Forward:

- A call is made to consider India's labour market context and recognize regional variations in working hour conditions.
- Emphasis is placed on adhering to legal work hours and ensuring a balance between professional and personal life.
- The relevance of industry-specific variations in work hours and the necessity to incorporate economic drivers into the evaluation are suggested.
- The importance of productivity growth, technological advancements, and capital investment are need of the hour, drawing comparisons with countries that have experienced significant growth in these areas.
- Optimizing infrastructure and introducing artificial intelligence and technology should be prioritised to enhance worker efficiency.
- The role of empathetic leadership in creating a positive work environment is equally important.
- The urgency for the formalization of employment and the enforcement of labour laws is critical.
- A balanced approach is needed, addressing the job crisis while safeguarding worker well-being.

Nut Graf: In the debate sparked by Narayana Murthy's call for young Indians to work 70 hours a week, the global context reveals India's lower productivity compared to developed nations. Challenges include potential unemployment, gender disparities, and concerns about work-life balance. The way forward emphasizes industry-specific strategies, technology adoption, and empathetic leadership to achieve competitiveness without compromising well-being.

7. Retail & Headline Inflation

Syllabus: GS 3- Economics

Prelims: About Retail & Headline Inflation

Introduction

- India's retail inflation rate saw a decline to a four-month low of 4.87% in October from slightly over 5% in September, driven by factors such as a decrease in vegetable prices.

Key Highlights

1. Vegetable Prices Easing:

- The rise in vegetable prices eased to 2.7% from 3.4%, contributing to the overall reduction in retail inflation.
- Consumer food price inflation remained nearly unchanged at 6.6%.

2. Base Effects and Deceleration in Non-Food Items

- Base effects from October last year, when retail prices surged 6.8%, played a role in cooling the headline inflation rate.
- Prices of non-food items such as services, clothing, footwear, and fuel and light also saw some deceleration.

3. Fuel and Light

- Aided by LPG cylinder price cuts, fuel and light costs dropped by 0.4% compared to October last year.

4. Rural and Urban Inflation

- Inflation in rural areas eased to 5.1% from 5.33% in September.
- Urban households experienced a marginal increase in inflation, reaching 4.65%.

5. Month-on-Month Basis

- On a month-on-month basis, consumer prices increased by 0.65%.
- Food prices rose by 1.06%, with urban food prices seeing a 1.14% increase.

RBI's Stance and Future Outlook

- RBI is unlikely to lower interest rates soon, especially with sticky food prices.
- The RBI has committed to focusing on price stability around its 4% target rather than being satisfied with inflation prints within the 4%-6% range.

Specific Food Price Movements

- Some relief was observed in inflation rates for cereals, meat, fish, and milk (6.44% decrease), and a drop in spices (remaining elevated at 22.8%).
- However, the acceleration in the prices of key protein sources like pulses and eggs, along with an increase in fruit and sugar prices, offset these gains.

8. Making sense of the employment challenge

Syllabus: GS-3, Indian Economy and issues relating to Planning, Mobilization of Resources, Growth, Development and Employment.

Prelims: Development, Employment generation, Working conditions

Mains: Changes in Industrial Policy to aid growth

Introduction

- Mr N.R. Narayana Murthy, founder of Infosys, proposed Indians work 70 hours per week to increase national output, similar to Japan and Germany post World War II
- He argues longer work hours fueled economic booms in Japan and Germany in the 1950s.
- This has led to a debate on the possibility of India trying to replicate the Japanese and German model by working longer hours.

Relationship between labour and aggregate demand

- According to Keynesian economics, industrial output is determined by aggregate demand – the total demand for goods and services in an economy.
- The demand for labour depends entirely on the demand for goods. There is no independent demand for labour.
- Firms that employ more workers without increased aggregate demand will have excess unsold goods.
- Workers offering to work longer hours will not necessarily find jobs if firms are unwilling to hire them. Firms are motivated by profits and will only employ more workers if product demand increases.
- Unemployment reflects a mismatch – workers willing to work but firms unwilling to employ them because it would be unprofitable.
- This relationship between output demand and labour demand is evident in recent layoffs in the tech sector. Google and Amazon have cut hundreds of pandemic-era hires as demand decreased post-lockdowns.
- Software services firms optimize employee levels to match fluctuating demand. So with unemployment, urging longer work hours is not very relevant.

Historical context

- Post-WWII Germany and Japan demonstrate how labour demand determines hours worked.
- Their economies and workforces were devastated by the war.
- Rebuilding required massive demand for labour to clear rubble given the scale of destruction.
- Financial assistance like the Marshall Plan enabled employment expansion.
- Without such government support, revival would have taken much longer.
- The World Bank was created recognizing that private firms alone could not achieve swift recovery in the post-war period.
- Thus, the long working hours in mid-20th century postwar economies were unique.
- **Case of South Korea**
 - South Korea's economy in the post-war period had some similarities to Germany and Japan at that time:
 - The country was also recovering from war and received substantial foreign aid, especially from the U.S.
 - Strong nationalism also motivated people to voluntarily work hard to rebuild the nation after the catastrophe.
 - The government instituted labour mobilization programs for large-scale agricultural projects to increase productivity.
 - Manufacturing success in East Asia was built on top of these agricultural advances enabled by coerced long work hours by the government.
 - Post-war reconstruction drove demand for greater output initially, with longer work days following after.

Applicability to India

- High working hours in Germany and East Asia in the mid-20th century backed by public funding and coercion might not be a useful model for understanding present-day India.
- **There are two strategies for economic policy to increase output and employment in India:**
 - Use the global market and world demand to grow India's economy. But India's goods must be globally competitive, which requires an efficient workforce and good infrastructure. India currently lags behind top Asian economies in worker health, skills, and productivity.
 - Expand the domestic market and aggregate demand. It should be recognised that the economy produces both food and non-food goods/services. If food production costs fall, most Indian households' real income rises. They can spend more on non-food items, aiding production and output growth and thus increasing employment.

Conclusion

- The proposal for 70-hour work weeks likely refers to the formal sector with specified hours and minimum wages.
- In the informal sector, some unorganized workers already labour excessively long hours at very low wages without legal protections.
- The challenge is to ensure minimum acceptable conditions i.e. fewer hours, higher pay, and less arduous work.
- Considering this, it may not be realistic to expect a rapid economic transformation in India solely through longer working hours.

Nut Graf: While some argue that India should adopt the post world war II Japanese and German model of longer work hours to boost economic growth, this proposal fails to consider the unique circumstances of those countries' recoveries and overlooks the importance of aggregate demand and labour productivity in driving economic growth. India should focus on enhancing worker health, skills, and infrastructure to become globally competitive and expand domestic demand by increasing real incomes.

9. Inflation still remains a key risk to growth, cautions Finance Ministry

Syllabus: GS 3- Economy

Prelims: About Inflation and its impact

Introduction

- The Finance Ministry acknowledged that inflation pressures have moderated but highlighted it as a significant risk to growth.
- External financial flows affecting the rupee's value and the balance of payments situation were also identified as key concerns.

Economic Resilience and Impact of Monetary Policy

- The Indian economy has shown remarkable resilience amid a global economic slowdown.
- Private final consumption expenditure was the strongest driver of growth during the year.
- While domestic demand remained solid, there are concerns that fuller transmission of monetary policy might temper this demand.
- The moderation in inflation is a positive factor but it could pose a risk to the overall economic growth.

Fiscal Deficit Target and Global Economic Development

- The ministry expressed confidence in achieving the fiscal deficit target of 5.9% of GDP for the current year.
- The recent decline in global crude oil prices was highlighted as a positive development, removing a potential impact on public finances.
- The rapid reversal of rate hike expectations in the U.S. and the decline in the U.S. 10-year Treasury yield were seen as favourable for emerging markets, including India.

Demand and Consumption Strength

- Rural demand grew steadily in the July to September quarter, backed by stable foodgrain incomes and lower inflation.
- Festive season bolstered consumption, with underlying strengths attributed to savings and declining unemployment.
- Rising real estate prices were mentioned as a factor contributing to the boost in consumption demand.

10. Need for climate smart agriculture in India

Syllabus: GS-3, Agriculture and cropping patterns

Mains: Need for climate smart agriculture in India

Context: The intersection of climate change and food insecurity poses significant challenges for humanity in the 21st century. With climate-related impacts such as heat waves, floods, droughts, and cyclones affecting agricultural productivity, there is an urgent need for innovative approaches.

Issues:

- **Challenges in Agriculture Due to Climate Change:** Ongoing effects of climate change, such as extreme weather events, impact lives and livelihoods.
 - Severe droughts, linked to climate change, negatively affect agricultural production and farmers' well-being.
 - Population growth and dietary changes contribute to increased food demand, placing additional stress on the agricultural sector.
 - Traditional farming practices are becoming less productive due to climate change, necessitating a reevaluation of methods.
- **Climate-Smart Agriculture (CSA) as a Holistic Framework:**
 - Defined by the Food and Agriculture Organization, CSA aims to transform food and agriculture systems to support sustainable development and ensure food security under climate change.
 - Three pillars of CSA: increase agricultural productivity and incomes sustainably, adapt and build resilience to climate change, and reduce/remove greenhouse gas emissions.
 - Dimensions of climate-smart practices include water-smart, weather-smart, energy-smart, and carbon-smart practices.
 - Focus on improving productivity, dealing with land degradation, and enhancing soil health.
- **Future Impacts of Climate Change on Agriculture in India:**
 - Predicted crop yield decline in India due to climate change, potentially reaching 9% between 2010 and 2039.
 - Urgent need for radical reform in the agriculture industry to combat climate change and achieve sustainable agricultural growth.
- **Significance of CSA:**
 - Aligns with the United Nations' Sustainable Development Goals to end hunger and enhance environmental management.
 - Emphasized in the National Action Plan on Climate Change as a key element of India's adaptation measures.
 - CSA initiatives, such as the Soil Health Card Scheme, promote precision nutrient management to optimize agricultural methods.
- **Global Recognition and Community-Supported Efforts:**
 - Worldwide acknowledgement of CSA's value in minimizing and adjusting to the effects of climate change on agriculture.
 - Rise in community-supported agriculture efforts globally, aiming for resilient and environmentally friendly agricultural systems.
 - Concrete examples of CSA ideas include agroforestry, sustainable water management, and precision agriculture.
- **Benefits of CSA Implementation:**
 - Increases resilience to climate-related dangers and shocks, addressing longer-term stressors like shorter seasons and erratic weather patterns.
 - Promotes economic autonomy of farmers, causing a positive change in economic and social structures within farming communities.
 - Enhances biodiversity conservation through CSA's ecosystem-based approach and crop diversification.
- **Role in Mitigating Greenhouse Gas Emissions:**
 - Agriculture contributes 17% of greenhouse gas emissions.
 - CSA implementation is crucial for lowering greenhouse gas emissions and protecting biodiversity.
 - Aids in enhancing farmland carbon storage, aligning with the Paris Agreement goals.

- **Government Initiatives and CSA Adoption in India:**

- Various government initiatives in India, such as the National Adaptation Fund for Climate Change and Soil Health Mission, focus on CSA.
- Public and private sector entities, including farmer-producer organizations and NGOs, contribute to the adoption of CSA.

- **Potential for Small and Marginal Farmers:**

- The majority of Indian farmers are small or marginal; CSA can help increase their profits.
- CSA adoption at a unique juncture in India, addressing climate vulnerability and agricultural importance.

Nut Graf: The adoption of CSA not only benefits farmers economically but also contributes to biodiversity conservation and mitigates greenhouse gas emissions. As India stands at a unique juncture, CSA adoption becomes not just desirable but essential.

11. Fleet electrification to tackle urban pollution

Syllabus: Conservation, Environmental Pollution and Degradation, Environmental Impact Assessment.
GS- III

Category: Environment & Ecology

Prelims: Air quality index, Urban Emissions report, The Energy and Resources Institute, PM2.5 and PM10

Mains: Electrification of Commercial Transport to reduce Air Pollution

Overview of air pollution problem

- The air quality index (AQI) in many Indian cities has entered hazardous levels, indicating dangerously polluted air.
- This exposes millions of residents to serious health risks.
- Exposure to PM2.5 and PM10 particles is linked to adverse respiratory and cardiovascular health effects, hospitalizations, and premature deaths.
- The Urban Emissions report (2015) and The Energy and Resources Institute (TERI) study (2018) have mentioned mitigating air pollution as a top priority,

Major contributors to particulate matter pollution

- A primary contributor to urban smog and haze is fine particulate matter air pollution (PM2.5 and PM10)
- These are largely produced by the transportation and construction industries

Strategies to reduce particulate matter pollution

- Modernizing vehicle emissions standards
- Restricting high-emissions vehicles
- Upgrading construction equipment
- Implementing pollution control measures at industrial facilities

Expanding truck fleet exacerbating pollution

- Approximately 9 lakh new trucks are being added to existing 70 lakh trucks annually.
- Indian trucks transport over 2 trillion tonne kilometers of freight per year.
- Fuel consumption by trucks account for over one-fourth of India's oil imports and over 90% of road transport related carbon dioxide emissions.
- If new trucks run on traditional diesel engines, cities will face the risk of heightened PM2.5 pollution.

Transitioning to electric vehicles

- India has electrified its rail freight system, although this only accounts for 20% of total freight transport.
- Electric vehicle penetration has surpassed 6%, but electric trucks remain challenging due to high costs and insufficient charging facilities.
- The government is also pushing for transitioning the bus fleet to electric and has set electrification targets for bus aggregators.
- Focus must also extend to diesel trucks as they are among the major particulate matter sources.

Rationale for transitioning truck fleet

- Transitioning to electric trucks is important for both energy security and environmental sustainability reasons.
- India would save over 800 billion liters of diesel through 2050 if recent demand for 7,750 electric trucks in India by 2030 happens.

Barriers to large-scale transition

- Public funding alone cannot provide the large-scale transition needed.
- Attracting private and institutional capital at a ratio of at least six rupees for every one rupee of public money, through effectively structured bankable projects, is necessary for electric truck fleet transition.
- Although electrifying over 50% of three-wheelers in India is an important milestone for the 2070 net zero target, transport sector decarbonization must be led by truck electrification.
- An electric truck costs around 1.5 crore rupees compared to about 40 lakh rupees for a diesel truck.
- This and the cost of charging infrastructure remain major obstacles to transitioning to electric trucks in the country.

Way Ahead

- Declaring certain expressways and highways “green freight corridors” to demonstrate the viability of sustainable trucking in India could motivate further adoption of electric vehicles for freight transport.
- Feasibility studies, demand analysis, supplier readiness assessments, and risk sharing strategies are necessary for adopting the green freight corridors.
- Initial green freight routes could cover short distances of 500 km on roads with high truck traffic. This allows for testing and iteration before expanding the program.
- Financial instruments, charging infrastructure incentives, business incentives, and regulatory support are critical to incentivise truck electrification in India.
- India should take a coordinated action plan if we want to improve air quality in our cities and reduce the health impacts of freight truck emissions.

Nut Graf: India's air quality is in a hazardous state, posing significant health risks to millions of residents. Particulate matter (PM_{2.5} and PM₁₀) from transportation and construction industries are major contributors. Transitioning to electric trucks, while important, faces barriers such as high costs and limited infrastructure. Green freight corridors, financial incentives, and regulatory support are crucial to accelerate electric truck adoption and improve India's air quality.

12. Can dollarisation save an economy

Syllabus: Economic policies, currency issues, and the challenges faced by countries with high inflation rates.

Mains: The potential benefits and challenges of dollarization as a solution to hyperinflation.

Prelims: About the concept of dollarization.

Context

Argentina's recent presidential election victory for Javier Milei has sparked discussions on his unconventional views and proposals, particularly focusing on the radical economic change of replacing the peso with the dollar.

Introduction

- Argentina's recent presidential election resulted in victory for Javier Milei, drawing attention to his unconventional views and economic proposals.
- Milei campaigned on replacing the peso with the dollar, eliminating the Central Bank, and cutting government spending.

Challenges and Milei's Reversals

- Argentina faces significant challenges, including over 100% inflation and two-thirds of the population below the poverty level.
- Milei walks back on some campaign promises, describing dollarisation as a “medium-term” goal and ruling out an immediate lifting of currency controls.

Dollarisation as a Solution

- Dollarisation is seen as a potential solution to hyperinflation by breaking the link between rising prices and increased money supply.
- The theory suggests that replacing the domestic currency with the dollar limits political control over the money supply, moderates inflation, and encourages a focus on export successes and foreign capital.

Potential Problems and Policy Implications

- Dollarisation limits policy leverage, particularly in monetary policy and the ability to use depreciation to boost exports.
- Proponents argue that it encourages productivity and stability but raises concerns about policy independence and adaptability.

Ecuador's Experience

- Ecuador faced economic crises in the late 1990s, leading to the adoption of the dollar in 2000.
- Despite political upheaval, Ecuador experienced significant economic progress, including GDP growth, poverty reduction, and inflation control.
- Dollarisation played a role, but other factors, such as oil reserves and fiscal policies, contributed to success.

Role of Policy and Challenges in Ecuador

- Ecuador's success is not solely attributed to dollarisation but involves sustained engagement with policymaking and fiscal policies that prioritise social spending.
- Rising oil prices contributed to economic windfalls, and active fiscal policy played a crucial role in ensuring sustainable growth.

Dangers of Overreliance on External Currency

- Drawing a parallel with Greece's adoption of the euro, external currency adoption without policy independence can lead to challenges during economic crises.
- Greece faced austerity measures and constraints in fiscal and monetary policy during the Eurozone crisis.

Nut Graf: As Argentina contemplates dollarisation under President-elect Javier Milei, this article examines the potential benefits and challenges of such a move, drawing insights from Ecuador's experience and emphasising the critical role of domestic policy in achieving economic success.

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INTERNATIONAL RELATIONS

1. Understanding the U.S.-Israel relations

Syllabus: Effect of policies and politics of developed and developing countries on India's interests, Indian diaspora.

Mains: US- Israel relations

Context

The article discusses the enduring relationship between the United States and Israel, highlighting its historical origins, current status, occasional tensions, and the reasons behind the consistent U.S. support for Israel.

Introduction

- The recent events and historical context surrounding the U.S.-Israel relationship sheds light on the close ties between the two nations.

Origins of the U.S.-Israel Ties

- **Early Support:** The U.S. supported the idea of a Jewish homeland in Palestine, with President Woodrow Wilson endorsing it in 1919, well before Israel's establishment in 1948.
- **Recognition:** The U.S. was the first country to recognize Israel within 11 minutes of its proclamation in 1948.
- **Mixed Relations:** Despite initial support, the Eisenhower administration expressed concern during the Suez Crisis in the 1950s and Israel's secret nuclear program in the 1960s.

1967: A Turning Point

- **The Six-Day War:** Israel's swift victory over Arab nations in 1967, with limited U.S. involvement, marked a shift in U.S. perception.
- **Soviet Influence:** Israel was seen as a counterbalance to Soviet influence in the region, solidifying the U.S.-Israel alliance.

Current Status of U.S.-Israel Ties

- **Unconditional Support:** The U.S. provides extensive financial, military, and political support to Israel.
- **Financial Aid:** Israel is the largest recipient of U.S. aid, totalling \$158 billion since World War II, with \$3.8 billion annually in military aid.
- **Defence Partnership:** The U.S. and Israel collaborate on research, development, and weapons production, including systems like the Iron Dome.
- **U.S. Veto Power:** The U.S. has vetoed over 50 resolutions critical of Israel at the UN Security Council.

Occasional Tensions

- **Personal Clashes:** Various American presidents and Israeli prime ministers had disagreements, but these rarely led to a breakdown in the relationship.
- **Examples:** President Jimmy Carter pressured Israel to make peace, President George W. Bush called for restraint in the West Bank, and President Barack Obama clashed with Benjamin Netanyahu over the Iran nuclear deal.

Why the U.S. Backs Israel

- **Strategic Value:** Israel is seen as a strategic ally in a volatile region, offering stability and support against potential threats.
- **Public Opinion:** A majority of Americans have favourable views of Israel, and American Jews and evangelical Christians strongly support the country.
- **Israel Lobby:** Organizations like AIPAC heavily influence U.S. policy toward Israel, amplifying pro-Israel voices and supporting pro-Israel politicians.
- **Financial Support:** Pro-Israel groups contribute to both major U.S. political parties.
- **Military-Industrial Complex:** Strong ties exist between the military industries of both nations, further cementing the relationship.

Nut Graf: Amidst recent events, the article delves into the unwavering U.S.-Israel alliance, tracing its roots back to early 20th-century support, pivotal moments like the 1967 Six-Day War, and the contemporary dynamics involving financial, military, and political support. It also explores the role of public opinion, influential lobbies, and strategic interests in maintaining this remarkable alliance, emphasising its resilience through various U.S. administrations.

2. Inhumane decision to expel Afghan refugees

Syllabus: GS-2, Effect of policies and politics of developed and developing countries on India's interests.

Mains: Issues of Afghan refugees

Context: The global focus on recent events, such as Israel's actions in Gaza, has overshadowed a critical issue, the expulsion of 1.5 million undocumented Afghan refugees by Pakistan. While these refugees face an uncertain future, the decision has raised concerns about its inhumanity and goes against the claimed ties of brotherhood between Pakistan and Afghanistan.

Details:

- **Inhumane Expulsion Decision:** Pakistan's decision to expel Afghan refugees, particularly at the onset of winter, lacks global attention.
 - Notable contrast with the international focus on Israel's actions in Gaza.
 - The expulsion, unjustified and inhumane, poses severe consequences, including deprivation and potential starvation for many refugees.
- **Impact on Long-Term Residents and Girls' Education:** Some refugees lived their entire lives in Pakistan, building businesses with official complicity.
 - Compelled to sell businesses at low prices due to the restriction on taking only ₹50,000 upon departure.
 - Girls who studied in Pakistani schools and colleges face disruption in their education.
- **Pakistan's Frustration with Afghan Taliban**
 - Decision driven by frustration with the Afghan Taliban's refusal to control the Tehreek-e-Taliban-e-Pakistan (TTP).
 - Pakistani Prime Minister Anwaar ul Haq Kakar cites expectations that strict action would be taken against TTP after the establishment of the Interim Afghan government in August 2021.
 - Unrealistic hope, given historical ties and the Taliban's strategic interests.
- **Growing Terrorism and Attacks on Pakistani Security Forces**
 - Increase in terrorist attacks in Pakistan, attributed to the TTP.
 - The Pakistani establishment claims a 60% rise in terrorist acts since the Afghan Taliban came to power, leading to 2,267 Pakistani casualties.
 - Anger within the Pakistani army due to the perceived lack of action by the Afghan Taliban against TTP.
- **Lack of Gratitude in Global Affairs**
 - Pakistani generals' belief that the Afghan Taliban should be thankful for Pakistan's historical support.
 - Realpolitik perspective: Afghanistan's strategic use of the TTP as a card against Pakistan.
 - No gratitude in global affairs; Afghans may feel used by Pakistan for its interests.
- **Impact on Afghan Taliban's Image**
 - The expulsion decision is likely to affect the Afghan Taliban's image and popularity among Afghans.
 - Sentiment against Pakistan may grow, as Afghans perceive being used and abandoned by their neighbour.
- **Refusal to Acknowledge Taliban's Legitimacy**
 - Pakistani Prime Minister Kakar questions the legitimacy of the interim Afghan government.
 - Asserts that governance challenges and recent transformations in Afghanistan must be settled for pivotal connectivity with Central Asia.
 - Contradicts the Afghan government's claim of legitimacy and popular support.
- **Mutual Negativity Since the Soviet Era**
 - Historical context of mutual negativity between Pakistan and Afghanistan since the Soviet era.
 - Pakistan's role in the Afghan jihad and subsequent interventions in Afghan affairs.
 - Continuous interference and shifting alliances, including support for the Taliban.

Nut Graf: The expulsion of Afghan refugees by Pakistan, overshadowed by global events, raises significant humanitarian and geopolitical concerns. The decision, driven by frustration with the Afghan Taliban's perceived inaction against the TTP, lacks justification and goes against claimed ties of brotherhood.

3. Where does India stand on Israel-Hamas war?

Syllabus: Effect of policies and politics of developed and developing countries on India's interests.

Mains: India's stand on Israel-Hamas war.

Context: India's position on the Israel-Hamas conflict and its broader stance on global relations have been subjects of recent attention.

India's Articulated Position:

- **Multilayered Response:** India's response to the Israel-Hamas conflict has been multi-layered. It condemned terrorism strongly, supported Israel over the attacks, but hasn't designated Hamas as a terror group.
- **Calls for Restraint:** India urged Israel for restraint, dialogue, and diplomacy, condemning civilian casualties. It, along with the U.S. and Australia, called for "humanitarian pauses" but stopped short of calling for a ceasefire.

- **Support for Two-State Solution:** India reaffirmed support for a “two-state solution” with a sovereign, viable Palestinian state existing alongside Israel. It emphasized socio-economic welfare for the Palestinian people.
- **Humanitarian Assistance:** India sent 70 tonnes of humanitarian aid, including medicines, to Gaza via Egypt, showing a commitment to addressing the humanitarian aspect of the conflict.

India's Global Alignment:

- **Historical Alignment:** Traditionally aligned with the Global South, India has been a strong supporter of the Palestinian cause.
- **Shift in Voting Pattern:** Recent voting patterns, including the abstention at a UNGA vote on a ceasefire and alignment with Western countries, indicate a departure from the historical alignment.

Impact on Relations:

- **De-hyphenation from Palestine:** India's relations with Israel have been “de-hyphenated” from ties with Palestine, with a shift observed since the Kargil war.
- **Ties with Gulf and Arab World:** India's approach toward Israel could impact its relationships with the Gulf and Arab countries, particularly considering its special ties with the UAE and Saudi Arabia.
- **Potential Casualties:** Initiatives like the India-Israel-UAE-U.S. (I2U2) trade initiative and the India-Middle East-Europe Economic Corridor may face challenges due to the Israel-Hamas conflict.

India's Relations with Iran:

- **Strengthened Ties:** India's ties with Iran, strengthened by initiatives like the Chabahar port and the International North-South Transport Corridor, could be affected.
- **Balancing Act:** Balancing relations with Iran, Israel's chief rival, is crucial, and a clear alignment with one side could impact existing initiatives.

Nut Graf: India's stance on the Israel-Hamas conflict reflects a nuanced approach, balancing historical alignments with emerging geopolitical considerations. The impact on India's relationships with the West, Global South, and West Asian powers, as well as the delicate balance with Iran, requires careful diplomatic navigation.

4. India votes against Israeli settlements

Syllabus: Bilateral, Regional and Global Groupings and Agreements involving India and/or affecting India's interests.

Mains: India-Israel Relations

Context: India votes for UN resolution condemning Israeli settlements after recent abstention on Gaza conflict humanitarian truce.

UN General Assembly Resolution on Israeli Settlements:

- **Vote Outcome:** India, along with 145 nations, votes in favour; seven against, including the U.S., Israel, and Canada.
- **Resolution Content:** Condemns Israeli settlement activities in “Occupied Palestinian Territory” and the occupied Syrian Golan.
- **Illegal Nature:** Reaffirms the illegality of Israeli settlements, labelling them as obstacles to peace and economic development.
- **Cessation Demand:** Calls for an immediate and complete halt to all Israeli settlement activities.

Previous UN General Assembly Vote on Gaza Conflict Humanitarian Truce:

- **Abstention by India:** India abstains from a resolution for an immediate humanitarian truce in the Israel-Hamas conflict.
- **Resolution Outcome:** Adopted with 120 nations in favor, 14 against, and 45 abstentions.
- **India's Explanation of Vote:** Emphasizes concern for violence, condemns terror attacks and advocates a zero-tolerance approach to terrorism.

Deputy Permanent Representative's Statement:

- **Dialogue Over Violence:** Stresses the importance of resolving differences through dialogue instead of violence.
- **Global Unity Against Terrorism:** Calls for global unity and a zero-tolerance approach to terrorism, irrespective of borders or justifications.
- **Condemnation of Terror Attacks:** Expresses shock at recent terror attacks in Israel and condemns them unequivocally.

Nut Graf: India voted in favour of a UN resolution condemning Israeli settlements in the “Occupied Palestinian Territory.” The resolution, backed by 145 nations, labels the settlements as illegal obstacles to peace. This comes shortly after India abstained from a UN vote on a Gaza conflict humanitarian truce.

5. India backs UN resolution against Israel

Context: India's recent vote in favor of a draft resolution in the United Nations General Assembly (UNGA) expressing concern over Israel's continued presence in the Syrian Golan raises questions about India's foreign policy stance and its implications for regional dynamics. The Syrian Golan, occupied by Israeli forces in 1967, remains a longstanding point of contention.

Significance of India's Vote

- **Historical Context:** The Israeli occupation of the Syrian Golan in 1967 has been a contentious issue, contributing to regional tensions in the Middle East.
- **Global Diplomatic Landscape:** India's vote in favor of the resolution indicates a position aligned with international consensus, reflecting its stance on territorial integrity and adherence to UN resolutions.
- **Strategic Implications:** The vote may have broader implications for India's diplomatic relations, especially considering its historical ties with Israel and ongoing geopolitical dynamics.

UN Resolution Details

- **Draft Resolution Content:** The resolution expressed deep concern over Israel's failure to withdraw from the Syrian Golan and emphasized the illegality of Israeli settlement construction in the region.
- **Global Support:** The resolution received significant support in the UNGA, with 91 votes in favor, highlighting international concern regarding the situation in the Syrian Golan.
- **Opposition Stance:** Notably, countries like Australia, Canada, Israel, the U.K., and the U.S. voted against the resolution, indicating a divide on the issue within the international community.

India's Foreign Policy Considerations

- **Territorial Integrity:** India's vote aligns with its consistent support for the principles of territorial integrity and sovereignty, as advocated in various international forums.
- **Balance in Diplomacy:** The vote also showcases India's ability to balance its diplomatic engagements, considering its historically warm ties with Israel and its commitment to broader global concerns.

6. The stance of the Maldives President-elect on India

Syllabus: India and its neighbourhood – International relations; Effect of policies and politics of developed and developing countries on India's interests, Indian diaspora.

Mains: India- Maldives relations

Context

President-elect Muizzu of the Maldives aims to remove Indian military presence, aligning with the opposition's 'India Out' campaign, while emphasising Chinese assistance.

Introduction

- President-elect Mohamed Muizzu of the Maldives, who won the September 2023 election, has emphasised his intention to remove Indian troops from the country.
- His stance aligns with the 'India Out' campaign by the main opposition bloc, opposing the pro-India foreign policy of the outgoing President Ibrahim Mohamed Solih.

Indian Military Presence

- As per the Maldives National Defence Force (MNDF), 75 Indian military personnel operate Indian-gifted Dornier aircraft and helicopters in the Maldives.
- These assets are used for various functions, including medical evacuation, search and rescue, training, surveillance, and patrol.

Why President-Elect Muizzu Opposes Indian Troops

- The previous administration under President Yameen leaned toward China, straining Maldives-India relations.
- Muizzu, aligned with this political camp, seeks to emphasize the benefits of Chinese assistance while refraining from discussing Maldives' debt obligations, including to China.
- His frequent pledge to remove Indian military presence appears linked to the international media's framing of the election as a referendum on India and China, in addition to maintaining consistency with pre-election promises.

Challenges for President-Elect Muizzu

- While President-elect Muizzu intends to remove Indian troops, he faces significant economic challenges. The Maldives is dealing with a substantial debt burden, making cooperation with India and China, major lenders and development partners, crucial for addressing the debt crisis.

India's Interests

- In recent years, India has become the Maldives' primary security and economic partner, committing substantial funds for socio-economic development.
- India's interests in the Maldives are closely linked to its security concerns in the Indian Ocean region, particularly regarding China's growing presence.

Nut Graf: Amid concerns about India's role in the Maldives, the new president faces challenges, balancing foreign policy and an impending debt crisis.

7. The revenge of old West Asia

Syllabus: GS-2, Effect of Policies and Politics of Developed and Developing Countries on India's Interests

Mains: The recent Israel-Hamas conflict is rooted in West Asian History and still influences the Geopolitics of the region

Introduction:

- In 1967, Israel gained control over historical Palestine during the Six-Day War.
- This control included the West Bank, East Jerusalem, the Gaza Strip, the Sinai Peninsula, and the Golan Heights.
- The Palestinian territories have been under Israeli military occupation since then.

Israeli Narrative:

- Israel justifies its actions by claiming the right to respond to attacks, like those from Hamas.
- Israel is known for using disproportionate force and targeting civilians (the Dahiya doctrine).
- Israeli leaders argue that there are no innocent civilians in Gaza, considering the entire population responsible for attacks.

Historical Perspective:

- Hamas, considered a major obstacle to peace, was founded in 1988, 21 years after Israel's occupation began.
- In the past, Israel recognized and worked with groups like the Islamic Centre, a precursor to Hamas, while viewing secular nationalist movements like Fatah and the PLO as rivals.
- The PLO eventually recognized Israel and accepted a state within the 1967 borders, but peace efforts faltered, leading to Hamas's rise.

The Iran Factor:

- Iran has become a major rival to Israel in the region and supports groups like Hamas.
- However, Iran's hostility toward Israel began after the Islamic Revolution in 1979.
- Iran's influence among Palestinians grew as the peace process stalled and Hamas gained prominence.

Hostile Neighborhood:

- Israel argues it faces threats in a hostile neighbourhood.
- While Arab countries initially opposed Israel's existence, the last major Arab attack was in 1973.
- Over the years, some Arab nations normalized ties with Israel.
- Israel is now a powerful regional player with support from the United States.

The Unresolved Palestine Issue:

- Despite regional changes, the Israel-Palestine conflict persists.
- Israel's approach has been to ignore the occupation issue and focus on peace plans with Arab nations.
- Recent events, like Hamas's attacks and Israel's response, highlight that the Palestinian problem remains a source of instability in the region.

Conclusion:

- The ongoing Israel-Palestine conflict continues to impact the region.
- It's a complex issue with historical roots and geopolitical dimensions that contribute to the cycle of violence in West Asia.

Nut Graf: The Israel-Palestine conflict, rooted in historical complexities and geopolitical influences, remains a source of turmoil in West Asia. Despite Israel's regional dominance and diplomatic shifts, unresolved issues like occupation and recent violent events highlight that the Palestinian problem continues to fuel instability in the region.

8. Is UN toothless in ending wars?

Syllabus: GS-2, Important International Institutions

Mains: Relevance of UN in the 21st century

Context: Ongoing conflicts between Israel and Hamas, as well as the persistent Russia-Ukraine conflict, have placed a spotlight on the United Nations' effectiveness in resolving global conflicts.

Sign of Ineffectiveness of the UN:

- The UN's inability to broker a ceasefire in the Israel-Hamas conflict serves as a stark indication of its reduced efficacy in global conflict resolution.
- Over the past few decades, the UN's involvement in conflict resolution has waned, portraying it as more of an observer than an active mediator in contemporary conflicts.

Why the UN is Ineffective:

- There are significant obstacles faced by the UN, primarily due to substantial disagreements and discord among major world powers.
- The structure of the UN Security Council, particularly the veto power wielded by its permanent members, presents formidable hurdles in addressing conflicts where the national interests of influential countries clash with the broader pursuit of peace and resolution.
- Furthermore, the UN is based on the power structure of post-Second World War and it doesn't reflect the current multipolarity. It is a proven fact that multipolarity without multilateralism will lead to chaos and conflict.

If the UN is Not Providing a Solution, Where Do We Look for One?

- Despite widespread international support for a ceasefire in the Israel-Hamas conflict, the inability of major powers to find common ground impedes the UN's efforts to resolve the conflict.

Indian Interests in the West Asian Region:

- India's burgeoning interests in the West Asian region are significant and multifaceted. This includes deepening ties with Gulf Arab states, encompassing political, economic, and strategic dimensions.
- India has a large diaspora in the region and relies on it for remittances, making the region economically and socially significant for the country.
- Additionally, India has established robust energy ties with several West Asian countries, contributing to its energy security and economic stability.

Possible Role of India and Limitations:

- The intricate geopolitical dynamics and the dominant influence of major global powers in ongoing conflicts restrict India's capacity to act as an effective peace broker.
- India's relationships in the region, including its ties with Gulf Arab states, Israel, and the Palestinian cause, add layers of complexity, making it challenging to undertake a substantial mediating role in such conflicts.

Nut Graf: There is a clear diminishing influence of the United Nations in resolving global conflicts, exemplified by recent events involving Israel and Hamas. It underscores challenges arising from major power disparities, limitations within the UN structure, and the lack of consensus among key stakeholders.

9. India-US '2+2' Dialogue

Syllabus: GS 2- International Relations

Prelims: 2+2 Dialogue between India and US

Introduction

- U.S. Secretary of State Antony Blinken and U.S. Defence Secretary Lloyd Austin will travel to New Delhi for a '2+2' meeting.
- This meeting will involve discussions with India's External Affairs Minister S. Jaishankar and Defence Minister Rajnath Singh.
- The meeting will address both bilateral and global concerns, particularly in the Indo-Pacific region.

Meeting Details

- The meeting is part of Secretary Blinken's November 2-10 trip, including stops in Tel Aviv, Amman, Tokyo, Seoul, and New Delhi on November 9-10.
- Prime Minister Narendra Modi will meet with Secretary Blinken and Secretary Austin after the ministerial discussions.

Quad Summit and Israel-Hamas Conflict

- India is set to host the Quad Summit in New Delhi, tentatively on January 27, 2024, where leaders from the U.S., Japan, and Australia are expected to participate.
- The Israel-Hamas conflict, which occurred after Israel and Hamas' latest round of fighting, will be a key topic of discussion.

Other Topics on the Agenda

- The meeting will address topics such as Ukraine, Russia, and the reform of international financial institutions, including the World Bank and IMF.
- India's role as the outgoing president of the G-20 makes reforming these institutions a priority.

Diplomatic Relations and Concerns

- This '2+2' meeting takes place amid strained relations between India and Canada, stemming from allegations of India's involvement in the killing of a Canadian Khalistani separatist leader.
- The U.S. has urged India to cooperate with Canada's investigation into the matter.

Regional and Defense Issues

- The meeting will also cover topics related to China and South Asia, including the recent Maldives election and differences in approaches to Bangladesh.
- Defence-related discussions will include the U.S.-India Defense Industrial Cooperation roadmap, Security of Supply Arrangement, Reciprocal Defense Procurement agreement, and a purchase agreement for MQ-9B Unmanned Aerial Vehicles.
- Co-production of defence equipment will remain a key focus.

Expanding Cooperation

- The four ministers will discuss efforts to advance democracy, human rights, clean energy, counterterrorism, artificial intelligence, space, and semiconductor manufacturing.
- Concerns about democratic norms and minority rights in India will be discussed.

Continuation of Prior Initiatives

- This meeting is expected to continue initiatives announced during Prime Minister Narendra Modi's state visit to Washington DC in June.
- The discussions aim for a balanced dialogue between the two nations.

U.S. Commitment to Indo-Pacific

- Secretary Blinken's trip to New Delhi demonstrates the U.S. commitment to the Indo-Pacific region amid other global challenges, as stated by Daniel Kritenbrink, the State Department's top diplomat for East Asian and Pacific Affairs.

10. Bhutan King in India

Syllabus: GS 2- International Relations

Prelims: India-Bhutan Bilateral Relations

King's Arrival in Delhi

- Bhutan's fourth King, Jigme Khesar Namgyel Wangchuck, arrived in Delhi ahead of talks with Prime Minister Narendra Modi.
- His visit follows Bhutan and China signing an agreement on border delimitation in Beijing, which is of particular interest to India, given the Doklam issue.

Purpose of the Visit

- While border talks are a key topic, the King's visit is linked to Bhutan's ambitious project on the Assam border, specifically in Gelephu.
- The project includes the India-Bhutan rail link, a 57-km line connecting Kokrajhar and Gelephu, and the development of an international airport in Gelephu.

Economic Collaboration

- The King is expected to meet with business and industry leaders in Mumbai to explore collaborations and investments in the Gelephu project, also known as the Sarpang district Special Economic Zone.
- The project aims to retain Bhutanese cultural and environmental characteristics while incorporating high-tech innovations to create job opportunities for Bhutanese youth.

Bhutan's Hopes for India's Involvement

- On Bhutan's National Day on December 17, the King is likely to formally announce the Gelephu project.
- Bhutan seeks India's active involvement in this regional hub project.

Positive Signals

- India's Foreign Secretary Vinay Kwatra held talks in Gelephu in July and received a comprehensive briefing on the project.
- Bhutan's Prime Minister Lotay Tshering described Gelephu as a "Gateway City" and expressed confidence in India's support.

King's Second Visit to India

- King Jigme Khesar's visit to India in April closely followed progress in Bhutan-China border talks, causing concern in India.
- This second visit highlights India's mindfulness of the sensitivities surrounding Bhutan's interactions with China.

Border Resolution Progress

- Bhutan's Foreign Minister Tandi Dorji noted accelerated progress in border resolution with Beijing.
- India remains closely engaged with Bhutan on all issues and follows developments with implications for national security.

11. India-Bhutan relations

Syllabus: GS 2- International Relations

Prelims: India-Bhutan relations

Introduction

- India and Bhutan have agreed to discuss new routes of regional connectivity and upgrade border and immigration posts to support Bhutan's ambitious plans, including the development of a smart city at Gelephu, a border region between Bhutan and Assam.
- The discussions took place during a meeting between Bhutan's fifth King, Jigme Khesar Namgyel Wangchuck, and Indian Prime Minister Narendra Modi in New Delhi.

Bilateral Cooperation and Discussions

- While border delimitation concerns with China were not explicitly mentioned, both leaders engaged in discussions covering a wide range of bilateral cooperation and regional and global issues of mutual interest.
- Several agreements were reached during the meeting, including the advancement of the final survey for a 58-km cross-border rail link between Gelephu in Bhutan and Kokrajhar in Assam, India.
- The two countries also considered the potential of establishing an extra railway connection, spanning around 18 kilometres, connecting Samtse in Bhutan with Banarhat in West Bengal.
- India agreed to permit Bhutanese trade items to be transported from Haldibari in West Bengal to Chilahati in Bangladesh, promoting trade and regional connectivity.

Potential Air and Rail Connectivity

- The rail connectivity projects have the potential to facilitate air connectivity for India's northeastern regions.
- Bhutan plans to construct an international airport at Gelephu as part of the larger Sarpang district Special Economic Zone, with an expected announcement by the Bhutanese King on December 17.

Commitment to Bilateral Relations

- The Indian Prime Minister reaffirmed India's unwavering commitment to the unique friendship and cooperation between the two countries and pledged continued support for Bhutan's socio-economic development based on its priorities and vision.
- India expressed its commitment to support Bhutan's 13th Five-Year Plan as well, following the successful completion of the 12th Five-Year Plan.

Trade and Tourism Promotion

- The border crossing between Darranga and Samdrup Jongkhar, connecting Assam with Bhutan's relatively underdeveloped South Eastern district, will be officially designated as an immigration checkpoint with the aim of improving connectivity and boosting tourism.
- Trade infrastructure will be strengthened, including upgrading an existing land customs station at Dadgiri (Assam) to a modernised "Integrated Check Post," along with the development of facilities on the Bhutanese side at Gelephu.
- These measures aim to facilitate travel and trade between the two countries and encourage further exchanges with Bangladesh, boosting Bhutanese opportunities for trade and tourism revenues.

Challenges for Bhutan

- Bhutan has faced economic challenges, including the impact of the COVID pandemic and youth out-migration in search of education and employment.
- Low forex reserves and significant public debt, primarily owed to India, have added to Bhutan's economic concerns.

King's Vision for Gelephu

- King Jigme Khesar Namgyel Wangchuck's plans for Gelephu and the special economic zone are designed to create more employment and tourism opportunities in Bhutan.
- The King is expected to meet with top business leaders in Mumbai to further promote economic cooperation and investment.

12. The cult of operational superiority, from Israel to India

Syllabus: Effect of Policies and Politics of Developed and Developing Countries on India's Interests

Prelims: Line of Control, Gaza, Hamas, SPICE missiles, India-Israel relations

Mains: Lessons for India from the conflict in Gaza

Context

- The events of October 7, 2023, have exposed weaknesses in Israel's security policy.
- The country's retaliatory measures have sparked anger in Gaza, which could potentially escalate into further violence along other borders.
- This situation serves as a cautionary tale for Israel, highlighting the need for a reevaluation of its security strategy.
- Moreover, it highlights the significance of periodic reviews of security policies, a lesson that applies to India also.

Can operational superiority alone lead to strategic benefits?

- **Military actions and their effects**
 - In 2008, Israel began conducting occasional aerial attacks on Gaza to weaken Hamas's military abilities and prevent them from launching rockets.
 - These assaults were successful in momentarily silencing the rockets and restoring a shaky peace, but they didn't address the underlying issues driving Palestinian opposition.
- **Political implications and criticisms**
 - According to critics, instead of pursuing a two-state solution, the Israeli Prime Minister sought to undermine the political process and maintain Palestinian division by strengthening radical groups like Hamas and weakening more moderate forces like the Palestinian Authority.
 - Israel's strategy relied solely on military might and operational superiority, assuming that it could handle the threat without addressing the root causes of Palestinian militancy.
- **Impact on Hamas and the conflict**
 - However, Hamas proved on October 7 that even a weaker opponent may inflict significant harm and create enormous disturbance.
 - Rather than solving the issue, Israel's reliance on military force merely allowed Hamas to retain its faith in violence and continue attempting to land a devastating blow.

Important learnings for India

- **Military Capabilities**
 - India may find this situation similar to its own difficulties with regional terrorism and the need for a comprehensive political answer rather than simply military action.
 - In response to an increasingly pressing threat along its border with China, India revived the Line of Control ceasefire in 2021 and repurposed a specialized Pakistan-focused Strike Corps to the China border.
 - India has also been focused on developing its military capabilities, including acquiring advanced technologies like SPICE missiles and adopting punitive attack options like the one used in Balakot.
 - Some scholars believe that India's increased military capabilities have been influenced by its close relationship with Israel.
- **Political Considerations**
 - However, lessons from Israel suggest that military capabilities do not guarantee long-term success or a comprehensive plan of action.
 - In other words, while they are essential for executing specific manoeuvres, they do not suffice in developing an overall winning strategy.
 - India has not pursued political solutions to address the threat posed by Pakistan. Instead, it has abrogated Jammu and Kashmir's autonomy and refuses to engage in talks with Pakistan as long as cross-border terrorism continues.
 - India's reluctance to engage in political negotiations with Pakistan is due to its belief that any agreement would not be enforceable and that it has enough economic, diplomatic, and technological power to ignore the issue.
 - However, ignoring the political interests at the heart of the rivalry with Pakistan may only embolden Islamabad to continue its aggressive actions.

Way Forward

- The Pakistani army's animosity towards India is unlikely to change through dialogue alone. It is also unlikely to diminish its support to extremist groups.
- However, history has shown that bitter enemies can achieve détente, such as between Israel and Saudi Arabia.
- Reduced tensions with India could bring various benefits for Pakistan's army and political leaders, including economic stability, strengthening capabilities to combat anti-state terrorism and decreasing reliance on China.
- While a comprehensive agreement may be difficult to achieve, initiating a political process could tackle various pressing concerns like nuclear and missile confidence-building measures, coordinating on Afghanistan, and expanding trade and investment.
- Ignoring politics can lead to costly consequences, as seen in recent events with Israel where a determined adversary can still inflict significant harm despite operational superiority.
- Addressing the root causes of conflict through political means can complement military deterrence and help manage strategic threats more effectively.

Nut Graf: *Israel's reliance on military superiority to address the threat posed by Hamas has not been successful, highlighting the need for a comprehensive political solution. India, facing similar challenges with regional terrorism, must learn from Israel's mistakes and pursue political dialogue alongside military deterrence.*

13. Why did India abstain from voting on Israel?

Syllabus: Effect of policies and politics of developed and developing countries on India's interests

Mains: India- Israel relations

Context: India's decision to abstain from the United Nations General Assembly (UNGA) resolution calling for a ceasefire in the Israeli-Palestinian conflict has raised significant questions.

- The abstention, which marked a departure from India's historical voting patterns, has sparked debates regarding the reasons behind this move.

Issues:

- **India's Stand on Terrorism:** External Affairs Minister S. Jaishankar explained that India's vote was in line with its strong stance against terrorism, given the significant impact of terrorism on Indian citizens. India sought a more explicit condemnation of the terror attacks by Hamas, which was not included in the UNGA resolution.
- **Historical Voting Record:** India's vote is a notable shift from its past positions at the UN. Historically, India supported Palestine and consistently voted against Israel. However, the voting pattern evolved in the 1990s, became more nuanced in the 2000s, and shifted towards abstentions and even voting against resolutions critical of Israel, especially since 2019.
- **Global Equivocation:** Some observers suggest that India's abstention may be part of a broader trend where India chooses to equivocate on global issues, maintaining a balance between conflicting sides to avoid antagonizing any key international partners. This approach is evident in India's stance on issues like the Russia-Ukraine conflict and the Myanmar crisis.

India's Position at UN on Israel-Palestine Conflict:

- India initially opposed the communal partition. India voted against the partition of Palestine and the creation of a separate state of Israel in 1948.
- Later, India came around to accept and consistently support the Two-State Solution as the only viable option.
- 1950s-1991: Voted against Israel at several instances against the use of disproportionate force by Israel.
- India was the first non-Arab state to recognize the Palestine Liberation Organisation (PLO) as the representative of the people, and to recognize Palestine in 1988, and consistently voted against Israel at the United Nations.

India's Position Post-1991

- However, in the 1990s, especially once India established full diplomatic ties with Israel, its votes at the UN grew more nuanced, abstaining on many votes that directly criticised
- Israel, or called for international tribunals on its treatment of Palestinians in the Occupied Territories of West Bank and Gaza.
- In December 1991, just weeks before India and Israel opened their embassies, India was part of a majority that voted at the UNGA to revoke an earlier resolution that equated Zionism with "racism and racial discrimination".
- In subsequent decades, India continued to condemn Israeli bombardment and its blockade of Gaza during UN resolutions.
- But tempered its votes on other anti-Israel resolutions, especially at other forums.

India's Position Post-2014

- After 2014, and more perceptibly post 2019, a more pointed shift has followed, where on resolutions critical of Israel where India would have in the past voted "for", it now began to "abstain", and to even vote against them, if they involved more intrusive international enquiries.
- The rule however seemed to be to stand with Palestine on all votes relating to Palestinian rights against the occupation and Israeli bombardment.

- India even raised its annual contribution to the United Nations Relief and Works Agency for Palestine Refugees (UNRWA) from a million dollars each year to five million dollars a year.
- India voted against the U.S.'s decision to recognize Jerusalem as the Israeli capital and move its embassy there at the UNGA.
- But, India abstained from voting on a UN Human Rights Council (UNHRC) resolution in 2015 on a report that held more criticism of Israel than Hamas for violence in Gaza.
- In 2016, India even voted against a UNHRC resolution that called for an International Criminal Court (ICC) investigation into Israeli war crimes.
- India also voted with Israel at the United Nations Economic and Social Council in 2019 in stopping a Hamas-linked NGO from receiving observer status.

Significance:

- **India-Israel Relations:** India's abstention was welcomed by Israel, indicating a potential warming of relations between the two countries. While India has long-standing ties with Palestine, its evolving relationship with Israel may have influenced this vote.
- **Geopolitical Implications:** India's alignment with other countries that abstained from the resolution, such as Australia, South Korea, and some NATO members, could signal a shift in India's alliances in the international arena. This may have broader geopolitical implications.
- **Balancing Act:** India's abstention reflects its intent to maintain a "tightrope balance" between conflicting sides in a polarized world. This approach allows India to safeguard its interests and relationships with various nations.

Solutions:

- **Clarity in Position:** India should communicate its stance on international issues more clearly, ensuring that its abstentions or votes align with its strategic interests and principles. This can help in avoiding misinterpretation and confusion.
- **Engagement with Key Partners:** India should engage with its international partners to explain its voting decisions and reassure them of its commitment to shared goals and values.
- **Balanced Diplomacy:** Continue to engage with both Israel and Palestine to maintain India's historical ties while exploring opportunities for stronger partnerships and cooperation.

Nut Graf: India's abstention from the UNGA truce resolution marks a significant departure from its historical voting patterns. The decision reflects India's evolving foreign policy, where it seeks to maintain a balance between conflicting interests.

14. Indo-Pacific Maritime Domain Awareness Initiative

Syllabus: GS 2- International Relations

Prelims: Indo-Pacific Maritime Domain Awareness Initiative

Introduction

- The Indian Navy Chief, Admiral R. Hari Kumar, underscored the significance of the Indo-Pacific Maritime Domain Awareness (IPMDA) initiative announced by the Quad grouping.
- The IPMDA initiative reflects the commitment to a free, open, inclusive, and rules-based Indo-Pacific, with a focus on enhancing maritime security and cooperation.

Commitment to a Secure Indo-Pacific

- Admiral Hari Kumar emphasised the importance of building networks and partnerships in ensuring the security and stability of the Indian Ocean Region (IOR).
- The IPMDA aims to establish a comprehensive system for monitoring and securing maritime activities in the Indo-Pacific, safeguarding critical sea lines of communication, and promoting collaboration among like-minded nations in the region.

Force Modernization and Self-Reliance

- The Indian Navy is on track to have 170 to 180 ships and submarines by 2028, emphasising the ongoing force modernization efforts.
- The goal is for the Navy to be fully self-reliant (Aatmanirbhar) by 2047, with a significant portion of ships constructed in Indian shipyards.

Lessons from Recent Events

- Recent global events, including stand-offs with China in eastern Ladakh, conflicts in Ukraine, and developments in West Asia, highlight the need for resilience and readiness.
- A versatile naval force is crucial for safeguarding maritime interests, energy and trade routes, and addressing supply chain vulnerabilities.

Goa Maritime Conclave (GMC)

- The biennial GMC has become a vital platform for enhancing cooperation and addressing maritime security challenges in the IOR.
- The Indian Navy's Information Fusion Centre for Indian Ocean Region (IFC-IOR) in Gurugram has improved situational awareness in the region through information sharing and collaboration.

Strengthening Collaborative Partnerships

- The IFC-IOR seeks to strengthen collaborative partnerships with like-minded nations and organisations.
- These partnerships involve sharing best practices, conducting joint exercises, and fostering a sense of collective responsibility to enhance maritime security and environmental protection in the IOR.

15. China-Myanmar border stability**Introduction**

- In response to increased fighting along the China-Myanmar border between junta forces and insurgents, a Chinese official called for Myanmar to cooperate with China to maintain stability.
- The conflict escalated after an alliance of ethnic minority armies launched coordinated attacks on junta targets.

China's Call for Cooperation

- Nong Rong, assistant Chinese Foreign Minister, urged Myanmar to collaborate with China to ensure stability along their common border.
- The appeal includes protecting the safety of Chinese border residents and enhancing the security of Chinese personnel.

Incident Along the Border

- A shell fired by the Myanmar military reportedly crossed the border and caused casualties on the Chinese side, leading to concern and calls for cooperation.

China's Stance

- China hopes for Myanmar to restore stability and supports all parties in resolving differences and achieving reconciliation through dialogue.
- China, along with Russia, has been supportive of the Myanmar military despite condemnation and sanctions imposed by Western governments.
- China emphasises respecting Myanmar's sovereignty and finding its own path.

Background

- Myanmar has faced turmoil since a military coup in February 2021, which deposed a democratically elected government led by Aung San Suu Kyi.
- Pro-democracy insurgent groups have aligned with ethnic minority guerrillas in their quest for greater autonomy and to oppose junta forces.

Efforts to Address the Conflict

- Thailand is working to repatriate 162 of its nationals trapped in the conflict zone in Myanmar.
- The international community's response to the Myanmar crisis has been divided, with Western governments condemning the military and imposing sanctions while China and Russia have taken a more supportive stance.

Infrastructure Visit

- While on his trip, Nong Rong conducted an examination of a 793-kilometre-long natural gas pipeline, which forms a component of China's Belt and Road infrastructure and energy system. This pipeline links Ramree Island in Myanmar with the Chinese border city of Ruili in Yunnan Province.

16. The massive displacement in Congo

Syllabus: Effect of policies and politics of developed and developing countries on India's interests, Indian diaspora. Important International institutions, agencies, their structure and mandates.

Mains: Conflict and displacement, regional tensions, humanitarian crisis and the international response to it.

Context

The Democratic Republic of Congo (DRC) has faced ongoing conflict and internal displacement, notably in its eastern provinces. This article explores the causes, major actors, and consequences of this complex crisis.

Introduction

- The Democratic Republic of Congo (DRC) has been experiencing a long-standing conflict, leading to internal displacement.
- The conflict traces its roots back to the 1990s, and the situation remains complex with various rebel groups, ethnic tensions, and regional involvement.
- In recent years, the resurfacing of the M23 rebel group and a failed ceasefire have further exacerbated the situation.

The Conflict in DRC

- The conflict in DRC dates back to the 1990s, stemming from the aftermath of the Rwandan genocide in 1994.
- The eastern DRC, bordering Rwanda, has been a hotspot for insurgency by several rebel militant groups.
- More than 120 insurgent groups are active in eastern provinces, leading to violence, extrajudicial killings, and tensions with neighbouring countries.
- The M23 rebel group's resurgence in 2021 has escalated violence in the region.

Major Actors

- Key rebel groups in addition to M23 include the Allied Democratic Forces (ADF) and the Cooperative for Development of the Congo (CODECO).
- Rwanda and the DRC have mutual accusations of supporting different ethnic militias, creating tensions.
- The East African Community (EAC) deployed troops in eastern DRC in November 2022 but has faced protests demanding their withdrawal.

Reasons for Displacement

- **Ethnic Intolerance and Insurgency:** The influx of Hutu refugees from Rwanda led to the formation of ethnic militias, intensifying ethnic tensions.
- **Political Uncertainty:** Upcoming elections face challenges due to insecurity in parts of the country and a lack of inclusive governance.
- **Regional Tensions:** Armed groups have received support from neighbouring countries, acting as proxies for their interests in the region.
- **Humanitarian Crisis:** The conflict has led to widespread violence, causing a humanitarian crisis, with over a million people in need of food support.
- **Feeble International Response:** Lack of funding and international efforts have hindered assistance to the Congolese population facing hunger and humanitarian crises.

Nut Graf: The DRC's persistent conflict, with over 6.9 million internally displaced, has roots in ethnic tensions, multiple rebel groups, and regional involvement. The situation is further complicated by the resurgence of the M23 rebel group, and the humanitarian crisis is deepening, with millions in need of assistance. Understanding the conflict's complexities and addressing underlying issues is essential for lasting stability in the region.

17. UK's Rwanda deportation policy

Syllabus: Effect of policies and politics of developed and developing countries on India's interests, Indian diaspora. Important International institutions, agencies, their structure and mandates.

Context: Earlier, London's High Court had ruled that Britain's plan to send migrants to Rwanda is lawful which was a victory for PM Rishi Sunak who has made a high-stakes political promise to tackle the record number of migrant arrivals.

Immigrant's crisis in UK

- Since 2018, there has been a marked rise in the number of refugees and asylum seekers that undertake dangerous crossings between Calais in France and Dover in England.
- Most such migrants and asylum seekers hail from war-torn countries like Sudan, Afghanistan, and Yemen, or developing countries like Iran and Iraq.
- The Britain that has adopted a hardline stance on illegal immigration, these crossings constitute an immigration crisis.
- The Nationality and Borders Bill, 2021, which is still under consideration in the UK, allows the British government to strip anyone's citizenship without notice under "exceptional circumstances".
- The Rwanda deal is the operationalization of one objective in the Bill which is to deter illegal entry into the United Kingdom.

The Rwanda deal

- The UK and Rwanda Migration and Economic Development Partnership or the Rwanda Deal is a Memorandum of Understanding (MoU) signed between the two governments.
- Under this deal, Rwanda will commit to taking in asylum seekers who arrive in the UK on or after January 1, 2022, using illegally facilitated and unlawful cross border migration.
- Rwanda will function as the holding centre where asylum applicants will wait while the Rwandan government makes decisions about their asylum and resettlement petitions in Rwanda.
- Rwanda will, on its part, accommodate anyone who is not a minor and does not have a criminal record.

Rationale deal

- The deal aims to combat "people smugglers", who often charge exorbitant prices from vulnerable migrants to put them on unseaworthy boats from France to England that often lead to mass drownings.
- The UK contends that this solution to the migrant issue is humane and meant to target the gangs that run these illegal crossings.

Cost of the scheme for UK

- The UK will pay Rwanda £120 million as part of an “economic transformation and integration fund” and will also bear the operational costs along with an, as yet undetermined, amount for each migrant.
- Currently, the UK pays £4.7 million per day to accommodate approximately 25,000 asylum seekers.
- At the end of 2021, this amounted to £430 million annually with a projected increase of £100 million in 2022.
- The Rwanda Deal is predicted to reduce these costs by outsourcing the hosting of such migrants to a third country.

Will this deal end the immigration issue?

- This deal will be implemented in a matter of weeks unless it is challenged and stayed by British courts.
- Evidence from similar experiences indicates that such policies do not fully combat “people smuggling”.

Criticism of the deal

- There are dangers of transferring refugees and asylum seekers to third countries without sufficient safeguards.
- The refugees are traded like commodities and transferred abroad for processing.
- Such arrangements simply shift asylum responsibilities, evade international obligations, and are contrary to the letter and spirit of the Refugee Convention.
- Rwanda also has a known track record of extrajudicial killings, suspicious deaths in custody, unlawful or arbitrary detention, torture, and abusive prosecutions, particularly targeting critics and dissidents.

Have other nations done the same?

- Yes, several other countries — including Australia, Israel and Denmark — have been sending asylum seekers overseas.
- Australia has been making full use of offshore detention centres since 2001.
- Israel, too, chose to deal with a growing influx of asylum seekers and illegal immigrants from places like Sudan and Eritrea by striking deals with third countries.
- Those rejected for asylum were given the choice of returning to their home country or accepting \$3,500 and a plane ticket to one of the third countries.
- They faced the threat of arrest if they chose to remain in Israel.

18. In troubled waters in Qatar

Syllabus: GS-2, Effect of policies and politics of developed and developing countries on India's interests, Indian diaspora.

Prelims: India – Qatar Relations, Natural Gas imports from Qatar

Mains: Impact of espionage allegations on India – Qatar relations

Context

- On October 26, a court in Qatar sentenced eight Indian Navy veterans to death for breaching local security laws.
- The veterans, who worked for a local company providing training and support services to the Qatari Navy, were accused of espionage.
- The case has caused shock waves in India, with the Ministry of External Affairs promising to provide “absolute support” to the veterans and work towards bringing them back home.

Importance of Qatar

- Qatar is India's largest supplier of LNG, accounting for 54% of India's total LNG imports. India's total imports from Qatar were valued at \$16.81 billion in FY2022-23, of which LNG imports alone were worth \$8.32 billion, or 49.5%.
- Natural gas is important for India's energy transition, as it is considered a cleaner alternative to conventional petroleum fuels and is relatively cheaper than crude oil.
- Negotiations are also underway for an extension of the Government-owned Petronet LNG term contract, which runs out in 2028.

Espionage angle and impact on relations

- It is the first time that Indians who moved to the Gulf have been accused of such serious crimes and given harsh punishments.
- **Claims and Speculations:**
 - Reports suggest that the officials may have disclosed information about an Italian submarine that Qatar was planning to purchase to Israel.
 - However, these claims have been disputed, and there is no confirmation of an ongoing submarine contract or any Israeli involvement.
 - Some Indian commentators believe that the naval officials were framed by Pakistani agencies.
 - An Indian writer has also suggested that the sentence is aimed at derailing India's growing closeness to the Israel-UAE-Saudi axis, but there is no concrete evidence for this claim.
 - Another theory is that Qatar may be sending a warning message to India to limit its assertiveness in global affairs.
 - A retired Indian Army officer has speculated that India's hostility towards Hamas may have contributed to the harsh sentence.
 - Some commentators view the sentence as a challenge to the strong relationship between India and Qatar, but this perspective is not supported by facts.

- **Diplomatic Relationships and Regional Dynamics:**

- Qatar has close relationships with many powerful nations, including the US, Iran, and Turkey, and has a history of successful regional diplomacy.
- Ambassador Talmiz Ahmad feels that Qatar's leaders approach diplomatic challenges in a thoughtful and informed manner.
- The espionage case and the involvement of Indian naval veterans would have been thoroughly investigated before the sentences were handed down.
- All countries take national security seriously, and they typically don't reveal the full details of investigations and legal processes to the public.
- The diplomat also feels that it is a separate security issue and not related to India's relationships with other countries or current events in the region.

Conclusion

- In light of the current situation, it is crucial for media outlets to exercise restraint and maintain a level head.
- Refraining from name-calling, speculative reporting, and hate speech not only helps to avoid increasing tensions but also allows for a more conducive environment for diplomatic efforts aimed at securing the safe release of the veterans.
- India should focus on diplomatic efforts to free the veterans while publicly emphasizing the significance of the positive relationship with Qatar.

Nut Graf: The espionage case involving eight Indian Navy veterans sentenced to death in Qatar has raised concerns about India's relationship with Qatar, a crucial energy supplier. While the details of the case remain unclear, India should focus on diplomatic efforts to free the veterans while publicly emphasizing the significance of the positive relationship with Qatar.

19. Taiwan, a Malacca blockade and India's options

Syllabus: GS-2, India and its Neighbourhood – Relations.

Mains: India's potential role in the Strait of Malacca

Introduction: With increasing Chinese activities intimidating Taiwan and the possibility of a US-China conflict over Taiwan, questions arise regarding India's potential role in the Strait of Malacca and the Andaman Sea.

Complex Constraints in the Strait of Malacca:

- **International Legal Challenges:** Distant blockades, especially far from a belligerent nation's territory, face legal challenges under international law.
- **Trade Implications:** The Strait of Malacca is not just China's lifeline but also crucial for Japan, South Korea, and India. Disrupting its trade has far-reaching consequences.
- **Sovereign Nations' Sovereignty:** The strait's passage involves the sovereignty of Indonesia, Malaysia, Thailand, and Singapore. A naval blockade would adversely affect these nations, making their support unlikely.
- **Complexities of Commercial Shipping:** Commercial shipping involves intricate factors such as vessel sovereignty, flag, registration, insurance, and cargo ownership. Transshipment in Southeast Asian ports adds to the complexity.
- **Detour Options:** Even if the Strait of Malacca were obstructed, shipping could detour through the Sunda or Lombok Straits. Very large crude carriers prefer the Sunda Strait over the shallower Malacca Strait.
- **Strategic Petroleum Reserves (SPR):** China's significant onshore and floating SPR, along with overland energy supplies, provide resilience against disruptions.

Implications of Naval Blockade or Unilateral Action:

- **Declaration of War:** Implementing a naval blockade or taking unilateral action against an adversary's naval vessels is a de facto declaration of war and could lead to broader conflicts.
- **Lack of Regional Endorsement:** Regional nations adversely affected by the Strait's disruption are unlikely to endorse such actions. China's influence in international forums would complicate matters.

Historical Lessons:

- **First World War:** The British blockade of Germany during WWI led to retaliation with deadly U-boat attacks, eventually drawing the U.S. into the war.
- **Second World War:** The U.S. embargo on Japan's energy supplies through maritime routes contributed to Japan's decision to attack Pearl Harbor.
- **Strait of Hormuz Tensions:** Ongoing tensions between Iran and the U.S. in the Strait of Hormuz illustrate how interdiction of commercial shipping can escalate to military confrontations.

Conflict Scenarios:

- **U.S. Support:** The question remains whether India's strategic partners, particularly the U.S., would support interdicting Chinese vessels in a conflict between India and China unless the U.S. is directly involved in a kinetic conflict with China.
- **Indian Ocean Focus:** In a full-scale U.S.-China conflict over Taiwan, India's primary role may focus on defending its territorial interests and securing sea lines of communication in the Indian Ocean.
- **Primary Focus on Continental Borders:** India traditionally faces Chinese threats on its land borders, and its priority may remain the defence of its continental borders in any such scenario.

Conclusion:

- India's role in the U.S.-China conflict over Taiwan would primarily centre on defending its interests and the security of its sea lines of communication.
- India's partnership with the U.S. aims to strengthen its position in the Indo-Pacific and contribute to regional stability.

Nut Graf: Amid rising tensions over Taiwan, India's role in the Strait of Malacca remains complex. Legal, trade, and sovereignty issues complicate potential naval blockades. Historical lessons warn against unilateral actions, while the U.S.-China conflict's scope may determine India's primary focus on territorial interests and continental borders in the region.

20. Jaishankar meets Rishi Sunak

Syllabus: Bilateral, Regional and Global Groupings and Agreements involving India and/or affecting India's interests.

Mains: India – UK relation

Context: External Affairs Minister Jaishankar met U.K. PM Rishi Sunak to enhance ties, discussing a Free Trade Agreement and broader issues.

Meeting with Rishi Sunak in London:

- External Affairs Minister S. Jaishankar visited the U.K. to advance the Comprehensive Strategic Partnership.
- Jaishankar expressed delight in calling on PM Rishi Sunak on Diwali Day. Rishi Sunak Shared best wishes from PM Narendra Modi, highlighting the festive occasion.

Focus on Comprehensive Strategic Partnership:

- India and the U.K. actively engaged in reframing their relationship to suit contemporary times.
- Discussions centred around the Comprehensive Strategic Partnership between the two nations.

Free Trade Agreement Discussions:

- The current focus is on discussions regarding a Free Trade Agreement between India and the U.K., Signifying a pivotal aspect of the strategic relationship between the two countries.

Meeting with Foreign Secretary James Cleverly: Jaishankar held meetings with U.K. Foreign Secretary James Cleverly during his official trip. It highlights diplomatic engagements beyond the meeting with PM Rishi Sunak.

Broader Issues on the Agenda:

- Beyond the Free Trade Agreement, discussions also addressed concerns about Khalistani activity in the U.K.
- The possibility of an India visit by U.K. Prime Minister Rishi Sunak was explored during the diplomatic talks.

Strengthening India-U.K. Relations:

- Emphasis on actively reframing the relationship between India and the U.K. to align with contemporary global dynamics.
- It reflects the ongoing efforts to strengthen the ties and address various aspects of the bilateral relationship.

Nut Graf: External Affairs Minister S. Jaishankar's official U.K. visit aimed to bolster ties, featuring a Diwali meeting with PM Rishi Sunak. Discussions centred on advancing the Comprehensive Strategic Partnership, particularly focusing on a Free Trade Agreement. Broader issues like Khalistani activity and a potential visit by PM Sunak to India were also addressed, showcasing the commitment to deepen bilateral relations.

21. Realism, not machismo, to counter terror

Syllabus: India and its Neighborhood- Relations

Prelims: Hamas, Gaza, Lashkar-e-Tayyiba, Balakot Strikes

Mains: India's Counter Terrorism Strategy against Pakistan

Context

- The conflict between Israel and Hamas has led to a debate on the appropriate counter-terror strategy for India.
- India has also experienced a similar trauma with the 2008 Mumbai attacks (known as 26/11).
- A New York Times columnist has praised India for showing "remarkable restraint" by not attacking Pakistan right after the Mumbai attacks.

Restraint after 26/11 Attacks:

- Terrorists want to provoke a response that highlights their cause.
- For example, Hamas launched attacks on Israel just as Saudi Arabia and Israel were starting to make progress towards peace. This peace process threatened to overshadow the Palestinian cause. So Hamas tried to disrupt it through violence.
- India wisely chose restraint after the 26/11 Mumbai attacks.
- A military response could have led to nuclear confrontation and shifted focus to the India-Pakistan conflict over Kashmir, rather than on terrorism.
- India condemned the attacks and was praised for being a "responsible nuclear power."
- The attacks were seen as being as severe and shocking as the September 11, 2001 attacks in the United States.
- Shortly after the attacks, U.S. President George W. Bush issued a strong statement supporting India.
- The landmark India-U.S. nuclear deal was operationalised immediately.

Economic Factors:

- The global financial crisis made war economically disastrous as investors dislike instability.
- Subsequently, India grew its economy to \$3 trillion while Pakistan's declined.
- Restraint prevented war from derailing this.

Geopolitical Shifts:

- India allied with the U.S. "war on terror." Pakistan's fortunes declined as it was seen as duplicitous on terrorism.
- Pakistan's economy crashed after 2008. Foreign investment dried up.
- The UN designated Lashkar-e-Tayyiba a terrorist group in 2010, increasing focus on Pakistan.
- The revised Kerry-Lugar Bill tripled aid to Pakistan but with offensive clauses.
- It stated that Pakistan must demonstrate that it is stopping its support for terrorist groups and that it must prevent organizations like Lashkar-e-Tayyiba (LeT) from conducting attacks on "neighbouring countries."
- Scholars like Stephen Cohen called Pakistan "America's most dangerous ally."
- India grew closer to the U.S. while being delinked from Pakistan and its terrorism.

Balakot Strikes Significance:

- India's defense and economy were stronger compared to 2008 and it had good relations with the U.S.
- The strikes sent a signal to Pakistan that its terrorism has consequences, without full-scale war. This shifted India's mindset from defensive to assertive.

Conclusion:

- Strong leadership matters, but strength should also come from well-planned deliberate moves.
- A ground invasion of Pakistan would be as difficult now as it was in 2008 since Pakistan has nuclear weapons. Pakistan can be punished without being invaded.
- The goal should be to outmanoeuvre a rival while maintaining a credible threat of force.

Nut Graf: India's restraint after the 2008 Mumbai attacks shows that an immediate military response is not always the best way to counter terrorism. A more nuanced approach that takes into account the economic, geopolitical, and military factors involved might lead to long-term strategic gains.

22. Building the Floor

Syllabus: GS-2, Effect of policies and politics of developed and developing countries on India's interests.

Mains: Impact of US-China relations on India

Context: The recent summit meeting between U.S. President Joe Biden and Chinese President Xi Jinping in San Francisco, despite unlikely to resolve major differences, has shown promise in stabilizing the rocky relationship between the two global powers.

- The move to establish a floor in their relationship, along with concrete agreements, holds valuable lessons for India, especially as it grapples with its own challenges in the India-China relationship.
- Attended Asia-Pacific Economic Cooperation (APEC).

Background

- The "Spy balloon" incident shattered the Bali Consensus.
- The US military's act of bringing down a Chinese surveillance balloon shows profound mistrust.
 - "Spy balloon" – Consists of lightweight balloons filled with gas, typically helium, and are equipped with spying equipment like a long-range camera.
 - Launched from the ground (60,000ft to 150,000ft).
 - Once airborne, they navigate using a combination of air currents and pressurized air pockets.

Issues

- **Complex U.S.-China Relations:** The U.S.-China summit aimed at stabilizing their relationship, marked by numerous tensions and concerns. While concrete agreements were reached, fundamental differences persist, including the question of whether they are adversaries or partners.
- **Potential Disruptive Events:** The stability achieved in the summit faces challenges with potential disruptive events on the horizon. Taiwan's elections in January pose a risk of escalating tensions, and the U.S. heading into election mode in 2024 brings the threat of heated rhetoric on China, undermining the stability achieved.
- **Divergent Views on Future Relations:** The U.S. and China differ in their outlook on the future of their relations. President Xi criticizes the U.S. framing of the relationship as competitive, advocating against "misinformed policy making" and asking to avoid crossing lines. President Biden acknowledges competition but stresses responsible management.

Stand of China

- Two countries can't afford to turn their backs on each other.
- He also declared in San Francisco that the world is "big enough for both China and the US".
- No intention to replace the US as the dominant power in the world.

Taiwan Issue

- No sign of any major breakthrough in this regional security dialogue.
- China sees it as the "most sensitive issue" in bilateral relations.
- China wants the US to stop supporting "Taiwan's independence"
- The US wants China to renounce the use of force to unite Taiwan with the People's Republic.

Stand of the USA

- Major geopolitical gains in Asia – Stronger bilateral alliances with Japan, Korea, and Australia. Creation of a trilateral strategic framework with Tokyo and Seoul.
- Revitalised alliance with the Philippines. New strategic partnerships with India and Vietnam.
- Participation in QUAD – Elevation from FORUM to the SUMMIT level and created a new forum called AUKUS.
- Faces major crises in Europe – West (struggling to reverse the Russian invasion of Ukraine) and Middle East (war in Gaza).
- Engaging China and keeping the relationship reasonably stable is likely to remain a major objective for the US in the days ahead.

Impact Upon India

- **Influence on Indo-Pacific Strategy:** The summit has a bearing on India's approach in the Indo-Pacific, given the involvement of two key players, the US and China. The discourse has the potential to reshape the power dynamics and alliances in the region, thereby affecting India's strategic positioning.
- **Hold significance for India's security strategies:** Monitoring these talks is crucial for shaping India's own security policies.
- **Economic Ramifications for India:** Xi Jinping's efforts to reengage with US businesses may pose a challenge to India's endeavours to attract Western investment. India must enhance its economic attractiveness to remain a viable alternative to China for Western businesses.
- **Enhancing Relations with the US and China:** Improved ties between the US and China would facilitate a more balanced approach for India. It opens the door for enhanced relations with both nations while preserving strategic autonomy.

APEC – Asia-Pacific Economic Cooperation

- Established in 1989. A regional economic forum.
- Aim – To promote regional economic integration and greater prosperity in the Asia-Pacific region.
- 21 member economies, termed “economies” due to their focus on trade and economic matters.
- Australia, Brunei, New Zealand, Papua New Guinea, Hong Kong (as part of China), the Philippines, Indonesia, Malaysia, Vietnam, Singapore, Thailand, Chinese Taipei (Taiwan), China, Japan, South Korea, Russia, Canada, the United States, Mexico, Peru, and Chile.

Key Discussions in APEC

- Regulation of AI
- Regional security issues
- High-level political and military communication channels were agreed to be renewed
- Focused on managing their competition rather than forming a strategic partnership
- Crises in the Middle East and the Ukraine war.
- **Climate Change**
 - Climate Agreement: Global climate discussions in Dubai.
 - Objective: Tripling global renewable energy capacity by 2030 and transition away from coal, oil, and gas.
 - Mitigation of Methane Emissions: Reduction targets for methane emissions.
 - Constructive Outlook: Notable advancement in collaboration between the world’s top two contributors to pollution.

Significance

- **Lessons for India-China Relations:** The U.S.-China summit offers valuable lessons for India as it grapples with the India-China relationship, particularly along the Line of Actual Control. The importance of high-level engagement and open channels to prevent competition from escalating into conflict is crucial.
- **Building a Floor in Diplomacy:** The concept of establishing a floor in the relationship, as witnessed in the U.S.-China summit, emphasizes the importance of laying a foundation for stability. This becomes essential when major powers’ ties are at risk of free fall.
- **Dialogue as a Preventive Measure:** The realization by both the U.S. and China that high-level engagement and open channels are essential in preventing competition from sliding into conflict serves as a key takeaway. Dialogue, without being construed as a concession, can be a preventive measure.

Nut Graf: The U.S.-China summit provides valuable insights for India as it navigates its relationship with China. As India faces challenges along the Line of Actual Control, implementing these strategies can contribute to stability and prevent the escalation of tensions into conflicts.

23. Quad, CECA on top of agenda for India-Australia 2+2 dialogue

Syllabus: Effect of policies and politics of developed and developing countries on India’s interests

Prelims: 2+2 dialogue, QUAD, CECA

Mains: India-Australia relations

Context: The India-Australia 2+2 Ministerial dialogue is set to address crucial issues, including the Quad summit, Comprehensive Economic Cooperation Agreement (CECA), and regional developments.

History

- Relationships got stronger in the last decade.
- Shared democratic traditions and the English language, it was hard to bring them close together. Mutual political neglect and Cold War geopolitics [Australia (US support) and India (NAM and closeness with USSR)] limited the possibilities for bilateral relations during the 20th century.
- PM Narendra Modi’s visit to Australia (2014) – First Indian prime ministerial visit in nearly three decades. Rajiv Gandhi had gone to Australia in 1986. The long gap underlined how profoundly India underestimated the importance of Australia for its economic and security interests.

Quad and CECA in Focus

- **Quad Summit and CECA Negotiations:**
 - The upcoming Quad summit, potentially in January 2024, is a key point of discussion.
 - Australia and Japan have informally confirmed attendance, pending confirmation from U.S. President Joseph Biden.
 - The dialogue may witness the announcement of the Quad Summit date.
 - The signing of the India-Australian CECA could potentially take place during Australian PM Anthony Albanese’s visit for the Quad Summit.
 - Dialogue and Cooperation

- **2+2 Ministerial Dialogue:**
 - The dialogue, involving Foreign Minister Penny Wong and Defence Minister Richard Marles, will cover bilateral, regional, and global matters.
 - Discussions on the Israel-Hamas war are expected.
- **Foreign Ministerial Framework Dialogue (FMFD):**
 - It aims to assess cooperation under the Comprehensive Strategic Partnership and discuss global issues.
- **Bilateral Cooperation:**
 - Defence Minister Rajnath Singh and Minister Marles will hold a bilateral meeting after the 2+2 dialogue.
 - Both nations are committed to enhancing defence cooperation and maintaining an open, inclusive, and resilient Indo-Pacific region.
- **CECA and Free Trade Agreement (FTA):**
 - The interview with Australian High Commissioner Philip Green indicates an ongoing push for concluding negotiations for the Free Trade Agreement.

Significance

- **Strategic Partnership:**
 - The visit underscores the growing significance of the Australia-India relationship, particularly in the Indo-Pacific region.
 - Comprehensive Strategic Partnership, Quad cooperation, and shared regional interests are pivotal elements.
 - Critical minerals, students, Gujarat's GIFT city, rely over China (aggressive approach in Indo-Pacific) & QUAD
- **Bilateral Defence Cooperation:**
 - Milestones in bilateral defence cooperation, such as the Indian Navy submarine's maiden visit to Australia, reflect the deepening ties.
- **Trading Partners:**
 - India – 17th largest trading partner of Australia, Australia – 9th largest trading partner for India.
 - The bilateral trade, encompassing both merchandise and services, amounted to USD 27.5 billion in 2021.
 - India's merchandise exports (predominantly include a diverse range of finished products) to Australia – growth of 135% between 2019 and 2021, reaching USD 6.9 billion in 2021.
 - India's merchandise imports (predominantly comprising raw materials, minerals, and intermediate goods) from Australia in 2021 totaled USD 15.1 billion.

Issues

- **Vienna Convention and Legal Matter:**
 - The Indian External Affairs Ministry may address an Australian court's order regarding a former High Commissioner, invoking the Vienna Convention to protect diplomats.

Nut Graf: The 2+2 Ministerial dialogue between India and Australia is poised to be a pivotal event, addressing Quad cooperation, CECA negotiations, and other critical regional and global issues. The outcomes of this dialogue may shape the trajectory of the India-Australia relationship and contribute to the stability of the Indo-Pacific region.

24. U.S. Secretary of Defence Austin arrives in India for '2+2' ministerial dialogue

Syllabus: GS 2- International Relations

Prelims: '2+2' ministerial dialogue

Introduction

- U.S. Secretary of Defense, Lloyd J. Austin, arrived in India for the '2+2' ministerial dialogue with Defence Minister Rajnath Singh.
- The Ministerial 2+2 Dialogue, co-chaired by Secretary of State Antony Blinken, is expected to address strategic, defence, and technology collaborations between the two nations, with a particular focus on tensions in West Asia.

Key Defense Deals

- Two significant defence deals are in progress between India and the U.S.: the acquisition of 31 MQ-9B high altitude long endurance drones and the manufacture of General Electric F-414 jet engines in India.
- The latter will power the indigenous light combat aircraft (LCA-Mk2), with the deals expected to be concluded early next year.

Cross-Cutting Aspects of Cooperation

- The '2+2' dialogue provides an opportunity for a high-level review of progress in various aspects of defence and security cooperation, technology collaboration, and people-to-people ties.
- The deliberations will play a role in progressing the forward-looking roadmap for the partnership between India and the U.S., aligning with the vision articulated by Prime Minister Narendra Modi and President Joseph Biden in earlier talks.

25. The U.S.'s signal of a huge digital shift

Syllabus: GS-2, Effect of policies and politics of developed and developing countries on India's interests.

Mains: Significance of U.S.'s digital shift

Context: The recent withdrawal by the United States from key digital trade positions at the World Trade Organization (WTO) has profound implications for the future of global digital governance.

Issues in Digital Governance:

- **Digital Colonization:** The historical approach of the U.S. in pushing digital trade proposals to prevent effective regulation of Big Tech, often perceived as digital colonization.
- **Resistance from Developing Countries:** Countries like India and South Africa resisting U.S.-led digital trade agreements due to concerns about economic exploitation and uncontrolled Big Tech dominance.

Significance of U.S. Withdrawal:

- **Shift in Global Digital Economy:** The U.S. withdrawal marks a watershed moment, signalling a shift in how the global digital economy and society will evolve.
- **Domestic Policy Space:** The stated motive is to allow the U.S. greater domestic policy space to regulate Big Tech and Artificial Intelligence (AI), leveraging data and source code.

China Factor:

- **Changing Dynamics:** The emergence of China as a digital superpower challenges the once unchallenged digital hegemony of the U.S.
- **Security Concerns:** The U.S. perceives China's global digital presence not just as an economic challenge but also as a significant security threat.

Potential Split in Global Digital Space:

- **Cold War-Like Exclusions:** The U.S. declaration may lead to economic and security-related exclusions, creating competing blocs led by the U.S. and China.
- **Regional Digital Trade Deals:** The U.S. may still pursue data flow, source code, and facility location provisions in regional digital trade deals limited to its allies.

Implications for Developing Countries:

- **Opportunities for Regulation:** Developing countries should capitalize on the global consensus for strong digital regulations to manage Big Tech and AI.
- **Avoiding Digital Dependencies:** Vigilance is required to resist falling into a new trap of a digital Cold War, ensuring independence from entanglements with either the U.S. or China.

Reshaping Digital Regulation Paradigms:

- **National Digital Regulation:** Developing countries should shape new paradigms for national digital regulation, considering data, source code, and computing facilities.
- **Digital Industrial Policies:** Combining strong digital industrial policies to boost the domestic digital industry, creating open standards, protocols, and infrastructures for global interoperability.

Why hasn't India joined the e-commerce initiative?

- Data is the new oil of the 21st century. Data is the heart of the digital revolution.
- It is the key resource which can make or break a country in the digital era as all digital technologies like Big data analytics, artificial intelligence, IoT, Robotics, etc need data for them to become more efficient and intelligent.
- The larger the population of a country, the larger the amount of data generated, and the younger the population the more the data generated.
- India's 1.3 billion population is bigger than the population of OECD members (36 countries) taken together, with 66% of its population falling in the age group of 15-64 years, which is around 18 percent of the world's young population.
- This amounts to huge data being generated every second in India, which is extremely valuable for the developed world for making efficient digital products and services in the future.
- This is the root cause for the pressure being applied on India to join the plurilateral e-commerce negotiations.

Some interesting examples

- China's Cyber Security Law is an exemplary law which includes provisions around data not only leaving the country but storing data locally, having joint venture partners, and source code sharing provisions.
- Many countries in Africa have started 'owning' their data.
- For example, Rwanda's Data Revolution Policy is based on the principle of national data sovereignty whereby Rwanda retains exclusive sovereign rights and power over its national data.

Conclusion:

- Developing countries must navigate this evolving landscape by leveraging opportunities for strong digital regulations while avoiding digital dependencies, thereby ensuring genuine global interoperability in the digital realm.

Nut Graf: While the U.S. withdrawal signals a positive global acceptance of the need for national policy space in digital regulation, there is a simultaneous concern about the potential division of the global digital space into competing blocs led by the U.S. and China.

26. Why are people fleeing Myanmar for Mizoram?

Syllabus: Effect of policies and politics of developed and developing countries on India's interests

Prelims: Zokhawthar area in Champhai district

Mains: Impact of Myanmar migration on India

Context:

- The civil war in Myanmar has resulted in a significant influx of refugees into Mizoram, India. This spillover has roots in the ongoing conflict between the Myanmar military junta and pro-democracy militias, with ethnic organizations playing a crucial role. Additionally, China's stance and reactions further complicate the situation.

Indo-Myanmar Border

- Runs for 1,643 km.
- 4 states of Mizoram, Manipur, Nagaland, and Arunachal Pradesh.
- Open border.
- Defined by the free movement regime (FMR) – Mutually agreed arrangement – Allows tribes living along the border on either side to travel up to 16 km inside the other country without a visa – Implemented in 2018 (Act East Policy) – Suspended in September 2022 due to Myanmar crisis.
- Manipur (Kuki) and Mizoram (Mizo) are the worst affected – Myanmar (Chin)

Issues

- **Refugee Influx into Mizoram:** Over 1,500 Myanmar nationals sought refuge in Mizoram following clashes between the Myanmar Army and pro-democracy militias in the western Chin State.
- **Myanmar Civil War Overview:** Coordinated attacks by ethnic armed groups in Shan State, labeled "Operation 1027," led to setbacks for the junta's forces.
 - The junta's response to the 2021 coup triggered nationwide protests, forming the basis for the ongoing civil war.
- **Ethnic Organizations' Responses:** Ethnic armed groups, facing attacks from the junta over the years, have diverse responses.
 - Some, like the Karen, Kachin, Chin, and Karenni rebels, support the National Unity Government (NUG) and resist the junta, rejecting a unified "Federal Army" proposal.
 - Chin State was previously targeted, resulting in refugees fleeing to Mizoram and Manipur.

Significance

- **National Unity Consultative Council (NUCC):**
 - NUCC, a dialogue platform, formed a "federal democratic charter" (FDC) outlining a political roadmap for a democratic Myanmar.
 - The resistance, led by NUG, is considered the most inclusive political coalition in Myanmar's history.
- **People's Defense Forces (PDF):**
 - The violent junta crackdown led to the formation of PDF by the NUG and sparked a civil war.

India Refugee Policy

- Lacks specific legislation
- Not a participant in the 1951 Refugee Convention and its 1967 Protocol
- Admirable track record in safeguarding refugees, driven by a moral tradition of embracing foreign people and cultures.
- The Foreigners Act of 1946 falls short in addressing the unique challenges faced by refugees and grants extensive powers to the Central government for the deportation of foreign citizens.
- On a positive note, the Indian Constitution upholds the life, liberty, and dignity of all individuals, irrespective of their citizenship status. The Supreme Court, in the case of National Human Rights Commission vs. State of Arunachal Pradesh (1996), emphasized that non-citizens, including foreign citizens, are entitled to rights such as equality and the right to life.

Solutions

- **Revision by an expert committee:** The model laws on asylum and refugees, formulated by the National Human Rights Commission (NHRC) years ago – unimplemented by the Government.
Enacting these laws would provide legal legitimacy and consistency, thereby safeguarding human rights. Proper coordination among armed forces
- **Ethnic Armed Groups' Varied Responses:**
Diplomatic efforts may be needed to navigate the diverse responses of ethnic armed groups, some of which support the NUG, while others maintain ceasefire status.
- **Refugee Management:**
Collaborative efforts between Mizoram and the central government are crucial for addressing the influx of refugees and ensuring their well-being.

Nut Graf: The situation in Myanmar has escalated into a complex civil war with implications for neighboring regions, notably Mizoram. Understanding the diverse responses of ethnic organizations, the role of the NUG, and managing the refugee crisis are key challenges.

27. The many grave risks confronting the world today

Syllabus: Effect of Policies and Politics of Developed and Developing Countries on India's interests

Prelims: NATO, AUKUS, QUAD, Camp David and Oslo Accords, Generative AI

Mains: Threats to global peace and security

Introduction

- Global conflict, instability, and chaos are stemming from power struggles across Europe, Asia, Africa, and the Americas in the 21st century.
- Multiple nations have contributed to this instability that has left much of the world trapped in constant tension and crisis.

Ongoing Conventional Conflicts

- Russia's 2022 invasion of Ukraine continues to cause geopolitical tensions with no resolution in sight after over 18 months. The risks of wider conflict grow with each month.
- A new battleground opened up recently between Israel and the Palestinian group Hamas. Backed by the West, the conflict has the risk of becoming an all-out regional war after decades of tension. Previous peace deals such as Camp David and Oslo Accords, have collapsed.
- Massive U.S. naval deployments in response to Israel-Hamas tensions could bring Iran and Iran-backed militant groups like Hezbollah into the conflict. This could substantially alter the conflict leading to unpredictable consequences.

Rising Great Power Tensions

- The situation in the Indo-Pacific region has great potential for a large conflict, possibly involving the U.S. and China directly. This region already has a lot of strategic competition between major powers.
- The U.S. and China have little room for cooperation in the Indo-Pacific. Both countries now seem intent on expanding the scope of their conflict.
- The U.S. appears confident that it now has an advantage over China since China's growth has slowed and it cannot get advanced Western technology.
- China is aggressively pursuing two contradictory goals: checkmating the U.S.-dominated world order and ensuring the success of a China-dominated order.
- Issues like Taiwan are not getting the attention they deserve currently.
- The West currently just wants to copy its tactics from Ukraine against Russia and use them against China in the Indo-Pacific. This ignores major differences between the situations in Europe and Asia.
- Asia lacks a strong military alliance like NATO and has loose security arrangements like AUKUS and the Quad to confront the rising ambitions of China.
- But, few Asian countries are ready for a military confrontation with China.

Global Terrorism and Extremism

- On 9/11, al-Qaeda attacked the Twin Towers, giving terrorism a new dimension. This was followed by other major terrorist groups like ISIS, Lashkar-e-Taiba, Boko Haram, and Hamas against Israel. These groups pose ongoing dangers.

Emerging Risks and Vulnerabilities

- Artificial intelligence (AI) and cyber threats pose serious risks as dependence on digital technology grows. Generative AI could deepen fissures within nation-states and alter the truth itself.
- Military and security uses of AI are extremely concerning due to vulnerabilities like data poisoning, backdoors, and evasion attacks.
- Over 5.5 trillion cyber attacks occurred worldwide in 2021. Attacks are exponentially increasing, making cyber threats critical future war elements.

- Quantum computing's data-crunching ability is reshaping some sectors but has inherent risks too, especially regarding AI simulation.
- Health is increasingly critical as humanity advances. COVID-19 exemplified dangerous epidemics that may become more common.
- Many experts believe climate change and related health issues will be among the greatest global risks going forward.

Conclusion

- Current global tensions and risks could spiral out of control into huge conflict if left unchecked.
- However, history proves that even difficult situations can be resolved through committed diplomacy and good-faith efforts.
- Courageous leadership from the UN and global governance institutions guided by wisdom is needed to navigate tensions toward peace.

Nut Graf: *The ongoing tensions between the US and China in the Indo-Pacific region, coupled with the use of artificial intelligence and cyber threats, pose significant risks to global stability. Apart from diplomacy, courageous leadership from the UN and global governance institutions is crucial to prevent escalating tensions from spiralling into a wider conflict.*

28. The challenge of maritime security in Global South

Syllabus: GS-2, Effect of policies and politics of developed and developing countries on India's interests.

Mains: The challenge of maritime security in Global South

Context: The challenge of maritime security in the Global South presents a multifaceted issue, requiring adaptive strategies in the face of evolving threats. Charles Darwin's concept of resilient adaptability becomes particularly relevant in addressing the emerging dynamics in the maritime domain, where traditional security challenges intertwine with unconventional threats.

Issues in Maritime Security

- **New Threat Dimensions**
 - Evolution of Threats: Recent years have witnessed a transformation in maritime security challenges, with unconventional tactics such as grey-zone warfare, land attack missiles, and combat drones being deployed.
 - Diverse Challenges: While traditional security threats persist, the bulk of the demand for maritime security arises from unconventional issues like illegal fishing, natural disasters, marine pollution, human and drug trafficking, and climate change impacts.
- **Global South's Concerns**
 - Neglect of Global South: The Global South perceives the Indo-Pacific's zero-sum competition among powerful nations as detrimental to their interests.
 - Unrealized Sustainable Development Goals: Despite the emphasis on sustainable development goals in littorals, the concerns of Asia, Africa, and the Southern Pacific are often overlooked by developed countries.
- **Inequality among Littoral States**
 - Law Enforcement Capabilities: Littoral states in Asia and Africa face unequal law enforcement capabilities, hindering coordinated efforts against maritime threats.
 - Varying Security Priorities: Divergent security priorities and a reluctance to leverage partner capabilities impede joint efforts against piracy, armed robbery, and maritime terrorism.

Significance of Maritime Security

- **Integrated Approach to Security**
 - Interconnected Security Goals: Contemporary security goals encompass national, environmental, economic, and human security, requiring an integrated approach.
 - Impact on Global South: The Global South faces challenges in achieving marine governance objectives, exacerbated by rising sea levels, pollution, climate change, and natural disasters.
- **Creative Models for Prosperity**
 - Sea Power for Prosperity: Maritime security extends beyond military action; sea power is increasingly about generating prosperity and meeting societal aspirations.
 - India's Maritime Vision 2030: India's blueprint focuses on port development, shipping, and inland waterways to spur growth and livelihoods, providing a creative model for the maritime sector.
 - Dhaka's Indo-Pacific Document: Dhaka emphasizes a developmental approach, focusing on provisioning goods and services and protecting marine resources in the Indo-Pacific.

Solutions for Maritime Security

- **Addressing Illegal Fishing**
 - Faulty Policies: Illegal fishing in Asia and Africa is exacerbated by lenient regulations, lax law enforcement, and harmful subsidies promoting destructive fishing methods.
 - India's Indo-Pacific Oceans Initiative: Proposes collective solutions to common problems, emphasizing maritime ecology, marine resources, capacity building, disaster risk reduction, and maritime connectivity.

- **Collaborative Strategies**

- Indo-Pacific Oceans Initiative Implementation: Despite support, implementing collaborative strategies requires improved interoperability, intelligence sharing, and agreement on a rules-based order.
- Overhauling Regulatory Frameworks: States must adapt to an integrated form of maritime security operations and overhaul regulatory frameworks to align with international law, challenging their emphasis on sovereignty.

Nut Graf: *The challenge of maritime security in the Global South demands a holistic and adaptive approach. Acknowledging the interconnected nature of security goals, nations must move beyond traditional strategies to address evolving threats.*

29. US blames Indian official for plot against Pannun

GS: Categories: GS-II, International relations

Syllabus: Effect of policies and politics of developed and developing countries on India's interests.

Mains: India -USA relations

Context: The recent indictment by the U.S. Department of Justice, accusing a senior Indian Intelligence official of orchestrating an assassination plot against Khalistani activist Gurpatwant Singh Pannun, has prompted India to establish a high-level committee to investigate the matter.

Issues

- Senior Indian Official Accusation: The indictment names an unnamed senior Indian Intelligence official (referred to as CC-1) as the mastermind behind the plot, involving the enlistment of an individual named Nikhil Gupta to hire a hitman for the assassination.
- Link to Previous Assassination: The indictment suggests a connection between the plot against Pannun and the killing of Hardeep Singh Nijjar in Canada, raising questions about the alleged involvement of Indian government agents in both cases.
- Divergent Reactions: The Indian government's response to the U.S. allegations, including the establishment of a high-level inquiry committee, contrasts with its reaction to similar accusations made by the Canadian government in the Nijjar case.

Significance of Investigation

- National Security Implications: The allegations implicate a senior Indian Intelligence official, pointing to a potential nexus between organized criminals, terrorists, and others. This raises serious national security concerns.
- Bilateral Relations: The investigation's outcome may impact diplomatic relations between India and the U.S., necessitating a careful and transparent examination of the evidence.

Wayforward

- Thorough and Transparent Inquiry: The high-level committee must conduct a comprehensive and transparent investigation, addressing the specific allegations against the Indian Intelligence official and examining any broader implications for national security.
- Cooperation with the U.S.: India should engage in open communication and cooperation with U.S. authorities to ensure a shared understanding of the allegations and facilitate a joint investigation if necessary.
- Policy Review: Depending on the findings, the Indian government should review its policies concerning covert operations and transnational activities to prevent any recurrence of such incidents.

Nut Graf: The allegations of an assassination plot against a U.S.-based Khalistani activist have serious implications for India's national security and its international relations. A thorough and transparent inquiry is imperative to address the specific accusations and to uphold the principles of justice and accountability.

SCIENCE AND TECHNOLOGY

1. India's 'Deep Ocean Mission'

Syllabus: GS 3- Science and Technology

Prelims: India's Deep Ocean Mission

Introduction

- The Deep Ocean Mission (DOM) stands as a notable endeavour undertaken by the Indian government with the goal of exploring and tapping into the extensive possibilities hidden in the depths of the ocean.
- India aims to reach ocean depths of 6,000 metres using an indigenous submersible with a three-member crew, marking the first such mission for the country.

Key Aspects of DOM

- DOM was approved by the Union Cabinet in 2021, with a budget of approximately ₹4,077 crore over a five-year phased implementation.
- **The mission comprises six pillars:**
 1. Development of technologies for deep-sea mining and a manned submersible.
 2. Ocean climate change advisory services.
 3. Technological innovations for deep-sea biodiversity exploration and conservation.
 4. Deep-ocean survey to identify multi-metal hydrothermal sulphides.
 5. Harnessing energy and freshwater from the ocean.
 6. Establishing an advanced Marine Station for Ocean Biology.

Alignment with National and Global Goals

- The mission aligns with India's 'New India 2030' document, which emphasises the blue economy as a core objective.
- The United Nations declared 2021-2030 as the 'Decade of Ocean Science,' emphasising the importance of sustainable ocean resource utilisation.
- DOM is one of nine missions under the Prime Minister's Science, Technology, and Innovation Advisory Council (PMSTIAC).

Progress and Challenges

- The National Institute of Ocean Technology (NIOT) is developing indigenous technologies for deep-sea exploration and mining.
- The submersible 'Matsya6000' will be used to reach the ocean bed at a depth of 6,000 metres.
- The mission aims to explore the potential for polymetallic nodules containing precious minerals such as copper, manganese, nickel, and cobalt.
- Challenges include high pressure, soft and muddy ocean bed, the need for durable equipment, and limited visibility.

Global Position of Matsya6000

- Matsya6000 is India's flagship deep-ocean human submersible, designed to facilitate ocean bed exploration.
- India is set to join the ranks of countries like the U.S.A., Russia, China, France, and Japan with successful deep-ocean crewed missions.
- Matsya6000 combines features of remotely operated vehicles (ROVs) and autonomous remote vehicles (AUVs) and is designed for deep-sea observation missions.

Unique Features of Matsya6000

- Matsya6000 can accommodate three crew members in a specially designed sphere with a diameter of 2.1 metres, constructed from a durable titanium alloy.
- It features advanced communication systems, navigation, positioning systems, cameras, lights, and underwater thrusters.
- Matsya6000 will operate as a free-floating system with a speed of approximately 5.5 km/hr, ensuring energy efficiency.
- India will become the only country with an entire ecosystem of underwater vehicles, including deep-water ROVs, polar ROVs, AUVs, and more.

2. AI and the issue of human-centricity in copyright law

Syllabus: GS-3, Issues relating to Intellectual Property Rights.

Mains: Challenges to the current copyright regime in the backdrop of the rise of AI and solutions related to it

Context:

- The emergence of AI has raised questions about copyright in the digital age.
- Global leaders are adapting to regulate AI use to safeguard humanity.

Recent Case in the USA:

- In a US District Court case, Stephen Thaler claimed copyright for art created autonomously by his AI system, 'Creativity Machine.'
- The US Copyright Office rejected the application, stating that human authorship is essential for copyright protection.
- The court upheld this position, in line with the US Copyright Office's stance.

Case in India:

- In 2020, the Indian Copyright Office initially accepted an application where the AI system, "RAGHAV Artificial Intelligence Painting App," was listed as the sole author.
- When the matter stirred controversy, the Copyright Office sent a notice to the human co-author, indicating its intent to withdraw the registration. However, as of the available data, the work remains registered without withdrawal.
- This scenario in India is contrasted by the 161st Report of the Department-Related Parliamentary Standing Committee on Commerce in July 2021, which suggested reviewing the Copyright Act 1957 and the Patent Act 1970 to integrate emerging technologies like AI into their framework. However, the recommendations of the report did not seem to address the potential consequences for the startup ecosystem or the challenges of AI-related creations in copyright law.

Issue of Granting Copyright to AI-Generated Content:

- **Determining authorship:** Identifying the true author of AI-generated work is complex.
- **Legal clarity:** Ambiguity surrounds whether AI can hold copyright and how it relates to human authorship.
- **Ethical considerations:** AI lacks personal motivations or moral responsibilities, raising ethical dilemmas in copyright ownership.
- **Impact on existing laws:** Adapting current copyright laws to accommodate AI-generated content poses significant challenges.
- **International harmonisation:** Establishing unified global standards for AI-related copyright laws is a considerable challenge.

Way Forward:

- Policymakers and courts need to be cautious about diluting the human-centricity in copyright law, especially concerning AI-generated content.
- The 161st Report of the Department-Related Parliamentary Standing Committee on Commerce recommended reviewing copyright and patent laws to incorporate AI-related technologies.
- Policymakers should consider the implications of extending traditional copyright protections to AI-generated work and the potential impact on the startup ecosystem.
- Continued discussions and studies on AI-related IP challenges are essential for shaping future copyright regulations.

Nut Graf: The emergence of AI has ignited a global debate over copyright law. Recent cases in the US and India highlight the differing approaches to granting copyright to AI-generated content. While the US emphasizes the need for human creativity, India took a more permissive stance. Policymakers must consider the implications of extending traditional copyright protections to AI and the impact on the startup ecosystem, as recommended by a parliamentary committee report.

3. Politicians, tech leaders gather for U.K.'s AI summit

Syllabus: GS 3- Science and Technology

Prelims: Bletchley Declaration

Introduction

- The first Artificial Intelligence (AI) Safety Summit was held at Bletchley Park, the historic site where scientists, including Alan Turing, cracked the Nazis' Enigma code during World War II.
- The summit aimed to create a framework for mitigating AI risks while maximising its potential and resulted in the "Bletchley Declaration."
- The declaration underscores the need to address AI risks to unlock its potential safely, emphasising cooperation between governments, technology developers, and civil society.

Key Highlights from the Bletchley Declaration

- The “Bletchley Declaration” emphasises the importance of collaboration between governments, technology developers, and civil society to ensure AI safety.
- It affirms the need to address AI risks to harness its extraordinary opportunities.

International Collaboration and Framework for AI Regulation

- Minister Rajeesh Chandrasekhar, representing the Government of India, stressed the importance of international conversations on AI.
- He suggested a sustained approach to regulating technology, driven by a coalition of countries to prevent innovation from outpacing regulation.
- India currently chairs the Global Partnership on AI, a coalition of 15 governments.
- U.S. Secretary of Commerce, Gina Raimondo, announced the U.S. would launch its own AI safety institute, focusing on voluntary disclosures by AI companies and mandatory safety testing result sharing.

China's Role and International Governance Framework

- China expressed its willingness to enhance dialogue and communication in AI safety to build an international governance framework.
- Recent sanctions by the Biden administration on the transfer of AI-related technology have been a source of concern for Beijing.
- China has previously called for a global AI framework at international forums.

Upcoming AI Safety Summits

- South Korea will host the next AI Safety Summit in six months, followed by a second summit in six months hosted by France.
- Several global leaders and tech figures attended the summit, but some G-7 heads of government were not present.

4. Understanding the fundamentals of how electricity is transmitted

Syllabus: GS 3- Science & Technology

Prelims: Fundamentals of how electricity is transmitted

Introduction

- In 1954, India's first Prime Minister Jawaharlal Nehru referred to dams as “the temples of modern India,” emphasising the importance of power transmission and generation in the country's development.
- The transmission of electric power is a complex process involving multiple factors, such as voltage, impedance, and frequency.
- Power transmission consists of three components: generation, transmission, and distribution, each serving a crucial role in the energy supply chain.

Basics of Transmitting Electricity

- Lower current and higher voltage result in higher transmission efficiency in any conductor carrying electric current.
- Transformers are used to increase voltage and reduce current, minimising energy loss during transmission.
- The thickness of transmission cables affects energy loss, with thicker cables reducing loss at a higher cost.
- Longer transmission distances lower transmission costs, allowing power to be transported over greater distances.

AC Power Transmission

- Electric power is commonly transmitted as three-phase alternating current (AC).
- AC voltage changes polarity, allowing for the control and distribution of power to various applications.
- In a three-phase AC circuit, there are three wires, each transmitting AC current in a different phase.
- These phases are distributed to consumers, who can access power for their appliances designed to use AC.

Power Transmission Process

- Power generation facilities produce electricity that is transmitted through a network of transformers, substations, and cables.
- Transmission towers and cables carry high-voltage power over long distances.
- Insulators, circuit-breakers, grounding, and arresters are used to ensure safe and stable transmission.
- Substations serve different functions, such as collecting power, modifying AC frequency, and stepping down voltage for distribution.

Grid Operation

- A national grid includes generation, transmission, and distribution components, and each must account for the specifics of power production and consumption.
- Grids have storage facilities to manage surplus power and provide energy during deficits.
- They also connect to sources that can respond to changes in demand and have automated systems for load management.
- Grids work to prevent failures in one part from affecting others, control AC frequency, and maintain a power factor.

Wide-Area Synchronous Grids

- A wide-area synchronous grid occurs when all connected generators produce AC current at the same frequency.
- India's national grid is an example of this type of grid, promoting cost efficiency but requiring measures to prevent cascading failures.

5. Trouble with India's guidelines on genetically modified insects

Syllabus: GS 3, Science & Technology

Prelims: Bioeconomy Report 2022

Introduction

- The Department of Biotechnology (DBT) released the 'Bioeconomy Report 2022' in April 2023, aiming to increase the contribution of the biotechnology sector to GDP from the present 2.6% to 5% by 2030.
- This ambitious goal requires substantial investment and supportive policies.

Challenges in the Biotechnology Sector

- **Inadequate Funding**
 - Funding for biotechnology in India has stagnated and is insufficient to drive growth.
 - The current allocation is only 0.0001% of India's GDP, which must be significantly increased to make a meaningful impact on the economy.
 - Private funding in biotechnology research and development needs to be encouraged.
- **Lack of Clarity in Policies**
 - Biotechnology policies should align with economic goals, as outlined in the Bioeconomy report.
 - The recently issued 'Guidelines for Genetically Engineered (GE) Insects' lack clarity on how GE insects can contribute to the bioeconomy.
 - The guidelines lack specific indications regarding the purposes for which approval may be granted for GE insects in India.
- **Uncertainty for Researchers**
 - The guidelines apply only to research, not to confined trials or deployment.
 - Researchers need clearer guidance on which ideas the government supports, making it more attractive to invest in research.
 - There is uncertainty about the criteria for approving the deployment of GE insects.
- **Uncertainty of Ambit**
 - The guidelines offer standard procedures for GE insects, but the term 'beneficial' is not clearly defined.
 - The lack of clarity on which insect modifications are considered 'beneficial' hampers progress and investment.
- **Safety Concerns**
 - The guidelines do not adequately address the potential risks and security concerns associated with GE insects.

6. Why has the govt. issued a directive on deepfakes?

Syllabus: Recent developments and their applications and effects in everyday life and General awareness in the fields of IT, Space, Computers, Robotics, Nanotechnology, biotechnology

Mains: Awareness in the fields of IT, AI, cybersecurity, and the ethical concerns related to deepfake technology.

Prelims: About Deepfakes

Context

Deepfakes, AI-generated synthetic content, prompted the Indian government to instruct social media removal within 24 hours. This is a response to emerging deepfake videos featuring prominent actors.

Introduction

- On November 8, the Indian government issued instructions to social media intermediaries to remove deepfake videos within 24 hours of a complaint, in line with the IT Rules 2021.

Understanding Deepfakes**1. Definition**

- Deepfakes, originating in 2017, involve the creation of synthetic videos, audio, or images using artificial intelligence, specifically deep learning.

2. Evolution of Deepfake Tech

- In 2023, advancements in AI-driven deepfake technology enable semi-skilled individuals to create realistic fake content.
- A 230% increase in deepfake usage by cybercriminals and scammers is observed.

3. Technology Behind Deepfakes

- Generative Adversarial Network (GAN) is a key machine learning technique employed in deepfake creation.
- AI-driven software learns and duplicates subjects' movements and facial expressions, using a vast database of source images.
- Unsupervised learning makes it challenging for other software to detect the forgery.

Legal Framework in India

- India's IT Rules, 2021 mandate the removal of reported deepfake content by intermediary platforms within 36 hours.
- Notices have been issued, emphasising the illegality of online impersonation under Section 66D of the Information Technology Act.
- Hosting content that impersonates others is prohibited, and social media firms are required to take down artificially morphed images upon alert.

Motivations Behind Deepfake Creation

- Potential malicious uses include inciting political violence, election sabotage, damaging diplomatic relations, and spreading misinformation.
- Deepfake technology may be employed for humiliation, blackmail, and attacking organisations with false evidence.
- Positive applications include voice-cloning technology aiding individuals with ALS in digitally recreating their voices.

Global Responses

- The EU issues guidelines for an independent network of fact-checkers to analyse content creation sources and processes.
- The U.S. introduces the bipartisan Deepfake Task Force Act to counter the proliferation of deepfake technology.

Nut Graf: India, grappling with the rise of deepfakes, mandates swift removal on social media platforms, aligning with global efforts to address the potential risks of AI-driven synthetic media.

7. How does an electric battery work?

Syllabus: Recent developments and their applications and effects in everyday life.

Mains: Electric batteries- Historical evolution, concepts and applications.

Prelims: About Electric Battery

Context

This article explores the historical evolution and types of electric batteries, from Luigi Galvani's 1780 experiment to modern innovations like lithium-ion batteries and hydrogen fuel cells.

Historical Evolution

- Luigi Galvani's 1780 experiment involving the contraction of a frog's leg due to the touching of metal plates laid the groundwork for understanding electrochemical phenomena.
- Alessandro Volta's voltaic pile in 1800, utilising copper and zinc plates with electrolyte-soaked paper, marked a significant advancement in producing a steady electric current.
- Michael Faraday's work in the early 19th century contributed to the understanding of electrochemical cells, naming components like anode, cathode, and electrolyte.

Fundamental Concepts of Electric Batteries

- An electric battery is a collection of voltaic cells, where each cell comprises two half-cells with metal electrodes immersed in electrolytes.
- Redox reactions, involving the release and consumption of electrons, drive the flow of electrons from the anode to the cathode through an external circuit.
- Key components include the cathode (positively charged electrode), anode (negatively charged electrode), and electrolyte.
- The source voltage and terminal voltage are key concepts, with the former representing the energy imparted to electrons and the latter serving as the driving force pushing electrons from the anode to the cathode.

Types of Batteries

1. Lithium-ion Batteries

- Nobel Prize-winning technology in 2019, it combines voltaic and electrolytic cell principles, enabling rechargeability.
- In Li-ion polymer cells, lithium metal oxide serves as the cathode, graphite as the anode, and a semisolid polymer gel as the electrolyte.
- Tesla's Model S uses Li-ion batteries consisting of numerous cells, showcasing their application in EVs.

2. Hydrogen Fuel Cells

- Utilising hydrogen as a fuel source, fuel cells generate electricity through the electrochemical reaction between hydrogen and oxygen.
- Hydrogen fuel cells are considered vital components in the emerging hydrogen economy.

Challenges, Innovations and Future Prospects

- Corrosion, caused by factors like humidity and galvanic corrosion, poses challenges to battery performance.
- Ongoing research focuses on enhancing the efficiency, safety, and variety of lithium-ion batteries, addressing specific applications and requirements.
- Hydrogen fuel cells, another area of significant research, are considered a key component of the hydrogen economy, with applications in EVs and sustainable energy.

Current Developments

- The Indian government's approval of the National Green Hydrogen Mission in January 2023 emphasises the country's commitment to becoming a global hub for green hydrogen utilisation and export.

Nut Graf: *Electric batteries, evolving from Galvani's experiments to cutting-edge technologies like lithium-ion and hydrogen fuel cells, have reshaped convenience and sustainability, impacting various industries and fostering a green energy future.*

8. Rashtriya Vigyan Puraskar Awards

Syllabus: GS 3- Science and Technology

Prelims: About Rashtriya Vigyan Puraskar Awards

Introduction

- The Shanti Swarup Bhatnagar (SSB) awards for 2022 were recently announced by the Council of Scientific and Industrial Research.
- The awards came amid the government's plans to revamp science and medicine awards, introducing the 'Rashtriya Vigyan Puraskar' (RVP) system. RVP is to replace the old awards, providing recognition to scientists, technologists, innovators, and teams.

Structure of Rashtriya Vigyan Puraskar (RVP)

- The RVP includes awards like Vigyan Shri, Vigyan Yuva-Shanti Swarup Bhatnagar, Vigyan Team, and Vigyan Ratna.
- Open to a diverse group, including those in government, private sector organisations, and individuals working outside any organisation.
- Covers 13 scientific domains with a commitment to ensuring gender parity.

Key Differences from Older Awards

1. Inclusivity: Open to innovators, technologists, and those in the industry with diverse affiliations.
2. Expanded Eligibility: Includes technology-led innovations or products alongside discovery-based research.
3. Team Awards: Acknowledges the collaborative and interdisciplinary nature of scientific research.
4. No Age Limit: Except for the Vigyan Yuva-SSB award, eliminating age barriers and ensuring gender representation.
5. Global Recognition: Open to Persons of Indian Origin abroad, recognizing the global footprint of modern science.
6. Elimination of Cash Prizes: Awards focus on certificates and medals.

Intent and Processes

1. Notable Contributions: Emphasise that recognized contributions go beyond standard job descriptions.
2. Comprehensive Citations: Include dedicated citations for teaching, mentoring, science communication, public engagement, leadership, and administration.
3. Age Limit Considerations: Reconsider age limits for the Vigyan Yuva-SSB award to ensure gender parity and consider personal circumstances.
4. Transparent Selection Process: Adhere to predetermined timelines, publicise shortlisted applicants, and ensure diverse selection committees.
5. Diversity and Inclusivity: Pledge to ensure socioeconomic and demographic representation among awardees.
6. Continuous Evaluation: Regularly assess the impact of the new award system on scientific work, diversity, and inclusivity.

9. Euclid Space Telescope

Syllabus: GS 3- Science and Technology

Prelims: About Euclid Space Telescope

Introduction

- European astronomers have revealed the initial images captured by the newly launched Euclid space telescope, a collaborative effort led by the European Space Agency (ESA) with NASA as a partner.
- The Euclid telescope is specifically designed to explore the mysteries of dark matter and dark energy, believed to constitute 95% of the universe.

Key Observations

- The released images are described as the sharpest of their kind, demonstrating the telescope's capability to observe billions of galaxies situated up to 10 billion light years away.
- The images cover four regions of the nearby universe, including the Perseus cluster with approximately 1,000 galaxies located 240 million light-years away and over 100,000 galaxies in the background.

Significance of Observations

- Scientists infer that large, structured formations like the Perseus cluster could have developed only if dark matter was present.
- Dark matter's influence is evident in phenomena such as galaxies rotating at higher speeds than expected based on visible matter, and in the gravitational cohesion of massive structures like galaxy clusters.
- Dark energy, a concept introduced in the 1990s, is characterised by the accelerated expansion of the universe, discovered through observations of supernovas.

Mission Objectives and Challenges

- Euclid, a six-year mission, aims to construct a 3D map covering about one-third of the sky, detecting subtle variations associated with the dark universe.
- The telescope faced initial technical challenges, including stray light and guidance issues, which have been addressed.

Future Prospects

- Beyond the initial six-year mission, the European Space Agency hopes Euclid can extend its operations for an additional six months, relying on its remaining propellant.
- The Euclid telescope is positioned at Lagrange point 2 (L2), offering gravitational stability and sharing this location with NASA's James Webb Space Telescope.

10. PSLV's 60th flight

Syllabus: GS 3- Science and Technology

Context: The Indian Space Research Organisation (ISRO), commemorating the 60th anniversary of the first sounding rocket launch from Thumba, is gearing up for the 60th launch of its reliable workhorse, the Polar Satellite Launch Vehicle (PSLV).

Details:

- **Evolution of PSLV:** The PSLV, a four-stage expendable launch vehicle, stands 44.4 meters tall and has played a pivotal role in India's space exploration journey. Despite an initial setback with the unsuccessful PSLV-D1 launch on September 20, 1993, subsequent developmental flights paved the way for its reliability and success in commercial launches.
- **Significance of PSLV:** The PSLV is renowned as the "reliable workhorse" of ISRO, boasting a remarkable success rate. Over the past three decades, it has demonstrated its versatility by deploying a variety of payloads, including satellites for communication, Earth observation, navigation, and interplanetary exploration. The upcoming 60th flight underscores the vehicle's enduring importance in India's space endeavours.
- **XPoSAT Mission:** The 60th PSLV launch will carry XPoSAT, marking a significant leap in India's space capabilities. XPoSAT, a dedicated polarimetry mission, aims to unravel the dynamics of bright astronomical X-ray sources in extreme conditions. This mission reflects ISRO's commitment to advancing scientific research and exploration beyond conventional boundaries.
- **PSLV Variant and Technical Details:** For the upcoming mission, ISRO will deploy a PSLV variant equipped with two strap-on motors. The technical specifications include a four-stage configuration, with two solid propellant and two liquid propellant stages. These enhancements signify ISRO's continuous efforts to optimize and improve its launch vehicle technology.

11. NISAR satellite

Syllabus: GS 3- Science and Technology

Prelims: About NISAR satellite

Introduction

- NASA-ISRO Synthetic Aperture Radar (NISAR) is set for launch in the first quarter of 2024 from Satish Dhawan Space Centre at Sriharikota using an ISRO Geosynchronous Satellite Launch Vehicle Mark-II (LVM-2).
- NISAR is a low-earth orbit observatory jointly developed by ISRO and NASA.

Mission Duration, Coverage and Objectives

- The mission spans three years, surveying Earth's land and ice-covered surfaces every 12 days.
- NISAR will provide consistent spatial and temporal data for understanding changes in various Earth elements.
- NISAR will uncover the dynamics of carbon storage, ecosystems, ice sheets' response to climate change, and sea ice-climate interactions.

Capabilities

- NISAR is equipped with synthetic aperture radar in two frequencies and an antenna reflector.
- Compact size (size of an SUV), with a mass of 2.8 tonnes, powered by solar panels.
- The six-foot spacecraft bus will host command and communication systems for the payload.
- Sufficient fuel for at least five years of operations.

Significance

- Represents a new level of capability for Earth observation missions.
- Expected to provide crucial insights into climate change, carbon dynamics, and various Earth processes.

12. Amal Kumar Raychaudhuri

Syllabus: GS 3- Science and Technology

Prelims: About Amal Kumar Raychaudhuri

Introduction

- Amal Kumar Raychaudhuri, born in Barisal (now in Bangladesh) in 1923, was a renowned Indian physicist with a profound impact on general relativity.
- His birth centenary falls this year.

Breakdown in General Relativity

- General relativity, developed by Albert Einstein in 1916, predicted singularities where gravity could become infinitely strong.
- This opened up the question of whether singularities were anomalies or inherent features of the universe.
- This signalled issues with the model and could have led to the rejection of this theory.

Institutional Hurdles

- Meghnad Saha, the director of the Indian Association of Cultivation of Science (IACS), opposed Raychaudhuri's pursuit of general relativity.
- General relativity was deemed impractical; Raychaudhuri was instructed to focus on 'useful' topics or find another job.
- Despite institutional constraints, Raychaudhuri persisted and delved into the problem of singularities in his spare time.

Raychaudhuri Equation

- Raychaudhuri devised an innovative approach that circumvented mathematical challenges.
- Explored the motion of matter in the curved fabric of spacetime, drawing an analogy with northbound ships converging at the North Pole.
- Discovered an elegant formula known as the Raychaudhuri Equation.
- Described how the volume of matter spread across a region would always decrease in curved spacetime, leading to convergence.

Global Impact

- Raychaudhuri's equation played a crucial role in the work of physicists Roger Penrose and Stephen Hawking.
- This was central to Hawking's area theorem, demonstrating that the surface area of a black hole never decreases.

Recognition and Career Challenges

- Raychaudhuri faced a lack of appreciation in India until his work gained recognition in the West.
- His contributions didn't significantly transform his career, facing challenges such as scuttled promotions and rejections from academic institutions.

Legacy and Inspiration

- Eventually joining Presidency College, Kolkata, Raychaudhuri became a legendary teacher, inspiring future physicists.
- His story emphasises the importance of scientists following their passion and the challenges faced when dictated what to work on.

13. World's first vaccine for Chikungunya

Syllabus: GS 3- Science and Technology

Prelims: About vaccine for Chikungunya

Introduction

- On November 9 2023, the U.S. Food and Drug Administration (FDA) approved the world's first vaccine for chikungunya, developed by Valneva, a European vaccine manufacturer, under the brand Ixchiq.

Chikungunya: An Emerging Global Health Threat**1. Characteristics**

- Chikungunya is a viral infection transmitted by *Aedes aegypti* and *Aedes albopictus* mosquitoes, causing severe joint pain, fever, and impaired mobility.
- It is prevalent in Africa, Asia, and the Americas, with sporadic outbreaks reported globally.

2. Symptoms

- Joint pain, muscle pain, headache, nausea, fatigue, rash.

3. Prevention and Control

- Public health outreach and civic maintenance for mosquito control.
- Use of medicated mosquito nets and prevention of water stagnation to avoid mosquito breeding.

Ixchiq Vaccine: Composition and Approval**1. Composition**

- Given as a single injection into the muscle, it includes a live, attenuated form of the chikungunya virus, eliciting symptoms resembling those of the actual disease.

2. Clinical Studies and Side Effects:

- Safety was evaluated in clinical studies with about 3,500 participants. Commonly reported side effects are headache, fatigue, muscle and joint discomfort, fever, nausea, and tenderness at the injection site.

3. Efficiency Evaluation

- Evaluated based on immune response data from a U.S. study in individuals aged 18 and older. Effectiveness demonstrated through the level of antibody known to be protective in non-human primates.

Role of the Vaccine**1. Unmet Medical Need**

- The approval addresses an unmet medical need for a disease with limited treatment options.
- Offers an important advancement in preventing chikungunya, a potentially debilitating disease.

2. Global Rollout

- Fast-track approval may expedite the rollout in countries where chikungunya is prevalent, including Brazil, Paraguay, India, and parts of western Africa.

14. Plants warn each other of danger

Syllabus: GS 3- Science and Technology

Prelims: About Green leaf volatiles (GLVs) and plant's defence mechanism

Introduction

- Plants release green leaf volatiles (GLVs) when injured, creating a distinct smell like fresh-cut grass.
- GLVs act as warning signals among plants, helping them defend against potential threats.
- A recent study led by Professor Masatsugu Toyota at Saitama University explores how plants respond to GLVs, aiming to unlock insights into plant defence mechanisms.

Understanding Plant Defense Mechanisms

- Plant defence involves a chain of molecular reactions triggered by damage.
- GLVs are by-products released when a plant is damaged, signalling a defence response.
- The molecular cascade involves calcium ions flooding plant cells, making them less palatable to insect attackers.

Experiment and Findings

- Researchers experimented by exposing the mutant mustard plant to air filled with GLVs.
- When viewed under the microscope, the plant glowed, showing how plants can sense volatile components released by nearby damaged plants.
- Certain GLVs, like E-2-HAL and Z-3-HAL, caused calcium responses in specific cells, including guard cells and mesophylls.

Gene Expression as Defence Markers

- The research examined how genes, particularly Jaz-7 and OPR-3, react to GLVs, which are seen as standard defence indicators.
- This implies that plants exposed to grassy scents interpret GLVs as a warning signal.
- While not conclusive, the results hint at ways plants recognize and react to GLVs.

Potential for Pest Control

- Understanding GLV responses could be used in pest control strategies without relying on pesticides.
- GLVs diffused over crops might activate plants' natural defence mechanisms, mitigating pest damage.
- Other compounds, like jasmonic acid, have been explored for their role in activating plant defences against pests.

Challenges and Future Research

- Challenges include studying volatile signalling between plants in natural settings where compounds get diluted in the air.
- Researchers are interested in exploring how plants "smell" GLVs, contributing to a deeper understanding of plant sensing.
- The study marks a step towards unravelling the complex network of plant communication and defence mechanisms.

15. Gene therapy to treat sickle cell disease

Syllabus: GS 3- Science and Technology

Prelims: Sickle cell disease

Context: The UK drug regulator recently approved a gene therapy for the cure of sickle cell disease and thalassaemia, seen as a landmark breakthrough by many. This is the first licensed therapy in the world based on the gene editing technology Crispr-Cas9 that earned its innovators a Nobel Prize in 2020.

Understanding Sickle Cell Disease

- Genetic Disorder: The genetic error in sickle cell disease leads to red blood cells assuming a crescent shape. (See image)
- Unlike the disc-shaped normal cells, the sickle-like cells cannot move around easily in the vessels, resulting in blocked blood flow.
- Effects: severe pain, life-threatening infections, anemia, or a stroke.
- Prevalence in India: An estimated 30,000-40,000 children in India are born with the disorder every year.
- Symptoms: The symptoms manifest in people who inherit a pair of damaged genes from both parents. Those who carry only one copy of the gene from one parent can lead a normal life.

Gene Therapy with CRISPR-Cas9

- CRISPR-Cas9 is a gene editing technology that allows scientists to precisely modify genes.
- Mechanism of the Therapy: The therapy uses the body's own mechanisms to start producing more of this foetal haemoglobin compared to adult haemoglobin.

What are the challenges of this treatment?

- High Cost of Treatment: a high proportion of people with these conditions live in poorer countries and are unlikely to be able to afford the therapy
- Estimates suggest it could be as much as \$2 million per patient, which aligns with other gene therapies.
- Absence of Local Manufacturing Facilities: The harvested blood stem cells must be sent across countries.
- Earlier Treatment: Permanent treatment has been a bone marrow transplant.
- Donor rejection is the major challenge.

16. Fibre optic cables: its origins, working and different functions

Syllabus: GS 3- Science and Technology

Prelims: About Fibre Optical Cables

Origins and Development of Optical Fibres

- Physicist Charles Kao's groundbreaking suggestion in the 1960s led to the development of glass fibres for telecommunication.
- Jean-Daniel Colladon and Jacques Babinet's early experiments in the 19th century laid the foundation for light-guiding through transparent media.
- The term 'fibre optics' was coined by Narinder Singh Kapany in the 1950s, marking a significant leap in fibre development.

How Optical Fibres Work

- Light, an electromagnetic wave, undergoes total internal reflection within glass fibres, allowing the guided transmission of signals.
- A fibre optic communication system comprises a transmitter, optical fibre, and receiver, enabling high-speed data transmission with minimal signal loss.
- Fibre cables are insensitive to external perturbations, making them superior to radio or copper-cable-based communication.

Evolution of Fibre Optic Cables

- Early optical fibres were used in medicine and defence applications but were limited in long-distance transmission.
- Harold Hopkins and Narinder Singh Kapany's work in 1954 marked progress, and Lawrence E. Curtiss's glass-clad fibres in 1956 paved the way for extended data transmission.
- Theodore Maiman's invention of the laser in 1960 further enhanced optical communication capabilities.

Charles Kao's Contribution and Improved Fibre Manufacturing

- In 1966, Kao and colleagues identified impurities in glass as the cause of signal attenuation, leading to the development of high-purity fused silica fibres.
- Fibre-drawing techniques, involving the preparation of a preform and drawing it into a thin fibre, became the standard manufacturing method.
- Modern optical fibres have significantly reduced signal loss, with less than 0.2 dB/km.

Current Applications and Future Prospects

- Fibre optics technology finds applications in telecommunication, medical science, laser technology, and sensing.
- The Indian government's National Mission on Quantum Technologies and Applications, announced in the 2020 Union Budget, reflects a commitment to advancing fibre optic networks.
- Fibre optic communication, coupled with quantum optics, is poised to enter a new era with expanded possibilities.

17. Artemis Accords

Syllabus: GS 3- Science and Technology

Context: NASA Administrator Bill Nelson's recent meeting with Union Minister for Science and Technology Jitendra Singh holds significance in the context of the joint mission to the International Space Station (ISS) in 2024.

Mission to the International Space Station

- Purpose of Meeting: The meeting aimed to discuss India's research interests and contributions to the joint mission to the ISS scheduled for the end of 2024.
- Training of Indian Astronaut: The U.S. commitment to train an Indian astronaut for the mission highlights the collaborative nature of space exploration between the two nations.
- Focus on Scientific Research: NASA Administrator Bill Nelson emphasized discussions on the specific scientific research areas that would be of importance to India during the mission.

Background and Bilateral Agreements

- Announcement by President Biden: The collaboration was officially announced by U.S. President Joe Biden during Prime Minister Narendra Modi's visit in June, further solidifying the partnership.
- Artemis Accords Signing: India's signing of the Artemis Accords, a non-binding set of principles for civil space exploration, underscores the shared commitment to responsible and collaborative space activities.

Administrator's Visit to India

- Purpose of Visit: Bill Nelson's visit to India from November 27 involves a series of meetings, including discussions with Indian space companies in Mumbai and a meeting with astronaut Rakesh Sharma in Bengaluru.
- Focus on NISAR Mission: The visit also includes inspections of facilities in Bengaluru where the NISAR spacecraft, a joint mission between NASA and ISRO, is undergoing testing and integration for its scheduled launch in 2024.

NISAR Mission Details

- NISAR Overview: The NASA ISRO Synthetic Aperture Radar (NISAR) is part of the Great Observatories, aiming to precisely monitor Earth's surface and climate changes.
- Launch Schedule: The NISAR spacecraft is set to launch in the first quarter of 2024, equipped with technology capable of detecting changes on Earth's surface caused by seismic activities, water disturbances, or movement of ice.

DEFENCE AND INTERNAL SECURITY

1. India's FATF Review

Syllabus: GS 3- Internal Security

Prelims: Financial Action Task Force

Background

- India is preparing for mutual evaluations by the Financial Action Task Force (FATF), a global body combating money laundering and terror financing.
- The FATF reviews member countries to assess the implementation and effectiveness of its recommended anti-money laundering measures.

Key Measures Taken

- The Indian government has implemented several measures in line with FATF recommendations following a 2010 review.
- Chartered accountants, company secretaries, and cost and management accountants actively engaged in their professions have been officially recognized as 'reporting entities.'

Notified Professions

- Finance professionals are now considered "persons carrying on a designated business or profession" under the Prevention of Money Laundering Act (PMLA).
- Reporting entities include banking companies, financial institutions, intermediaries, and professionals in designated fields.

Additional Activities Covered

- In May, the government expanded these measures to include activities such as acting as a formation agent for companies and limited liability partnerships (LLPs).
- This also encompasses the responsibility of serving as a director, secretary, partner in a firm, or a similar role, either directly or by arranging for someone to fulfil such roles in connection with other companies and LLPs.

Compliance Responsibilities

- Reporting entities under the PMLA must maintain records of all transactions, client and beneficial owner identities, account files, and business correspondence (for five years).
- They are required to verify client identities, assess ownership and financial positions, record transaction purposes, and monitor future transactions for suspicious or criminal proceeds.
- Enhanced due diligence measures are to be applied when transactions are suspicious or likely to involve illegal funds.
- All relevant information collected during enhanced due diligence must be retained for five years.

2. Personal data breach

Syllabus: Basics of cyber security; challenges to internal security through communication networks, linkages of organised crime with terrorism

Mains: Cybersecurity, data protection, and their implications for internal security

Context

Resecurity, an American cybersecurity company, reported the sale of personally identifiable information (PII) of 815 million Indian citizens, including Aadhaar numbers and passport details, on the dark web.

Introduction

- On October 15 2023, Resecurity, an American cybersecurity company, reported that personally identifiable information (PII) of 815 million Indian citizens, including Aadhaar numbers and passport details, was being sold on the dark web.
- The data was found to be valid, and the threat actors selling it claimed it was sourced from the Indian Council of Medical Research (ICMR), which has experienced multiple cyber-attack attempts.

Nature of Personally Identifiable Information (PII)

- PII is information that, when used alone or with other data, can identify an individual.
- The data being sold included Aadhaar numbers, a unique 12-digit identification number issued by the Unique Identification Authority of India (UIDAI) on behalf of the Indian government.
- Another threat actor 'Lucius' claimed to have access to more extensive PII data, including voter IDs and driving licence records.

Access to Sensitive Data

- Threat actors declined to specify how they obtained the data, making it challenging to identify the source of the data leak.
- India's Computer Emergency Response Team is investigating the data leak, and efforts are underway to move massive amounts of data to a secure storage location.

Security of PII Data

- While the government has denied biometric data leaks from Aadhaar in the past, Aadhaar data leaks have been reported in 2018, 2019, and 2022.
- UIDAI claims that all Aadhaar data is safe and secure in the Central Identities Data Repository (CIDR) and has never been breached.

Threats Arising from Leaked Information

- India ranks fourth globally in malware detection, and a significant increase in disruptive cyberattacks has been reported, especially in government and essential services organisations.
- The exposure of personally identifiable data significantly increases the risk of digital identity theft.
- Threat actors use stolen identity information for online banking theft, tax fraud, and other cyber-enabled financial crimes.

Protecting Personal Information

- Users should check if their information was part of the data leak and remain cautious when receiving emails from unknown sources, as they may be targeted in phishing campaigns.
- Changing existing user IDs and passwords is advised to prevent stolen data from being used for brute force attacks.
- Implementing two-factor authentication for all accounts and reporting any suspicious activity is essential.

Nut Graf: The recent data leak of 815 million Indian citizens' PII, including Aadhaar numbers and passport details, raises significant concerns about cybersecurity, digital identity theft, and the need for protective measures.

3. Lockbit Cybercrime Gang

Syllabus: Basics of cyber security; challenges to internal security through communication networks, linkages of organised crime with terrorism

Prelims: Lockbit Cybercrime

Context: Boeing, a major aerospace and defence contractor, suffered a cyberattack by the Lockbit hacking gang.

Ransom Threat and Publication of Data:

- Lockbit demanded a ransom from Boeing in October, threatening to release sensitive data if not paid by Nov. 2.
- Boeing's internal data, primarily from late October, was published by Lockbit on their website.

Boeing's Confirmation and Investigation:

- Boeing acknowledged a cybersecurity incident affecting parts and distribution elements.
- The company confirmed an ongoing investigation and collaboration with law enforcement and regulatory authorities.

Assurance on Aircraft and Flight Safety:

- Boeing assured the public that the event does not pose a threat to aircraft or flight safety.
- However, the company did not comment on whether defence or sensitive data was obtained by Lockbit.

Lockbit Ransomware Group Profile:

- Lockbit, a cybercriminal gang, is known for ransomware attacks globally, targeting organizations in the U.S., India, Brazil, and beyond.
- Described as one of the most professional criminal groups, Lockbit has hit 1,700 U.S. organizations, according to CISA.

Previous Targets and Suspected Involvement in ICBC Attack:

- Lockbit has a history of targeting 1,700 U.S. organizations, according to CISA.
- The Industrial and Commercial Bank of China's U.S. arm recently faced a ransomware attack, with Lockbit suspected as the perpetrator.

Expert Opinions on Lockbit's Involvement:

- Ransomware experts and analysts believe Lockbit is behind the Boeing hack and the ICBC attack.
- Lockbit's dark web page, where victims are usually listed, did not mention the ICBC incident.

4. Peace Agreement with UNLF

GS- ;Categories: GS-III, Internal security

Syllabus: Role of external state and non-state actors in creating challenges to internal security.

Prelims: UNLF

Mains: Significance of Peace Agreement with UNLF

Context: The recent signing of a peace agreement between the Centre, Manipur government, and the banned United National Liberation Front (UNLF) marks a significant development in addressing insurgency in the Manipur valley.

Issues

- **UNLF Background:** The UNLF, established in 1964, is the oldest Meitei extremist organization, operating both within and outside Indian territory. It is among the eight groups declared unlawful under the Unlawful Activities (Prevention) Act, 1967, seeking Manipur's secession from India.
- **Extension of Ban:** The ban on Meitei extremist organizations, including the UNLF, was extended for another five years recently, emphasizing the persistent threat to Manipur's stability and the need for continued anti-terror measures.
- **Selective Participation:** While a faction of the UNLF, led by K. Pambei, has reportedly joined the peace pact with 65 cadres, another faction under R.K. Achou Singh remains outside the agreement. The reasons for the divergence in participation need exploration.

Significance of the Agreement

- **Shift from Violence to Mainstream:** The UNLF's commitment to renounce violence and engage in democratic processes is a crucial step towards resolving the long-standing conflict in Manipur.
- **Impact on Regional Stability:** The peace agreement has implications for regional stability, potentially reducing the influence of banned extremist groups and fostering an environment conducive to development.

Wayforward

- **Inclusive Dialogue:** The Centre and Manipur government should engage in inclusive dialogue with all factions of the UNLF to ensure comprehensive participation and address the concerns of the entire group.
- **Reintegration Programs:** Implementing effective reintegration programs for surrendered militants, focusing on their rehabilitation and assimilation into mainstream society, is vital for the success of the peace agreement.
- **Continued Vigilance:** Despite the peace agreement, maintaining vigilance against any potential resurgence of violence or the activities of non-participating factions is crucial to ensure sustained peace in the region.

Nut Graf: The peace agreement with the UNLF signifies a positive step towards resolving the insurgency in Manipur. However, addressing the concerns of all factions, implementing effective reintegration measures, and maintaining vigilant oversight are essential for the sustained success of the peace process.

ENVIRONMENT AND ECOLOGY

1. Stocktaking climate finance — a case of circles in red ink

Syllabus: GS-3, General issues on Environmental Ecology, Biodiversity and Climate Change – that do not require subject specialisation

Mains: Conservation, Environmental Pollution and Degradation, Environmental Impact Assessment.

Context:

In the context of Climate Change 2023: Synthesis Report providing the main scientific input to the global stocktake at COP, the Conference of the Parties (COP 28) meeting (November 30–December 12) assumes significance.

Climate Change 2023: Synthesis Report:

- The report says that the current temperature increase at 1.1° Celsius is responsible for frequent hazardous weather.
- Climate finance has a crucial role in retaining the trust of developing countries in future climate change negotiations.
- The developed countries and countries that are vulnerable to climate change are expected to demand that developing countries ramp up their mitigation action.
- The developing countries will also point out the failure of developed countries to mobilise \$100 billion in climate finance.
- Under the Common but Differentiated Responsibilities and Respective Capabilities principle, developed countries are bound to assist developing countries by providing finance.

Climate Finance:

- Under Article 9 of the Paris Agreement on Climate Change, It is mandatory for the developed countries to provide information relating to the financial resources they have provided and, also, the projected levels of public financial resources to be provided to developing country parties in their Biennial Update Reports (BUR).
- At the Copenhagen Change Conference in 2009, the developed countries made the commitment to mobilise \$100 billion per year by 2020.
- Under the Paris Agreement, the developed countries are required to collectively mobilise \$100 billion through 2025 before a new collective quantified goal (NCQG) 'from a floor of \$100 billion per year is to be set at the end of 2024'.
- The developed countries noted that they were able to mobilise only a total of \$79.6 billion at the 26th United Nations Climate Change Conference in Glasgow in 2021.

Required Finance:

- Countries in the Global South require close to \$6 trillion until 2030 to fulfil their NDCs.
- According to the third Biennial Update Reports (BUR) of India, financial needs derived from its NDCs for adaptation and mitigation purposes for 2015-30 are \$206 billion and \$834 billion, respectively.
- Most of the financial needs are required in transitioning towards low-carbon, cleaner energy systems from traditional systems, which will not be funded by any financial mechanisms of the United Nations Framework Convention on Climate Change (UNFCCC).
- Further, the '3.6 million people in 159 districts in India who are involved in fossil fuel economy through direct or indirect jobs related to the coal mining and power sector also be supported with suitable economic opportunities and livelihoods during the transition.

Burden Sharing Formula:

- There is no agreed formula among developed countries to share the financial burden that they are mandated to provide to developing countries.
- One analysis shows that the USA provided just 5% of its fair share in 2020.
- In the absence of any mandatory formula, it is unclear how the finance will be mobilized for the new collective quantified goal (NCQG).
- Neither the UNFCCC nor the Paris Agreement mention the criterion for mobilisation. Instead, the mobilisation is done with the help of a replenishment process.
- The Global Environment Facility is replenished every four years and is involved in providing grant and concessional loans to developing countries.
- This replenishment model is also followed by the Green Climate Fund (GCF) which was set up by developed countries to provide funds to developing countries to switch over to low-emissions and climate-resilient development paths.
- GCF also includes voluntary contributions by nine developing countries

Nut Graf: The developed countries are not showing urgency in climate finance transfer to save the atmosphere which is a common good, in a similar nature when G20 governments responded to the global crisis in 2009-2010 when they mobilised \$1.1 trillion to save the global financial system which is also a public good (global financial stability).

2. Biosphere Reserves are evolving as pockets of hope

Syllabus: GS-3, Conservation

Mains: Utility and threat to Biosphere Reserves

Context:

- World Biosphere Reserve Day is celebrated on November 3 annually.
- Its purpose is to raise awareness about biosphere reserves and promote their conservation and sustainable use.

Utility of Conservation:

- Biosphere reserves, designated by UNESCO, protect biodiversity, promote sustainable development, and facilitate research.
- They consist of core zones (strictly protected), buffer zones (harmony with nature), and transition zones (sustainable human activities).
- Biosphere reserves are supported by various United Nations agencies and international organizations.
- There are currently 748 biosphere reserves in 134 countries, including transboundary sites.
- They impact the lives of over 250 million people worldwide and contribute to the fight against climate change.

At the Local Level:

- Local communities play a crucial role in biosphere reserve conservation.
- Example from Sundarban Biosphere Reserve in India where communities manage mangrove forests and protect biodiversity.
- In the Gulf of Mannar Biosphere Reserve, self-help groups, women, and youth engage in conservation efforts.
 - The Gulf of Mannar Biosphere Reserve Trust introduced “plastic checkpoints” to collect and recycle plastic waste for road construction.

The Asian Meet in Chennai:

- UNESCO, in partnership with the Ministry of Environment, Forests, and Climate Change, organized the 10th South and Central Asian Biosphere Reserve Network Meeting (SACAM) in Chennai, India.
- The theme of the meeting was “Ridge to Reef.”
- SACAM aimed to facilitate knowledge exchange and collaboration in sustainable environmental practices in the South and Central Asia Region.
- The UNESCO Man and the Biosphere (MAB) program combines natural and social sciences to enhance the human-environment relationship, improve livelihoods, safeguard ecosystems, and promote sustainable economic development.

Nut Graf: World Biosphere Reserve Day on November 3 highlights the significance of UNESCO-designated biosphere reserves in protecting biodiversity, aiding sustainable development, and combating climate change. These reserves, spanning 748 sites in 134 countries, engage local communities and were the focus of the recent SACAM meeting in Chennai, fostering collaboration for environmental sustainability.

3. Importance of ‘loss and damage’ funds

Syllabus: Conservation, Environmental pollution and degradation and Environmental impact assessment.

Mains: Climate change, loss and damage, international climate negotiations, equity, and climate justice.

Prelims: About Loss and Damage Fund

Context

The Loss and Damage (L&D) fund is central to addressing irreversible climate consequences. Disagreements among nations hinder its establishment, impacting climate justice and negotiations.

Introduction

- The climate crisis raises two key terms: adaptation and ‘loss and damage’ (L&D).
- Adaptation involves proactive responses to climate change, while L&D represents irreversible consequences and real losses resulting from climate change.
- The Loss and Damage fund was established to provide financial and technical assistance to economically developing nations facing L&D due to climate change.

Challenges at Loss and Damage Fund Negotiations

- The fourth meeting of the Transitional Committee (TC) for the L&D fund concluded without a consensus on its operationalization.
- Key points of contention included hosting the fund at the World Bank, the principle of common but differentiated responsibilities (CBDR), climate reparations, and the eligibility of developing nations for funds.

- Developing nations have been reluctant to host the fund at the World Bank and have concerns about the commitment of developed nations as primary donors.
- The size of the fund remains unclear, as some developed nations oppose providing a specific amount.

Implications of the Outcome

- The outcome reflects a lack of trust between wealthy and emerging economies regarding historical responsibilities, creating a divide.
- The reluctance of wealthy nations to fulfil commitments undermines trust in global climate negotiations, jeopardising climate action.
- It threatens climate justice, exacerbates the suffering of vulnerable communities, and can lead to humanitarian crises, food shortages, and conflicts.
- Economic consequences, environmental degradation, and security implications can result from inadequate L&D funds.
- Insufficient support may disrupt global climate efforts and hinder climate action at COP 28 talks.

Ensuring Climate Justice

- Balancing adaptation and addressing losses and damages is essential in climate resilience efforts.
- Rich countries must meet their obligations to reduce emissions and provide fair finance to uphold equity, justice, and solidarity in climate action.
- Failing to address the L&D fund challenges could derail global climate action, increasing pressure on COP 28 negotiations.

Nut Graf: Disputes over the L&D fund's host, financial commitments, and principles like CBDR pose challenges in operationalising the L&D Fund. Inadequate support threatens climate justice and climate action's effectiveness.

4. Stubble trouble

Syllabus: Conservation, Environmental pollution and degradation

Prelims: Stubble trouble

Mains: Issues of Stubble burning

Context: Air pollution has been linked to lung cancer, stroke, heart attack, and many other diseases. About 1.67 million Indians died prematurely in 2019 alone due to air pollution, accounting for 18% of all fatalities.

Details:

- India ranks eighth in the list of countries with the worst air quality index, according to the Annual World Air Quality Report released by Swiss air quality technology company, IQAir, in early 2023. But poor air is not just a Delhi problem. Every year, especially during winter, air pollution spikes in the entire Indo-Gangetic Plain.
- Pollution spikes when pollutants from different sources are not dispersed easily in winter because of a drop in wind speed and temperature. Vehicle and diesel generator exhaust, heavy industry emissions, soil and road dust, open waste burning, and biomass burning are all present in the atmosphere throughout the year.
- In winter they get accumulated, amplifying the effects of the pollutants compared to summer. The pollution from stubble burning, a practice of removing paddy crop residue from fields to sow wheat, which happens in October-November, makes the situation worse.
- Paddy stubble burning, a politically sensitive issue, takes place only during the harvest period of September 15-November 30.

Fewer stubble burning incidents

- The good news is that the number of stubble-burning incidents in the region is falling, according to the Indian Agricultural Research Institute.
- Stubble burning is a significant factor, though not solely responsible for the spike in pollution. Paddy, which is harvested with combine harvester machines, leaves behind a stubble on the field.
- Many farmers find burning the crop residue to be the most "effective and cheap" method when they want to prepare their farm to sow wheat. As they have only three weeks between the harvest of paddy and the sowing of wheat, farmers resort to stubble burning.
- For the last few years, the government has been providing crop residue management (CRM) machines, but even on subsidies, they are expensive, especially for small and marginal farmers. They are also not available on time.

Government initiatives

- For the management of crop residue, the Punjab government has been providing subsidies on the purchase of CRM machines, including surface seeders, which are in-situ paddy stubble management devices.
- The state government has mandated that brick kilns use stubble as fuel and that other plants buy stubble from farmers.
- To curb the menace of stubble burning, PPCB has been promoting paddy straw as a resource to create wealth.

Why do farmers opt for stubble burning?

- **Mechanisation of Agriculture**
- **Lack of Awareness:** Farmers are not realising that they are burning the soil-friendly insects and organic matter, and causing considerable loss of nitrogen, DAP, and Potassium.
- **Alternatives are Expensive:** To use a 'happy seeder' machine, farmers have to shell out Rs.1000 per acre of land as machine rent and a further Rs.2000 for diesel.
- **Reduced Usage of Stubble:** Rice straw is not considered suitable as fodder for animals because of its high silica content (this is true for the non-basmati variety of rice).
- **Government Policies:** Some of the policies of the government, for example, Punjab Preservation of Subsoil Water Act of 2009, had the unintentional effect of promoting stubble burning.

Nut Graf: Every year, in October-November, pollution levels spike in north India. While many factors come together to create smog, stubble burning remains a significant one, despite fewer incidents being recorded this year compared to last year.

5. Community Rights & Forest Conservation

Syllabus: Conservation, Environmental pollution and degradation and Environmental impact assessment.

Mains: Provisions and challenges associated with the Forest Conservation Amendment Act of 2023.

Context

The Forest Conservation Amendment Act of 2023 aims to address climate change and deforestation in India but raises concerns about indigenous rights, forest governance, and potential environmental implications.

Introduction

- The Forest Conservation Amendment Act of 2023 addresses climate change and deforestation issues but raises concerns about indigenous rights.
- The amendment excludes certain areas from forest law jurisdiction, allowing economic exploitation.
- Passed by Parliament, the law's objectives and implications have sparked debates on industrial progress, tribal concerns, and environmental impacts.

Key Amendments and Focus Areas

1. **Jurisdiction Exclusion:**
 - Forest law applies exclusively to areas under the 1927 Forest Act and those designated after October 25, 1980.
 - Not applicable to forests converted for non-forest use after December 12, 1996, and land within 100 km from the China-Pakistan border.
 - Allows the central government to build linear projects in specified areas.
2. **Security Measures:**
 - Authorises the construction of security measures in areas up to 10 hectares for surveillance and infrastructure, applicable to vulnerable regions.
 - Facilitates initiatives like eco-tourism and safari for economic gain.
3. **Economic Utilisation:**
 - Aims to improve livelihoods through initiatives in forest regions, drawing criticism from tribal communities and human rights activists.

Background and Need for Amendment

1. **Godavarman Thirumulpad Case (1996):**
 - Interpreted forest land broadly, bringing private forests under the 1980 law.
 - Aimed to restrict forest land use for non-forest purposes, including industrial conversion.
2. **Industrial Progress vs. Conservation:**
 - Opposition from private landowners and conservation organisations due to perceived industrial progress hindrance.
 - Periodic concerns raised by indigenous communities and activists.

Joint Parliamentary Committee (JPC) Recommendations

- The JPC, consisting of 31 members with limited opposition representation, submitted its report within three months.
- Critical comments from committee members and the public were largely disregarded, and the Bill passed in both houses without substantial debates.
- No collaborative discussions with southern States were held, leading to concerns about regional considerations.

Impact on Indigenous Communities

- Removal of the stipulation of 'prior consent' raises concerns, as the amendment removes the necessity for tribal grama sabha consent for alterations to forests.
- State governments may engage grama sabhas within the framework, but preconceived notions about their stance on development may hinder cooperation.

Compensatory Afforestation

- The new legislation streamlines compensatory afforestation, allowing private individuals and organisations to undertake afforestation or reforestation projects.
- Concerns arise about potential environmental implications, as the law does not specify tree types and allows discretion.

Forest Rights Act (FRA)

- The FRA, instrumental in empowering forest communities, faces reduced enthusiasm from central and state governments.
- Rather than amending the FRA, the government opts to limit potential Adivasi claims by reducing or diluting forest areas.
- Growing human-animal conflicts in Adivasi hamlets remain unaddressed.

Challenges and Criticisms

- Clashes with Forest Governance: Economic incentives for afforestation projects clash with the idea of forest governance.
- Federal Norms and Governance Practices: Afforestation incentives challenge federal norms and decentralised forest governance.
- Complexity in Defining Linear Projects: Defining strategic linear projects becomes complex and vague, lacking clarity.
- Neglect of Environmental Security: Internal environmental security, a significant concern, is overlooked compared to external security threats.

Nut Graf: The amendment, altering the scope of forest laws, introduces provisions for economic exploitation, triggering debates on indigenous rights, federal norms, and the clash between afforestation incentives and decentralised forest governance.

6. Shrinking mudflat ecosystem of Kerala's Kadalundi keeps shorebirds away

Syllabus: Conservation, Environmental pollution and degradation and Environmental impact assessment.

Context: Kadalundi, a village on the southwest coast of Kerala, is facing a critical ecological challenge as its mudflat ecosystem, once spanning 8 hectares, has drastically shrunk to 1 hectare, with ongoing sand coverage.

Issues

- **Shrinking Mudflat Ecosystem:**
In the early 2000s, Kadalundi had 8 hectares of nutrient-rich mudflats, crucial for hosting migratory shorebirds. Current status: Only 1 hectare remains, and it is gradually being covered with sand.
- **Impact on Shorebirds:**
Migrant shorebirds from colder climates, including Siberia, Ladakh, Mongolia, and Scotland, depend on the mudflats for prey like polychaetes and crustaceans.
The reduction in mudflats threatens the availability of prey, impacting the birds' migratory patterns.
- **Government Response:**
Researchers, including T.R. Athira, C.T. Shifa, and K. Jishnu, have sought government intervention through memorandums to protect and restore the mudflat ecosystem.
The response from the government has been passive, posing a significant challenge to the conservation efforts.

Solutions

- **Need for Protection and Restoration:**
Urgent measures are required to protect and restore the mudflat ecosystem in Kadalundi to maintain its ecological balance and global significance.
Government initiatives should focus on creating awareness and actively implementing conservation strategies.
- **Balancing Ecotourism and Conservation:**
While efforts to promote ecotourism in the Kadalundi-Vallikunnu Community Reserve (KVCR) are commendable, they should be balanced with the conservation of the mudflat ecosystem.
Sustainable practices in ecotourism can coexist with the preservation of critical habitats.

About Kadalundi:

- References in documents of the Sangam era – known as Thondi (headquarters of the Chera dynasty).
- Major port that had trade relationships with the Arabs and Romans. By the 12th century, came under the authority of the local rulers of Parappanad Kovilakam. The Parappanad ruler allowed the Dutch to build the Chaliyath Fort here, which was later demolished by the Zamorin. At a later period, the area came under British rule.
- Kadalundi bird sanctuary – River Kadalundi flows into the Arabian Sea – Home to hundreds of birds which include about 60 species of migratory birds. The mangrove forests are a natural habitat for otters and jackals.

About Mudflats:

- Flat expanses of muddy or sandy sediment that are exposed during low tide and covered during high tide.
- Characterized by soft, muddy substrates, and they support a unique ecosystem adapted to the fluctuating conditions of tidal activity.
- The Wadden Sea, located along the coasts of the Netherlands, Germany, and Denmark, is one of the largest and most wellknown mudflat areas in the world. This UNESCO World Heritage Site is characterized by extensive mudflats and tidal marshes.

7. 'More finance needed to wean India's electricity grids off coal'

Syllabus: GS 3- Environment

Prelims: About India's transition to green energy

Introduction

- Alok Kumar, former Power Secretary, expressed dissatisfaction with India's efforts in demanding more international finance for its transition to green energy.
- The article highlights concerns and perspectives on India's efforts made by Mr. Alok Kumar, during a seminar discussing the road map for the 28th edition of the United Nations Conference of Parties (COP-28) scheduled for Dubai.

Challenges in COP Negotiations

- The issue of finance remains a major challenge in COP negotiations.
- Developed countries have not fulfilled commitments to provide substantial funding to developing nations for mitigating greenhouse gas emissions.
- The urgency to cut carbon emissions by 43% of 2019 levels by 2030, as per scientific recommendations to limit global warming to 1.5 degrees Celsius, is not met by current government pledges.

India's Renewable Energy Commitment

- India's significant contribution involves sourcing nearly 500 GW of renewable energy by 2030.
- Experts highlight challenges in transitioning entirely to renewable energy, particularly addressing 'peaking power' demands, where coal remains reliable.

Concerns about Blackouts and Renewable Energy

- There is a need to ensure the electric grid's capability to handle large loads of renewable power to avoid blackouts.
- Meeting peak demand in 2023, 70% came from coal, indicating the challenges in fully relying on renewable energy.

Call for International Finance

- India has to demand international finance to address the expensive requirements for ensuring a reliable electric grid capable of handling peak loads.
- Experts suggest that India might face limitations in the transition to renewable energy without significant financial support.

Focus on COP-28 Global Stocktake

- COP-28 discussions are expected to focus on the Global Stocktake, assessing actual progress made by countries in cutting emissions.
- The purpose is to encourage countries to declare more ambitious targets to align with the goal of not breaching the 1.5 degrees Celsius limit.

8. The OECD report on climate finance

Syllabus: Conservation, Environmental pollution and degradation, Environmental impact assessment.

Mains: Climate Finance, International Climate Agreements and Sustainable Development

Prelims: About Climate Finance

Context

The OECD report reveals that economically developed countries fell short of their promised \$100 billion yearly climate finance for developing nations in 2021, raising concerns about commitment and trust.

Introduction

- The Organisation for Economic Cooperation and Development (OECD) released a report indicating that economically developed countries fell short of their commitment to mobilise \$100 billion annually for climate mitigation and adaptation needs of developing countries in 2021.

Importance of the OECD Report

- The report offers a glimpse into the climate finance perspectives of rich countries, including the U.S., U.K., Germany, France, Switzerland, Canada, and others.
- It becomes significant ahead of the COP28 climate talks in the UAE, where climate finance is expected to be a contentious issue.
- The report follows the pledge by developed nations at the COP26 talks in Glasgow in 2020 to double adaptation finance. However, the failure to meet the \$100 billion goal and the subsequent shortfall can erode trust among developing countries regarding the commitment of developed nations to address the climate crisis.

Key Findings of the OECD Report

- **Failure to Meet Commitment:**
 - Developed countries mobilised \$89.6 billion in 2021, falling short of the promised \$100 billion.
 - Additionally, finances for adaptation decreased by 14% in 2021 compared to the previous year.
- **Loans as Climate Finance:**
 - The report indicates that of the \$73.1 billion mobilised in 2021 by the public sector, \$49.6 billion was provided as loans.
 - The reliance on loans, especially at commercial rates, raises concerns about exacerbating debt stress in poorer countries.
- **Issues of Additionality:**
 - The UNFCCC requires developed countries to provide “new and additional financial resources” for climate needs.
 - However, there are concerns that developed nations may divert overseas development assistance (ODA) to fulfil climate finance obligations, violating the principle of additionality.
- **Lack of Definition:**
 - The lack of a commonly agreed definition of ‘climate finance’ allows developed countries to keep it vague.
 - This ambiguity enables the arbitrary classification of various funding sources, including ODA and high-cost loans, as climate finance, avoiding scrutiny.
- **Private Sector Role:**
 - The report suggests that private financing for climate action has stagnated for a decade, while public funding from multilateral channels increased.
 - The private sector’s reluctance to massively scale up climate investments, particularly in adaptation, underscores the central role of public funding.
- **Future Funding Needs:**
 - The report estimates that by 2025, developing countries will require around \$1 trillion a year in climate investments, rising to roughly \$2.4 trillion each year between 2026 and 2030.
 - The \$100 billion goal appears insufficient to meet these growing financial needs.

Nut Graf: Developed nations failed to meet the \$100 billion climate finance commitment in 2021, hindering efforts to address climate change in developing countries, according to an OECD report.

9. Alarming countdown

Syllabus: GS-3, Conservation, Environmental pollution and degradation

Mains: Addressing climate change.

Context: The United Nations' recent report, titled "Broken Record," serves as a poignant reminder of the escalating urgency to address the alarming levels of greenhouse gas (GHG) emissions. The report implies that warnings about the consequences of rising emissions are not only being overlooked but are also breaking new records.

Key Highlights:

- **Failure to Meet Temperature Targets:**
 - The Paris Agreement (PA) aimed to limit temperature increases to below 2°C, with efforts to stay "as far as possible" below 1.5°C of pre-industrial levels.
 - The Broken Record report indicates that current commitments by countries would still result in a temperature overshoot of 2.5°C-2.9°C by the end of the century.
 - Urgent action is required as even the most optimistic scenarios give only a 14% chance of keeping temperatures below 1.5°C.
- **Credibility of Net Zero Commitments:**
 - Many nations have pledged to achieve 'net zero' carbon emissions, but the report questions the credibility of these commitments.
 - Even in the best-case scenarios, the likelihood of meeting the 1.5°C target is a mere 14%.
- **Tardy Progress Despite Paris Agreement:**
 - While the PA has led to some reduction in greenhouse gas emissions, the pace of progress has been insufficient.
 - The report highlights that emissions in 2022 increased by 1.2% over 2021, nearly returning to pre-pandemic levels.
- **Immediate Consequences of Delay:**
 - Rising temperatures are evident, with 86 days recorded in 2023 experiencing temperatures over 1.5°C above pre-industrial levels.
 - September of the same year marked the hottest month ever, with global average temperatures soaring 1.8°C above pre-industrial levels.

Significance

- **Global Impact of Climate Change:**
 - The consequences of delayed action are manifesting in unprecedented climate events, threatening ecosystems, and human well-being globally.
 - Urgent intervention is essential to mitigate the intensifying impacts of climate change.
- **Critical Juncture for International Cooperation:**
 - The world is at a critical juncture where immediate and collective efforts are imperative to avert catastrophic climate outcomes.
 - International cooperation and commitment are pivotal to addressing the root causes of emissions and devising effective solutions.

Solutions

- **Accelerated Reductions by Wealthy Nations:**
 - The report emphasizes the need for greater and faster emissions reductions, particularly from the wealthiest nations.
 - Historical responsibility for carbon emissions must be acknowledged, and ambitious commitments are required to lead the way in reducing global emissions.
- **Urgency in Implementation:**
 - Time is of the essence, and the world must expedite the implementation of sustainable practices and policies to achieve the necessary emission reductions.
 - The Broken Record report reiterates long-standing advice, emphasizing the urgency of immediate and impactful actions.

Nut Graf: The consequences of delayed efforts are already apparent, and the world must unite in a concerted effort to address climate change. Immediate, bold, and collaborative measures are imperative to safeguard the planet and future generations from the devastating impacts of climate change.

10. Recognising the impact of climate change on health

Syllabus: GS-3, Conservation, Environmental pollution and degradation

Mains: Impact of climate change on health

Context: As India prepares for the 28th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP28), it becomes imperative to delve into the profound impact of climate change on the country's health.

Issues:

- **Direct Health Impacts:**
 - Climate change leads to increased morbidity and mortality, exacerbating existing health challenges.
 - Elevated temperatures, heat waves, and extreme weather events directly contribute to sickness and death.
- **Indirect Health Impacts:**
 - Climate change disrupts nutrition, reduces working hours, and intensifies climate-induced stress.
 - Rising global temperatures, if unchecked, may render parts of India uninhabitable, amplifying health risks.
- **Double Burden of Morbidity:**
 - Communicable and non-communicable diseases face a compounded burden due to climate change.
 - Growth of disease vectors, changes in infection seasonality, and the introduction of new pathogens pose significant challenges.
- **Impact on Non-Communicable Diseases and Mental Health:**
 - Climate change exacerbates non-communicable diseases, including kidney injuries and respiratory issues.
 - Mental health concerns, such as depression and Post Traumatic Stress Disorder, often accompany climate emergencies, yet remain inadequately recognized and addressed in India.
- **Urbanization Challenges:**
 - Rapid, unplanned urbanization exacerbates the urban heat island effect, impacting health in urban areas.
 - Poorly planned urban spaces contribute to the burden of climate-induced health challenges, compounding existing issues like air pollution and stress.

Significance

- **Global Urgency:**
 - As temperatures reach unprecedented levels in 2023, global climate emergencies are expected to increase in frequency.
 - Urgent action is necessary to prevent further interference with food security, livelihoods, and exacerbation of health challenges.
- **Intersection of Health and Climate:**
 - The interconnection between climate change and health demands immediate attention, recognizing the intricate pathways through which climate impacts well-being.
 - Non-communicable diseases and mental health, often overlooked, require comprehensive management strategies.

Solutions

- **Integrated Health Information Systems:**
 - Modify health information systems to gather data on the direct and indirect impacts of climate change on health.
 - Incorporate socio-economic factors to better understand and address the heightened vulnerability of certain populations.
- **Upstream Interventions:**
 - Implement upstream interventions focusing on urban planning, green cover, water conservation, and public health initiatives.
 - Addressing determinants of health at a foundational level will yield broader benefits.
- **Multilevel Action:**
 - Recognize the need for action at global, regional, and local levels to effectively mitigate climate change impacts on health.
 - Integrate research findings into policy options, and encourage political decision-making for meaningful change.

Nut Graf: The nexus between climate change and health requires a comprehensive and proactive response to avert the impending challenges and ensure a healthier and more resilient future for all.

11. Production Gap report 2022

Syllabus: GS-3, Conservation, Environmental pollution and degradation

Context: Production Gap report 2022 has been published by the Stockholm Environment Institute (SEI), Climate Analytics, E3G, International Institute for Sustainable Development (IISD) and the UN Environment Programme (UNEP).

- The report assesses governments' planned and projected production of coal, oil, and gas against global levels consistent with the Paris Agreement's temperature goal.

Key Findings

- Projected Increase in Fossil Fuels Production:
- This projection exceeds the 2°C target by 69%, emphasizing the pressing need for more ambitious climate action.
- Major producer countries have pledged to achieve net-zero emissions and launched initiatives to reduce emissions from fossil fuel production, but none have committed to reduce coal, oil, and gas production in line with limiting warming to 1.5°C.

India's Updated NDCs

- Emission Reduction: India's NDC aims to cut emissions intensity by 45% compared to 2005 levels by 2030.
- Renewable Energy Share: It targets 50% non-fossil power capacity by 2030.
- Long-term Vision: The updated NDC is a stride toward the 2070 net-zero emissions goal.

12. COP 28: India's equity demand

Syllabus: Conservation, Environmental pollution and degradation, Environmental impact assessment.

Mains: Climate Change and Sustainable Development and International Climate Agreements

Prelims: Global carbon budget and the principle of common but differentiated responsibilities and respective capabilities (CBDR-RC).

Context

The article delves into the relationship between global warming and cumulative carbon emissions, emphasising India's imperative to secure a fair share of the depleting global carbon budget at COP 28.

Introduction

- The impending COP 28 presents a critical juncture for India to assert its stance on climate change, demanding a fair share of the global carbon budget and substantive commitments from developed nations.
- The existing linear relationship between global warming and cumulative carbon dioxide (CO₂) emissions underscores the urgency for equitable distribution of responsibilities.

Global Carbon Budget and IPCC AR6

- The global carbon budget refers to the maximum cumulative anthropogenic CO₂ emissions, essential for limiting global warming. However, almost four-fifths of the budget is depleted, posing a significant challenge.
- The IPCC AR6 indicates the urgency to meet the Paris Agreement targets, requiring developed countries to achieve net-zero emissions earlier than currently pledged.

Responsibilities and Historical Emissions

- The Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC) principle, enshrined in the UNFCCC and Paris Agreement, recognizes the varying responsibilities of states in addressing climate change.
- Developed countries have disproportionately contributed to historical cumulative emissions, placing a heavier burden on their shoulders.

India's Per Capita Emissions and Carbon Budget

- Despite having nearly 24% of the world's population, South Asia, including India, contributes only around 4% to historical cumulative emissions.
- India's per capita CO₂ emissions from fossil fuel and industry are significantly lower than North America and the global average, underscoring its relatively modest contribution to historical emissions.
- India is urged to recognize a 'fair share of the carbon budget' as a strategic national resource depleting rapidly.
- Failing to assert this share may lead to India being disadvantaged by developed countries' strategies, akin to new colonial techniques.

Global Energy Scenario and COP 26

- The global transition to renewable energy remains a challenge, with a substantial reliance on non-renewable sources, particularly oil, coal, and gas.
- Developed countries' attempts to mandate rapid changes, exemplified by the COP 26 focus on phasing down coal, face feasibility issues, as demonstrated by the reopening of coal plants post-Russia-Ukraine war.

India's Developmental Initiatives and Poverty Eradication

- India's initiatives, such as the International Solar Alliance, Coalition for Disaster Resilient Infrastructure, and the Global Biofuel Alliance, showcase a commitment to sustainable solutions.
- The successful poverty alleviation efforts and extension of food security welfare measures underscore the developmental challenges faced by India after the COVID-19 pandemic.

India's Stance at COP 28

- India must assert its right to a fair share of the global carbon budget and demand equivalent reparations, highlighting the urgent need for fairness within the global climate order.
- Developmental priorities should not be sacrificed, and developed nations should fulfil their promises of climate-specific new and additional finance, recognizing the \$51 trillion carbon debt.

Nut Graf: As global emissions deplete the carbon budget, India faces a pivotal moment at COP 28, where it must assert its fair share to combat climate change, demanding equity and development.

13. CoP28 turns attention to potent methane emissions

Syllabus: GS 3- Environment

Prelims: About Methane emission

Introduction

- Climate discussions leading up to the CoP28 meeting in Dubai are expected to address not only carbon dioxide but also the potent greenhouse gas methane.
- With a shorter atmospheric lifespan but a greater warming impact than CO₂, reducing methane emissions becomes crucial for rapid climate change mitigation.

Significance of Methane

- Methane (CH₄) ranks second in climate change contribution, comprising 16% of warming, with a 28-fold greater impact than CO₂ over a century.
- Leakage from fossil fuel infrastructure is a major source of atmospheric methane.

Challenges in monitoring

- The International Energy Agency (IEA) noted that despite satellite advancements, estimating methane emissions remains challenging.
- Methane concentrations in the atmosphere now exceed pre-industrial levels by over 2.5 times, showcasing a steady increase.

Sources of Methane Emissions

- About 60% of methane emissions are linked to human activities, with agriculture (25%) and the energy sector (coal, oil, gas) as major contributors.
- Livestock, rice cultivation, energy infrastructure leaks, and landfill waste are key sources.

Potential Impact of Methane Reduction

- Rapid cuts in fossil fuel-related methane could prevent up to 0.1°C of warming by mid-century.

Comparative Impact

- As per the IEA report, a reduction of 0.1 degrees Celsius would have a more substantial impact than immediately taking all cars and trucks globally off the road.

Possible Mitigation Strategies

- Repairing leaky infrastructure, eliminating routine flaring and venting during maintenance, modifying animal diets (adding compounds to improve health) and adjusting water management in rice fields are identified as promising ways to reduce methane emissions.

14. Time for action

Syllabus: GS-3, Conservation, Environmental pollution and degradation

Mains: Outcome of Conference of the Parties (COP)

Context: The 28th edition of the Conference of the Parties (COP) is poised to bring together global leaders, industrialists, activists, and indigenous communities in a collective effort to address the pressing issue of climate change.

Discrepancy between Commitments and Actions

- **Paris Agreement Commitment:** In 2015, countries pledged to limit global temperature increases, aiming for a maximum of 1.5°C by the end of the century.
- **Reality Check:** Despite unanimous agreement on the potential consequences of breaching these limits, global emissions have increased by 1.2% from 2021-22, putting the world on track to warm by 2.5-3°C by the end of the century.
- **Rising Instances of Breach:** The alarming fact that global temperatures breached the 1.5°C threshold 86 times in the current year highlights the urgency of concrete action.

Three Principles Agreed Upon

- **Historical Carbon Emissions:** Acknowledgment that certain countries, particularly those that rapidly industrialized in the 20th century, have emitted more carbon than their 'fair share.'
- **Fossil Fuel Consumption and Economic Growth:** Recognizing the disastrous consequences of economic growth reliant on fossil fuel consumption, despite being cheaper than renewable energy per unit.
- **Compensation for Clean Development:** Consensus on compensating developing countries with minimal industrial infrastructure for adopting cleaner, albeit costlier, non-fossil fuel sources.

Challenges in Implementation

- **Mutual Suspicion and De-Globalisation:** The challenge lies in overcoming mutual suspicion among nations, the prevailing spirit of de-globalisation, and the fear of political reprisal faced by leaders within their constituencies.
- **Compensation and Infrastructure Support:** While there is agreement on compensating countries facing climate disasters and supporting their infrastructure, translating these principles into concrete actions remains a formidable task.

Key Issues at COP-28

- **Global Stocktake Conclusion:** The closure of the Global Stocktake, a crucial evaluation of countries' climate actions, is anticipated. However, the nature and scale of the commitments made are yet to be clarified.
- **Operationalisation of the Loss and Damage Fund:** The establishment of the Loss and Damage Fund is pivotal, but uncertainties persist regarding the fund's size and individual contributions by countries.

Significance

- **Urgency for Definitive Action:** The COP-28 must go beyond self-congratulatory agreements and actively compel signatories to take definitive action to address the widening gap between commitments and actual progress.
- **Stakes for Global Climate:** The significance of COP-28 lies in its potential to curb emissions, prevent further temperature rise, and honour commitments that safeguard the planet's future.

Solutions

- **Transparent Commitments:** Encourage nations to make transparent and achievable commitments, aligning with the urgent need to curb emissions and limit global temperature increases.
- **Diplomatic Cooperation:** Foster diplomatic cooperation to overcome mutual suspicion, ensuring that nations work collectively towards shared goals.
- **Concrete Plans for Compensation:** Develop concrete plans for compensating countries affected by climate disasters and supporting the transition to cleaner energy sources.

Nut Graf: As the world converges at COP-28, the imperative is a clear transition from rhetoric to action. The conference must transcend the patterns of previous COPs, serving as a platform that not only acknowledges the severity of climate change but compels signatories to implement tangible measures.

15. Major oil & gas firms have pledged carbon neutrality by 2050: COP-28 Chief

Syllabus: GS-3, Conservation, Environmental pollution and degradation

Context: The 28th Conference of Parties (COP-28) president-designate, Sultan Al Jaber, announced that several major oil and gas companies have pledged to achieve carbon neutrality by 2050. This development, revealed ahead of the United Nations climate summit, marks a significant shift in the approach of these companies towards addressing climate change.

Issues

- **Historical Carbon Footprint:** The oil and gas sector has been a major contributor to global carbon emissions, with operations accounting for approximately 15% of total energy-related emissions, as estimated by the International Energy Agency (IEA).
- **Lack of Transparency:** While the commitment to carbon neutrality is a positive step, the lack of disclosure regarding the names of the organizations involved raises questions about transparency and accountability.
- **Challenges in Achieving Targets:** Achieving carbon neutrality by 2050 is a complex task, requiring substantial changes in operational practices, technology adoption, and investment in sustainable energy solutions.

Significance of Pledges

- **Unprecedented Alignment:** The commitment of oil and gas companies to net-zero targets represents a landmark shift, indicating a collective acknowledgment of the sector's role in climate change and a shared responsibility for mitigation.
- **Methane Reduction Targets:** The alignment towards net-zero methane targets by 2030 demonstrates an accelerated focus on reducing short-term climate pollutants, addressing a critical aspect of environmental conservation.
- **COP-28 Diplomatic Achievements:** The COP-28 presidency, under the UAE, succeeded in fostering alignment between the U.S. and China, the world's two major economies, towards climate action and methane emission reduction.

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HISTORY, ART AND CULTURE

1. An under-discussed facet of colonial history

Syllabus: GS-1, Modern Indian History from about the middle of the eighteenth century until the present- significant events, personalities, issues.

Mains: Imperialism, Colonization, and Decolonization

Introduction: The year 2023 marks the bicentenary of the arrival of Tamil indentured labourers in Sri Lanka.

- The historical significance of this event, often overlooked, was recently commemorated in Colombo during an event called “Naam 200.”
- It's important to remember and understand the impact of this historical chapter.

The British Imperial Project:

- The British imperial project, when it began, was essentially licensed looting in service of crude capitalism.
- It involved the draining of colonies' resources, leading to economic strife and political subjugation.
- In India, the textile industry was decimated, leaving millions unemployed, and lands were expropriated for opium cultivation.

Indentured Labour: A New Form of Bondage:

- While Europe was embracing liberal humanism and banning slavery, the British introduced another form of bonded servitude: indentured labour.
- They sought Indian labourers for plantations and infrastructure projects in distant lands.
- These labourers were misled about their destination and conditions and often reached their new homes mired in debt.

Suffering and Hardship:

- Upon arrival, these labourers faced harsh living conditions with no access to sanitation, running water, medical facilities, or schools.
- Their plight was aptly described as a “new kind of slavery.”
- Many perished on their way to the central highlands of Sri Lanka, and those who survived lived in agonizing squalor.

The Role of Plantations in Sri Lanka:

- Sri Lanka's transition from coffee to tea plantations in the 1870s fueled a demand for Indian Tamil labour.
- The rapid expansion of tea estates created a need for more intensive, long-term labour, leading to a massive organized transfer of Indian Tamils to Sri Lanka.

Discrimination and Statelessness:

- Despite the resilience of the Plantation Tamils, they were subjected to discrimination and statelessness by colonial practices and policies.
- Even after achieving independence, the Citizenship Act of 1948 rendered many of them stateless. This affected their economic prospects and land ownership.

A Journey of Integration:

- Over generations, Plantation Tamils forged a distinct Sri Lankan identity, emphasizing linguistic and regional ties.
- Despite numerous obstacles, they have strived for greater integration into Sri Lankan society.
- Thanks to democratic efforts, they are now citizens with the right to vote.

The Path to Decolonization:

- As post-colonial nations like Sri Lanka look toward economic and social revival, decolonization must be central.
- This involves shedding the oppressive tools and practices of the colonial past and working toward an inclusive national identity.

Conclusion:

- The Plantation Tamils' struggle for equality and self-determination is a valorous, subaltern chapter in history.
- Their story serves as a reminder of the importance of decolonization in post-colonial nations, forging an inclusive identity for all citizens.

Nut Graf: The bicentenary of Tamil indentured labourers' arrival in Sri Lanka, commemorated in “Naam 200,” sheds light on a forgotten historical chapter. The British imperial project exploited colonies, introducing indentured labour as a form of bondage. Plantation Tamils faced suffering, discrimination, and statelessness but forged a distinct identity. Decolonization is vital for inclusive national identities.

SOCIAL JUSTICE & SOCIAL ISSUES

1. IITs are overcommitted, in crisis

Syllabus: GS-2, Issues related to the development and management of the social sector/Services relating to Health, Education, Human Resources

Mains: Challenges and crisis in IITs

Context:

- The Indian Institutes of Technology (IITs) have earned global recognition and acclaim for producing leaders in high-tech fields.
- However, the IIT system faces challenges, including overexpansion and faculty shortages, while simultaneously venturing into international initiatives.

Issues:

- **Overseas Campuses:**
 - IITs have begun establishing branch campuses abroad, such as the IIT-Madras campus in Zanzibar.
 - Questions arise about the motivation behind these ventures, their quality, and the funds invested.
- **Overexpansion at Home:**
 - The IIT system expanded significantly after 2015, adding seven new institutions, including some in less accessible locations.
 - These new IITs have struggled to meet the high standards of the original institutes, leading to varying levels of prestige and quality within the system.
- **Faculty Shortages:**
 - The IITs face a severe shortage of academics, with many sanctioned positions remaining vacant.
 - Attracting top talent is challenging due to salary disparities and academic bureaucracy.

Significance:

- The IITs play a pivotal role in India's higher education landscape and have expanded access to quality education.
- Their domestic and international initiatives have significant implications for the quality, reputation, and sustainability of the IIT system.

Solutions:

- **Reassess Overseas Ventures:** Careful evaluation of the motivations and quality of overseas branch campuses is essential to ensure they align with the IIT's core mission.
- **Quality over Quantity:** Address the challenges of overexpansion at home by focusing on quality rather than quantity in the establishment of new IITs.
- **Faculty Attraction and Retention:** Improve faculty salaries and work environments to attract and retain top professors. Simplify academic bureaucracy to make the IITs more attractive for both foreign-trained Indians and Indian academics.

Nut Graf: The IITs, while globally renowned, are facing domestic challenges related to overexpansion and faculty shortages. Careful consideration of international initiatives and a focus on quality in expansion are essential to maintain the prestige of the entire IIT system.

2. Giving the urban Indian a better life

Syllabus: Urbanization, their problems and their remedies.

GS- I

Category: Social Issues

Prelims: World Cities Day 2022, The Energy Policy Institute at Chicago, Air Quality Index, Commission for Air Quality Management, Graded Response Action Plan

Mains: Improving the sustainability of Indian cities

Introduction:

- The theme of World Cities Day 2022 was "Financing Sustainable Urban Future for All."
- Delhi and nearby states are experiencing an air quality crisis with Air Quality Index in the severe category

Current State of Crisis

- According to a report by The Energy Policy Institute at Chicago (EPIC), 39 of the 50 most polluted cities in the world are in India, with Delhi being one of the worst affected.

- Air pollution causes various health problems including eye irritation, respiratory issues, cardiovascular diseases, and reduces life expectancy by 5.3 years for Indians and 11.9 years for residents of Delhi.
- Media reports have labeled air pollution in Mumbai as “Death by Breath” due to very unsatisfactory Air Quality Index levels.
- Poor air quality is no longer limited to the Indo-Gangetic plains, but is also becoming a problem in coastal cities.

What are the causes?

- The main reasons for increased pollution in Indian cities include:
 - Focus on real estate development and widening of roads
 - Allowing large vehicles on roads, which also reduce pedestrian spaces
 - Redevelopment and construction activities, which contribute to 10% of air pollution in the National Capital Region
 - Road dust, power generation, polluting industrial units, and vehicular emissions
 - Burning of paddy straw (Parali) during winter in North India, which increases the air pollution problem
- India's automobile market is growing rapidly, with a projected value of \$160 billion by 2027 which will only increase the number of automobiles on Indian roads.
- For example, in the case of the National Capital Region, studies have been conducted and executive actions have been taken to address the issue, but the problem persists.
- The science is clear on the contributors to pollution and the limitations of interventions given unfavorable weather conditions and economic disruptions.
- The Commission for Air Quality Management (CAQM) is responsible for addressing the issue but has limited powers to enforce measures based on air quality levels.
- Despite increased awareness and efforts to reduce pollution, November continues to be a critical month for air pollution.

New Paradigm of Urban Development

- Urban planning strategy should prioritize public transport, pedestrian-friendly infrastructure, and sustainable practices.
- **Transport:**

Investment in public transportation, such as buses, is essential to meet the demand for urban mobility, with approximately 10 lakh buses needed to augment existing fleets in cities.

Strong measures should be taken to restrict private vehicle usage in cities, including congestion pricing and restrictions based on license plate numbers.

City leaders and influential individuals should lead by example and use public transport regularly.

Transitioning to green vehicles.

Cities should adopt a Graded Response Action Plan (GRAP) similar to Delhi's, which includes four different sets of anti-air pollution measures that are triggered based on air quality.
- **Governance:**

Real-time monitoring of industrial pollution and residents should take an active role in street supervision.

Ponds, water bodies, urban forests, parks, and playgrounds should be protected and expanded as green spaces.

The principles of Ian McHarg's book “Designing with Nature” can be a guide in urban planning and design, prioritizing ecological wisdom and sustainability.
- **Meaningful Afforestation:**

Redevelopment projects often result in pollution and harm the local ecosystem, highlighting the need for more meaningful afforestation efforts within cities.

Smog towers and watering roads are only temporary solutions to the problem of air pollution.

Way Forward

- The current approach to urban development in India needs a paradigm shift towards sustainable and ecological urbanization.
- Empowering citizens through good governance is a more effective approach.
- Pollution guidelines and standard operating procedures should be accessible to everyone and become a part of daily life.
- Independent bodies like the CAQM need to ensure better coordination and cooperation among different states to address the issue of air pollution.
- Medical professionals should support public health advisories to raise awareness about the health impacts of air pollution.
- Finances must be directed towards sustainable urbanization to address issues such as air pollution, which is reducing life expectancy in many cities.
- Air pollution disproportionately affects the poor and marginalized communities who contribute the least to it but suffer the most from its effects.
- These communities deserve better living conditions and cleaner air.

Nut Graf: Air pollution is a major crisis in Indian cities, with Delhi being one of the worst affected. The main causes include real estate development, vehicular emissions, and burning of paddy straw. A paradigm shift towards sustainable and ecological urbanization is needed, with a focus on public transport, pedestrian-friendly infrastructure, and meaningful afforestation.

3. The problem with the '70 hours a week' line

Syllabus: Welfare Schemes for Vulnerable Sections, Issues Relating to Development & Management of Social Sector/ Services, Issues Relating to Poverty & Hunger.

Mains: Implications of a proposed 70-hour working week and its connection to international labour standards, trade agreements, and supply chain regulations.

Context

N.R. Narayana Murthy, co-founder of Infosys, suggested that Indian youngsters should work 70 hours a week to enhance the country's competitiveness, a proposal that has drawn support from some in the Indian business community.

Introduction

- Mr Murthy recently suggested that Indian youngsters should work 70 hours a week to make the country more competitive.
- This suggestion has garnered support from some in the Indian business community, but the article argues that it is flawed on several counts.

Flawed Arguments by Narayana Murthy (according to the author)

1. Misinterpretation of Working Hours in Advanced Countries

- Narayana Murthy incorrectly claimed that extended working hours have helped advanced countries like Germany and Japan succeed.
- In reality, advanced countries have seen a continuous decline in working hours per worker over the past 150 years.
- As countries become more productive, working hours tend to decrease, allowing people more leisure time.

2. Burdening Workers for Increased Productivity

- Narayana Murthy's argument places the burden of increasing productivity on the shoulders of workers, while the real issue lies in underinvestment in innovation.
- Productivity depends on the strength of a country's innovation system, and India lags in research and development spending.
- Private sector contributions to R&D in India are significantly lower compared to countries with stronger innovation systems.

3. Violation of International Labour Standards (ILS)

- Narayana Murthy's proposal for a 70-hour workweek violates international labour standards (ILS), including the International Labour Organization's (ILO) Decent Work Agenda.
- Non-adherence to ILS can impact the Indian industry's aspirations to expand globally as advanced countries are insisting on including ILS in bilateral free trade agreements (FTAs).
- FTAs with the European Union and the United Kingdom include clauses on promoting "decent working conditions" and respecting ILO's Fundamental Conventions.

The Importance of ILS

- ILS is becoming crucial for market access in advanced countries and for participating in global supply chains.
- FTAs and international agreements increasingly emphasise labour rights, working conditions, and social protection in supply chains.
- Developed countries are enacting regulations like "Supply Chain Due Diligence" that obligate companies to address human rights violations, labour exploitation, and environmental degradation in their supply chains.
- Indian companies should prioritise labour rights and adhere to ILS to participate in global supply chains and remain competitive.

Nut Graf: This opinion piece challenges Narayana Murthy's call for 70-hour workweeks, highlighting flaws in his arguments. It emphasises the importance of international labour standards, the reduction of working hours in advanced countries, and the need for India Inc. to prioritise labour rights for global market access.

4. Making public education inclusive

Syllabus: Issues Relating to Development and Management of Social Sector/Services relating to Health, Education, Human Resources.

GS- II

Category: Social Issues

Prelims: Odisha Adarsha Vidyalayas(OAV), 'Mo School' Abhiyan, and 5T High School Transformation Programme, Education World India School Rankings 2022-23.

Mains: Improving outcomes in government educational institutions

Introduction:

- A recent study by the Indian Institute of Management(IIM) Ahmedabad revealed that many parents have lost faith in government schools because of poor education standards.
- The Odisha government has implemented reforms to improve public education through initiatives like **Odisha Adarsha Vidyalayas(OAV), 'Mo School' Abhiyan, and 5T High School Transformation Programme.**
- These initiatives aim to make government schools better than private schools in infrastructure, affordability and quality.

Key Features of OAV Model:

- The Odisha Adarsha Vidyalaya (OAV) in Polasara block of Ganjam district was ranked 5th best among government-run day schools in India according to the Education World India School Rankings 2022-23.
- Two other OAV schools also placed in the top 10 in these rankings.
- **English-medium schools:**
The OAV model strives to address the rural-urban education gap by bringing high-quality, affordable English-medium schooling to rural and semi-urban communities.
- **Equitable representation:**
OAVs promote social equity by providing opportunities to rural and economically disadvantaged students
Efforts have been made for representation of SC, ST, and female students through reservations, leading to higher female enrollment
Children who had endured traumatic experiences including abuse, trafficking, forced labor, and underage marriage were rescued and prepared for the OAV entrance exam.
- **Focus on quality**
They provide coaching to help students crack national-level exams like NEET
The model also focuses on consistent teacher training and maintains a teacher-student ratio of 1:25
- **Leveraging technology**
Digital technology is used to ensure accountability, transparency through Enterprise Resource Planning (ERP) system and website to track progress
- The government now plans to transform OAVs into **Centers of Excellence** to foster innovation and inquiry-based learning

Mo School Abhiyan:

- Mo School Abhiyan was launched by Odisha in 2017 to motivate and mobilize alumni community to contribute to revamping government schools
- It was founded on 5 pillars: **connect, collaborate, contribute, create, celebrate**
- **Connect alumni:**
It connects schools with alumni from various fields and promotes alumni mentorship
- **Enables collaboration:**
Deeper collaboration between alumni, schools, district administration facilitates student exposure to exchange programs, sports, cultural events and infrastructure
Over 33,000 schools in 30 districts engaged over 6 lakh alumni members
School Adoption Programme enables alumni to make financial contributions to adopted schools
Over **5.5 lakh contributors** including MPs, MLAs, bureaucrats and professionals contributed over ₹797 crore to 40,855 schools

Focus Areas of 5T Programme:

- Launched in 2021, the 5T-High School Transformation Programme focuses on adopting educational technology in Odisha's high schools.
- **Educational technology:**
The "5T" concept stands for transparency, technology, teamwork, timeliness and transformation.
- **Smart classrooms and Improved facilities**
This includes digital classrooms, e-libraries, modern science labs, improved sanitation facilities, and sports facilities.
6,872 high schools have been transformed under this programme at a cost of ₹3,411 crore.
- **Assistive devices for disabled students**
The programme provides assistive devices and tailored teaching materials for students with disabilities like autism and other disabilities.
- **Holistic development**
Campaigns like 'Mo School Hockey Clubs' and 'Football for All' have been launched to enable holistic development of students.

Outcomes:

- This proactive approach by Odisha has caused a major shift in enrollment patterns.
- In 2019-20, private schools had 16,05,000 students versus 14,62,000 in 2021-22.
- Currently, 81% of students in Odisha study in government schools.

Conclusion:

- Education is a human right and should be accessible and affordable for all.
- The interventions by the state government have established education as a public good founded on equality and excellence.

Nut Graf: The Odisha government has implemented a series of reforms to improve public education, including the Odisha Adarsha Vidyalayas (OAV) model, the 'Mo School' Abhiyan, and the 5T High School Transformation Programme. These initiatives have resulted in a significant shift in enrollment patterns, with more students opting for government schools. The government's proactive approach to education founded on equality and excellence can be a model for other states.

5. Reporting animal cruelty makes children safer

Syllabus: GS-2, Government Policies and Interventions for Development in various sectors and Issues arising out of their Design and Implementation.

Mains: Link between Animal Cruelty and Child Abuse

Introduction: Child Abuse in India

- Child abuse is a serious issue in India, with prevalent physical, sexual, and emotional abuse reported.
- Factors contributing to child abuse include family structure, law enforcement issues, poverty, illiteracy, and cultural factors.

Unexplored Link: Animal Cruelty and Child Abuse

- The connection between animal cruelty and human violence was noted in William Hogarth's 1751 work.
- Studies, such as one in 1980 in England and another in 1983 in New Jersey, found a strong correlation between households with animal abuse and child abuse.

Coercive Tactics: Threats and Violence towards Animals

- A 2019 U.S. study revealed that in 12.3% of cases involving interpersonal violence, threats and violence towards animals were used to coerce children into compliance.
- Children may be hesitant to report animal abuse due to fear of repercussions on themselves or the animals.

Detection and Reporting: Animal Abuse as an Indicator

- Animal abuse is often easier to detect than child abuse, providing an early indicator of potential harm to humans.
- Reporting animal abuse can serve as circumstantial evidence in custody and child abuse hearings, aiding in the protection of victims.

Need for Investigation in the Indian Context

- Despite global studies on the link between animal cruelty and child abuse, there is a lack of empirical assessment in the Indian context.
- The National Crime Records Bureau in India does not collect data on offences under the Prevention of Cruelty to Animals Act, hindering the understanding of crime overlap.

Empowering Law Enforcement: Enforcing Anti-Cruelty Laws

- Enforcement of anti-cruelty laws is essential, not just for animal welfare but also for preventing human violence.
- Data collection on animal cruelty cases can be a valuable tool for law enforcement to comprehend crime patterns and prevent their occurrence.

Collaborative Action: Child and Animal Protection Movements

- Recognizing the shared victimization by the same perpetrators, collaboration between child protection and animal protection movements is crucial.
- Stakeholders can work together to reduce abuse and create a safer environment for both children and animals.

Conclusion: A Holistic Approach to Violence Prevention

- Reporting and prosecuting animal abuse is not solely about saving animals; it contributes to protecting children from violence.
- Understanding the link between animal cruelty and child abuse can disrupt the cycle of violence at its source, fostering a safer future for children.

Nut Graf: The relationship between animal cruelty and child abuse demands attention in India. Studies highlight a strong correlation between these forms of violence. By investigating this link, enforcing anti-cruelty laws, and fostering collaboration, there's potential to protect both animals and children, interrupting the cycle of abuse.

GOVERNANCE

1. Staff shortage, financial dependency plague local governance

Syllabus: Government policies and their implementation at the local level, issues of urban local governance, local fiscal autonomy, and transparency.

Mains: The governance and administrative issues related to local governments and their financial dependency on state governments

Context

The Annual Survey of India's City-Systems (ASICS) 2023 highlights financial dependency and limited autonomy in Indian city governments, revealing significant challenges in urban governance.

Introduction

- A recent Annual Survey of India's City-Systems (ASICS) 2023 reveals the dependence of Indian city governments on state governments for financial support.
- The report, published by the Janaagraha Centre for Citizenship and Democracy, underscores the asymmetry of power and limited autonomy experienced by city governments in India.

City Autonomy and Financial Dependency

- The majority of Indian cities heavily rely on their respective state governments for financial support.
- Five states—Bihar, Odisha, Jharkhand, Meghalaya, and Rajasthan—require city governments to seek state approval for borrowing money.
- Only Assam empowers its city governments to collect key taxes independently.

Autonomy vs. Governance Size

- The survey categorises cities based on their population size (megacities, large cities, medium cities, small cities).
- Megacities have more control over their finances, but their mayors lack a five-year tenure and direct election.
- Smaller cities have longer mayoral tenures and direct elections but minimal control over finances.

Limited Powers in Staff Appointments

- Mayors and city councils have limited influence over staff appointments and promotions.
- Few states grant city governments the authority to appoint municipal commissioners.
- Senior management teams, deputed by state governments, are beyond the city's control, hindering accountability.

Transparency and Accountability

- A lack of transparency in publishing civic information accessible to citizens is a notable issue.
- Only 11 out of 35 states/union territories have enacted the Public Disclosure Law, which mandates publishing key civic data.
- Financial transparency remains a concern, as very few cities publish quarterly audited financial statements.

Impact on Unfilled Posts

- High levels of unfilled posts within local governments are exacerbated by limited control over staff appointments.
- 35% of positions in India's municipal corporations remain vacant, worsening in municipalities and town panchayats.

International Comparison

- A comparison with cities like New York, London, and Johannesburg highlights the unique challenges faced by Indian cities.
- These foreign metropolises have more staff per population, greater financial autonomy, and the ability to impose taxes, approve budgets, invest, and borrow without external approval.

Nut Graf: The ASICS 2023 report reveals that Indian city governments heavily rely on state support, with limited powers in financial matters and staff appointments. Transparency issues and high vacancy rates also affect urban governance.

2. Impacting a woman's freedom to reproductive choices

Syllabus: GS-2, Issues Relating to Development and Management of Social Sector/Services Relating to Health

Mains: What are the legal and ethical implications of the X vs Union of India case?

Introduction:

- On October 16, in X vs Union of India, the Supreme Court of India declined permission to a woman seeking to terminate a 26-week-long pregnancy.
- The Court cited the Medical Termination of Pregnancy (MTP) Act, 1971, which allows termination beyond 24 weeks only in cases of substantial foetal abnormalities or direct threat to the woman's life.

Viable Foetus vs Woman's Right:

- The judgment, although not explicitly granting rights to the unborn, effectively limits a woman's right to choose when a foetus becomes viable and capable of surviving outside the mother's uterus.
- This raises concerns about the prioritization of foetal rights over a pregnant woman's right to privacy and dignity.

Lack of Examination of Fundamental Questions:

- The Court failed to address critical questions:
 - Does a foetus have an autonomous moral status?
 - Does it have legal standing?
 - Can it exercise constitutional rights?
- This oversight results in foetal rights being elevated above those of pregnant women.

The MTP Act: Enabling or Confining?

- The Court did not explore whether the MTP Act merely enables a fundamental right or confers rights in itself.
- If reproductive choice is considered a fundamental right, the Court could have considered extending the Act's provisions.

Case Background:

- The petitioner, a 27-year-old woman, sought termination due to post-partum depression and financial constraints.
- Initially, the Court favoured her case, considering the potential impact on her mental health.

Contradictory Rulings:

- A disagreement between two judges led to a separate Bench presided over by the Chief Justice.
- The subsequent medical board report confirmed foetal viability and no abnormalities, leading to a recall of the earlier order.

Conflict with Privacy and Dignity Rights:

- The verdict contradicts the Court's recent jurisprudence on the fundamental rights to privacy and dignity.
- In a previous case, the Court acknowledged a woman's right to make reproductive choices without undue interference.

Implication of the MTP Act:

- If reproductive choice is a fundamental right, the MTP Act should be viewed as an enabling legislation.
- Where the Act's provisions fall short, the Court should issue directions to further a woman's right to choose, ensuring it is upheld.

Foetuses and Constitutional Rights:

- The judgment implies constitutional rights for foetuses, contrary to established jurisprudence.
- Our legal framework does not grant personhood to foetuses, as evidenced by the MTP Act's provisions.

Conclusion:

- The X vs Union of India case underscores the need to strike a balance between foetal rights and a woman's freedom to make reproductive choices.
- A woman's right to privacy and dignity should remain paramount, and the MTP Act should be seen as enabling legislation to protect these fundamental rights.

Nut Graf: The X vs Union of India case highlights a critical dilemma in Indian law regarding a woman's right to reproductive choices and the status of a foetus. The Supreme Court's recent decision to prioritize foetal viability over a woman's autonomy raises concerns about constitutional rights and the interpretation of the Medical Termination of Pregnancy (MTP) Act.

3. Retrograde step

Syllabus: GS-2, Government policies and interventions for the development of various sectors

Mains: Issues of Misinformation and disinformation

Context:

- Misinformation and disinformation have become pervasive in today's communication landscape, especially on social media.
- The Tamil Nadu government's decision to establish a fact-checking unit to combat "misinformation and disinformation related to the State government" is a subject of concern.
- The move follows a similar initiative by the Karnataka government and the Centre's introduction of IT Rules allowing a fact-checking unit.

Issues:

- **Government as Adjudicator:**
 - Governments and units appointed by them adjudicating the veracity of information raises concerns about potential biases.
 - Allowing interested parties to determine what is true or false can undermine transparency and objectivity.
- **Constitutional Implications:**
 - The IT Rules, as challenged in court, may infringe upon freedom of speech and expression guaranteed under Article 19(1)(a) of the Constitution.
 - The Bombay High Court raised questions about the lack of necessary safeguards for fair criticism of the government.
- **Lack of Transparency:**
 - The involvement of journalists and independent stakeholders in setting up fact-checking units is essential for transparency and fairness.
 - The Tamil Nadu government's decision lacks such involvement and transparency.

Significance:

- The establishment of government-run fact-checking units raises fundamental questions about freedom of speech, press freedom, and the role of the state in determining the truth.
- It highlights the broader challenge of countering misinformation while preserving democratic values.
- The position of the Bombay High Court on the constitution of government fact-checking units sets a significant precedent.

Solutions:

- **Independent Oversight:** Ensure the involvement of independent bodies or stakeholders in the establishment and functioning of fact-checking units to maintain impartiality.
- **Transparency and Accountability:** Fact-checking units should adhere to principles of natural justice, providing prior notice, a right to appeal, and judicial oversight.
- **Role of Independent Fact-Checkers:** Empower and support existing independent fact-checkers who can address misinformation without government involvement.
- **Public Awareness and Media Literacy:** Promote media literacy and critical thinking among the public to enable them to distinguish between reliable and unreliable information sources.

Nut Graf: *The establishment of government fact-checking units raises complex challenges that require a balance between combating misinformation and preserving democratic values.*

4. A telco double dip attempt that threatens Net neutrality

Syllabus: Government Policies and Interventions for Development in various sectors and Issues arising out of their Design and Implementation.

Prelims: Telecom Regulatory Authority of India, Net neutrality, Content Delivery Networks

Mains: Importance of net neutrality in promoting innovation and competition

Context

- The Telecom Regulatory Authority of India (TRAI) was tasked by the government in July to gather views on regulating Over-The-Top (OTT) services, sparking a lot of debate on ensuring net neutrality.

What is the debate?

- For over 10 years, telecom companies have seen a decrease in revenue from services like voice calls and text messages because OTT services like WhatsApp are often free.
- They also had to spend a lot of money upgrading their networks to handle increased data traffic without making more money.
- Another issue for telecom companies is that OTT services don't pay the same taxes and licensing fees, creating an unfair competition.
- On the other hand, OTT services have led to a large increase in data usage, which means more revenue for telecom companies.

Critical analysis of demand from Telecom companies

- **Arguments made by telecom companies**
 - Telecom companies want streaming services like Netflix and Hotstar to help pay for the cost of bandwidth.
 - They claim that these services are "free riders" and benefit from the infrastructure built and maintained by telecom companies without contributing to the costs.
- **Flaws in the arguments made by telecom companies**
 - However, this argument is flawed and goes against the principle of net neutrality.
 - Telecom companies don't own the internet; they just provide access to it. Consumers pay for this access when they purchase data plans.

- Streaming services generate demand for internet access by offering content that people want to watch. They also pay for Content Delivery Networks (CDNs) to improve the capacity of the internet to deliver their content.
- Telecom companies profit from this demand by providing connectivity and charging subscribers for it. If they can't cover their costs, they can raise their prices.
- OTT services compete with each other based on factors like content variety, quality, navigation, and availability across devices. Consumers pay for these benefits already.
- Similarly, consumers can choose their internet provider based on factors like bandwidth, data volume, and price. These are separate markets, so it makes sense to keep costs separate.
- Telcos trying to charge both consumers and content providers is greedy and undermines net neutrality.
- It undermines fairness in market transactions by seeking cross-subsidies instead of fully accounting for costs.
- **Impact on consumers and the market**
 - Imagine a toll booth where certain car models are charged extra because they're popular and cause congestion. If owners of cars pay the regular toll, popular cars already contribute more. Charging the manufacturers of these cars extra would just make those cars more expensive for consumers.
 - The same thing applies here – if OTT platforms pay extra, it will just make their services more expensive or lower in quality, hurting consumers who rely on them for entertainment, education, and work.

Principle of Net Neutrality

- Net neutrality is the idea that internet service providers should treat all online traffic equally, without favouring or blocking certain websites or services.
- The concept of net neutrality has evolved over time, but it was first coined by Columbia Law School professor Tim Wu in his 2003 paper.
- Wu argued that net neutrality is important for creating a level playing field on the Internet, where all data is treated equally and without discrimination by Internet Service Providers.
- Economists have studied net neutrality to understand how it affects market competition, consumer welfare, and innovation.
- Legal experts have analyzed net neutrality to determine how it impacts the rights and responsibilities of ISPs, content providers, and consumers, as well as the regulatory frameworks that govern it.
- Computer scientists and engineers have worked on developing technology-based detection and enforcement mechanisms to ensure compliance with net neutrality principles.
- Policy analysts have examined how net neutrality affects different social groups, political expression, and issues of fairness, justice, and equality.

TRAI guidelines on Net Neutrality

- In 2016, TRAI introduced regulations to enforce net neutrality in India, following which Facebook's Free Basics platform and other similar offerings were withdrawn from the country.
- TRAI issued comprehensive recommendations on net neutrality in November 2017, which have largely guided the adoption of this principle in India.
 - Internet service providers cannot discriminate against specific content when providing Internet access. This means they cannot block, degrade, slow down, or give preference to certain content.
 - Content Delivery Networks (CDNs) are not included in these regulations. CDNs allow telecom companies to deliver content within their own network instead of using the public internet, creating a separate content ecosystem. This benefits telecom companies like Airtel and Reliance Jio.
 - The Internet of Things (IoT) is not exempt from the non-discriminatory treatment rule.
 - TRAI has suggested setting up an organization similar to BARC India to enforce net neutrality and ensure compliance with traffic management measures that align with TRAI's guidelines.
 - Exceptions to these guidelines include international treaties, court orders, and government orders to block certain websites.
- TRAI's efforts were recognized globally, and it collaborated with the Body of European Regulators for Electronic Communications (BEREC) to develop technological and policy initiatives for net neutrality.
- Many other countries have also adopted net neutrality principles.

Way Forward

- It is important for policymakers and other stakeholders to understand the long-term implications of giving in to the demands of telecom companies that go against net neutrality principles.
- Upholding net neutrality is crucial for preserving an open internet, promoting innovation, competition, and consumer welfare, especially in countries like India where the internet will play a critical role in digital public infrastructure.

Nut Graf: The debate over regulating OTT services in India has reignited the relevance of net neutrality. Telecom companies argue that OTT services should help pay for the cost of bandwidth, while proponents of net neutrality argue that this would undermine the principle of treating all internet traffic equally. Upholding net neutrality is crucial for preserving an open internet and promoting innovation, competition, and consumer welfare.

5. Move towards e-FIR, but with caution

Syllabus: GS-2, Important Aspects of Governance

Mains: Potential of e-FIR

Introduction: The Law Commission of India has recommended allowing e-FIR registration for certain offences when the accused is unknown, aiming to expand access.

- However, the concept requires clarity and safeguards for effective nationwide implementation.

Key Recommendations and Gaps in the Proposal:

- The Commission recommends permitting e-FIR registration for all cognizable offences punishable for up to 3 years when the accused is not known.
 - However, the procedure for e-FIR registration has not been clearly defined.
 - While stating that 8 states already allow e-FIR registration, especially for property offences, the report does not analyze their existing models and learnings in detail.
- Another key gap is that while e-FIR registration is proposed, the Commission requires the complainant's physical signature within 3 days to convert the e-FIR into an FIR.
- There is limited discussion on the use of electronic signature or authentication methods for the e-FIR itself. Hence, legally an e-FIR remains an unsigned complaint as per IT Act 2000.

Challenges in Effective Implementation:

- While online registration expands access, human intervention remains crucial for crimes like kidnapping where injury examination or visiting crime scenes immediately are important for investigation.
 - Hence, only suitable cases where the initial delay does not adversely impact the investigation should be permitted for e-FIR.
- There are also risks that complainants may not understand the nuances of a crime as well as a police officer would.
 - Hence safeguards against misuse of e-FIR registration for false complaints are vital.
- For nationwide roll-out, the availability of digital infrastructure at all police stations is essential, which may pose a challenge.

The Way Forward:

- Pilot e-FIR in phases, evaluating the impact on different types of cases. Expand in stages based on learnings.
- Make e-authentication through Aadhaar mandatory for real-time e-FIR registration, avoiding the need for a physical signature.
- Design safeguards against false complaints such as limiting one complaint per ID, IP address tracking, and AI for preliminary analysis.
- Create a centralized e-FIR monitoring system to identify patterns and prevent misuse.
- Run awareness campaigns on using e-FIR responsibly as a civic duty.

Conclusion:

- E-FIR holds the potential to increase the accessibility and transparency of the FIR system.
- However, the process needs more regulatory clarity, safeguards against misuse, and a phased rollout with continuous impact evaluation.
- With a balanced approach, e-FIR can usher in efficiency gains while upholding rights and justice for all.

Nut Graf: The Law Commission of India proposes e-FIR registration for certain unknown accused offences, but lacks clear procedures. While expanding access is crucial, safeguards are needed to prevent misuse. Implement e-authentication, pilot phases, and a central monitoring system to ensure efficient, just, and transparent FIR registration.

6. Revamping the criminal justice system to fit the bill

Syllabus: GS-2, Government policies and interventions for the development of various sectors

Mains: Provisions of criminal justice bill

Context: The Government's introduction of three Bills to replace the foundational laws of the criminal justice system – the Indian Penal Code (IPC), the Code of Criminal Procedure (CrPC), and the Indian Evidence Act (IEA) – raises critical questions regarding their alignment with modern jurisprudence, efficiency in addressing issues, and the incorporation of special laws.

Details:

Modernizing Jurisprudence:

- **Exclusion of Civil Law:** Examination of whether the new Bills appropriately distinguish between civil and criminal matters, especially concerning issues like maintenance after divorce.
- **Reformative vs. Punitive System:** Assessment of the Bills' inclination towards a reformative criminal justice system, considering the introduction of community service as a form of punishment.

- **Maintenance of Public Order:** Scrutiny of whether provisions related to public order and criminal prosecution should be integrated, as seen in the current structure of the CrPC.

Codification and Consistency:

- **Supreme Court Directions:** Evaluation of whether the proposed laws codify Supreme Court directives, especially those related to arrests and bail procedures.
- **Consistency in Implementation:** Examination of the Bills' efforts to ensure uniformity in implementing penalties for various offences, considering wide sentencing ranges.

Age Provisions and Gender-Related Offences:

- **Age Provisions:** Analysis of whether the Bills align with modern norms by updating age thresholds for criminal responsibility.
- **Gender-Related Offences:** Assessment of the Bills in light of recent legal developments, such as the decriminalization of adultery and the removal of Section 377.

Overlap with Special Laws:

- **Duplication and Inconsistency:** Identification of areas where the Bills overlap with existing special laws, leading to potential duplication and inconsistencies in penalties.
- **Addressing Special Laws:** Examination of whether the Bills adequately address specific statutes to avoid redundancy and legal conflicts.

Definitions and Drafting:

- **Mental Illness Exemption:** Analysis of the definition of mental illness and its implications, particularly in cases involving alcohol or drug addiction.
- **Obsolete Illustrations:** Consideration of the need to update outdated illustrations from daily life within the Bills to reflect contemporary scenarios.
- Indian Penal Code (IPC) is the official criminal code of India drafted in 1860 in the wake of the first law commission established in 1834 under the Charter Act of 1833.
- Code of Criminal Procedure (CrPC) provides procedures for administering criminal law in India. It was enacted in 1973 and became effective on 1 April 1974.
- The Indian Evidence Act, originally passed in India by the Imperial Legislative Council in 1872, during the British Raj, contains a set of rules and allied issues governing the admissibility of evidence in the Indian courts of law.

Conclusion:

- The review should ensure the creation of a fair, just, and efficient criminal justice system, addressing issues of modern jurisprudence, consistency, gender-related offences, overlap with special laws, and precise definitions.
- The ongoing scrutiny by the Parliamentary Standing Committee on Home Affairs offers a crucial opportunity to shape a criminal justice system that reflects contemporary values, legal advancements, and the imperative for fairness and efficiency.

Nut Graf: The Bills, once enacted, will serve as the foundation of the criminal justice system, necessitating thorough examination by Parliament.

7. Steering road safety in India back onto the right lane

Syllabus: Government Policies and Interventions for Development in various sectors

GS- II

Category: Governance

Prelims: World Health Organization, Motor Vehicles Act 2019, UN's Second Decade of Action for Road Safety 2021-2030, Sustainable Development Goals

Mains: Interventions for Road Safety

Introduction:

- India's massive road network has fueled economic growth and connected its vast population, but is increasingly causing a "silent but deadly pandemic" of traffic deaths and injuries

The Alarming Scale of India's Road Safety Crisis

- As per the World Health Organization (WHO), an estimated 3,00,000 people are killed on India's roads each year – over 34 deaths every hour.
- Those suffering life-altering injuries are even higher than the death toll.
- Beyond human suffering, road crashes cost India an estimated 5-7% of GDP annually.
- While road safety is a global issue, India accounts for nearly 25% of all road deaths worldwide.

Key Interventions and Actions Needed

- Enforcing seat belt use for drivers and passengers is a priority. Seat Belts reduce death risk by 45-50% for drivers/front passengers, and 25% for rear passengers.
- Helmet use must also be enforced for motorcyclists and passengers. Correct helmet use reduces fatal injury risk by 42%.
- Vulnerable road users (pedestrians, cyclists, two-wheeler riders) account for almost 75% of road deaths in India.
- Speeding must be reduced; it leads to 70% of India's road crash deaths. Drink-driving should have zero tolerance.
- Road infrastructure needs enhancement – there are too many unsafe roads, despite recent government upgrades.

Raising Awareness and Changing Behavior

- Large public awareness campaigns like #MakeASafetyStatement with celebrities can change behavior.
- The United Nations Special Envoy for Road Safety worked with manufacturers to produce affordable \$20 helmets meeting UN standards, including in India, to increase access to safe helmets.
- Positive steps in India include the Motor Vehicles Act 2019 and better crash data collection to understand causes.

Adopting Best Practices and Implementing Reforms

- Police in major cities like New Delhi are adopting modern technologies like intelligent traffic management systems to better regulate traffic flow and reduce crashes.
- A community-wide effort that includes public and private entities is necessary to enhance roadway safety for all.
- The likelihood of surviving a road crash depends greatly on the state in which a person resides and access to high-quality emergency and post-crash care.
- Policy makers should also look at international best practices and successes, then adapt them to India's specific needs and circumstances.
- A holistic road safety system as envisioned in the **UN's Second Decade of Action for Road Safety 2021-2030**, and complete implementation of the 2019 amendments to the Motor Vehicles Act is the need of the hour.

Way Forward

- Road safety is a complex, multidimensional challenge, but the benefits of addressing it can be profound.
- Ending this silent pandemic of road injuries will save lives, strengthen the economy, and improve quality of life for all.
- One of the SDG targets include halving global road deaths/injuries(target 3.6) and making public transport safer(target 11.2).
- India has huge opportunities to improve road safety through infrastructure, vehicle manufacturing, technology, and more.
- The shocking statistics on road deaths in India should serve as a wakeup call for action.
- Strategic investments in road safety measures are required, along with political will at all levels of government.

Nut Graf: India's vast road network, while fueling economic growth, is causing a devastating "silent but deadly pandemic" of traffic fatalities and injuries. Public awareness campaigns, adopting best practices, and implementing reforms can bring about significant change. This calls for strategic investments, political will, and a holistic approach to road safety.

8. Legal experts divided on self-regulation provisions in draft broadcasting Bill

Syllabus: GS 2- Governance

Prelims: About Draft Broadcasting Bill

Introduction

- The draft Broadcasting Services (Regulation) Bill, 2023, has generated varied opinions, particularly concerning its provisions on self-regulation by broadcasters and broadcasting network operators.

Positive Perspectives

- The proposal for self-regulation is welcomed as it instals a greater sense of responsibility and accountability among broadcasters and networks, aligning with the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021.

Concerns and Criticisms

- Some experts express surprise and concern over certain details in the Bill, such as the requirement for broadcasters to intimate the government, which may be perceived as unnecessary, especially in light of new Digital Personal Data Protection legislation.
- The draft Bill mandates the public disclosure of personal details of members of the Content Evaluation Committee (CEC), leading to concerns about potential personal risks for committee members based on the content they approve.
- Mandatory disclosures may pose risks, considering the sensitivities of diverse audiences and potential audience reactions to sensationalised content, whether justified or not.

Anticipated Changes

- The draft Bill is currently open for public comments, and stakeholders anticipate several changes following consultations.
- Stakeholders hope for reconsideration of the personal disclosure requirements for CEC members, emphasising the need to balance responsibility and potential harm.

Challenges and Areas of Interest

- The effectiveness of self-regulation depends on the independence of regulatory bodies, such as the Broadcast Advisory Council, in exercising their powers under the Act.
- There is interest in examining potential overlaps in powers between self-regulatory organisations (SROs) and the Registering Authority, particularly concerning the revocation and suspension of registrations.

Grey Areas and OTT Platforms

- Legal experts raise concerns about grey areas in the draft Bill, particularly in relation to the positions of over-the-top (OTT) platforms and satellite services.

9. How free cancer care alone won't help the fight against cancer in India

Syllabus: Government policies and interventions aimed at development in various sectors, Welfare schemes for vulnerable sections of the population by the Centre and the States, Issues relating to development and management of Social Sector/Services relating to Health, Education, Human Resources.

Mains: Financial challenges faced and the government support provided in the field of cancer care in India.

Context

The increasing prevalence of cancer in India is accompanied by a severe financial burden, particularly in the private healthcare sector, necessitating comprehensive and accessible solutions to alleviate economic distress.

Introduction

- The rising incidence of cancer in India poses significant financial challenges for patients and their families.
- Despite health insurance initiatives like Pradhan Mantri Jan Arogya Yojana (PMJAY), cancer-related expenses remain a leading cause of financial distress.
- Cancer treatment leads to catastrophic health expenses, impacting over 80% of patients under state-sponsored insurance.

Financial Strain in Cancer Care

- Direct medical and non-medical out-of-pocket expenses (OOPE) in the private sector contribute to the financial burden.
 - Out-of-pocket expenditures (OOPE) include direct medical costs (consultation, medicines, tests) and indirect costs (transport, accommodation, food, lost income).
- Private-sector healthcare costs contribute to catastrophic health expenses and impoverishment.
- Delays in public healthcare systems force patients to resort to private centres, adding to costs.
- Indirect expenses include loss of productive hours and income, impacting both patients and caregivers.
- Breadwinners facing cancer diagnosis suffer job loss, affecting the family's financial stability.
- Rural patients often travel long distances for treatment, incurring additional costs for accommodation, food, and transportation.

Government Initiatives

- Government schemes like PMJAY and state-sponsored health insurance provide some relief but may not fully cover cancer-related expenses.
- Some states have initiated measures like free transport for cancer patients, concessional travel tickets, and financial assistance for accommodation and food.
- Schemes like Arogya Kosh in Delhi offer free tests in private health centres, but a lack of awareness limits their effectiveness.
- 'Cancer pension' schemes provide financial aid to patients with advanced-stage cancer in Haryana, Tripura, and Kerala.

Challenges and Suggestions

- Lack of awareness hampers the effectiveness of some initiatives, highlighting the need for better communication.
- Establishing publicly funded cancer care centres nationwide is a long-term solution to make cancer care as accessible as other chronic diseases.
- Until comprehensive accessibility is achieved, continued financial support is crucial to alleviate the suffering of cancer patients and their families.

Nut Graf: As cancer becomes a leading cause of financial devastation in India, the article advocates for a two-pronged approach: establishing widespread public cancer care and sustaining financial support, emphasising the urgency of addressing this critical issue.

10. Community rights and forest conservation

Syllabus: Government policies and interventions aimed at development in various sectors, Welfare schemes for vulnerable sections of the population by the Centre and the States, Issues relating to development and management of Social Sector/Services relating to Health, Education, Human Resources.

Context: Forest conservation act 1980 has been amended in 2023 which can potentially lead to curtailment of the rights of the tribes and the dwellers in the forest region.

The amendment

- As per the amendment, the forest law will now apply exclusively to areas categorized under the Forest Act, 1927 and those designated as such on or after October 25, 1980. The Act will not be applicable to forests that were converted for non-forest use on or after December 12, 1996.
- The Godavarman Thirumulkpad case
- Not applicable to forests converted for non-forest use after December 12, 1996, and land within 100 km from the China-Pakistan border.
- Allows the central government to build linear projects in specified areas.
- Facilitates initiatives like eco-tourism and safari for economic gain.

Concerns for the tribal communities

- Removal of the stipulation of 'prior consent' raises concerns
- Potential environmental implications
- Rights granted under FRA are being diluted by the states by converting the land into non-forest lands.
- Rising man animal conflict

Challenges

- Ensuring a qualitative increase in forest cover to meet climate goals.
- Bringing reforms in compensatory afforestation programmes.
- Project's clearance mechanism needs to be worked out.

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DISASTER MANAGEMENT

1. Tunnel collapse in Uttarakhand

Syllabus: Disaster and Disaster Management

Mains: Infrastructure development and Disaster

Context:

- A tunnel on Yamunotri National Highway collapsed, trapping 40 workers between Silkyara and Dandalgaon.
- The incident occurred between 6-7 a.m., with ongoing rescue efforts for the past 12 hours.

Search and Rescue Operation:

- The National Disaster Response Force (NDRF), State Disaster Response Force (SDRF), and police are engaged in the operation.
- A team of 160 rescuers is utilizing drilling equipment and excavators, with additional resources en route.

Trapped Workers:

- Initially, 36 workers were reported trapped; later, the count was confirmed at 40.
- Workers hail from Bihar, Jharkhand, Uttar Pradesh, West Bengal, Odisha, Uttarakhand, and Himachal Pradesh.
- Oxygen is being pumped into the collapsed section to ensure the well-being of the trapped workers.

Messages from Trapped Workers:

- Signals from within the tunnel indicate that the trapped workers are safe.
- There are signs of water being released through an outlet, suggesting the workers are in a stable condition.

Officials and Agencies Involved:

- District Magistrate, NHIDCL officials, NDRF, SDRF, Border Roads Organisation, Indo-Tibetan Border Police are coordinating the rescue.
- The Chief Minister is actively monitoring the situation, and the Diwali holiday for relevant departments has been cancelled.

Tunnel Details and Significance:

- The collapsed portion is situated 200 meters from the tunnel entrance.
- The tunnel is part of the Char Dham all-weather road project, aiming to reduce the Uttarkashi to Yamunotri journey by 26 kilometres.
- The need for tunnels has increased in recent times with the push for infrastructure development in the hilly terrains (For ex- Arunachal Pradesh infrastructure development). Tunnels also reduce the logistic cost of transportation of goods.(For ex- Himachal Pradesh's improved rankings in logistics performance index)

Char Dham project

- It is a highway expansion project to widen 889 km of hill roads to provide all-weather connectivity in the Char Dham circuit. The project, envisaged in 2016, covers Uttarakhand's four major shrines- Badrinath, Kedarnath, Gangotri and Yamunotri- in the upper Himalayas.

Silkyara tunnel

- The total length of the tunnel is 4.5 Km. It is meant to connect Silkyara to Dandal-gaon in Uttarkashi district.
- The double-lane tunnel is one of the longest tunnels under the Char Dham all-weather road project and aims to reduce the journey from Uttarkashi to Yamunotri Dham by 26 kilometres.

Other recent examples

- Subansiri Lower Hydroelectric Power Project- A major landslide disrupted construction and blocked diversion tunnels of the project.
- Teesta River Flash Floods- Flash floods damaged the Chungthang Dam and Teesta hydropower stations, leading to significant financial losses.

Other Incidents of Tunnel Collapse in Himalayas

- Kiratpur- Nerchowk Tunnel collapse in Himachal Pradesh, 2015
- Tehri Hydropower Tunnel Collapse 2004

Tunnel excavation methods

- **Tunnel-boring machines (TBMs)**

TBMs bore the rock from the front using a rotating head. The portion of the excavated tunnel is supported by installing precast concrete segments.

TBMs are used when the rock cover is up to 400 metres tall.

TBM method was used for construction of tunnels for the Delhi Metro.

- **Drill and Blast Method (DBM)**

DBM involves drilling holes into the rock and loading them with explosives. When the explosives are detonated, the rock breaks apart.

DBM method is used for mountains which are 1000-1200m high.

DBM is used for tunnel construction in the Himalayas, Jammu & Kashmir and Uttarakhand.

Possible causes behind the tunnel collapse

- Presence of fractured or fragile rock
- Water Seepage- Water erodes loose rock particles over time, creating a void on the top of the tunnel. This might have also led to the caving of the Tunnel.
- Landslide prone young Himalayan Rock System
- Lack of geological and Geo-technical Studies
- Failure to design an escape tunnel: For ex- The escape tunnel was constructed in the case of 9 km Chenani-Nashri tunnel in Jammu and Kashmir.

Initiatives for safe tunnel construction

- Creation of Tunnel Zone department in the MoRTH
- Constitution of Expert Committee on Tunnel in 2022
- Indian Standard Code for Tunnel Construction: The Indian Standard Codes-IS 15026 (2002) and IS 4756 (1978) have been issued for tunnel Construction. This code prescribes the guidelines for tunnel design, lighting and ventilation.
- IRC (International Residential Codes) for Tunnels: IRC code 2019 for tunnels is being implemented to ensure the road tunnels which are constructed, are as per the international standards.
- International Tunnelling and Underground Space Association safety practices in tunnel construction.

Nut Graf: A tunnel collapse on Yamunotri National Highway trapped 40 workers, triggering a 12-hour rescue operation by NDRF, SDRF, and police. The workers, from various states, are reportedly safe inside. Oxygen is being supplied, and officials, including the Chief Minister, are closely monitoring the situation. The tunnel is part of the Char Dham road project.

2. Moulding the Himalayas needs caution

Syllabus: Disaster and Disaster Management.

GS- III

Category: Disaster Management

Prelims: Border Roads Organisation, Environment Impact Assessments, Carrying Capacity of Indian Himalayan Region, Pradhan Mantri Gram Sadak Yojana

Mains: Sustainability of infrastructure development in the Himalayan region, Best Practices to avoid disasters related to construction in the region

Introduction:

- The efforts to rescue 41 workers trapped in a tunnel near Silkyara in Uttarakhand's Uttarkashi district has highlighted concerns about the sustainability of infrastructure development in the Himalayan region.

Questions on Sustainability and Carrying Capacity

- The Indian Himalayan Region is transforming, often due to integration with the rest of India.
- There are spatial and temporal changes happening to the ecosystem beyond the scope of traditional Himalayan culture and building styles affecting the carrying capacity.
- The carrying capacity often includes more than just the number of people an ecosystem can sustain.
- It must also consider the total carrying capacity of the Indian Himalayan Region in terms of infrastructure.
- The Char Dham highway project has also brought two major issues into focus.
 - What should be the carrying capacity of the Indian Himalayan Region in terms of development? i.e. how many hydropower projects can the region sustain? How much tourism? How many roads? How much widening of roads should be allowed? How much cutting of mountains and dumping debris in water ecosystems is acceptable?
 - What oversight processes were missed and what new safety procedures need to be implemented for future infrastructure projects to ensure safety?

Construction Risks

- The Himalayas are the youngest and still developing mountain range, making construction dangerous and prone to natural disasters like earthquakes.
- The Main Central Thrust fault line runs near the tunnel incident site, an area known to be seismically active and containing weak friction rock layers.
- Scientists have warned about the geological risks prior to construction beginning as building tunnels here poses severe safety issues.

Regulation and Oversight Failures

- After the recent tunnel collapse tragedy, NHAI has pledged to inspect 29 other tunnels nationally for deficiencies.
- Fast-paced Himalayan construction projects might be ignoring basic mountain building codes and environmental assessments.
- The 900 km Char Dham project was broken into 53 small sections and Environment Impact Assessments were prepared for these smaller regions.
- Such assessments often provide an incomplete picture of wider ecological consequences.

Safety Protocols and Monitoring

- The Supreme Court of India has already taken up the issue of carrying capacity in the Himalayas.
- Best Practices – Construction of the Atal tunnel in Himachal Pradesh
 - The executing company implemented stringent safety protocols, resulting in zero casualties.
 - Workers were barred from entering the tunnel unless safety checks and protocols were completed and verified.
- International best practices and monitoring processes should be adopted more widely.
- New legislation is needed to enable public monitoring of infrastructure projects and geological experts could be part of this to oversee all activities.
- Civil society groups and community-driven organizations should also be included in monitoring bodies.






Way Forward

- Learning from failures is necessary but steps should be taken to prevent such disasters in the first place.
- The Border Roads Organisation(BRO) and Pradhan Mantri Gram Sadak Yojana(PMGSY) have better construction protocols that allow time for stability of built structures. This could also be adopted for future projects.

Nut Graf: The tunnel collapse near Silkyara in Uttarakhand's Uttarkashi district has raised concerns about the sustainability of infrastructure development in the Himalayan region. Experts are questioning the carrying capacity of the region and whether it can sustain the current pace of development. They also point to failures in regulation and oversight, and the need for better safety protocols and monitoring.

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GEOGRAPHY

1. Nepal Earthquake

Syllabus: Important Geophysical Phenomena such as earthquakes, Tsunami, Volcanic activity, cyclone etc., geographical features and their location-changes in critical geographical features (including water-bodies and ice-caps) and in flora and fauna and the effects of such changes.

Prelims: Basics of Earthquake

Mains: Reasons and Impact of Earthquake

Context: Nepal has experienced a devastating earthquake, with a magnitude of 6.4, resulting in the loss of lives, extensive damage, and injuries. This earthquake is the most significant to hit the country since the devastating 2015 quake that had catastrophic consequences.

Details:

- **Magnitude and Epicenter:** The earthquake had a magnitude of 6.4 and was centered in the Jajarkot district, approximately 500 km west of Kathmandu. Its intensity caused widespread destruction in the remote mountainous region.
- **Human Casualties:** At least 157 people have lost their lives, with more than 160 individuals suffering injuries. The death toll is expected to rise as rescue and relief operations continue.
- **Impact on Remote Areas:** The most severe impact was felt in the Jajarkot and Rukum districts of western Nepal, where a significant number of casualties and destruction occurred. These are remote and challenging regions to access.
- **Aftershocks:** Following the main earthquake, there have been numerous aftershocks, adding to the fear and uncertainty in the affected areas.

Why is Nepal prone to Earthquakes?

- Situated on the precarious Himalayan seismic zone, Nepal is a highly earthquake-prone country.
- **Active subduction zone:** Collision between Indian and Eurasian plates.
- The youngest mountain ranges in the world, the Himalayas have risen up as a result of the collision of the Eurasian plate, with Tibet at its southern edge, and the Indian continental plate and over the centuries have continued to evolve tectonically which the seismologists say, advance two metres closer every century resulting in sudden release of elastic energy stored in the active geological faults inside the earth causing movement in the crust.

Wayforward:

- **Immediate Relief:** The government of Nepal has allocated financial aid to the affected districts as an immediate relief measure. Further financial support and resources should be directed to the affected areas to provide shelter, medical assistance, and food to the affected population.
- **Disaster Preparedness:** Nepal needs to enhance its disaster preparedness and response mechanisms, especially in remote areas prone to earthquakes. This includes better infrastructure, early warning systems, and disaster management training.
- **International Cooperation:** Nepal should collaborate with neighboring countries, particularly India, to enhance disaster response and coordination. International agencies and organizations should also offer support for relief and recovery.
- **Aftershock Monitoring:** Continual monitoring and analysis of aftershocks are crucial to anticipate and manage potential further damage.

Nut Graf: The Nepal earthquake is a tragic event that has resulted in significant loss of life and destruction, particularly in remote regions. The response to this disaster should prioritize immediate relief, improved disaster preparedness, and international cooperation.

2. Oligopolies control over rare earths

Syllabus: Distribution of Key Natural Resources across the world (including South Asia and the Indian sub-continent); factors responsible for the location of primary, secondary, and tertiary sector industries in various parts of the world (including India).

Prelims: Concept of rare earths

Mains: Issues in Control over rare earths

Context: The control of rare earth elements by oligopolies poses a significant obstacle to the global transition towards green technologies. Chief Economic Advisor (CEA) V. Anantha Nageswaran has highlighted the concerns surrounding rare earths and their potential impact on energy transition efforts, as well as the risks associated with external funding for developing countries.

Oligopoly:

- An oligopoly is a type of market structure where a small number of suppliers control the market.
- These small numbers of producers work to restrict output and/or fix prices so they can achieve above-normal market returns.

Issues:

- **Oligopolistic Control Over Rare Earths:** The mining and processing of rare earth elements are controlled by a few dominant players, creating an oligopolistic market structure. This control limits the availability of these critical minerals necessary for scaling up green technologies.
- **Uncertainty in Green Transitions:** The reliance on a limited number of suppliers for rare earths creates uncertainty in the transition to green technologies, as disruptions in the supply chain can impede progress.
- **Weaponization of External Funding:** The CEA warns that external funding provided to help developing countries shift from fossil fuels could be weaponized, potentially creating dependency and vulnerabilities for recipient nations.
- **Greed in Green Investments:** Investors in green transitions are cautioned against prioritizing high returns at the expense of the common good. The CEA emphasizes the importance of ethical investment practices.
- **Role of Public Investments:** Public investments play a crucial role in supporting green transitions. The CEA points out that historically, major transformation efforts, such as post-World War II reconstruction, space exploration, and the development of the Internet, were driven by the public sector.

Significance:

- **Rare Earths and Green Technologies:** The availability of rare earth elements is pivotal to the scaling up of green technologies, including electric vehicles, renewable energy sources, and energy storage solutions. Oligopolistic control over these resources can hinder the progress of green transitions.
- **Energy Transition Uncertainty:** The uncertainty caused by the oligopolistic control of rare earths may slow down or disrupt the global transition to cleaner energy sources, impacting efforts to combat climate change.
- **Ethical Investment Practices:** Encouraging investors to prioritize the common good over excessive profits can lead to more sustainable and equitable green transitions.
- **Public Sector Involvement:** The public sector's active role in investing in technologies like carbon sequestration, battery storage, and green hydrogen can help address intellectual property issues and assert the global public nature of these solutions.

Wayforward:

- **Diversification of Rare Earth Supply:** Efforts should be made to diversify the sources of rare earths, reducing reliance on a few dominant players. Encouraging exploration and mining in different regions can mitigate supply chain risks.
- **Responsible Investment Practices:** Investors in green transitions should adopt ethical investment practices that prioritize the long-term common good over short-term gains, ensuring that the benefits of green technologies are widely accessible.
- **Public Investment in Green Technologies:** Governments should actively invest in critical green technologies, such as carbon sequestration, battery storage, and green hydrogen. This public support can mitigate intellectual property challenges and promote equitable access to these solutions.
- **International Cooperation:** International collaboration is essential to address the challenge of oligopolistic control over rare earths. Diplomatic efforts can encourage fair and transparent trade practices in this sector.

Nut Graf: The control of rare earth elements by oligopolies presents a significant hurdle to the global green transition. It is essential to address the issues surrounding rare earths, promote responsible investment practices, and encourage public investments in critical green technologies.

MISCELLANEOUS

1. Rohini Nayyar Prize

Introduction

- Deenanath Rajput, a dedicated social worker, was honoured with the Rohini Nayyar Prize for Outstanding Contribution to Rural Development in Chhattisgarh.
- Recognized for his exceptional efforts in improving the lives of tribal women, Rajput established a Farmers Producers Organisation (FPO) in 2018.

Award Details

- Deenanath Rajput received the award at an event, which featured N.K. Singh, Chairman of the Fifteenth Finance Commission, as the chief guest.
- The prize comprises a cash award of ₹10 lakh, along with a trophy and a citation. This award marks the second edition of the Rohini Nayyar Prize, which was established in honour of the distinguished economist Rohini Nayyar, who sadly passed away in 2021.

Deenanath Rajput's Accomplishments

- In 2018, at the age of 33, Deenanath Rajput initiated the formation of a Farmers Producers Organisation (FPO) in Jagdalpur, Bastar, Chhattisgarh.
- The FPO began with an initial membership of 337 tribal women from the region.

Impact of the FPO

- The Farmers Producers Organisation (FPO) has brought about positive changes in the lives of tribal women in Chhattisgarh.
- It has provided opportunities for economic empowerment and improved livelihoods for the local community.

2. One nation, one registration platform

Introduction

- The National Medical Commission (NMC) is preparing to launch a nationwide platform to streamline the registration of doctors and enhance public access to their information.
- The "one nation, one registration" platform aims to simplify the process for medical practitioners while eliminating duplication and bureaucracy.

Key Features of the NMC's Initiative

- The NMC is set to launch a trial version of the National Medical Register (NMR) within the coming six months.
- Under this system, doctors will receive a unique identification number.
- Medical practitioners can apply for a licence to practise medicine in any Indian state based on their location.
- The NMC released an official Gazette notification titled "Regulations for the Registration of Medical Practitioners and Licensing to Practice Medicine in 2023," which detailed this initiative.

Purpose of the National Medical Register (NMR)

- The NMC's objective is to provide an identification number to undergraduate medical students through the NMR.
- This ID will serve as a single point of reference for tracking qualifications and additional certifications.
- Nearly 14 lakh doctors registered in the system will have their data transferred to the NMR for a comprehensive database.

Quality Assessment of Medical Institutions

- The NMC has entered into a Memorandum of Understanding (MoU) with the Quality Council of India.
- From the academic session 2024-25, both government and private medical colleges will undergo a rating process based on the quality of education they offer.

3. Akhaura-Agartala rail link

Introduction

- In a historic development, Bangladesh and Northeast India are set to re-establish rail connectivity through Tripura, ending a seven-and-a-half-decade gap.
- The Akhaura-Agartala rail link, to be inaugurated virtually by Indian Prime Minister Narendra Modi and Bangladesh Prime Minister Sheikh Hasina, marks a significant step in connecting Tripura to Kolkata through Bangladesh.

Significance of the Rail Link

- Currently, trains to Agartala must take a longer route via Guwahati and Jalpaiguri stations. The new link will drastically reduce travel time and distance to reach Tripura, southern Assam, and Mizoram from Kolkata.
- It will facilitate India-Bangladesh trade in agriculture products, tea, sugar, construction materials, iron and steel, consumer items, and enhance people-to-people ties.
- The project was backed by an Indian government grant aid of ₹392.52 crore extended to Bangladesh.

Technical Details

- The Akhaura-Agartala Cross-Border Rail Link spans 12.24 km, including a 6.78 km dual gauge line in Bangladesh and 5.46 km in Tripura.
- A goods train from Bangladesh conducted a trial run between the two stations ahead of the inauguration.

Historical and Cultural Significance

- Akhaura junction in Bangladesh's Brahmanbaria district has a rich history of commercial and cultural ties with India's northeastern region since the colonial era.
- The junction's initial construction in the late 19th century was driven by the demand from Assam's tea industry, which sought a connection to the Chittagong port.
- The project to rebuild this connection was revived in 2010 during Prime Minister Manmohan Singh's tenure.

4. Author Nandini Das wins 2023 British Academy Book Prize

- Nandini Das, an Indian-born author and academic based in the U.K., has been named the winner of the 2023 British Academy Book Prize for Global Cultural Understanding.
- Her winning book, "Courting India: England, Mughal India and the Origins of Empire," offers a unique perspective on the origins of the British Empire through England's early diplomatic mission to the Mughal courts.
- The British Academy Book Prize, formerly referred to as the Nayef Al-Rodhan Prize, was created to acknowledge and commemorate the finest non-fiction publications that exemplify academic excellence.
- Nandini Das received the 2023 British Academy Book Prize for Global Cultural Understanding, a prestigious international non-fiction award with a prize of £25,000.
- The book "Courting India" is renowned as the authentic narrative of the beginnings of the relationship between Britain and India, with a central focus on England's inaugural diplomatic mission to the Mughal courts.
- Das, a professor in the English faculty at the University of Oxford, uses contemporary sources from Indian and British political figures, officials, and merchants to provide immediacy to the early encounters between England and the Mughal Empire.

5. Kozhikode and Gwalior enter creative cities list

Introduction

- Kozhikode in Kerala and Gwalior in Madhya Pradesh have been designated as UNESCO Creative Cities for their significant contributions in the fields of literature and music, respectively.
- The announcement was made by UNESCO on World Cities Day, October 31, reflecting the strong commitment of these cities to culture, creativity, and human-centred urban planning.

Key Points

- UNESCO announced that Kozhikode and Gwalior have joined the UNESCO Creative Cities Network (UCCN) for their remarkable contributions to literature and music.
- UNESCO Director-General Audrey Azoulay acknowledged these cities for their dedication to harnessing culture and creativity as integral components of their development strategies.
- The Creative Cities Network recognizes innovative urban planning practices that prioritise culture and human-centred approaches.
- Prime Minister Narendra Modi congratulated the people of Kozhikode and Gwalior for this significant achievement.

Upcoming Participation

- The recently designated Creative Cities have been extended an invitation to participate in the upcoming 2024 UCCN Annual Conference, which is set to take place from July 1 to July 5, 2024, in Braga, Portugal.

6. Kerala village bets big on mushroom coffee brand

- Lalu Thomas, hailing from rural Thalavoor in Kerala, has defied the odds by launching La Bae, potentially Kerala's first mushroom coffee brand, with the support of the Krishi Vigyan Kendra.
- The product, which initially lacked a solid business plan, has made a significant mark in export and online markets, achieving a monthly turnover of over ₹1 lakh in just a few months.
- The success of La Bae has inspired the local Thalavoor panchayat to introduce "Koon Gramam," a project to promote mushroom cultivation in the area, with a focus on training around 100 farmers, primarily women.
- Various mushroom varieties, such as oyster, button, lion's mane, milky, and turkey tail, are used in La Bae, along with organic arabica coffee beans from Wayanad.
- Future plans include introducing additional products like mushroom chocolate and mushroom cookies.

7. Myanmar loses control over Chinshwehaw

- Myanmar's military has faced significant challenges in maintaining control over a strategic town on the Chinese border.
- The town in question, Chinshwehaw, has seen days of clashes between the military and ethnic armed groups.
- The junta spokesperson announced that government institutions, administrative organisations, and security forces are "no longer present" in Chinshwehaw.
- This town is a crucial trade hub that borders China's Yunnan province, making it of strategic importance.
- The loss of control by the military follows ongoing clashes between the Myanmar military and various ethnic armed groups operating in the region.
- Ethnic armed groups have been seeking greater autonomy and representation within Myanmar, leading to conflicts with the military.
- The loss of Chinshwehaw could have significant implications for the military's control over the border region and its relationship with neighbouring China.
- It underscores the challenges faced by the military in maintaining authority and security in various parts of the country.

8. Russia revokes CTBT ratification

Introduction

- Mr Vladimir Putin, the President of Russia, has put his signature on a bill that annuls Russia's formal acceptance of a worldwide treaty banning nuclear tests, the CTBT.

Reason for Revocation

- Moscow claims that this move is necessary to establish parity with the United States.
- President Putin has asserted that rescinding the ratification of the treaty is intended to "mirror" the U.S.'s stance on the treaty.

The Global Nuclear Test Ban Treaty

- The Comprehensive Nuclear-Test-Ban Treaty (CTBT), which is its formal name, is a global agreement with the goal of prohibiting all nuclear explosions, whether for civilian or military purposes.
- The United States has signed the CTBT but has not ratified it, meaning it is not legally bound by its provisions.

Implications

- Russia's decision to revoke the ratification of the CTBT raises questions about global efforts to curb nuclear testing and the stability of arms control agreements.
- It may impact international efforts to prevent nuclear proliferation and maintain global security.

9. Stubble burning & Delhi's Air Quality

Severe Air Quality

- The air quality in Delhi reached the 'severe' category, marking the first such occurrence of this season.
- The Central Board of Pollution Control recorded a 24-hour average air quality index (AQI) of 392 at 4 pm on 2nd November 2023, which had risen from 364 the previous day.

Air Quality Index (AQI) Categories

- AQI readings range from 0 to 500, with higher values indicating increased air pollution.
- Categories: 'good' (0-50), 'satisfactory' (51-100), 'moderate' (101-200), 'poor' (201-300), 'very poor' (301-400), and 'severe' (401-500).

Immediate Actions Taken

- The Commission for Air Quality Management (CAQM) in Delhi-NCR imposed a ban on construction and demolition activities, with exceptions for essential projects.
- Delhi Chief Minister Arvind Kejriwal announced the closure of all government and private primary schools in Delhi on November 3 and 4 due to rising pollution.

Worsening Air Quality in the Evening

- By 7 p.m. on 2nd November 2023, the air quality in Delhi had deteriorated to an AQI of 410 ('severe' category), and it further worsened to an AQI of 427 at 11 p.m.
- Other areas in the National Capital Region (NCR) had varying air quality levels, with Greater Noida in the 'severe' category, Gurugram 'poor,' and Faridabad and Noida 'very poor.'

Ban on Certain Vehicles

- CAQM also banned BS-III petrol and BS-IV diesel light motor vehicles (LMVs, four-wheelers) in Delhi and the districts of Faridabad, Gurugram, Gautam Buddh Nagar, and Ghaziabad.
- The restrictions will be implemented upon issuance of orders by the respective State governments. Violators may face a ₹20,000 fine.

Closure of Activities

- The CAQM measures included the shutdown of stone crushers, mining, and related activities in the NCR.
- Delhi and NCR States were directed to consider discontinuing physical classes for children up to Class 5 in schools and conducting online classes.

Stage 3 of the Graded Response Action Plan (GRAP)

- These measures are part of Stage 3 of the Graded Response Action Plan (GRAP), which is a set of emergency measures aimed at reducing air pollution.
- The CAQM emphasised the urgent implementation of all actions outlined under Stage 3 of the GRAP by relevant agencies in the NCR.

10. National Dam Safety Authority**Context:**

- The National Dam Safety Authority (NDSA) conducted an investigation into the sinking of piers in Block-7 of the Medigadda (Laxmi) Barrage of the Kaleshwaram irrigation project in Telangana.
- The six-member expert team from NDSA discovered serious issues related to the planning and design of the project.

Issues:

- **Incomplete Information from State Government:**
 - The expert panel received information on only 11 out of the 20 aspects (data/inputs) requested from the State government.
 - Inadequate data sharing hindered a comprehensive assessment of the situation.
- **Barrage Raft Settlement:**
 - The primary reason for the failure was identified as the settlement of the barrage raft.
 - This settlement caused movement and cracking of the monolith piers.
- **Quality Control Deficiencies:**
 - The construction of sub-surface contiguous secant piles and plinth connections between the raft and cut-offs lacked stringent quality control.
 - Gaps may have developed in the secant pile formation, resulting in the permeability of the barrier, which contributed to piping and progressive failure.
- **Design and Construction Methodology Replication:**
 - The issues identified in the Medigadda Barrage design and construction could be replicated in two other barrages, namely Annaram and Sundilla barrages, which share similar designs and construction methodologies.

Dam Safety Act, 2021:

- The Act provides for the surveillance, inspection, operation, and maintenance of all specified dams across the country.
- These are dams with a height of more than 15 metres, or heights between 10 m and 15 m with certain design and structural conditions.
- The National Committee on Dam Safety (NCDS) improvises policies and recommends regulations regarding dam safety standards.
- The National Dam Safety Authority (NDSA) implements the policies of the NCDA and provides technical assistance to State Dam Safety Organisations (SDSOs) and resolves disputes involving an SDSO.

11. Zika Virus**Context:**

- The Karnataka Health Department is closely monitoring a situation in Chickballapur following the discovery of Zika-positive mosquito samples in Thalakayalbetta village.
- Serum samples from 30 pregnant women in five villages within the containment zone have been sent to the National Institute of Virology (NIV) for testing.
- The containment zone encompasses 888 houses and a population of 4,282, all under intense surveillance.

Issues:

- **Zika Virus Outbreak:**
 - Mosquito samples collected in Thalakayalbetta village tested positive for the Zika virus.
 - This has raised concerns about the outbreak and its potential impact on the population.
- **Pregnant Women's Health:**
 - The health of 30 pregnant women is at risk due to the presence of Zika virus-carrying mosquitoes in their vicinity.
 - Zika virus infection during pregnancy can lead to birth defects, making this a critical issue.
- **Surveillance and Testing:**
 - There is a need for intensive surveillance and testing of mosquito populations and human samples to understand the scope of the outbreak and its transmission.
- **Communication and Reporting:**
 - Importance of timely and accurate communication between the state health department, the NIV, and other relevant health authorities.

About Zika Virus:

- Zika Virus infection is caused by the Zika Virus (ZIKV) belonging to the Flaviviridae family.
- It is an infection transmitted through the bite of infected female mosquitoes, *Aedes aegypti* and *Aedes albopictus*.
- It usually bites during the daytime, peaking during early morning and late evening. Zika virus infection during pregnancy results in birth defects in newborn babies, a condition called microcephaly and can also cause temporary paralysis in adults.

12. India will work with Sri Lanka on its debt treatment**Context:**

- Finance Minister Nirmala Sitharaman held discussions with Sri Lankan President Ranil Wickremesinghe in Colombo.
- The discussions encompassed various aspects of cooperation, including debt treatment, inter-grid connectivity, aviation, power projects, and oil exploration.
- An MoU was exchanged to provide \$15 million in assistance to promote Buddhist ties between the two countries.

Details:

- **Debt Treatment for Sri Lanka:** Sri Lanka has been grappling with a significant debt burden, and this issue has implications for the country's economic stability and development.
- **Cooperation in Multiple Sectors:** India and Sri Lanka seek to strengthen their cooperation in various sectors, including inter-grid connectivity, aviation, power projects, and oil exploration.
- **Buddhist Ties Promotion:** The MoU exchanged for \$15 million assistance highlights the importance of promoting cultural and religious ties, particularly in the context of Buddhist heritage.

Significance:

- India's commitment to working with Sri Lanka on debt treatment reflects its role as a regional partner in helping stabilize Sri Lanka's economy.
- Cooperation in multiple sectors demonstrates the broader scope of the bilateral relationship, fostering economic growth and regional connectivity.
- The promotion of Buddhist ties reinforces cultural and religious connections, further deepening the historical links between the two nations.

13. India opens new consulate in Seattle

Context: After seven years of planning, the Indian government is on the verge of opening its sixth consulate in the United States, specifically in Seattle, a city known for its concentration of major technology companies.

Details:

- **Delayed Implementation:**
 - The proposal to open a consulate in Seattle was first announced in 2016 but faced significant delays and obstacles.
 - The reasons behind the delays, especially the complexities surrounding the diplomatic relationship between India and the U.S., need clarification.
- **Reciprocal U.S. Plan:**
 - The original proposal was part of a reciprocal plan where the U.S. was expected to open new consulates in India.
 - This highlights the diplomatic give-and-take in such decisions and necessitates a review of the status of the U.S. plan.
- **Operationalization Process:**
 - The process of operationalizing the new consulate in Seattle will require careful planning and coordination, considering the staff requirements and logistical arrangements.

Significance:

- The establishment of the consulate in Seattle holds substantial significance in terms of diplomatic outreach and strengthening ties with a region that is home to numerous prominent technology companies.
- It reflects India's intention to expand its diplomatic presence in the United States and cater to the needs of its diaspora, especially in a tech-centric area.
- The move symbolizes India's commitment to fostering closer relations with the United States, given the context of "2+2" talks between the two nations.

14. Pradhan Mantri Garib Kalyan Anna Yojana

Context: Prime Minister has announced the extension of the Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) for another five years. The scheme, initially introduced in 2020 as a pandemic relief measure, provides 5 kg of free foodgrains monthly to 80 crore beneficiaries, in addition to the 5 kg of subsidised food grains allocated under the National Food Security Act.

Significance:

- **Continued Food Security:** The extension of PMGKAY ensures continued food security for 80 crore Indians, especially the economically disadvantaged, during a time when economic uncertainties and challenges persist.
- **Pandemic Relief:** The scheme was originally launched as a response to the economic hardships caused by the COVID-19 pandemic. Its extension reflects the government's commitment to providing relief and support in the post-pandemic recovery phase.

Poverty Alleviation: PMGKAY has been a critical tool in the government's efforts to alleviate poverty. The PM highlighted the government's achievements in lifting 13.5 crore people out of poverty, underscoring its commitment to empowering vulnerable communities.

15. National Ambient Air Quality Standards

Context: Delhi's air quality crisis has worsened, with the concentration of the hazardous pollutant PM2.5 at Anand Vihar soaring to over 33 times the prescribed safety limit.

- As the city grapples with toxic air for the fifth consecutive day, Delhi Environment Minister Gopal Rai has requested an emergency meeting with Union Environment Minister Bhupender Yadav to address the pressing issue.

Issues:

- **Dangerous PM2.5 Levels:** PM2.5 is a toxic particulate matter that poses severe health risks when inhaled. The recorded levels in Anand Vihar, far above the safe limit, have immediate and long-term health implications for residents.
- **Worsening Air Quality:** The continuous deterioration of air quality in Delhi is a concerning issue that affects the well-being of the population, particularly those with respiratory and cardiovascular conditions.

Vehicular Pollution: The role of vehicular pollution in deteriorating air quality is a significant concern. The request to allow only CNG, electric, and BS VI-compliant vehicles reflects the need to address this source of pollution.

16. IL-38 decommissioned

Context: The Indian Navy bids adieu to its IL-38 Sea Dragon aircraft, marking the end of a remarkable journey that commenced on October 1, 1977, with the commissioning of the Indian Naval Air Squadron (INAS) 315 at Goa.

Details:

- **Aircraft De-Induction:** The retirement of the IL-38 Sea Dragon marks the end of an era in the Indian Navy's long-range maritime surveillance capabilities.
- **Maintenance Challenges:** Over the years, it became increasingly difficult to maintain the aging aircraft, prompting the need for its retirement.

Transition to Newer Technologies: The Navy is transitioning to a fleet of Dornier aircraft for lower-end surveillance and P-8Is for higher-end surveillance. Additionally, it plans to induct C-295 aircraft for medium-range maritime patrol and enhance its capabilities with long-endurance unmanned aerial vehicles.

17. Butler Palace

Context: Butler Palace, a once-grand three-storey structure in Lucknow, is set to undergo a transformation from a long-deserted and rumored-to-be 'haunted' building to a tourist attraction.

- The palace, initially built a century ago in a blend of Rajasthani and Indo-Mughal architectural styles, has a storied history linked to the royal family of Mahmudabad. However, it was declared an "enemy property" by the Indian government in the 1960s.

Details:

- **Abandonment and Neglect:** Butler Palace has remained deserted and in darkness for many decades, with rumors of it being 'haunted.' It has also been subject to vandalism and theft by trespassers seeking valuable parts.
- **Legal Battle:** The property's ownership has been a subject of a long-standing legal battle, with its classification as an "enemy property" complicating the matter.
- **Historical and Cultural Neglect:** The palace, once frequented by notable figures like Jawaharlal Nehru and post-Independence political leaders, stands as a historical and cultural heritage site that has been overlooked.

Significance:

- **Historical Relevance:** Butler Palace has historical significance, having hosted prominent individuals during the pre- and post-Independence eras.
- **Heritage Restoration:** The restoration project holds the potential to revive and preserve the architectural and cultural heritage of the region.

Tourism Attraction: The renovation and development of the palace and surrounding areas can contribute to local tourism, benefiting the region economically.

18. H. pylori bacteria

Context: The National Institute of Cholera and Enteric Diseases (NICED), Kolkata, has developed a two-step PCR-based assay to detect *Helicobacter pylori* (*H. pylori*) infection, identify clarithromycin-resistant bacteria, and distinguish drug-sensitive strains.

- *H. pylori* is a bacterium that affects a substantial portion of the Indian population and is linked to peptic ulcers, gastric cancer, and other gastrointestinal disorders.

Significance:

- **Quick Detection:** The new PCR-based assay offers rapid detection of *H. pylori* infection and distinguishes between drug-resistant and drug-sensitive strains in six to seven hours, significantly reducing diagnosis and treatment delay.
- **High Sensitivity and Specificity:** The assay demonstrates 100% sensitivity and specificity, ensuring accurate results.
- **Effective Treatment:** Timely identification of drug-resistant strains enables more targeted and effective treatments for *H. pylori* infections.

19. Korai paai grass mats of Tamil Nadu

Context: In the interiors of South India, mats crafted from dry grass cultivated along the banks of the Cauvery River in Karur district, Tamil Nadu, hold a unique place in homes.

- These mats, known as “korai paai” in Tamil, are a testament to the skilled craftsmanship and traditional weaving practices that have been a part of South Indian culture for generations.

Details:

- **Traditional Craft Fading:** The traditional method of weaving straw mats is gradually fading due to the lack of interest among the younger generation in learning and continuing this craft.
- **Economic Viability:** Weavers face challenges in making this craft economically viable, which has further contributed to its decline.
- **Cultural Heritage:** The making of straw mats represents a significant part of South Indian cultural heritage, reflecting the traditional practices and skills of the region.
- **Functional Art:** These mats are not merely decorative; they serve a practical purpose by providing comfort, especially during hot summer nights.

Wedding Tradition: Straw mats are a popular choice for wedding gifts in the region, symbolizing the importance of this craft in South Indian traditions.

20. Pradhan Mantri Awas Yojana**Background**

- Andhra Pradesh government rebranded the Union government's Pradhan Mantri Awas Yojana-Gramin (PMAY-G) as Pradhan Mantri Awas Yojana-YSR.
- The state added its own branding and logo to the scheme.
- The Union Finance Ministry has temporarily withheld ₹4,000 crore allocated for “special assistance to the State for capital investment.”
- An additional ₹1,300 crore in pending PMAY-G funds remains unreleased.

PMAY-G Scheme Details

- To achieve the objective of ‘Housing for All’ by 2022 and the erstwhile rural housing scheme Indira Awaas Yojana was restructured to Pradhan Mantri Awaas Yojana- Gramin (PMAY- G) w.e.f 1st April 2016.
- **Ministry involved:** Ministry of Rural development
- **Aim:** To provide a pucca house with basic amenities to all rural families, who are homeless or living in kutcha or dilapidated houses by the end of March 2022.
 - To help rural people Below the Poverty Line (BPL) in construction of dwelling units and upgradation of existing unserviceable kutcha houses by providing assistance in the form of a full grant
- **Beneficiaries:** People belonging to SCs/ STs, freed bonded labourers and non-Sc/ST categories, widows or next-of-kin of defence personnel killed in action, ex-servicemen and retired members of the paramilitary forces, disabled persons and minorities.
- **Selection of Beneficiaries:** Through a three stage validation- Socio Economic Census 2011, Grama Sabha and Geo-tagging.

- **Cost sharing:** The cost of unit assistance is shared between central and state governments in the ratio 60:40 in plan areas and 90:10 for North Eastern and hilly states.

21. Malerkotla's Mubarak Manzil

Historical Significance

- The 19th-century palace, Mubarak Manzil, in Malerkotla, Punjab, represents a neglected heritage that holds not only architectural value but also deep sentimental importance for Sikhs and Muslims.

Ageing and Unfulfilled Wishes

- The recent passing of Begum Munawwar-ul-Nisa, the 103-year-old wife of Malerkotla's last ruler Nawab Iftikhar Ali Khan, highlights the sad state of the palace.
- She couldn't witness the restoration of the palace to its original glory before her demise.

Hopes in 2021

- In 2021, the Congress government approved the acquisition and conservation of the palace, raising hopes for its revival.
- However, the restoration work is yet to commence, causing disappointment.

Begum Nisa's Efforts

- Begum Nisa recognized the palace's historical value and expressed her last wish to see it restored.
- After resolving a family dispute and facing financial constraints, she handed over around 29 rooms of the palace to the government, keeping one for herself.

Unrealized Restoration

- Despite the family's hopes and efforts, no restoration work has started, even though a team of experts visited the palace in 2022.

Sikh Historical Importance

- Malerkotla has significant historical importance in Sikh history, particularly for its association with Nawab Sher Mohammed Khan.
- Nawab Sher Mohammed Khan protested against the execution of Guru Gobind Singh's sons, earning the respect of Sikhs and Guru Gobind Singh's blessings for Malerkotla's peace.

Sentiments of the People

- Both Muslims and Sikhs hold deep regard for the Malerkotla royal family due to this historical connection.
- Gurcharan Singh Grewal, SGPC's general secretary, emphasises the importance of preserving the heritage palace for these communities.

Government Response

- Malerkotla's Deputy Commissioner, Palavi, acknowledges the sentiments of the people and commits to taking necessary steps for the early restoration of the palace.

22. Bulava missile

ICBM Test Success

- Russia announced on Sunday that it had conducted a successful test launch of an intercontinental ballistic missile (ICBM).
- This ICBM, named "Bulava," is capable of carrying nuclear warheads. The test launch is part of Russia's recent escalation in nuclear rhetoric.
- Russia's actions follow the revocation of its ratification of a significant nuclear test ban treaty, signalling an increased focus on its nuclear capabilities.

23. Bharat Atta

Introduction

- In response to rising wheat flour (atta) prices during the festival season, the Union Food and Consumer Affairs Ministry has taken steps to release additional stocks of the 'Bharat' brand atta.
- This initiative is aimed at making affordable wheat flour accessible to consumers.

Distribution Mechanisms

- The Ministry is releasing Bharat Atta through various channels, including 100 mobile vans and outlets of Kendriya Bhandar, National Cooperative Consumers' Federation of India Ltd. (NCCF), and National Agricultural Cooperative Marketing Federation of India Ltd. (NAFED).

Pricing

- Bharat Atta will be made available at a cost of ₹27.50 per kilogram, which is significantly below the national average price of flour, recorded at ₹35.93 per kilogram.

Objective and Benefits

- The launch of the retail sale of Bharat Atta aims to increase the supply of wheat flour in the market at affordable rates.
- The effort is expected to help control and moderate the prices of this essential food item, ensuring that consumers can access it without significant financial burden.

Union Food Minister's Statement

- Union Food Minister Piyush Goyal expressed that this initiative would facilitate the availability of wheat flour in the market at reasonable prices, thereby ensuring continued affordability for consumers.
- He officially initiated the sale of Bharat Atta as part of this effort.

24. WHO Global TB report**Introduction**

- The recently released WHO Global TB Report for 2022 shows a significant global recovery in the number of people diagnosed with tuberculosis (TB) and treated after two years of COVID-19-related disruptions.
- Despite this recovery, TB remains the world's second leading cause of death from a single infectious agent, and global TB targets have either been missed or are off track.

Key Findings

- In 2022, the reported global number of people newly diagnosed with TB was 7.5 million, the highest number since WHO began global TB monitoring in 1995.
- This number exceeded the pre-COVID baseline of 7.1 million in 2019 and was up from 5.8 million in 2020 and 6.4 million in 2021.
- The 2022 number likely includes a backlog of people who developed TB in previous years, with delayed diagnosis and treatment due to COVID-19 disruptions affecting healthcare access and services.

Regional Recovery

- Countries like India, Indonesia, and the Philippines, which accounted for nearly 60% of the reduction in the number of people newly diagnosed with TB in 2020 and 2021, recovered to levels above those of 2019 in 2022.
- TB caused an estimated 1.30 million deaths in 2022, returning to levels similar to 2019.
- COVID-19-related disruptions are estimated to have resulted in nearly half a million excess TB-related deaths in the three years from 2020 to 2022.

Global Targets and Progress

- Despite the recovery, the net reduction in TB cases from 2015 to 2022 was only 8.7%, far from the WHO End TB Strategy milestone of a 50% reduction by 2025.
- Global TB targets have been missed or remain off track, indicating the challenges in combating the disease.

25. How are the MiG21 fighter jets being phased out?**Introduction**

- On October 31, 2023, the Indian Air Force (IAF) conducted the final flight of MiG-21 fighter jets, marking the end of their service.
- The MiG-21, the first supersonic fighter in the IAF, had been in service since its induction in 1963. It has played a significant role in various conflicts and has served for over six decades.

Service Record of MiG-21

- The MiG-21 fighter jet has been an integral part of the IAF, having participated in major conflicts and operations.
- More than 800 variants of this supersonic fighter were inducted into service, and it remained the IAF's frontline fighter for a considerable period.
- It played a vital role in Indo-Pak conflicts and demonstrated its capabilities during the 1971 War of Bangladesh.
- The MiG-21 also contributed to the success of night operations during the 1999 Kargil conflict, affecting the enemy's resilience and will to fight.

Phasing Out MiG-21

- The phasing out of the MiG-21 was long overdue, as newer inductions, such as the LCA Tejas and Rafale fighter jets, were delayed.
- Two squadrons of the LCA Tejas and two squadrons of Rafale fighter jets have already been integrated into the Indian Air Force, bolstering the squadron count to exceed 30.
- The IAF signed a contract with Hindustan Aeronautics Limited (HAL) for 83 LCA Mk1A aircraft in January 2021, with deliveries expected to commence in early 2024.
- The LCA Mk1A will be the primary replacement for the MiG-21 in the IAF, with plans to acquire an additional 97 LCA Mk1A variants.

The Role of New Aircraft

- The IAF is also developing a larger LCA-Mk2 and the fifth-generation Advanced Medium Combat Aircraft (AMCA) to bolster its fleet.
- While these aircraft are under development and will take time to be available in significant numbers, the LCA-Mk1A will form a substantial portion of the IAF's force.

Significance of Phasing Out MiG-21

- The retirement of the MiG-21 marks a shift towards modernization and the induction of advanced, indigenous fighter aircraft in the Indian Air Force.
- The IAF will continue to strengthen its squadron strength with new and more capable aircraft, aiming to maintain its combat readiness and capabilities.

26. Kerala moves SC against Governor again

- Kerala government moves Supreme Court against Governor Arif Mohammed Khan for delaying crucial bills.
- Accuses the Governor of violating people's rights and the right to life by delaying post-COVID public health concerns.
- The state argues that the Governor's actions are arbitrary and violate Article 14 (right to equality) and Article 21 (right to life) of the Constitution.
- The special leave petition challenges a Kerala High Court judgement from November 30, 2022, that refused to set a time limit for the Governor to act on bills.
- State government points to Article 200, which mandates the Governor to act "as soon as possible" when presented with a bill.
- Eight key bills are currently pending with the Governor, some for over two years.
- The Governor's view of absolute discretion in dealing with bills is seen as a subversion of the Constitution.

27. Kerala forms Organic Farming Mission to boost agriculture

- The Kerala Government established an Organic Farming Mission for sustainable farming.
- Mission's goal: Expand organic farming to 5,000 hectares in 5 years (1,000 ha annually).
- Mandate: Allocate 10% of Agriculture Department farms for organic farming.
- Ensure beneficiaries/farms continue organic farming for at least 5 years.
- Mission works on certification, branding, and marketing of Kerala's organic products.
- Implements national and international organic farming protocols.
- Focuses on value addition of organic products.

28. World will overshoot 2030 fossil fuel limit by twice over: report

- The Production Gap Report, released by SEI, Climate Analytics, E3G, IISD, and UNEP, assesses governments' fossil fuel production plans.
- The report analyses emissions trends in 20 major fossil fuel-producing countries.
- The report says that despite global consensus on reducing fossil fuel emissions, government's plan to double fossil fuel production by 2030.
- This exceeds limits for limiting global warming to 1.5 and 2 degrees Celsius.
- All this is happening when 151 governments have pledged to achieve Net-Zero emissions by 2050-2070.
- Forecasts show coal, oil, and gas production increasing until 2030 and beyond, creating a fossil fuel production gap.
- The upcoming COP Summit in Dubai aims to address fossil fuel emissions and promote renewable energy.

29. Nagaland nod for 33% quota for women in urban local bodies

- The Nagaland Assembly unanimously approved a Bill, allocating 33% of seats in urban local bodies (ULB) for women.
- Tribal bodies, which were previously against it, have now embraced the reservation, clearing the path for municipal elections after a hiatus of two decades.
- ULB elections have been overdue since 2004 due to unresolved Naga peace talks and tribal opposition to 33% women reservation.
- The Nagaland Municipal Bill, 2023, omits the provisions related to taxes on land and buildings, meeting the demands of certain stakeholders.
- The bill eliminates the previous provision that allocated one-third reservation for women in the offices of the chairperson in Urban Local Bodies (ULBs).

30. Vibrant village program

Context: Union Home Minister, addressing the 62nd Raising Day parade of the Indo-Tibetan Border Police (ITBP), announced plans to connect 168 villages along the China border with road and communication infrastructure within a year. Emphasizing the importance of development in border areas for national security, he highlighted the significance of the Vibrant Village Programme (VVP) in ensuring facilities reach these regions.

Issues:

- Lack of connectivity in 168 villages along the China border poses challenges.
- Migration from border villages could compromise national security.
- Development in border areas is crucial for overall safety and security.

Significance:

- Security concerns are addressed by connecting remote border villages.
- VVP is designed to extend facilities and infrastructure to these geographically crucial areas.
- ITBP, as the primary force along the China border, plays a pivotal role in safeguarding national interests.

About Vibrant Village Programme

- It is a centrally sponsored scheme, announced in the Union Budget 2022-23 (to 2025-26) for the development of villages on the northern border, thus improving the quality of life of people living in identified border villages.
- It will cover the border areas of Himachal Pradesh, Uttarakhand, Arunachal Pradesh, Sikkim and Ladakh. It will cover 2,963 villages with 663 of them to be covered in the first phase.
- Vibrant Village Action Plans will be created by the district administration with the help of Gram Panchayats.
- There will not be an overlap with the Border Area Development Programme.

Objectives

- The scheme aids in identifying and developing the economic drivers based on local, natural, human and other resources of the border villages on the northern border.
- Development of growth centres on the 'hub and spoke model' through the promotion of social entrepreneurship, and empowerment of youth and women through skill development and entrepreneurship.
- Leveraging the tourism potential through the promotion of local, cultural, and traditional knowledge and heritage.
- Development of sustainable eco-agri businesses on the concept of 'one village-one product' through community-based organisations, cooperatives, and NGOs.

31. Moody's downgrades US credit rating

Context: Moody's shifts U.S. credit outlook from 'stable' to 'negative' due to fiscal deficits and declining debt affordability.

- **Concerns over Federal Spending and Political Polarization:** Investor concerns rise over federal spending and political polarization contributing to a selloff in U.S. government bonds.
- **Analyst Perspectives and Fiscal Outlook:** Analysts express agreement with Moody's rationale, foreseeing continued large deficits and growing debt burden in the absence of fiscal consolidation.
- **Political Polarization Risks in Congress:** Moody's highlights the risk of political polarization hindering Congress's ability to reach a consensus on a fiscal plan, delaying potential policy responses until 2025.
- **Republican Response and Stopgap Spending Measure:** Republicans, controlling the House, plan a stopgap spending measure to avoid a government shutdown, emphasizing concerns over rising deficits.
- **Moody's Position Among Major Rating Agencies:** Moody's is the last major agency to maintain a top U.S. rating; Fitch downgraded to AA+ in August, aligning with S&P's AA+ since 2011.
- **Biden Administration's Pushback:** The White House disputes the negative outlook, attributing it to Republican extremism, emphasizing the U.S. economy's strength and global confidence in Treasury securities.
- **Treasury Secretary's Response and Fiscal Sustainability:** The Deputy Treasury Secretary defends the administration's commitment to fiscal sustainability, citing deficit reduction measures and a proposal to cut the deficit by \$2.5 trillion.
- **Impact on Treasury Yields and Debt Affordability:** Moody cites the sharp rise in Treasury yields, impacting debt affordability, while investors remain sceptical about a significant impact on the U.S. bond market.
- **Market Reaction and Government Shutdown Concerns:** Investors view the downgrade as a reminder of potential fiscal challenges, raising concerns about another government shutdown and emphasizing the urgency for funding legislation.
- **Biden's Poll Ratings and Election Outlook:** Moody's decision coincides with a decline in Biden's poll ratings; a New York Times/Siena poll shows him trailing in key battleground states.
- **Pressure on Congressional Republicans:** Moody's downgrade increases pressure on congressional Republicans to advance funding legislation and address the growing national debt.
- **Infighting and Budget Deficits:** Infighting among House Republicans and historical actions by both parties contribute to budget deficits, highlighting challenges in addressing rising Social Security and Medicare costs.

32. Village Defence Guards

Context: Village defence guards in Rajouri, J&K, opened fire on suspicion. No injuries were reported. Precautionary cordon and search operation underway.

Time and Location:

- The incident occurred around 4 a.m. in upper Dhangri, a village in Jammu and Kashmir's Rajouri district.
- This village had previously witnessed a terrorist attack resulting in seven casualties earlier in the year.

Actions of Village Defence Guards (VDGs):

- Village defence guards, responsible for local security, opened fire in response to observing suspicious movements.
- Approximately two dozen rounds were fired by the VDGs.

Absence of Casualties: Fortunately, no injuries were reported as a result of the firing incident.

Previous Attack: The village had experienced a tragic terrorist attack earlier in the year, where seven individuals lost their lives.

Nature of Firing: The firing was directed towards an area outside a house in the village, indicating a proactive response to potential threats.

Security Measures Taken:

- In response to the incident, the police and army initiated a cordon and search operation in the village and surrounding areas.
- This operation is considered a precautionary measure to ensure the safety and security of the region.

33. Leather puppetry in Godavari

Context: The ancient art of leather puppetry in Andhra Pradesh is facing extinction due to changes in religious affiliations, impacting livelihoods.

Migration and Settlement:

- Puppeteers migrated from Maharashtra, settling in Madhavapatnam near Kakinada, Andhra Pradesh, in the 1980s.
- Telugu actress Jamuna assisted in securing house sites for approximately 300 families.

Religious Shift and Decline:

- The majority of puppeteers embraced another faith, leading to a decline in practitioners.
- Presently, only about 60 puppeteers remain, organized into five troupes.

Impact of Religious Conversion:

- Puppetry, based on Hindu mythology, faces challenges as performers must recite tales from Hindu epics.
- New religious affiliations prompt many to quit puppetry, affecting the survival of the art.

Financial Struggles:

- COVID-19 restrictions have severely impacted puppetry shows, leaving families struggling for livelihoods.
- Lack of performances leads to financial distress, pushing some puppeteers to beg on the streets.

Generational Impact:

- Younger artists manage alternative work, while older ones, dedicated to puppetry, suffer psychological shock.
- Lack of performance and patronage, along with the influence of digital media, contribute to their plight.

Dwindling Female Voices:

- Puppet plays require female voices for characters, with fewer than a dozen proficient women performers.
- Limited script availability and the absence of written formats pose challenges for learning and preserving the art.

Craftsmanship Challenges:

- Puppeteers craft puppets from goat skin, but difficulties arise in obtaining orders for new puppets.
- Traditional craftsmanship, involving natural colors, struggles to attract attention and order.

Lack of Succession:

- Efforts by the State government to groom youths in puppetry have not resulted in serious pursuit of the art.
- Young individuals are disinterested due to a perceived lack of livelihood opportunities.

Adaptation and Experimentation:

- Puppeteers rewrite plays to incorporate contemporary themes for government programs, with reduced duration.
- Attempts to create decorative puppets, like lampshades, aim to sustain the craft but face market challenges.

Cultural Significance:

- Puppeteers express concern about being potentially the last generation associated with puppetry in the Godavari region.
- Despite challenges, puppeteers continue to experiment and adapt to keep the ancient craft alive.

34. Sea Guardian Naval Exercise

- China and Pakistan conducted the Sea Guardian-3 naval exercise in the northern Arabian Sea.
- The exercise includes their maiden joint maritime patrol, scheduled from November 11 to 17.
- It comes after the India-U.S. 2+2 Ministerial dialogue with a focus on Indo-Pacific maritime security.
- India announces full membership in Combined Maritime Forces (CMF), where Pakistan is already a member.
- Comes after Russia and Myanmar's first naval exercise in the Andaman Sea.

35. GeM Portal

- GeM portal, launched on August 9, 2016, facilitates online purchases for central government ministries and departments.
- Government e-Marketplace (GeM) procurement exceeds ₹2 lakh crore in the current fiscal.
- Commerce and Industry Minister Piyush Goyal announced the achievement in just eight months of 2023-24.
- Procurement value in 2021-22 was ₹1.06 lakh crore, and it surpassed ₹2 lakh crore last year.
- With the current trend, the procurement may exceed ₹3 lakh crore this year.
- GeM boasts over 63,000 government buyer organisations and over 62 lakh sellers and service providers.

36. Mining Auction of Critical Minerals

- The government is to invite bids for 20 critical mineral blocks, including lithium and graphite mines, in the next two weeks.
- The blocks include minerals like lithium and graphite, with 10-12 players in the country having the technology for production and processing.
- After the auction notice, stakeholders will collaborate to develop a national-level strategy for mining and processing critical minerals.
- In October 2023, the Central government sanctioned royalty rates of 3% for lithium and niobium, and 1% for Rare Earth Elements (REEs).
- Critical minerals, especially lithium and REEs, are vital for India's energy transition and commitment to achieving net-zero emissions by 2070.

37. ADMM & ADMM+

- Defence Minister Rajnath Singh is set to participate in the 10th ASEAN Defence Ministers' MeetingPlus (ADMMPlus) in Jakarta, where discussions will focus on matters related to regional and global security.
- ADMM is the highest defence consultative and cooperative mechanism in ASEAN.
- ADMM-Plus comprises ASEAN member nations and dialogue partners, including India, the United States, China, Russia, Australia, South Korea, Japan and New Zealand.
- India became an ASEAN dialogue partner in 1992, and the inaugural ADMMPlus was in 2010.
- The annual meetings aim to enhance cooperation among ASEAN and the Plus countries in security and defence.

38. Anti-Smog Guns

- Delhi government launches 50 mobile 'anti-smog guns' to address the city's severe air quality.
- An anti-smog gun is a device designed to spray atomized water into the atmosphere, effectively absorbing dust and contaminants from the air in order to mitigate air pollution.
- Mounted on a vehicle and linked to a water tank, the apparatus can be transported throughout the city to spray water and settle dust and other suspended particles.

39. PM-PVTG Development Mission

- Prime Minister Narendra Modi launched the PM-PVTG Development Mission, aiming to uplift Particularly Vulnerable Tribal Groups (PVTGs) who have been deprived of basic amenities.
- The Rs. 24000 crore mission is aimed at the development of the PVTGs.
- This mission targets 75 Particularly Vulnerable Tribal Groups across the country.
- As a component of the mission, essential amenities like road and communication networks, electricity, secure housing, potable water, sanitation, enhanced educational access, improved healthcare and nutrition, and sustainable livelihood prospects will be extended to the regions inhabited by these tribal groups. These areas are predominantly remote, dispersed, and difficult to reach.
- Emphasises moving beyond mere counting and classification, focusing on bringing people together.

Particularly Vulnerable Tribal Groups (PVTGs)

- During the Fourth Five Year Plan, a sub-category was created within Scheduled Tribes to identify the most vulnerable groups which were considered to be at the lowest levels of development.
- Consequently, on the basis of the Dhebar Commission report, a criterion for identifying Particularly Vulnerable Tribal Groups was established as:
 - Pre-agricultural level of technology,
 - Low level of literacy,
 - Economic backwardness,
 - A declining or stagnant population.
- As per Census 2011, there are a total of 75 PVTGs out of 705 Scheduled Tribes, spread over 17 states and one Union Territory (UT).
- The categorization is done by the Ministry of Home Affairs and not by the Ministry of Tribal affairs.
- PVTGs of Sentinelese and Andamanese have a very small population of 39 and 43, respectively.
- Odisha has the highest number of PVTGs in India while no PVTGs are found in the states of Punjab and Haryana.

40. Greenhouse Gas Bulletin

- The United Nations has warned that the greenhouse gas concentrations in the atmosphere reached new record highs in 2022.
- The World Meteorological Organization (WMO) reports record levels of carbon dioxide, methane, and nitrous oxide.
- The 19th annual Greenhouse Gas Bulletin indicates the continuation of the rising trend.
- Increased levels of these gases contribute to further temperature increases, extreme weather, and higher sea levels.
- The objective of the 2015 Paris Agreement was to restrict global warming to levels “well below” 2°C above pre-industrial levels, with an ideal target of 1.5°C.
- WMO chief Petteri Taalas notes a deviation from these goals to cap global warming.
- The global mean temperature in 2022 was 1.15°C above the 1850–1900 average.
- Taalas predicts that 2023 is likely to be the warmest year on record, highlighting the urgency of addressing climate change.

41. Voice of Global South Summit

- Prime Minister Narendra Modi to inaugurate the second Voice of Global South Summit.
- This follows the first summit hosted by India less than a year ago, with 125 Global South countries participating.
- The Global South-South Summit was a novel and distinctive initiative aimed at uniting nations from the Global South, providing them with a common platform to share their perspectives and priorities across a diverse array of issues.
- The previous summit focused on the Ukraine war, while the upcoming one is expected to address the Israeli military operation in Gaza.
- Reflects India's evolving relationship with the Global South, especially considering the UN General Assembly's Gaza cease-fire vote on October 26 2023, where India abstained.
- The summit will feature 10 sessions, with inaugural and concluding sessions reserved for heads of state and governments.

42. Fentanyl problem in US-China relations**Introduction**

- U.S. President Joe Biden and Chinese President Xi Jinping held a summit aimed at easing tensions between the two nations.
- The talks covered issues like military communications, Taiwan, and the production of fentanyl, a key concern for the U.S.

Agreement on Fentanyl Production Crackdown

- Both leaders agreed that China would crack down on the production of fentanyl.
- Xi expressed sympathy for U.S. victims affected by the devastating impact of the drug on communities.

Fentanyl menace in the US

- Fentanyl is responsible for a deadly epidemic of opioid abuse in the U.S.
- It has ravaged communities across the country.
- Drug overdose killed more than 100,000 people across the country in one single year.
- Out of those fatalities, over 66% were linked to fentanyl, a synthetic opioid that is 50 times more potent than heroin.
- Fentanyl is a pharmaceutical drug that can be prescribed by a doctor to treat severe pain.
- However, criminal organisations engage in the illicit production and distribution of the drug. The majority of unlawfully produced fentanyl in the United States is transported from Mexico, utilising chemicals acquired from China.

43. Indian Navy in Gulf of Guinea

- The Indian Navy has concluded its second anti-piracy patrol in the Gulf of Guinea in the Atlantic Ocean.
- INS Sumedha, an offshore patrol vessel, undertook a 31-day anti-piracy patrol as part of an extended-range operational deployment.
- The first Gulf of Guinea anti-piracy patrol was conducted by INS Tarkash in September-October 2022.
- The region is vital for India's national interests, serving as a crucial source for the country's energy requirements.
- INS Sumedha's deployment strengthens national interests and enhances Navy-to-Navy connections with regional Navies, including Nigeria, Ghana, Senegal, Togo, Angola, and Namibia.
- The deployment also included participation in the maiden India-EU Joint Exercise and a port call at Walvis Bay, Namibia, as part of Mission Based Deployment to West Africa and the Atlantic.

44. Voter turnout crosses 74% in Chhattisgarh, M.P. elections

Context: The recent elections in Chhattisgarh and Madhya Pradesh witnessed a high voter turnout of over 74%, reflecting the engagement of citizens in the democratic process. However, the electoral battle was not without incidents, as complaints of misconduct surfaced against the BJP, and unfortunate incidents of violence occurred in both states.

Issues

- **Incidents of Violence:** Despite tight security measures, incidents of violence marred the elections in both Chhattisgarh and Madhya Pradesh. The death of an ITBP jawan in a blast triggered by Naxalites in Chhattisgarh and the clash resulting in the death of a Congress leader's aide in Madhya Pradesh highlight the challenges faced during the electoral process.
- **Citizen Casualties:** Tragic incidents, such as a woman's death who was standing in a queue to cast her vote and a man killed in an elephant attack while heading to a polling booth, raise concerns about the safety and accessibility of the electoral process.
- **Allegations of Misconduct:** Complaints of misconduct surfaced against the BJP, with accusations of distributing money and liquor to voters on the eve of the elections. Such allegations, if substantiated, can undermine the credibility of the electoral process.

ECI – Election Commission of India:

- Read more in the linked article – Election Commission of India

State Election Commissions (SECs)

- Conducts free, fair and impartial elections to the local bodies in the state.
- State Election Commissioner to be appointed by the Governor.
- Article 243K(1): Superintendence, direction and control of the preparation of electoral rolls for, and the conduct of, all elections to the Panchayats (Municipalities under Article 243ZA).
- Article 243K(2): Tenure and appointment will be directed as per the law made by the state legislature.

45. HC quashes Haryana 75% local quota in private sector

Context: The Punjab and Haryana High Court's recent decision to quash Haryana's 75% local quota in the private sector marks a significant development, challenging the Haryana government's initiative to ensure employment opportunities for residents of the state.

Provisions of Act

- Firms with 10 or more employees. Reserve 75% of all jobs.
- Salary of less than Rs. 30,000 a month for eligible candidates of State domicile.
- Mandatory for all these employers to register all their employees on the designated portal available on the official website of the Labour Department, Haryana.

Issues

- **Constitutional Validity:** The High Court has deemed the Haryana State Employment of Local Candidates Act, 2020, as unconstitutional. This decision raises critical questions about the constitutional validity of reserving a significant percentage of jobs exclusively for local residents.
- Triggers exodus of investors & prevents free movement of manpower resources.
- **Setback for Government:** The court's decision is a setback for the ruling BJP-JJP coalition government, as the 75% reservation in the private sector was a key electoral promise made by Deputy Chief Minister Dushyant Chautala during the 2019 Assembly elections.
- **Employer Compliance:** The Act mandated employers to reserve 75% of jobs paying less than ₹30,000 a month for local residents. The legal challenge and subsequent quashing of the law now put the onus on employers to reassess their hiring practices.

Significance

- **Impact on Employment Policies:** The court's decision has broader implications for the formulation of employment policies, particularly those attempting to address issues of local employment. It challenges the balance between state-centric initiatives and broader principles of equality and non-discrimination.
- **Political Ramifications:** The ruling's impact extends beyond legal aspects; it has political ramifications, affecting the credibility and standing of the BJP-JJP coalition government. The decision may influence public perception and political dynamics in the state.
- **Economic Considerations:** The court's intervention reflects the economic concerns raised by industrialists, who opposed the original application of the quota to jobs paying up to ₹50,000. The revision to ₹30,000 was still contested, highlighting the delicate balance required in economic policymaking.

46. PM Modi warns against deepfakes

Context: The Prime Minister has raised concerns about the misuse of artificial intelligence (AI) for creating deepfakes, emphasizing the potential harm caused by disinformation. Speaking at a Diwali Milan, he urged the media to play a proactive role in educating the public about the risks associated with deepfakes.

Issues

- **Deepfake Threat:** The Prime Minister highlighted the emerging crisis of deepfakes produced through artificial intelligence, emphasizing their potential to spread disinformation. The lack of a parallel verification system for a significant section of society makes it challenging to discern real from fake.
- **Need for Disclosures:** Drawing a parallel with health warnings on products like cigarettes suggests that deepfakes should carry disclosures. This reflects the gravity of the issue and the need for public awareness regarding the manipulative use of AI in creating misleading content.
- **Media Vigilance:** The Prime Minister calls upon the media to be vigilant against the potential danger of deepfakes. As disseminators of information, the media is urged to take an active role in educating the public about the existence and consequences of deepfakes.

Significance

- **Impact of Deepfakes:** The acknowledgement of deepfakes as a new crisis underlines their potential to cause harm by spreading false narratives, manipulating public opinion, and damaging the credibility of individuals and institutions.
- **Public Awareness:** The Prime minister's call for media involvement in educating the public indicates the significance of raising awareness about the deceptive nature of deepfakes. A lack of awareness can make people vulnerable to misinformation.
- **Regulatory Measures:** The mention of the IT Rules, 2021, and the Ministry's advisory following a viral deepfake video highlights the regulatory dimension. The requirement for platforms to take down such content within 36 hours underscores the need for swift action against deepfakes.

Deepfake Regulation in India

- No specific laws
- Sections 67 and 67A of the Information Technology Act (2000) – certain aspects of deep fakes, such as defamation and publishing explicit material.
- Section 500 of IPC (1860) – Defamation.
- The Digital Personal Data Protection Act – Misuse of personal data.
- The Information Technology Rules, 2021 – Elimination of content that impersonates others and artificially manipulated images must be completed within a 36-hour timeframe.

47. India has a critical role in Dubai climate conference

Context: The upcoming 28th edition of the Conference of Parties (CoP) in Dubai has garnered attention due to the unique controversy surrounding its president, Sultan Al-Jaber, who heads one of the world's largest oil companies.

- Critics argue that his role conflicts with the conference's objective of steering away from fossil fuels.
- However, Majid Al-Suwaidi, Director-General, CoP-28, dismisses these concerns, emphasizing the UAE's commitment to transitioning towards a more sustainable economy.

Conference of Parties (COP 28) and UNFCCC

- COP 28 to the UNFCCC hosted by UAE in Abu Dhabi in 2023.
- UNFCCC – United Nations Framework Convention on Climate Change 1992 at the Earth Summit, the Rio Summit or the Rio Conference entered into force on 21st March 1994 and ratified by 197 countries. UNFCCC secretariat – Bonn, Germany.
- COP- Apex decision-making authority of UNFCCC, meets every year, unless the Parties decide otherwise.
- The first COP meeting was held in Berlin, Germany in March 1995.

Issues

- **Controversy over CoP President:** The appointment of Sultan Al-Jaber, head of Abu Dhabi National Oil Company, as the CoP President has sparked criticism, particularly from the West. Concerns have been raised that his position in a major oil company may hinder efforts to move away from fossil fuels.
- **Need for Transition:** The global community faces the challenge of transitioning to sustainable practices without compromising economic development. The CoP Presidency acknowledges the importance of finding practical solutions to shift people in developing countries to new jobs while ensuring biodiversity protection and the rights of indigenous peoples.
- **Emission Trajectory:** The current trajectory suggests a 43% increase in emissions by 2030 compared to 2019 levels, surpassing what is necessary to keep global temperatures below 1.5 degrees Celsius. The CoP Presidency aims to encourage countries to exceed their commitments and work towards decarbonization.

Significance

- **Role of CoP-28:** The 28th edition of the CoP holds significance as leaders, business delegations, and climate experts from over 190 countries gather to negotiate responsibilities for curbing global temperature rise. The controversy surrounding the CoP President highlights the complex interplay between global climate goals and economic interests.
- **UAE's Transition:** The UAE's commitment to transitioning away from fossil fuels is showcased, with its economy currently at 70% reliance on non-oil and gas sectors. The country emphasizes its ability to adapt and transform its economy in response to changing global dynamics.
- **India's Critical Role:** The Indian Prime Minister's expected visit underlines the critical role India plays in the CoP. The conference aims to address the unique challenges faced by Asian countries, with a focus on practical solutions that can be adopted by various nations.

48. Perumal Murugan wins JCB Prize for Literature, to get ₹25 lakh cash prize

Context: Tamil writer Perumal Murugan has been awarded the prestigious JCB Prize for Literature for his novel "Fire Bird," an English translation of his Tamil work, "Aalanda Patchi." Translated by Janani Kannan and published by Penguin, the novel explores the theme of forced migration experienced by an agrarian family six decades ago.

Details:

- **Forced Migration and Family Tragedy:**
"Aalanda Patchi" delves into the poignant narrative of an agrarian family's forced migration, highlighting the tragedy of alienation from one's homeland, family, and ancestral land. The protagonist, Muthu, faces upheaval as his father divides the family land, causing irreparable damage to familial bonds.
- **Emotional Connection to Displacement:**
Perumal Murugan emphasizes that the novel is not solely a reflection of his family's history but aims to emotionally connect with every displaced individual, regardless of scale. The narrative offers insights into agrarian life, historical challenges, and the intricacies of feudal family relationships.

JCB Prize

- Annual award to a book-length work of fiction in English or translation.
- Established in 2018.
- Carries Rs 25 lakh to the author and an additional Rs 10 lakh to the translator.
- India's most valuable literature prize
- Aims to celebrate Indian writing, and to help readers across the world discover the very best of contemporary Indian literature.

49. U.S. data underscore benefits of chickenpox vaccination

Context: The recent recommendation by the Joint Committee on Vaccination and Immunisation (JCVI) in the U.K. to include chickenpox (varicella) vaccination in the routine childhood immunisation program underscores the potential benefits of this preventive measure.

Issues

- **Chickenpox Complications:**
While chickenpox in children is often mild, it can lead to complications, including bacterial infections and, in rare cases, encephalitis, lung inflammation, and death. Chickenpox virus stays dormant and can cause shingles in adults, posing additional health risks.
- **Historical Concerns about Shingles Increase:**
The assumption that vaccination of children against chickenpox would increase shingles cases in adults delayed routine administration of the vaccine in the U.K. The fear was based on the theory that exposure to the virus through infected children boosts immunity in adults, preventing shingles.

- **Contradictory Evidence:**

Contrary to assumptions, studies show that varicella vaccination did not increase shingles incidence in adults. A 2022 paper based on 25 years of U.S. data demonstrates a sharp drop in chickenpox and shingles in children, with no significant increase in adult shingles cases.

Significance

- **U.S. Success Story:**

Since its introduction in 1996, the chickenpox vaccine in the U.S. has prevented over 91 million cases, 2,38,000 hospitalisations, and almost 2,000 deaths.

The success challenges previous concerns and supports the benefits of widespread vaccination.

- **JCVI Recommendation for U.K.:**

JCVI's recent recommendation in the U.K. acknowledges the extensive evidence supporting the chickenpox vaccine's safety and effectiveness.

The decision is a critical step toward preventing severe cases, hospitalisations, and associated healthcare costs.

About Chickenpox (Known as varicella)

- Generally mild in children, some may experience complications, including bacterial infections. In rare cases, it can lead to encephalitis, lung inflammation, stroke, and even, albeit rarely, fatalities.
- Communicable, Highly contagious infectious disease, viral disease characterized by itchy red blisters that appear all over the body.
- Dreadful disease was introduced in the mid-1990 and more often affects children.
- Caused by the varicella-zoster virus – spreads in a similar way to cold and other flu. The incubation period is 10 to 21 days.
- Virus remains dormant in the body, often in nerve cells

Shingles (herpes zoster)

- Viral infection that causes an outbreak of a painful rash or blisters on the skin.
- Caused by the varicella-zoster virus, which is the same virus that causes chickenpox.
- Shingles is a reactivation of virus that remains dormant in the body after a previous chickenpox infection.
- The virus reactivates later in life, often when the immune system is weakened due to factors such as aging, stress, or illness.
- Virus can be transmitted to individuals who have not had chickenpox or been vaccinated, leading to chickenpox, not shingles.

50. Why has the China-Pakistan corridor stalled?

Context: The China-Pakistan Economic Corridor (CPEC), a flagship project of the One Belt, One Road initiative, has encountered significant challenges, leading to an impasse in its development. The recent visit of Pakistan's caretaker Prime Minister to Beijing aimed at securing funds and resolving disagreements highlights the complex issues hindering the progress of CPEC.

Background

- **CPEC Launch and Funding**

Launched in 2015 during Chinese President Xi Jinping's state visit to Pakistan.

Over 50 projects worth \$45 billion signed, with the Silk Road Fund managing investments till 2030.

- **Main project:** Establishing a corridor from Gwadar port in Balochistan, Pakistan, to China's Kashgar in Xinjiang.

- **Initial Troubles (2016)**

Teething troubles included funding confusion, contractor selection, bidding delays, tax exemption disputes, and obtaining no-objection certificates.

Gwadar port faced issues with water supply and uncertainty about project funding.

Issues

- **Financing and Economic Burden**

Projects financed by commercial Chinese loans and insured by Sinosure, placing a significant economic burden on Pakistan.

Sinosure imposes a 7% debt servicing fee and varying yearly interest and financing fees.

- **Local Opposition in Balochistan**

Locals in Balochistan protest against the Gwadar port city project, fearing loss of livelihoods and opposing the use of unskilled Chinese labor.

- **Resistance to selling land to Chinese, leading to anti-China sentiments.**

Gwadar port leased to China Overseas Ports Holding Company, with Beijing gaining 91% of profits.

- **Insurgency and Security Concerns**

Forced land grabbing by the Pakistani government has fueled insurgency in Balochistan.

Militant groups carry out attacks on Pakistani Army officials protecting Chinese workers.

● **China's Suspicions and Actions**

- China halts funding for three road projects over corruption suspicions.
- Complications arise over the use of Yuan as legal tender in the region.
- China refuses to expand cooperation in energy, water management, and climate change under CPEC in 2022.

CPEC

- 3,000 kilometers.
- Establishes a network of infrastructure projects connecting China's northwest Xinjiang Uygur Autonomous Region to the Gwadar Port in Balochistan, Pakistan's western province.
- Aim – Enhance connectivity within Pakistan through the development of highways, railways, pipelines, as well as energy, industrial, and other infrastructure projects.
- The project facilitates China's access to the Middle East and Africa via the Gwadar Port, thereby providing a route to the Indian Ocean.
- In reciprocation, China supports Pakistan's development initiatives, addressing its energy crises and stabilizing the economy.
- Operates within the framework of the Belt and Road Initiative (BRI) BRI project has 3 major undertakings- China-Myanmar Economic Corridor (CMEC), Nepal-China Trans-Himalayan Multidimensional Connectivity Network (including Nepal-China cross-border railway) and China Pakistan Economic Corridor (CPEC)

Impact Upon India

- India's Assertion of Sovereignty:** Trajectory through the Pakistan Occupied Kashmir territory of Gilgit-Baltistan. Success of CPEC could lead to the development and foreign investment in the well-connected Gilgit-Baltistan, further solidifying the region's international recognition as Pakistani territory. This development poses a challenge to India's claim over the 73,000 square kilometers of land.
- Enhances China's influence in the region and strengthens its strategic presence in the Indian Ocean.
- The increased Chinese presence in the region, including the development of infrastructure and the potential establishment of military facilities, raises security concerns for India. It alters the strategic balance and poses challenges to India's national security interests.

51. Animation Film on Ahom warrior chosen for IFFI 2023

- A 19-minute animation film, "Lachit: The Warrior," directed by Partha Sarathi Mahanta, selected for the Indian Panorama section of the International Film Festival of India (IFFI) 2023.
- The film depicts the heroics of Lachit Borphukan, an iconic Ahom General who prevented the Mughals from capturing Assam in the 1600s.
- Lachit commanded the Ahom Army, and the film explores his ancestry, personality, diplomatic and naval warfare skills, physical prowess, valour, and patriotism.
- The film has been screened and awarded at various film festivals in India and abroad, including the Jaipur International Film Festival, South Asian Short Film Festival in Kolkata, Kollywood International Film Festival in Chennai, and Newborn Short Film Festival in Berlin.

52. Kerala to expand farming of GI-tagged Onattukara sesame

- Efforts to expand cultivation of GI-tagged Onattukara sesame in Alappuzha district, Kerala.
- Incentive scheme announced for farmers within Thekkekara Krishi Bhavan limits, offering financial assistance of ₹40 for a cent of land for sesame cultivation.
- This Joint initiative involves local Krishi Bhavan, Onattukara Vikasana Agency (OVA), Onattukara Regional Agricultural Research Station (ORARS), Krishi Vigyan Kendra, Kayamkulam, and Mavelikkara Thekkekara gram panchayat.
- Seeds distributed from Thekkekara Krishi Bhavan, and sesame produced under the scheme to be procured by OVA at market price.
- Incentives are provided for individuals, farming collectives, Kudumbashree groups, self-help groups, and joint liability groups involved in cultivation.
- Analysis by Kerala Agricultural University reveals high levels of Vitamin E and antioxidants in sesame grown in the region.

53. Freemartins: black sheeps among cattle

- In animal husbandry, cattle born with characteristics of both sexes are termed freemartins.
- Freemartins are sterile female cattle resulting from twinning of a male and a female in the same uterus, occurring in about 90% of twin pregnancies in cattle.
- The phenomenon arises from blood exchange between male and female fetuses during gestation.
- Freemartinism is genetically attributed to the sharing of Y chromosome-carrying cells from the male twin with the female twin.
- The Y chromosome triggers the development of male reproductive organs in the male foetus, leading to incomplete development in the female foetus.

- Freemartins have underdeveloped or non-functional reproductive tracts, making them unable to reproduce.
- Freemartins are identified in agricultural settings by physical and/or behavioural traits and are often culled from the breeding herd for improved reproductive efficiency.

54. Draft National Pharmacy Commission Bill released

- The Union Health Ministry invites comments from the public and stakeholders on the proposed National Pharmacy Commission Bill, 2023.
- The Bill aims to establish the National Pharmacy Commission and replace the Pharmacy Act, 1948.
- The Bill focuses on enhancing access to affordable and high-quality pharmacy education and ensuring the availability of pharmacy professionals nationwide.
- It aims to promote equitable healthcare by making pharmacy services accessible to all citizens.
- The Bill calls for periodic and transparent assessments of pharmacy institutions and the maintenance of a pharmacy register for India.
- It encourages professionals to integrate the latest research, contribute to research, and uphold high ethical standards in pharmacy practice.

55. China is the biggest security anxiety for India and Australia

- Australian Deputy Prime Minister and Defence Minister Richard Marles highlighted China as the biggest trading partner and security concern for both Australia and India during the 2+2 dialogue.
- Australian Foreign Minister Penny Wong emphasised the partnership's significance, describing it as consequential for Australia and crucial for the region.
- Indian Defence Minister Rajnath Singh emphasised consensus on a strong India-Australia partnership for peace, security, and prosperity in the Indo-Pacific.
- Defence becomes one of the most important pillars of the strategic partnership, according to Singh and Marles, forming the bedrock of bilateral relations.
- External Affairs Minister S. Jaishankar noted the rapid growth of bilateral ties and their implications for stability and security in the region amid increasing global uncertainty.
- Marles highlighted the strategic alignment between the two countries, emphasising shared history, democratic traditions, and rule of law.
- The relationship has transformed in recent years, marked by milestones such as the Economic Cooperation and Trade Agreement (ECTA), which entered into force in December.

56. Ministry asks States to encourage use of SATHEE portal

- The Education Ministry plans to write to all states to encourage aspirants to use the newly launched SATHEE (Self Assessment Test and Help for Entrance Exams) portal for Joint Entrance Examination (JEE) preparation.
- SATHEE, an online coaching platform launched by the Ministry and IIT-Kanpur, is available for free and aims to bridge the barrier for students who cannot afford paid training programs.
- SATHEE offers a 45-day crash course for JEE aspirants with live and recorded lectures, expertly designed curriculum, and doubt-clearing sessions.
- The platform uses artificial intelligence (AI) to interact with students, customising the learning pace for each student.
- Nearly 5,000 students have registered on the platform, with a goal to reach one lakh students.
- Pan-India mock tests are held, following the format used by the National Testing Agency for JEE.
- The initiative aligns with the National Education Policy's goal of providing inclusive, high-quality education across the country.

57. Cloud seeding to be done in Mumbai, says CM Shinde

- Maharashtra Chief Minister Eknath Shinde directed the Brihanmumbai Municipal Corporation (BMC) to conduct cloud seeding if needed to control Mumbai's dust and air pollution.
- Cloud seeding involves introducing artificial particles into clouds to accelerate the condensation process and the formation of larger rain droplets, thereby creating favourable conditions for rainfall.
- Its possible benefits include increasing rainfall (benefiting the agriculture sector), aiding in water resource management, hydropower generation, reducing droughts, controlling forest fires, hail suppression, fog dissipation, and snowpack augmentation.

58. World racing well past warming limit, UN says ahead of talks

- Earth is on track for 2.5°C to 2.9°C of global warming since pre-industrial times, surpassing the international climate threshold, according to a United Nations report.
- To have a 50% chance of staying within the 1.5°C limit set by the Paris climate agreement, countries must reduce emissions by 42% by the end of the decade, as per the UN Environment Programme's Emissions Gap report.
- Carbon emissions from coal, oil, and gas combustion increased by 1.2% last year.
- The report warns that Earth has experienced temperatures exceeding 1.5°C above mid-19th century levels in 127 days in 2023, indicating a trend of accelerating climate change.

- On 17th November 2023, the global temperature hit 2°C above pre-industrial levels for the first time in recorded history, according to Copernicus Deputy Director Samantha Burgess.
- The report highlights the urgency of addressing climate change and sets the stage for international climate talks at COP28.

59. Mass migration from Myanmar to Mizoram

Context: The civil war in Myanmar has resulted in a significant influx of refugees into Mizoram, India. This spillover has roots in the ongoing conflict between the Myanmar military junta and pro-democracy militias, with ethnic organizations playing a crucial role.

Background:

- Since 2021, it has become common for people to come here for shelter if the situation turns bad in Myanmar. They usually go back when the situation gets better. The people who live close to the border stay the night here and during the day, they return to their place.
- Prior to the fresh spike in influx of refugees, Mizoram had been sheltering more than 30,000 Chin refugees from Myanmar after the 2021 military coup in the neighbouring country. The state has also had more than 12,000 displaced persons from the Kuki-Zomi community seeking refuge there. People from Chin and the Kuki-Zomi community share a common ethnicity with the Mizos.

Who are the Kuki Chins?

- The Chins of Myanmar, the Mizos of Mizoram and the Kukis of Bangladesh are of the same ancestry and belong to the Kuki ethnic group native to the Mizo hills.
- They are collectively called the Zo people.
- The Kuki Chin people are settled in the Chittagong Hill Tracts, the only extensive hill area in Bangladesh that lies in the southeastern part of the country.
- It borders Myanmar on the southeast, Tripura on the north, Mizoram on the east and the Chittagong district in the west.
- Mizoram shares a 318-km stretch of international border with Bangladesh.

Roots of the insurgency

- The roots of Kuki militancy lie in conflicts of ethnic identity.
- First was the demand for self-determination solely for groups belonging to their ethnic fabric, meaning the dream to form a Kukiland.
- The second reason for insurgency lies in the inter-community conflicts between the Kukis and the Nagas in Manipur.
- The Kuki-Naga conflict was started over securing identity and land as some Kuki-inhabited areas coincided with Naga-inhabited areas.
- Wanting to dominate trade and cultural activities in those areas the two communities often engaged in violent standoffs, with villages being torched, civilians killed and so on.

India's refugee policy

- India lacks specific legislation to address the problem of refugees, in spite of their increasing inflow.
- India is not a party to the 1951 Refugee Convention and its 1967 Protocol, the key legal documents pertaining to refugee protection. However, India has had a stellar record on the issue of refugee protection. India has a moral tradition for assimilating foreign people and culture.
- Further, the constitution of India also respects the life, liberty, and dignity of human beings. The Supreme Court in the National Human Rights Commission vs. State of Arunachal Pradesh (1996) held that "while all rights are available to citizens, persons including foreign citizens are entitled to the right to equality and the right to life, among others."
- Further, Article 21 of the Constitution encompasses the right of non-refoulement. Non-refoulement is the principle under international law which states that a person fleeing persecution from his own country should not be forced to return to his own country.

Free Movement Regime along India-Myanmar Border

- Conceptualization: The FMR was implemented in 2018 as part of the Act East policy to improve Indo-Myanmar ties.
- Travel permit: It allows tribes living along the IMB to travel up to 16 km into the other country without a visa.
- Ethnic and Cultural Ties: The border between India and Myanmar was demarcated without considering the opinions of the people living in the region, splitting people of the same ethnicity and culture into two nations.
- Significance: The FMR aimed to facilitate people-to-people contact, local trade, and business, essential for livelihoods and sustenance.
- Discontinuation: As the crisis in Myanmar unfolded, India suspended the FMR in September 2022.

60. MGNREGS audit crosses 50% local bodies in just six States

- Among the 34 States and Union Territories in India, only six have completed social audits of works done under the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) in more than 50% of gram panchayats.
- Kerala is the only state to cover 100% of gram panchayats.
- Social audits are an anti-corruption measure under MGNREGA, mandated by Section 17 of the act.

- Social audit units in each state work independently of implementing authorities, and auditing standards by the Comptroller and Auditor General were issued on December 19, 2016.
- The audit involves quality checks of infrastructure created under MGNREGA and checking for financial misappropriation in wages and procedural deviations.
- Other states crossing the 50% mark are Bihar (64.4%), Gujarat (58.8%), Jammu and Kashmir (64.1%), Odisha (60.42%), and Uttar Pradesh (54.97%).
- Only three states have covered 40% or more villages: Telangana (40.5%), Himachal Pradesh (45.32%), and Andhra Pradesh (49.7%).
- Among poll-bound states, social audit completion rates are low: Madhya Pradesh (1.73%), Mizoram (17.5%), Chhattisgarh (25.06%), and Rajasthan (34.74%).
- States complain of delayed funds for social audit units, leading to delays in audits and recurrent complaints of delayed salaries for village-level auditors.
- Kerala conducts periodic Social Audit Public Hearings at the panchayat level for close public scrutiny.

61. Political rivals come together to hold Kambala

- Keeping all the rivalries aside, leaders of different political parties in Karnataka are collaborating to organise the traditional Kambala buffalo race in Bengaluru on November 25 and 26, 2023.
- The Kambala race takes place in paddy fields filled with slush and mud mainly in the coastal Karnataka regions from November to March.
- Traditionally, local Tulu landlords and households in coastal districts have been the sponsors.
- During the race participants strive to control buffaloes by tightly holding their reins and using whips.
- Originally, Kambala was a non-competitive spectacle where buffalo pairs raced one after another in paddy fields.
- This was also celebrated as a form of thanksgiving to gods for safeguarding the animals from diseases.
- In 2014, the Supreme Court of India banned Kambala along with Jallikettu and bullock cart races under the Prevention of Cruelty to Animals (PCA) Act of 1960, affirming animals' fundamental right to be treated with compassion and dignity, free from unnecessary pain and suffering.
- The Prevention of Cruelty to Animals (Karnataka Amendment) Ordinance of 2017 permitted the organisation of Kambala events, provided measures are taken to prevent cruelty to the participating bulls.

62. Sol, private firm to create 3D maps of cities, towns

- The Survey of India (Sol) has signed an agreement with Mumbai-based Genesys International for a first-of-its-kind initiative to create three-dimensional maps, known as 'Digital Twins,' for several cities and towns.
- Digital Twins are 3D representations of cities, coupled with high-resolution images, enabling various planning applications.
- Genesys will generate three-dimensional digital twins for major cities and towns, develop an urban 3D data model, and license geospatial data products in a content-as-a-service model.
- The collaboration aims to enhance urban planning and development using advanced mapping technologies.
- Genesys has already created digital twins for Ayodhya, and Dharavi slum cluster in Mumbai, Kochi, Kanpur, and other applications.

63. Bihar Cabinet approves resolution demanding special status for State

- The Bihar Cabinet has passed a resolution urging the Indian government to grant the state special category status, citing socio-economic disadvantages and the need for higher central funding.
- The special category status is typically awarded to states facing geographical and socio-economic challenges (such as those along an international border, having hilly terrain, a significant tribal population, or experiencing economic backwardness), providing them with increased central funding for development projects.
- Bihar Chief Minister Nitish Kumar emphasised the state's large number of poor families (around 94 lakh) and estimated that special status could bring around ₹2.50 lakh crore needed for various welfare measures over the next five years.
- He also stated that the demand aligns with the findings of the caste survey conducted by the Bihar government.
- The demand for special status has been a long-standing one, and the Chief Minister has called for its immediate fulfilment by the central government.

64. Transshipment hub to come up in Andaman and Nicobar

Context: The announcement of a potential transshipment hub in the Andaman and Nicobar Islands, particularly in Atlanta Bay near Diglipur, signals a strategic move to leverage the region's advantageous location.

Details:

- **Strategic Location of Andaman & Nicobar Islands:** The Andaman and Nicobar Islands occupy a crucial strategic location in the Bay of Bengal, making them pivotal for maritime activities. The proposed transshipment hub in Atlanta Bay takes advantage of this strategic position to facilitate efficient cargo movement and promote economic growth.
- **Feasibility Study for Transshipment Hub:** The revelation by Minister Sarbananda Sonowal emphasizes the ongoing feasibility study for the development of a bulk cargo transshipment hub in Atlanta Bay near Diglipur. This study aims to assess the practicality and viability of establishing a major harbour, considering factors such as infrastructure,

logistics, and economic sustainability.

- **Importance of 10m Draft Harbour:** This development is deemed essential not only for promoting high-end tourism but also for serving other critical purposes. A deeper draft harbour enhances the capacity for handling larger vessels, fostering economic activities and regional connectivity.
- **Transformation of Indira Point:** The decision to develop Indira Point, the southernmost tip of India, into a major tourism destination is a significant aspect of the broader plan. This transformation not only contributes to the tourism sector but also showcases a comprehensive approach to harnessing the economic and geographical potential of the Andaman and Nicobar Islands.

Issues

- **Environmental Concerns:** The development of a transshipment hub and the transformation of Indira Point raise environmental concerns.
- The delicate ecosystem of the islands must be carefully considered to ensure sustainable development and minimal ecological impact.

65. India, EU sign pact to build semiconductor supply chain

Context: In a significant development, India and the European Union (EU) have formalized their collaboration on semiconductors through the signing of a Memorandum of Understanding (MoU). This milestone was achieved during a “stock-taking call” between the leaders of the EU-India Trade and Technology Council (TTC).

Details:

- **The Importance of Semiconductors:** Semiconductors are fundamental components in modern technology, playing a pivotal role in various electronic devices. The collaboration between India and the EU on semiconductors signifies a strategic move to enhance technological capabilities and contribute to the global semiconductor industry.
- **Objectives of the MoU:** The MoU outlines specific objectives aimed at building a robust semiconductor supply chain and fostering innovation. Key elements include the sharing of experiences, best practices, and information related to the semiconductor ecosystems of both India and the EU. Additionally, the agreement seeks to identify collaborative opportunities in research, development, and innovation involving universities, research organizations, and businesses.
- **Collaboration in Research and Development:** A crucial aspect of the MoU is the emphasis on collaboration in research, development, and innovation. This involves leveraging the expertise and resources of universities, research organizations, and businesses in both India and the EU. Such collaboration is expected to drive advancements in semiconductor technology, contributing to the growth and competitiveness of the semiconductor industry.
- **Strengthening the Semiconductor Supply Chain:** The focus on building a robust semiconductor supply chain is of strategic importance. Given the current global challenges and disruptions in semiconductor manufacturing, this collaboration aims to enhance resilience and reliability in the supply chain, ensuring a steady flow of semiconductors for various industries.

66. Generic Drugs for 4 rare diseases made available in India

Context: In a significant move to address the healthcare needs of patients with rare diseases, the Union Health Ministry in India has made generic drugs available for four specific ailments: Tyrosinemia-Type 1, Gaucher's Disease, Wilson's Disease, and the Dravet-Lennox Gastaut Syndrome.

Details:

- **Overview of Rare Diseases:** Rare diseases are health conditions characterized by particularly low prevalence, affecting a small number of people. The Union Health Ministry's focus on addressing the healthcare needs of patients with rare diseases acknowledges the unique challenges faced by this segment of the population. The initiative targets conditions with limited treatment options and high associated costs.
- **Specific Rare Diseases Covered:** The generic drugs made available under this initiative target four rare diseases: Tyrosinemia-Type 1, Gaucher's Disease, Wilson's Disease, and Dravet-Lennox Gastaut Syndrome. By providing affordable alternatives, the initiative seeks to alleviate the financial burden on patients, reducing the cost of these drugs by significant margins between 60 and 100 times their current market value.
- **Scope of the Initiative:** The Ministry's efforts extend beyond the current set of rare diseases, with plans to make drugs available for additional conditions such as Phenylketonuria and Hyperammonemia in the coming months. This demonstrates a commitment to addressing a broader spectrum of rare diseases and expanding the reach of affordable healthcare solutions.
- **Impact on Patient Costs:** The reduction in the cost of these drugs from crores to lakhs represents a substantial relief for patients and their families. This initiative is poised to make a significant impact on the financial burden associated with managing rare diseases, making essential medications more accessible to a larger segment of the population.

67. Falling recovery, delay in resolution dent IBC's success

Context: The success of the Insolvency and Bankruptcy Code (IBC), implemented in 2016, is facing challenges as recovery rates witness a decline from 43% to 32% between March 2019 and September 2023.

Details:

- **Declining Recovery Rates:** The reduction in recovery rates from 43% to 32% over the specified period is a significant concern. CRISIL points to limited judicial bench strength and delays in identifying defaults as contributing factors. The success of the IBC hinges on its ability to ensure effective recovery, and a decline in this aspect raises questions about its efficacy.
- **Prolonged Average Resolution Time:** The extension of the average resolution time from 324 to 653 days is another notable issue. This surpasses the stipulated timeline of 330 days and indicates a substantial delay in the resolution process. The efficiency of the IBC is compromised when cases take longer than prescribed to reach resolution, impacting the overall success of the code.
- **Reasons Behind the Issues:** CRISIL identifies two primary reasons for the challenges faced by the IBC. Firstly, limited judicial bench strength contributes to delays in handling cases. Secondly, significant delays in the pre-IBC admission stage, which increased from about 450 days in fiscal 2019 to 650 days in fiscal 2022, have suppressed recovery rates. These factors underlying systemic issues affecting the code's effectiveness.
- **Positive Impact and Deterrence:** Despite the challenges, CRISIL acknowledges that since its inception, the IBC has positively impacted India's credit culture by resolving a substantial amount of stressed assets with better recovery rates compared to previous mechanisms. It has also acted as a deterrent, prompting the resolution of large bad-loan cases before reaching the IBC's gates.

Issues

- **Limited Judicial Bench Strength:** The constraint in judicial bench strength contributes to delays in resolving cases under the IBC. Insufficient resources hinder the expeditious handling of insolvency proceedings, impacting the recovery rates and resolution timelines.
- **Delays in Identification of Defaults:** Delays in identifying and acknowledging defaults add to the challenges faced by the IBC. Swift identification is crucial for initiating the resolution process promptly, and any delays in this stage hinder the overall success of the code.
- **Prolonged Pre-IBC Admission Stage:** The significant delay in the pre-IBC admission stage, increasing from approximately 450 days in fiscal 2019 to 650 days in fiscal 2022, is identified as a key issue suppressing recovery rates. Streamlining this stage is imperative for enhancing the overall efficiency of the IBC.

Solutions:

- Strengthen Judicial Infrastructure
- Streamlining Default Identification
- Addressing Pre-IBC Admission Delays

68. GAIL to build reserves

Context: GAIL (Gas Authority of India Limited) is set to embark on the establishment of India's first strategic natural gas reserves, utilizing depleted hydrocarbon wells for gas storage.

Details:

- **Rationale for Strategic Gas Reserves:** GAIL's initiative to establish strategic natural gas reserves responds to the need for a diversified and secure energy infrastructure. Utilizing old, depleted hydrocarbon wells for gas storage provides a cost-effective and sustainable solution to hedge against potential disruptions in global gas supplies, ensuring a stable and reliable energy source for India.
- **Phased Development in Western and North-Eastern Regions:** The strategic gas storage facilities will be developed in phases, strategically located in India's western and northeastern regions. The phased approach allows for a systematic and controlled expansion, optimizing the utilization of depleted wells for gas storage and ensuring efficient logistical and operational management.
- **Initial Capacity and Timeline:** The initial capacity of the strategic gas reserves is projected to be three to four billion cubic meters (bcm) of gas. The construction of the first storage facility is estimated to take three to four years after obtaining government approval. This timeline underscores the commitment to prompt action and the expeditious realization of India's strategic gas storage capabilities.
- **India's Current Gas Storage Landscape:** As of now, India possesses five million tonnes of strategic petroleum reserves but lacks dedicated storage facilities for natural gas. Companies in India currently store two bcm of gas in pipelines and liquefied natural gas tanks for commercial use. The new strategic gas reserves represent a significant advancement in fortifying India's energy infrastructure.

69. Govt. invites civil society leaders from Leh and Kargil for dialogue

Context: The government's recent invitation to civil society leaders from Leh and Kargil for dialogue signals a significant move amid ongoing protests in Ladakh.

Issues at Stake:

- **Demands of LAB and KDA:**
 - Statehood for Ladakh
 - Inclusion in the Sixth Schedule of the Constitution
 - Reservation in jobs for local residents
 - One Lok Sabha seat each for Leh and Kargil
- **Previous Committee Rejection:**
 - The rejection of the committee chaired by Minister of State for Home Nityanand Rai has created skepticism.
 - Leaders emphasize that members selected by the government in previous committees were unacceptable.
- **Possible Deadlock:**
 - LAB and KDA representatives assert that they will not compromise on their four demands.
 - Anticipation of a deadlock if the government does not agree to their demands.

Benefits of 6th schedule for Ladakh

- **Meeting tribal aspiration:** The Parliamentary standing committee recommended including of Ladakh in the Sixth Schedule because its tribal communities account for 79.61% of its total population.
- **Autonomy and self-governance:** The extension of the Sixth Schedule to Ladakh could provide greater autonomy and self-governance to the local tribal communities.

Cultural preservation: It could also help to protect the unique cultural identity of the local communities and preserve their traditional practices and customs.

70. With Turmeric Board set to be a reality, no yellow twist this time

Context: The Prime Minister's announcement of the establishment of a National Turmeric Board in Nizamabad has shifted the dynamics of the elections in the region, known for its vibrant turmeric cultivation.

Issues at Hand:

- **Changing Dynamics:**
 - The announcement of the National Turmeric Board fulfills a long-standing demand of farmers in Nizamabad.
 - Turmeric, once a significant election issue, has lost its campaign currency due to the government's commitment.
- **Impact on Election Landscape:**
 - Turmeric farmers, traditionally influential in elections, may no longer be a decisive factor with the resolution of their demand.
 - Previous instances of farmers entering electoral contests have demonstrated their ability to influence election outcomes.
- **Skepticism Among Farmers:**
 - Conversations with progressive farmers indicate skepticism regarding the seriousness of the government's announcement.
 - Past experiences, including unfulfilled promises and the establishment of a regional office instead of the promised Turmeric Board, have left farmers doubtful.

National Turmeric Board:

- It will focus on the development and growth of turmeric and turmeric products in the country. It will especially focus on capacity building and skill development of turmeric growers for harnessing greater benefits out of value addition. The Board will also promote quality and food safety standards and adherence to such standards.
- **Composition**
 - The Board shall have a Chairperson, who will be appointed by the Central Government.
 - It will have members from the Ministry of AYUSH, Departments of Pharmaceuticals, Agriculture & Farmers Welfare, Commerce & Industry of the Union Government, senior State Government representatives from three states (on rotation basis).
 - Select national/state institutions involved in research, representatives of turmeric farmers and exporters.
 - It will have a Secretary to be appointed by the Department of Commerce.
- The Ministry of Commerce will be the nodal department providing funds and infrastructure for the NTB, which will look into increased demand, usage, production, research, market linkage, exports and so on.
- India is the largest producer, consumer and exporter of turmeric in the world.
- The largest producing states of Turmeric are Maharashtra, Telangana, Karnataka and Tamil Nadu.

71. Antarctica's ozone hole expands mid-spring since 2001

Context: Recent findings published in the journal Nature Communications reveal an unexpected expansion of the Antarctic ozone hole during mid-spring (October) since 2001.

Issues:

- **Contradictory Recovery Trends:**
While the Montreal Protocol has successfully controlled ozone-depleting substances since 1987, recent years (2020-2022) have witnessed the re-emergence of large and persistent ozone holes over Antarctica in mid-spring. Early spring (September) still shows a slight increase in ozone, creating a paradoxical scenario.
- **Ozone Reduction in Core Regions:**
Analysis of data between 2001-2022 reveals a significant and continuous ozone reduction of 26% in the core (middle stratospheric layer) of the Antarctic ozone during mid-spring since 2004.
The reduction in the middle stratosphere contradicts the reported recovery trends in total column ozone.
- **Potential Dynamical Changes:**
The ozone reduction in the middle stratosphere is potentially linked to dynamical changes in the mesosphere, the atmospheric layer above the stratosphere and the ozone layer.
Understanding the driving forces behind these dynamical changes is crucial for comprehending the persistent Antarctic ozone hole.

72. Eight months on, States wait for 3HP TB preventive drug

Context: Despite the pan-India launch of the 3HP (once-weekly isoniazid-rifapentine for 12 weeks) TB Preventive Treatment (TPT) in March 2023, States are yet to receive the 3HP combination drug from the Central TB Division.

Issues:

- **Supply Delay:**
Eight months after its launch, the Central TB Division has not supplied the 3HP drugs to States, causing a delay in its implementation nationwide.
Tamil Nadu and Kerala have independently initiated the use of 3HP despite not receiving the drug supply.
- **Compliance and Drug Efficacy:**
The 3HP regimen, requiring only 12 doses, offers better compliance compared to the daily dose of isoniazid for six months (current treatment protocol).
Challenges in drug supply may impact the overall effectiveness of TB preventive treatment.
- **Financial Considerations:**
TPT using the 3HP drug is economically more viable than isoniazid monotherapy for six months.
The delay in supply affects the cost-effective implementation of TB preventive therapy.

Benefits of 3HP TB prevention treatment

- The 3HP regimen involves just 12 doses one dose a week for three months. In contrast, isoniazid monotherapy for six months translates to 180 dose.
- Since treatment with 3HP involves only 12 doses, compliance is better and adverse effects are less.
- The use of the shorter regimen has been associated with at least 20% greater treatment completion rate.
- TB disease should be ruled out before starting a person on preventive therapy
- Other health conditions that may be contraindicated must be ruled out before giving 3HP
- Less than 20% of TB infections are due to household contacts being exposed to the index case.
- TB preventive therapy can halt the progression to TB disease very effectively for many years.
- In India, there are greater chances of getting reinfected after completing the TB preventive therapy. and reinfection may reverse the protection.

73. Is India lagging in measles vaccination?

Context: The recent report by the World Health Organization (WHO) and the U.S. Centers for Disease Control and Prevention (CDC) highlights a global surge in measles cases and deaths in 2022. Contrary to this, the Union Health Ministry of India refutes claims made by the report, asserting the adequacy of India's Universal Immunisation Programme.

Issues:

- **Data Discrepancy:**
The WHO report suggests a substantial number of unvaccinated children in India, while the Union Health Ministry disputes the figures, stating only around 21,000 children missed the measles shot.
- **Vaccination Challenges:**
The discrepancies highlight challenges in accurate data collection, vaccine distribution, and monitoring, leading to a potential gap in immunization coverage.
- **COVID-19 Impact:**
The ongoing pandemic has disrupted routine immunization efforts globally, leaving millions of children vulnerable to preventable diseases like measles.
Setbacks in surveillance and vaccination programs may contribute to the resurgence of measles in certain regions.

Significance:

- **Measles Impact:**

Measles is a highly contagious disease that primarily affects children, causing morbidity and mortality.

The WHO emphasizes the significance of measles vaccination, noting its role in averting millions of deaths between 2000 and 2021.

- **Vaccination Coverage:**

Achieving high vaccination coverage is crucial to prevent measles outbreaks and protect vulnerable populations.

The effectiveness of routine immunization is a key determinant in controlling the spread of the disease.

What is measles?

- Measles is a contagious disease caused by a virus, which spreads through the air when an infected person coughs or sneezes. Measles starts with a cough, runny nose, red eyes, and fever. According to the WHO, measles vaccination averted 56 million deaths between 2000 and 2021.
- Measles can be prevented with the MMR vaccine. The vaccine protects against three diseases — measles, mumps and rubella. Two doses of MMR vaccine are about 97% effective at preventing measles; one dose is about 93% effective.

74. India announces phased introduction of biogas blending

Context: India has announced a strategic move towards sustainable energy by initiating the phased introduction of blending compressed biogas with natural gas.

Issues:

- **Natural Gas Dependency:**

India heavily relies on natural gas imports, constituting about half of its overall gas consumption. The current dependence poses economic challenges, and the nation seeks alternatives to reduce its import bill.

- **Environmental Concerns:**

The imperative to address environmental concerns, including carbon emissions and the need for sustainable energy solutions, has become critical in the context of global climate change.

- **Infrastructure Development:**

The successful implementation of biogas blending requires significant infrastructure development, including the establishment of biogas production units, distribution networks, and compatible blending facilities.

Significance:

- Domestic Energy Boost
- Reduction in Carbon Footprint
- Energy Security

75. Ayushman Bharat centres to be now called Ayushman Arogya Mandir

- The Union government has decided to rename Ayushman Bharat Health and Wellness Centres (AB-HWCs) to 'Ayushman Arogya Mandir' with the tagline 'Arogyam Parmam Dhanam.'
- The renaming aims to emphasise a shift from illness to wellness and promote Ayushman India's vision.
- States are urged to complete the rebranding by the end of 2023, uploading photographs of the rebranded facilities onto the AB-HWC portal.
- The logo of the National Health Mission (NHM) will be maintained in the newly rebranded centres.
- The initiative includes a proposed fund allocation of ₹3,000 per facility for renaming.
- Over 1.6 lakh AB-HWCs across India provide comprehensive primary healthcare services, including screenings and essential drugs.

76. President Murmu calls for all India judicial service

- President Droupadi Murmu advocates for the establishment of an all-India judicial service to ensure diverse representation in the judiciary.
- She emphasises that a more varied representation would better serve the cause of justice by making it accessible to all.
- The President suggests creating a system to recruit judges from diverse backgrounds through a merit-based, competitive, and transparent process.
- President Murmu proposes an all-India judicial service to select talented individuals from across the country, fostering their growth from lower to higher levels.
- She highlights the need for a citizen-centric approach to improve access to justice by addressing barriers such as cost and language.
- President Murmu commends the Supreme Court for its role as the final interpreter of the Constitution and praises the court's legal acumen and scholarship.

77. Bill bars courts from inquiring into 'privileged communication' between Ministers, President

- The proposed Bharatiya Sakshya (BS) Bill aims to replace the Indian Evidence Act of 1872 and includes a provision barring courts from inquiring into privileged communication between Ministers and the President of India.
- Article 74(2) of the Constitution already states this, but the government seeks to provide legal backing through the BS Bill.
- The Bill lacks a clear definition of "privileged communication," leaving it open to interpretation.
- Legal experts express concerns about the need for a clear definition and argue that while the Constitution contains the provision, the BS Bill emphasises it more directly.
- The Bill is part of a legislative package introduced in Parliament, including two other criminal codes, and is currently under examination by the Parliamentary Standing Committee on Home Affairs.
- Major changes in the Bill include omitting four sections of the Indian Evidence Act, replacing outdated terms, and deleting Section 166 related to the power of the jury.

78. Antarctic ozone hole

Context: Antarctic ozone hole now larger, thinner & may take longer to recover.

What caused the Ozone hole?

- In the winter, the stratosphere over Antarctica becomes very cold, which allows polar stratospheric clouds (PSCs) to form.
- PSCs provide a surface for chlorine atoms to react with, which increases the rate of ozone destruction.

79. Right to Repair**What is the Right to Repair?**

- Right to Repair gives consumers access to affordable repair mobile phones, appliances and other electronic devices by original equipment manufacturers (OEMs) or third-party repairs.
- The aim is to offer a cheaper alternative to expensive replacements to the customers, instead of buying new products altogether.

Department of Consumer Affairs

- The Department of Consumer Affairs set up a committee to come up with a Right to Repair framework on the lines of the LiFE (Lifestyle For Environment) initiative launched by Prime Minister Narendra Modi.
- The portal will carry information for enabling consumers to self-repair, knowing about authorized repairers and promoting third party repairs
- The goal of Mission LiFE is to replace the present "use and dispose" mentality with a circular economy based on conscious and purposeful consumption.

How will the Right to Repair portal help?

- Reduce the vast mountain of e-waste.
- Boost business for small repair shops.
- Save consumers' money
- Contribute to circular economy

80. ILO report urges countries to strengthen safety net

- According to a report by the International Labour Organization (ILO), nearly 30 lakh workers die globally each year due to work-related accidents and diseases.
- Over 63% of these deaths occur in the Asia-Pacific region.
- Exposure to long working hours (55 hours or more per week) is identified as the leading cause of work-related deaths, contributing to almost 7.45 lakh fatalities in 2016.
- The three most hazardous sectors globally are mining and quarrying, construction, and utilities.
- The report highlights that 79 out of 187 member countries have ratified the ILO Occupational Safety and Health Convention (No. 155), and 62 countries have ratified the Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187), but India has not ratified either convention.
- The report recommends five categories of "Fundamental Principles and Rights at Work" to ensure safety and health at work. These are,
 - freedom of association and the effective recognition of the right to collective bargaining
 - elimination of all forms of forced or compulsory labour
 - abolition of child labour
 - elimination of discrimination in respect of employment and occupation
 - a safe and healthy working environment

81. Paul Lynch wins 2023 Booker Prize for Prophet Song

- The 2023 Booker Prize for Fiction has been awarded to Irish author Paul Lynch for his novel "Prophet Song."
- "Prophet Song" is a dystopian work set in a near-future version of Ireland, depicting the struggles of a mother of four trying to save her family from totalitarianism.
- The Booker Prize comes with a £50,000 cash prize and is one of the most prestigious literary awards.
- The novel captures the social and political anxieties of the current moment and is praised for its emotional storytelling.
- The Booker Prize is open to fiction works by writers of any nationality, written in English and published in the UK or Ireland.
- The Booker Prize was first awarded in 1969 and has featured acclaimed authors such as Salman Rushdie, Margaret Atwood, and Hilary Mantel among its winners.

82. Rat-hole Mining

Context: Rat-hole mining, though deemed illegal by the National Green Tribunal (NGT) in 2014, has unexpectedly proven its value in a recent rescue operation in the Silkyara tunnel.

Details:

- Rat-Hole Mining: An illegal yet skilled practice.
- Definition and Ban: Rat-hole mining involves the digging of narrow tunnels, typically three or four feet high, for extracting coal. In 2014, the NGT imposed a ban on this technique for coal mining in Meghalaya, citing environmental concerns.
- Modus Operandi: The method includes creating horizontal tunnels termed "rat holes," each just about fitting one person, allowing entry for workers to extract coal.

Role of Rat-Hole Miners in Rescue Operation

- Skill and Experience: Despite its legal prohibition, the expertise and experience of rat-hole miners became instrumental in the rescue operation in the Silkyara tunnel.
- Phenomenal Achievement: Lieutenant-General Syed Ata Hasnain (retired) commended the rat-hole miners for their exceptional achievement of digging 10 meters within a remarkably short timeframe.

Legal Context and Special Situation

- NGT's Prohibition: The NGT's ban specifically targeted coal mining through rat-hole techniques, emphasizing the environmental hazards associated with this practice.
- Exceptional Circumstances: Vishal Chauhan, an NHA member, highlighted that while rat-hole mining is generally illegal, the current scenario in the Silkyara tunnel is deemed a life-saving situation. The deployment of rat-hole mining is justified as a necessary technical intervention by experts.

Deployment of Rat-Hole Mining Technique

- Experts' Involvement: Trenchless Engineering Services and Navayuga Engineers have called upon at least 12 experts from various parts of the country to deploy the rat-hole mining technique horizontally in the collapsed part of the Silkyara tunnel.
- Geographical Diversity: Experts have arrived from locations such as Delhi and Jhansi, showcasing the nationwide utilization of rat-hole miners' skills in critical situations.

Solutions

- Policy Reassessment: Reevaluate the existing legal framework regarding rat-hole mining, considering its potential applications in life-saving scenarios.
- Regulation and Training: Implement regulations for the ethical use of rat-hole mining techniques in emergencies, accompanied by proper training to ensure safety and efficiency.

83. The Hump Air Route

Context: The inauguration of 'The Hump WWII Museum' in Pasighat, Arunachal Pradesh, marks a significant tribute to fallen airmen who navigated the perilous air route known as 'The Hump' during World War II. This museum commemorates the bravery and sacrifices of Allied pilots and highlights the historical significance of the region during the war.

Details:

- The Treacherous 'Hump' Route: 'The Hump' was a challenging air route between northeastern Assam and Yunnan in China, characterized by deep gorges and mountains rising beyond 10,000 feet. Some 650 aircraft crashed on this route from 1942-45, leading to the loss of lives.
- Historical Remnants: About 30 locations in Arunachal Pradesh are believed to still contain remnants of WWII aircraft, reflecting the need for exploration and preservation efforts to safeguard this historical heritage.

Significance

- **International Collaboration:** The inauguration was attended by Eric Garcetti, the U.S. Ambassador to India, highlighting the international significance of the museum and the shared history between the Allied forces and Arunachal Pradesh.
- **Remembrance and Education:** The museum serves as a tribute from the people of Arunachal Pradesh to the fallen heroes of WWII, preserving the memory of Allied pilots who flew over 'The Hump.' It also educates the younger generation about the bravery and sacrifices made during the war.
- **Cultural Exchange:** The initiative fosters cultural exchange and strengthens diplomatic ties, as evident in the collaborative efforts between the U.S. and Arunachal Pradesh in establishing the museum.

84. Lantana camara invasive species

Context: The sculptures of elephants made of Lantana camara, an invasive weed, displayed at Gopala Gowda Circle outside the Vidhana Soudha in Bengaluru.



Source: The Hindu

Details:

- Lantana is one of the world's ten worst invasive species and a species of High Concern for India.
- It competes with native plants for space and resources, and also alters the nutrient cycle in the soil.
- This invasion has resulted in the scarcity of native forage plants for wild herbivores

85. Centre to provide drones to women groups for use in agriculture

Context: The Union Cabinet, led by Prime Minister Narendra Modi, has approved a scheme to provide drones to 15,000 women self-help groups (SHGs) for agricultural purposes. The initiative aims to empower women in rural areas, enhance agricultural practices, and contribute to farmers' well-being.

Issues

- **Limited Technological Access:** Many farmers, especially in rural areas, have limited access to advanced agricultural technologies, hindering optimal productivity and efficiency.
- **Gender Disparities:** Women in rural areas often face challenges in accessing opportunities for skill development and income generation. Bridging this gender gap is crucial for inclusive rural development.
- **Economic Feasibility:** Identifying economically feasible clusters for drone usage is essential to ensure the effectiveness and sustainability of the initiative.

Significance

- **Empowering Women:** Providing drones to women self-help groups empowers them with technological tools, fostering their active participation in agriculture and rural development.
- **Agricultural Efficiency:** The use of drones for nano fertilizer and pesticide applications enhances agricultural practices, leading to increased crop yield and sustainable farming.
- **Financial Support:** The financial outlay of ₹1,261 crore over two years demonstrates the government's commitment to supporting women's groups and promoting technological advancements in agricultur

86. The Fast Track Special Court Scheme

Context: The Union Cabinet has approved the extension of the Fast Track Special Court (FTSC) Scheme for three more years, focusing on expediting the justice delivery process, particularly in cases of sexual offences.

- The scheme, launched in 2019, aims to address the challenges in the legal system and enhance the speedy disposal of cases related to rape and offences under the Protection of Children from Sexual Offences (POCSO) Act.

Issues

- Underutilization of Courts: Despite the initial plan to set up 1,023 fast-track courts, only 754 are operational due to the failure of several states to fulfill their commitment to establishing these courts, resulting in a shortage.
- Legal Backlog: The persisting backlog of cases related to sexual offences and crimes against children highlights the need for a comprehensive strategy to address the delays in the justice system.

Significance

- Swift Disposal of Cases: The FTSC Scheme plays a crucial role in expediting the legal process, ensuring swift disposal of cases and delivering justice to victims of sexual offences.
- Focus on POCSO Cases: The establishment of dedicated POCSO courts under the scheme demonstrates a targeted approach to handle cases related to crimes against children, addressing the unique challenges associated with such offences.
- National Reach: The scheme's coverage across 30 States and Union Territories, with 761 operational fast-track courts, signifies a nationwide effort to enhance the efficiency of the justice system.

87. Sri Lanka reaches deal with India & Paris Club

Context: Sri Lanka has reached an "agreement in principle" with India and the Paris Club, including Japan, on a debt treatment plan. This development is crucial for Sri Lanka to access the next tranche of the International Monetary Fund's (IMF) nearly \$3-billion recovery package, following the country's decision to default on its significant foreign debt amid an economic crisis.

Issues

- Economic Crisis and Debt Default: Sri Lanka's decision to default on its nearly \$51 billion foreign debt during the economic crisis created a need for comprehensive restructuring to initiate an IMF-backed economic recovery program.
- Creditor Parity and Transparency: The Official Creditor Committee (OCC), co-chaired by India, Japan, and France, emphasized the importance of creditor parity and transparency, with China, Sri Lanka's largest bilateral creditor, choosing not to participate in the platform.
- Private Creditor Engagement: The OCC urged Sri Lanka to engage with its private creditors, who hold a significant portion of the country's foreign debt, to secure agreements on terms at least as favorable as those offered by the OCC.

Significance

- Access to IMF Recovery Package: The agreement with India and the Paris Club is essential for Sri Lanka to tap into the next tranche of the IMF's recovery package, providing crucial financial support for the country's economic stabilization and growth.
- Creditor Cooperation: The engagement with major creditors, including India and Japan, signifies international cooperation to address Sri Lanka's debt challenges and supports a coordinated effort for economic recovery.
- China's Role: China's decision to stay out of the OCC platform but attend meetings as an observer raises questions about its stance in the debt restructuring process and the need for transparent participation.

88. 16th Finance Commission

Context: The Union Cabinet has approved the terms of reference (ToR) for the Sixteenth Finance Commission, setting the stage for the panel to recommend the revenue-sharing formula between the Centre and States for the five-year period starting April 1, 2026.

- The Finance Commission's recommendations, crucial for fiscal federalism, will encompass various aspects, including the distribution of net proceeds of taxes, allocation among States, and measures to enhance the Consolidated Fund of a State.

Issues

- Fiscal Federalism Challenges: The evolving economic landscape and fiscal challenges require a comprehensive approach in determining the formula for sharing revenues between the Centre and States to ensure balanced fiscal federalism.
- Resource Augmentation for Local Bodies: The panel needs to address the need for measures to augment the Consolidated Fund of a State, specifically to supplement resources for panchayats and local bodies, aligning with the recommendations of State Finance Commissions.
- Disaster Management Financing: The existing arrangements for financing Disaster Management initiatives may need a thorough review, and appropriate recommendations should be made to address gaps and enhance effectiveness.

YOJANA NOVEMBER 2023

1. Responsible use of Artificial Intelligence

- The recently concluded G20 Summit in New Delhi delved into various aspects of Responsible AI (RAI). Governments worldwide are actively formulating regulations for the responsible use of AI, particularly in light of the emergence of General AI (Gen AI) applications.
- The **G20 New Delhi Declaration on AI underscores the G20 nations' commitment to harnessing AI for the public good**, addressing challenges responsibly, inclusively, and human-centrally, while safeguarding people's rights and safety.
- The human-centred approach to AI was emphasised in the **G20 AI principles of 2019, adopted at the Osaka Summit 2019**. In pursuit of this goal, G20 leaders have pledged support to educational institutions and teachers, enabling them to keep pace with technological advancements.

How does AI pose ethical risks?

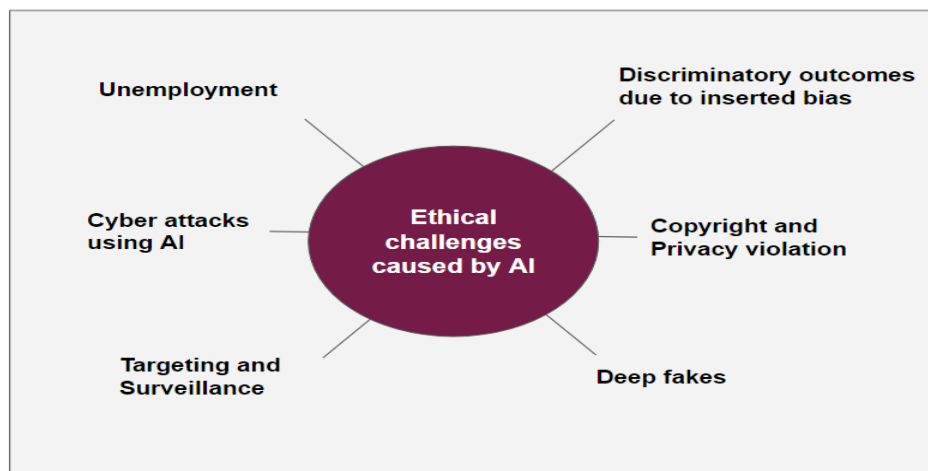


Figure: Ethical challenges caused by AI

What is Responsible AI (RAI)?

- RAI, or Responsible AI, is an overarching concept that encompasses the principles of fairness, explainability, and trustworthiness in AI systems.
- **It entails designing, developing, and deploying AI in a way that empowers employees, businesses, and society as a whole while adhering to ethical principles and ensuring fair outcomes.**

India's Effort in Responsible AI

- NITI Aayog released a two-part report in 2021 outlining approaches and operationalising principles for Responsible AI (RAI) in the deployment and use of civilian AI architecture. NITI Aayog has identified seven broad principles for responsible AI management:

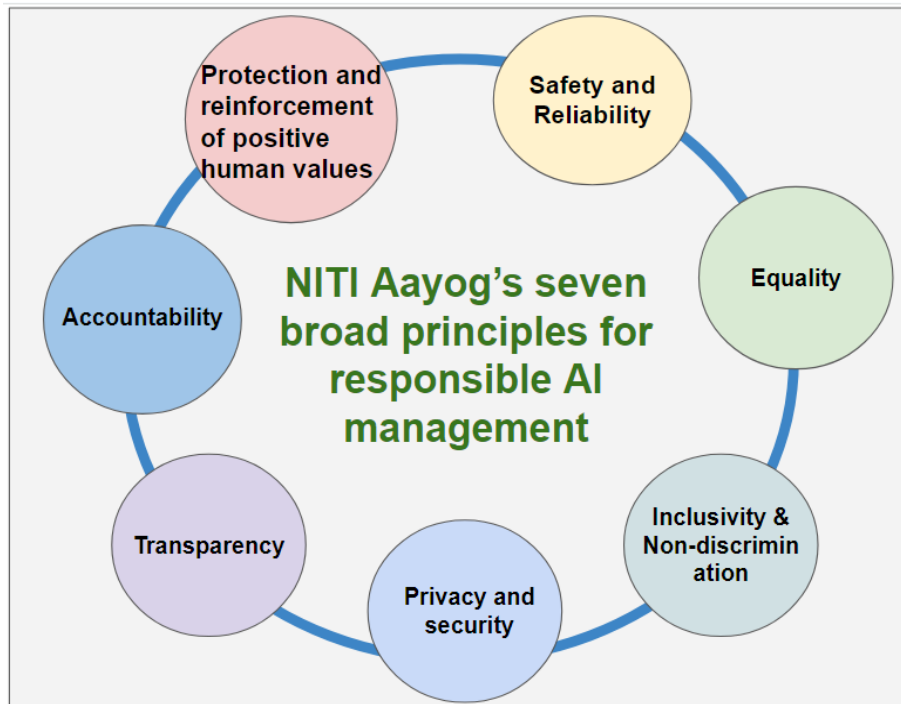


Figure: NITI Aayog's seven broad principles for responsible AI management

- **Global Partnership on Artificial Intelligence (GPAI):** It is a multi-stakeholder initiative that brings together experts from science, industry, civil society, international organisations, and governments to foster knowledge exchange, identify key issues among AI practitioners, and promote responsible development and use of AI.
India currently holds the chairmanship of GPAI and has advocated for a unified framework of rules and guidelines on data governance to safeguard users from harm and ensure the safety of both the internet and AI technologies.

Conclusion: Despite numerous initiatives aimed at mitigating the potential risks associated with the misuse of AI, there is currently no global consensus or regulatory framework governing the ethical and responsible use of AI. Organisations like the G20 and GPAI can play a crucial role in bridging the gap between AI innovation and ethical considerations.

2. India's Rising Influence - G20 Summit puts India on the world stage

- Recently, at the G20 Leaders' Summit in 2023, the Indian Prime Minister handed over the G20 Presidency to the President of Brazil. India had held the Presidency of the G20 from December 1, 2022, to November 30, 2023.

Group of Twenty (G20)

- The **Group of Twenty (G20)** is an intergovernmental forum comprising **19 countries** — Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, the United Kingdom, and the United States — and the **European Union**. The **African Union joined the G20 in 2023**.
- The G20 accounts for around **85% of global GDP, over 75% of global trade, and about two-thirds of the world's population**.
- **Theme of India's G20 Presidency:** Vasudhaiva Kutumbakam" or "One Earth · One Family · One Future"

Achievements of India during G20 presidency:

- **Human-centric approach:** India prioritised a human-centric and democratic approach during its G20 presidency, earning it the title of **"People's G20."** Over 150 million citizens actively participated in G20 events through **Jan Bhagidari or citizen engagement initiatives**. Dedicated G20 websites and mobile applications were developed to enhance accessibility and outreach.
- **Showcase of India's rich diversity:** Over **200 G20 meetings were conducted across all Indian states and Union territories**, highlighting India's rich cultural heritage, strong cooperative federalism, organisational capabilities, and collaborative spirit.
- **G20 New Delhi Declaration:** The **G20 New Delhi Declaration was adopted unanimously by all member nations**, demonstrating a remarkable display of unity despite existing geopolitical divisions within the grouping.
During the presidency, 112 significant outcomes were produced, including the Deccan High-Level Principles on Food Security and Nutrition, the Chennai High-Level Principles for the Blue/Ocean Economy, and the Goa Roadmap on Tourism.



Figure: G20 Summit New Delhi

Source: Yojana

- **Priority areas:** India placed the utmost focus on key priority areas like climate action, digital public infrastructure, sustainable development, and inclusive governance.
- **Expansion of the G20:** India championed the inclusion of the African Union as a full-fledged member of the G20. This underscores India's commitment to a more inclusive and representative G20 that reflects the diversity of the global community.
- **Key initiatives spearheaded by India:**
 - India established the Global Digital Public Infrastructure Repository**, a platform where G20 and non-G20 countries can voluntarily share their open-source software solutions. This aims to foster collaboration and innovation in the digital realm, creating a mutually beneficial ecosystem for all participants.
 - The **One Future Alliance** is a voluntary initiative led by India aimed at building capacity, providing technical assistance, and securing adequate funding support for implementing digital public infrastructure in low-and middle-income countries (LMICs).
 - Food Security and Nutrition:** India's proposal for the G20 Millets and Other Ancient Grains International Research Initiative (MAHARISHI) was welcomed by G20 members which focuses on promoting the cultivation, consumption, and research of millets and other ancient grains.

Conclusion: India's G20 presidency has set a remarkable precedent for global cooperation and leadership. India has earned the title of **Vishwamitra, a universal friend and mediator**, for its unwavering commitment to advocating for the concerns of the Global South. By prioritising the developmental agenda within the G20, India has paved the way towards a more resilient and inclusive economic order, setting the stage for a prosperous and equitable future for all.

3. Green development pact

Context: In the G20 presidency of India, sustainability was its core theme. India focuses on economy and ecology in development. The Green development Pact with other initiatives have highlighted the efforts in this direction.

Importance of the efforts by G20: The G20 collectively represents $\frac{2}{3}$ rd of the world population, 85% of GDP, and 75% of international trade. The efforts in the direction of sustainability by g20 leaders can make a significant impact. G20 leaders have acknowledged the importance of sustainability and adopted a green development pact.

Other initiatives which highlight the determination of efforts towards the green economy are:

- Global biofuel alliance
- **LiFE:** During the UN Climate Change Conference (UNFCCC COP26), Prime Minister Narendra Modi introduced the "LiFE (Lifestyle for the Environment)" mission. This initiative aims to involve individuals in addressing the impacts of climate change by promoting a lifestyle centered around conscious and intentional resource utilization. The goal is to shift away from current habits of 'use and dispose' and inspire people to adopt small, impactful changes in their daily lives to contribute to mitigating climate change.
- Other initiatives such as Guidelines on extended producers responsibility(EPR) on plastic packaging under plastic waste management rule, EPRon e-waste management rule mark steps towards the transition.

- Other initiatives, Global Alliance on Circular Economy and Resource Efficiency, Resource Efficiency and Circular Economy Industry Coalition launched by India also to support the progress towards green development.
- Circular economy transition is also a key model for the future. A circular economy creates jobs in various sectors such as repair, manufacturing, research, recycling, waste management etc.

Green Development Pact:

The Green Development Pact encompasses key themes such as resource efficiency, sustainable consumption, a just energy transition, climate and sustainable finance, principles for an ocean-based Blue Economy, and building disaster-resilient infrastructure. It aims to address the development needs of the Global South, promote global sustainability, and bridge gaps between nations.

The pact focuses on ecological restoration. The commitment is to restore 30% of the degraded ecosystem by 2030.

India's G20 presidency placed sustainability at its core, emphasizing the vital intersection of economy and ecology in development. The Green Development Pact, alongside initiatives underscores a collective commitment to fostering a green economy.

4. Designing circular economy for the world

Context: With rising world population the demand for consumption is bound to rise and so the circular economy holds great importance not only for a nation but worldwide. The high level principles on lifestyle for sustainable development which was adopted in G 20 highlights the commitment to promote responsible consumption and circular economy.

Why is the Circular economy crucial in the present and coming future?

- The population of the world is growing and is expected to touch 10 billion by 2050. With increasing population, the demand for food, shelter, clothing, recreation related goods and services is bound to increase. More extraction of resources will be needed to fulfill the demand.
- If we follow a linear economy, where resources are extracted, used to create products, and then disposed of as waste after their life cycle, leading to a one-way flow, It is going to be unsustainable in the coming future. the finite natural resource of earth will degrade bringing resource insecurity, biodiversity loss, pollution and climate change. Sustainable development is not possible with this model. This approach contrasts with a circular economy, which promotes recycling, reusing, and minimizing waste to create a more sustainable and environmentally friendly system.
- It is imperative to switch to a circular economy if we want sustainable growth meeting SDGs such as responsible consumption and production SDG 12.

Concept of 'circularity' in circular economy:

The concept of 'circularity' revolves around the principles of minimizing waste, promoting resource efficiency, and fostering sustainable practices. It emphasizes the continuous use, recycling, and regeneration of materials to create a closed-loop system that reduces environmental impact and enhances long-term sustainability. Circularity covers the whole lifecycle of a product from designing to manufacturing to consumption to repairing, recycling and reusing.

How lifechoices play a crucial role in transition to a circular economy?

Two third of the emissions is contributed from lifestyle consumption as per evidence.

The main areas which need to be targeted are mobility, energy use, dietary choices, food and new business models.

Textile industry has a role to play: As per a report by unep, fashion consumption has doubled and garments are discarded in a shorter time. The consideration of the circular economy in the textile industry has a significant role to play and the industry is not yet on this road. So, the new business model, such as the textile industry needs a transition.

Focus of G20 nations:

During the G20 summit, the high level principles on lifestyle for sustainable development was adopted acknowledging the importance of a circular economy.

Transition in the supply chain is crucial and focus should be on high impact sectors of the economy such as mobility, textiles, plastics, building etc.

Measures from India for the transition towards circular economy:

There are various steps taken for the transition as follows.

- Steel scrap policy, Draft national resource efficiency policy 2019, vehicle scrapping policy, sectoral actions plan for circular economy.
- Guidelines on extended producers responsibility(EPR) on plastic packaging under plastic waste management rule, EPRon e-waste management rule mark steps towards the transition.
- Other initiatives Global Alliance on Circular Economy and Resource Efficiency, Resource Efficiency and Circular Economy Industry Coalition launched by India.
- Mission LiFE launched by Prime minister modi is a step towards responsible consumption.
- The Travel for LiFE initiative seeks to instigate changes in the behavior of both tourists and tourism businesses, emphasizing environmental preservation and socio-cultural sustainability.

Embracing a circular economy is imperative to address the challenges posed by a growing global population and increasing consumption demands. By minimizing waste, promoting resource efficiency, and adopting sustainable practices, nations can pave the way for a more environmentally friendly and sustainable future.

5. Digital Public Infrastructure and Public Participation

The global demand for a strong Digital Public Infrastructure (DPI) is increasing as digitalization grows. DPI is essential for enhancing resilience, facilitating service provision, and fostering innovation. It is important to cultivate this fundamental framework to ensure that everyone, from urban innovators to rural craftspersons, can participate in the digital economy.

The **G20 India Presidency, 2023** was grounded in the central theme of Vasudhaiva Kutumbakam, which translates to 'One Earth, One Family, One Future'. This theme emphasised the importance of fair and inclusive economic growth as well as a collective vision for the future. The G20 Leaders' Declaration under India's Presidency emphasizes the role of technology in bridging digital divides and promoting inclusive and sustainable development. India is building a **Global Digital Public Infrastructure Repository (GDPIR)** to store DPI information.

What is Digital Public Infrastructure?

Digital Public Infrastructure (DPI) is a **digital network facilitating the efficient delivery of economic opportunities and social services**. Comparable to physical roads, it connects people, streamlines tasks like opening bank accounts and receiving wages, enables rapid government support during emergencies, and empowers entrepreneurs to reach a broad customer base.

Digital Public Infrastructure in India

India has adopted Digital Public Infrastructures (DPIs) like Aadhaar, Jan Dhan bank accounts, and mobile phones to accelerate financial inclusion. The **JAM Trinity** has increased financial inclusion from **25% in 2008 to over 80% in the past six years**.

Government-to-person Programmes & Unified Payments Interface

India has pioneered one of the world's largest digital Government-to-Person (G2P) architectures through DPI. The Unified Payments Interface (UPI), a swift and instantaneous payment network, recorded over 10.586 billion transactions, totalling approximately **Rs 15.76 trillion in August 2023**.

India Stack & Account Aggregator System

India Stack, the foundational DPI, has spurred innovation, healthy competition, and expanded market reach. It addresses financial inclusion disparities, enhances government revenue collection, and streamlines Know Your Customer (KYC) processes. Notably, it has played a vital role in modernising and simplifying KYC processes.

Key initiatives in India's Digital Public Infrastructure (DPI) journey include

Digital India Initiative and BharatNet Project:

- The Digital India Initiative focuses on providing digital infrastructure and promoting digital literacy.
- The BharatNet Project aims to connect all of India's Gram Panchayats to broadband internet, **linking 202,028 Gram Panchayats** and installing 658,685 kilometres of optical fibre cables as of September 11, 2023.

Pradhan Mantri Jan Dhan Yojana (PMJDY):

- A significant contributor to financial inclusion, with a total of 50.41 crore beneficiaries across different types of banks as of September 13, 2023.
- Cumulative deposits in PMJDY accounts reached a total of Rs 20,494.18 billion.

Make in India Initiative:

- Focused on reducing import dependency by promoting local production of electronic and digital goods.
- As of June 2023, the initiative has successfully spurred the local production of electronic and digital goods, enhancing self-reliance.

Startup India Initiative:

- Provides vital support to startups, including access to funding, mentorship, and regulatory reforms.
- As of May 31, 2023, **India accommodates 108 unicorns**, with a combined valuation of \$340.80 billion.

Smart Cities Mission:

- Aligned with the G20's DPI focus, **covering 100 cities**, 7,934 projects, and an estimated cost of Rs 170,392 crore.
- Enhances digital capabilities in cities with Wi-Fi, intelligent transportation, and data-driven governance.

Aadhaar, UMANG, DigiLocker, and Central Bank Digital Currency (CBDC):

- Aadhaar remains integral for digital services and identity verification.
- UMANG and DigiLocker align with the G20's DPI focus by providing secure and accessible government services and digital document storage.
- The launch of the **e-Rupee, a Central Bank Digital Currency (CBDC)**, aligns with the G20's emphasis on CBDCs, showcasing India's proactive adoption of digital currency solutions.

Ministry of Electronics and IT (MeitY) and Artificial Intelligence (AI) Development:

- MeitY is actively driving AI development in India, aligning with the G20's focus on responsible AI use.
- Initiatives include re-skilling, online portals, capacity building, and international collaborations, all aimed at public benefit and achieving Sustainable Development Goals.

Conclusion

The G20 Leaders' Declaration emphasizes the importance of Digital Public Infrastructure (DPI) in promoting inclusive and sustainable development. India's leadership in DPI initiatives, such as Aadhaar and UPI, serves as a model for other countries.



KURUKSHETRA NOVEMBER 2023

1. PM VISHWAKARMA YOJANA

Context: PM VISHWAKARMA YOJANA is a central sector scheme that aims to empower rural artisans and blend tradition and modernity.

About Scheme:

- The scheme aims to empower artisans by providing them with certificates and ID cards which recognise them as Viswakarma and providing collateral-free loans, skill development support, marketing support, incentives for digital transactions and toolkit support.
- The Ministry of Micro, Small and Medium Enterprises, Ministry of Skill Development and Entrepreneurship and Department of Financial Services are converged as co-implementers of the scheme.
- The state governments also have an active role in the verification of prospective beneficiaries and in the implementation and monitoring of the scheme.
- Empowering Auditions also result in the betterment of the social and economic conditions of rural parts of India.
- The Scheme covers artisans and craftspeople engaged in 18 trades, viz. (i) Carpenter (Suthar/Badhai); (ii) Boat Maker; (iii) Armourer; (iv) Blacksmith (Lohar); (v) Hammer and Tool Kit Maker; (vi) Locksmith; (vii) Goldsmith (Sonar); (viii) Potter (Kumhaar); (ix) Sculptor (Moortikar, stone carver), Stone breaker; (x) Cobbler (Charmkar)/ Shoemaker/ Footwear artisan; (xi) Mason (Rajmistri); (xii) Basket/Mat/Broom Maker/Coir Weaver; (xiii) Doll & Toy Maker (Traditional); (xiv) Barber (Naai); (xv) Garland maker (Malakaar); (xvi) Washerman (Dhobi); (xvii) Tailor (Darzi); and (xviii) Fishing Net Maker.
- The minimum age of the beneficiary should be 18 years on the date of registration.

The Scheme envisages the following six interventions:

- Recognition:** Recognition of artisans and craftspeople through PM Vishwakarma certificate and ID card.
- Skill Upgradation:** Basic Training of 5-7 days and Advanced Training of 15 days or more, with a stipend of Rs. 500 per day;
- Toolkit Incentive:** A toolkit incentive of up to Rs. 15,000 in the form of e-vouchers at the beginning of Basic Skill Training.
- Credit Support:** Collateral-free 'Enterprise Development Loans' of up to Rs. 3 lakh in two tranches of Rs. 1 lakh and Rs. 2 lakh with tenures of 18 months and 30 months, respectively, at a concessional rate of interest fixed at 5%, with Government of India subvention to the extent of 8%. Beneficiaries who have completed Basic Training will be eligible to avail the first tranche of credit support of up to Rs. 1 lakh. The second loan tranche will be available to beneficiaries who have availed of the 1st tranche and maintained a standard loan account and have adopted digital transactions in their business or have undergone Advanced Training.
- Incentive for Digital Transaction:** An amount of Re. 1 per digital transaction, upto a maximum of 100 transactions monthly will be credited to the beneficiary's account for each digital pay-out or receipt.
- Marketing Support:** Marketing support will be provided to the artisans and craftspeople in the form of quality certification, branding, onboarding on e-commerce platforms such as GeM, advertising, publicity and other marketing activities to improve linkage to the value chain.

2. ENCOURAGING MICRO-ENTREPRENEURSHIP

Context: Encouraging Microentrepreneurship can solve the problems faced by rural India and some of the direct benefits are the creation of employment reduced rural-urban migration and increased rural income.

Need and Impact:

- More than 60% of the population is dependent on agriculture and this over-dependence has resulted in reduced land size which in turn affects the investments coming into agriculture.
- Some of the impacts of over-dependence on agriculture are the limited scope of use of machinery, Limited bargaining power and reduced output.
- Encouraging micro-entrepreneurship can result in increased income for rural parts of the country and result in more investment in agriculture.
- Micro Enterprises are defined as those that invest in plants and machinery up to 1 crore and the turnover does not exceed 5 crore. Micro Enterprises cater to the community or local market by selling goods and services thereby boosting the local economy.
- Micro enterprises fill the gap left by official Enterprises and provide employment with additional income and convenience.
- Micro entrepreneurship is also associated with low entry barriers and people with limited resources can also start a viable entity.
- It is generally found that micro Enterprises are more innovative than larger Enterprises
- Micro Enterprises can also be resilient during economic downturns due to their small size and agility.

Schemes Promoting Entrepreneurship:

- Aspire
- Pradhan Mantri Mudra Yojana (PMMY)
- Startup India
- SIP Protection in Electronics & IT (SIP-EIT) Scheme
- Multiplier Grants Scheme
- Credit Guarantee Fund Trust for Micro and Small Enterprise
- Single Point Registration Scheme (SPRS)
- zero effect zero defect scheme

3. Sustainability of Rural Enterprises - Opportunities, Challenges and the Way Forward

Rural Enterprises are the backbone of India's economy, which play an important role in the holistic development of the rural economy promoting economic and social development at the grass root level which in turn contributes significantly to the country's growth.

What is Rural Enterprises?

Rural enterprises are business entities that promote revenue generation and act as agents of social change at the grassroots level.

Rural enterprises can be broadly classified into two types:

- Proprietary ownership
- Group entrepreneurship: SHGs Cooperatives, and Producer companies.

According to official data released on April 30, 2022, **India has more than 63 million MSMEs, out of which about 94% are micro-enterprises.** This shows how important small businesses are to the economy of India.

Rural entrepreneurship holds immense potential to independently address significant socio-economic challenges at the grassroots level. However, it is currently hindered by various challenges that demand immediate attention and action.

Importance of Rural Entrepreneurship in India

- Rural industries **maximize local resources** like raw materials and labour, boosting productivity and mobilizing rural savings to enhance rural funds.
- **Creates jobs in rural areas**, addressing unemployment and underemployment, **discourages rural-urban migration and curbs urban issues.**
- **Preserves rural heritage through handicraft** and art promotion via rural entrepreneurship.
- Tackles social ills like **poverty, slums, and pollution.**
- **Empower rural youth** by introducing them to entrepreneurship as a career choice.

Rural development sparks positive changes:

- Sustainable farming practices
- Agro-industries flourish
- Traditional crafts revive in niche markets

Challenges Faced by the Rural Entrepreneurs

- **Initial challenges for rural entrepreneurs:**
 - Social and gender biases
 - Limited business knowledge and skills
 - Difficulty assessing market viability and competition
- **Ongoing challenges:**
 - Inconsistent market connections
 - Stiff competition from urban businesses
 - Inadequate infrastructure and logistics
 - Misunderstanding of government support programs for unskilled labour

Recovery Roadmap

India needs key initiatives to accelerate entrepreneurship: Essential rural **skill and entrepreneurship programs** are needed to grow the skilled workforce, foster economic activities and increase the number of rural enterprises.

Three approaches can be adopted for Skilling and Entrepreneurship Development: Project Mode, Cluster Development and Incubation.

- Project Mode Approach: Select participants, and provide training and support.
- Cluster development fosters holistic development by creating forward and backward linkages.
- In the Incubation approach, rural participants attend skill development training at an incubation centre, followed by a six-month to one-year incubation phase for product development and marketing.

Role of Government

- The government's initiatives, such as Start-up **Village Entrepreneurship Programme (SVEP)** and **Rural Self Employment Training Institutes (RSETIS)**, play a pivotal role in supporting and scaling rural enterprises.
- Other government schemes like **Pradhan Mantri-YUVA** and **DAY-NRLM** aim to expand entrepreneurship by supporting existing enterprises and fostering group women entrepreneurship in rural areas.
- **Rural Self Employment Training Institutes (RSETIS)** offer skill and entrepreneurship training to rural unemployed youth, aiding them in starting their own businesses.
- The **Indian government and Tata Trusts** have partnered to form the Foundation for Development of Rural Value Chains (FDRVC), which promotes large-scale producer enterprises and implements value chain projects.

Conclusion

- To nurture rural entrepreneurship, and enhance access to resources, including mentorship and incubation centres. Government leadership is vital, but collaboration with civil society and NGOs is essential for sustainable support.
- There is a need for sustained and focused efforts to promote rural entrepreneurship and create a conducive environment for aspiring rural entrepreneurs.

4. Developing Talent in Healthcare

Introduction

India's vast rural population faces healthcare challenges due to a shortage of trained professionals. The pandemic exacerbated this issue, prompting the Ministry of Skill Development and Entrepreneurship to launch a rural healthcare training program to address the shortfall.

India's Healthcare Landscape: A Glimpse into the Current Situation

India's healthcare workforce, especially in rural areas, is inadequate to meet the growing demand. The country's current **doctor-to-population ratio of 0.65 per 1,000** falls far below the **WHO's recommended ratio of 2.5**.

Initiatives like Ayushman Bharat and the National Health Policy are expected to further amplify the need for skilled healthcare professionals. To address this gap, India aims to increase the number of trained health personnel to at least **2.5 doctors and 5 nurses per 1,000 people by 2023-24**.

Vocational education in India, crucial for skilled manpower, faces challenges like content-industry mismatches, trainer scarcity, and limited accessibility. As a result, around **82% of the rural population lacks formal vocational training** in healthcare and related sectors, according to the Periodic Labour Force Survey (2021-22).

The government's actions to address the problem

In response to this, the Ministry of Skill Development and Entrepreneurship (MSDE) has collaborated with various ministries and organizations to initiate a project addressing the shortage of skilled healthcare workers in rural India. The **'Skill for Life, Save a Life' initiative**, in collaboration with the Ministry of Health and Family Welfare, has standardized the curriculum for ten short-term courses in the health sector.

The **National Education Policy (NEP)** aims to integrate vocational education into the secondary and higher education curriculum. Every student should experience at least one vocational field, and the government will set up a committee to oversee this initiative. Incubation centres and a detailed National Skills Qualifications Framework will also be established to support vocational education.

Under the **Skill India Mission**, MSDE is conducting a Special Training program that encompasses fresh skilling, up-skilling, and training of drivers in handling life support medicines/equipment. The trained professionals can secure jobs in various healthcare sectors.

Additionally, the **Pradhan Mantri YUVA (PM-YUVA) Yojana** and **Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY)** aim to create an enabling ecosystem for entrepreneurship education and regular monthly-wage jobs, respectively. The MSDE has also undertaken initiatives for the empowerment of women, partnering with **Ayushman Bharat** and **Swachh Bharat Mission** to equip women with market-relevant skills in healthcare.

The **Healthcare Sector Skill Council (HSSC)** plays a pivotal role in evaluating and certifying healthcare sector candidates, ensuring a quality skilling ecosystem.

Elevating Performance: Government's Path to Improvement

Beyond existing schemes, there is potential for collaborations with NGOs and the corporate sector to increase productivity in various areas such as early childhood care, geriatric care, and nutrition counselling. Entrepreneurs, especially women, can be trained to produce nutritious food items, generating income for themselves. Rural youth can be trained in physiotherapy and sports nutrition to provide health and wellness services to villagers.

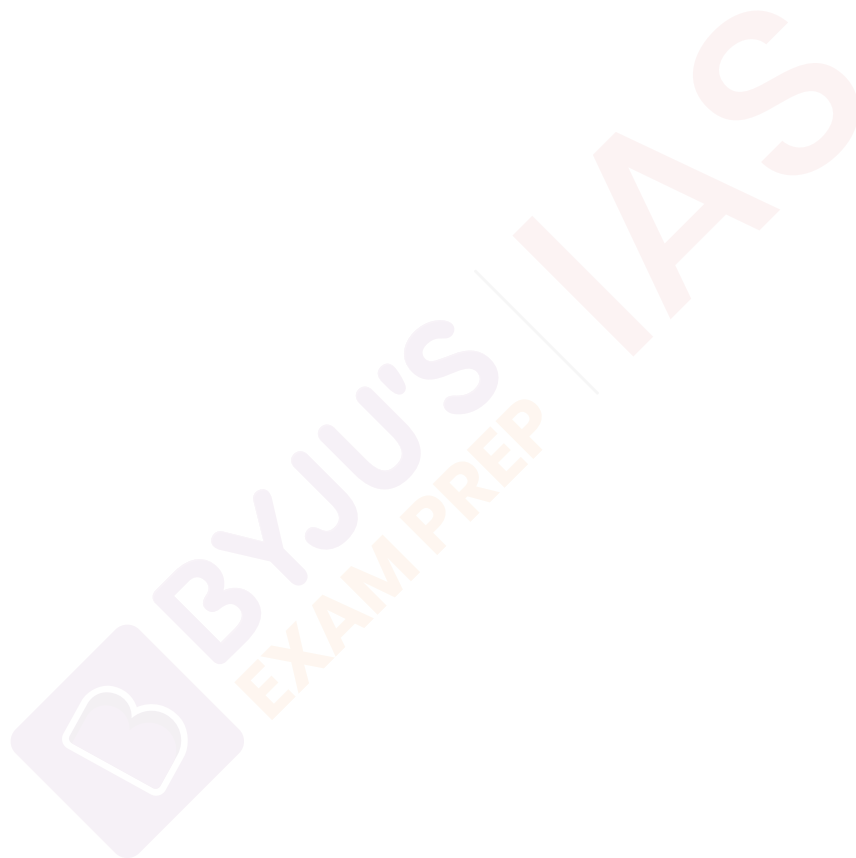
Moreover, educational loans at concessional interest rates can be provided for candidates joining nutrition/health-related courses, with loan repayments waived for those serving rural populations.

To strengthen the rural health infrastructure, effective collaborations between NGOs, the private sector, and village administrations are essential.

Aligning with **Sustainable Development Goals (SDGs)**, particularly **SDG-4** and **SDG-8**, these initiatives aim to ensure equal access to quality education, eliminate gender disparities, and enhance employability by providing relevant skills for decent jobs and entrepreneurship.

Conclusion

Prioritizing skill development in healthcare and allied sectors for rural masses is crucial for India's progress. The collaborative efforts of various ministries, organizations, and councils are making strides in bridging the gap between demand and supply of skilled healthcare workers, ultimately contributing to the well-being of the nation.



SCIENCE REPORTER NOVEMBER 2023

1. Moon Race for Helium-3

Context: The sudden surge in Lunar missions by various countries is motivated by competition to exploit resources found on the moon. Of these, Helium-3, a very rare material on Earth, represents the most significant potential in the field of energy.

Competition Among Countries:

- India launched Chandrayaan-3 in July 2023 and the lander made a soft landing near the south pole in August 2023.
- The Pragyan rover of Chandrayaan-3 has discovered the presence of aluminium, sulphur, calcium, iron, chromium, titanium, manganese, silicon and oxygen on the Moon.
- Under Artemis mission, the USA is planning to send four astronauts including a woman to the lunar surface in 2025.
- China is planning to send astronauts to the Moon in 2030.
- Countries such as Japan, South Korea, the United Arab Emirates and the USA have planned lunar missions in 2023.
- After the 1970s, there is a renewed interest in lunar missions due to its potential for various resources particularly Helium-3 which is a very rare material on Earth.

How is Helium 3 available on the Moon and not on Earth?

- It is an isotope of helium that has two protons and one neutron in its nucleus. The normal helium atom Helium-4 has two protons and two neutrons in its nucleus.
- Helium is produced by the sun in vast quantities due to a thermonuclear fusion reaction where hydrogen atoms are combined to form Helium.
- Helium 3 is also produced due to thermometer fusion reaction which travels in the form of solar storms. Helium 3 does not reach here because the magnetic field of Earth acts as a protective shield.
- However, the Solar wind reaches the moon because the magnetic field of the moon is not strong enough like on the Earth.
- This Helium 3 accumulates in lunar dust and rock. through billions of years of accumulation, it is estimated that the moon has around 1.1 million metric tons of helium 3 deposited in lunar soil.
- Helium 3 is present on Earth as a by-product of the maintenance of nuclear weapons.

Applications:

- This isotope is also useful for other applications including cryogenics, quantum computers and MRI machines.
- Helium-3 is not radioactive and can provide safer nuclear energy through nuclear fusion process.
- If Helium-3 is used in the fusion reactor, it will create a normal helium atom and a proton, which wastes less energy and is easier to contain. Hence, Helium-3 can provide efficient nuclear power with no waste and no radiation problems.
- Extraction of Helium 3 through the refining of lunar soil on Earth is considered a huge task. So it is expected that nuclear plants will be set up on the moon and energy produced will be transmitted as microwaves.
- Russia and China have announced intentions of mining the moon and the Chang'e mission of China made significant progress in studying the topography and composition of lunar soil.

2. Meat Masala Plant

Context: Pimenta dioica, also known as allspice plant/Jamaica pepper or myrtle pepper has the potential to elevate meat, fish and egg curry recipes to new heights of deliciousness.

Pimenta dioica:

- Meat Masala is a blend of eighteen different types of spices, namely, powder of mustard seed (*Brassica nigra*), turmeric (*Curcuma longa*), coriander seed (*Coriandrum sativum*), fennel seed (*Foeniculum vulgare*), cumin seeds (*Cuminum cyminum*), pepper seed (*Capsicum annuum*), inner bark of cinnamon (*Cinnamomum verum*), etc.
- The meat masala plant is also known as the allspice plant/Jamaica pepper or myrtle pepper and has the potential to replace conventional meat masala.
- The dried leaves of this plant give the flavour of five different types of spices, i.e. fragrance of Nutmeg seeds (*Myristica fragrans*), mace Spice (crimson red coloured fruit of *Myristica fragrans*), cloves, (reddish brown coloured flower buds of *Syzygium aromaticum*), black pepper (black coloured fruits from *Piper nigrum*) and cinnamon.
- Since it combines the flavours of cinnamon, nutmeg, clove, etc. it is called an allspice plant and cultivated in many warm parts of the world. It is native to the Greater Antilles, southern Mexico, and Central America (the island of Jamaica).
- The plant is also present in India and cultivated in the western ghat region and in the states of Maharashtra, Tamil Nadu, Karnataka and Kerala.
- The berry fruits are collected when it is green and unripe which is then dried. The quality of pimenta is affected by factors such as region of cultivation, the maturity stage of berries during harvest, storage conditions, etc.
- Every year flowers blossom in the month of May and fruits are obtained till the month of August. Fresh leaves are similar in texture to bay leaves and are similarly used in cooking.
- The plant contains a crucial active component called "Eugenol" which is an antioxidant molecule and holds the potential for drug development, as it also has anti-bacterial, anti-fungal, anti-inflammatory, and anti-cancer properties.

3. Prof. MS Swaminathan A Few Recollections

Context: Dr K Kasturirangan who is a former chairman of ISRO pays tribute to MS Swaminathan, Father of India's Green Revolution.

Role of MS Swaminathan:

- Dr Vikram Sarabhai had the vision of promoting space technologies for national development. When Dr Vikram Sarabhai along with Dr PR Pisharoty and Prof. MS Swaminathan proposed the use of remote sensing for earth resources applications in India, they found that policymakers and science administrators were not convinced enough about the utility of technology.
- Along with Dr Vikram Sarabhai and Prof. MS Swaminathan, a team of eminent personalities convinced then Prime Minister, Madam Indira Gandhi of the potentiality of remote sensing.
- Prof. Swaminathan was also one of the key participants of this pioneering discussion and also made a practical suggestion to use remote sensing to study coconut wilt disease in Kerala.
- Thus, the first step in the use of remote sensing with cameras at high altitudes to look at the ground features related to earth resources in India was born.
- Since then Prof. Swaminathan has been involved in ISRO's conceptualisation and planning of several applications of remote sensing, in particular those related to agriculture, water and the environment.
- Prof. Swaminathan greatly influenced the use of remote sensing for agriculture and related aspects like water and soil characterisation.
- As a Rajya Sabha MP, Prof. Swaminathan made important discussions on matters of agriculture and the environment. He was a great champion of farmers' rights and the MS Swaminathan formula for agriculture pricing is still invoked when policy decisions are to be made on related matters.
- Prof. Swaminathan also provided scientific and rational inputs to the planning commission, on the strategies that need to be adopted in coping with climate change.
- As a Chairman of the governing board of the National Institute of Advanced Studies (NIAS), he guided the functioning of the institute and made it multidisciplinary in character.

4. Printing in three Dimensions

Context: The article discusses the origins and techniques used in 3-dimensional Printing technology in various fields.

Origin of Technology:

- Charles Hull, a physicist is known as the "Father of 3D printing". In 1986 he patented the 'stereolithography' technique, now commonly known as 3D printing.
- **The steps involved in creating 3D printed object are:**
 - Imagine an object
 - Create its computerised image
 - Using the slicing software, divide this image into different parts horizontally
 - Choose the material and the appropriate printing technology
 - Print the object
 - Apply post-processing techniques if required, to refine the object
- Additive manufacturing techniques can be categorised based on different criteria, such as the material used, types of products, the process, etc.
- International Standards Organisation [ISO] classification is as follows
 1. Material Extrusion
 2. Vat Polymerisation
 3. Powder Bed Fusion
 4. Material Jetting
 5. Binder Jetting
 6. Directed Energy Deposition
 7. Sheet Lamination

Timeline of Development

- **1981:** First 3D printing patent awarded to Hideo Kodama of Japan. He invented a device that used UV light to harden photoreactive polymers.
- **1984:** Charles Hull patented the 'stereolithography' technique. He developed the STL file format which are digital files that can be read by 3D printers.
- **1987:** Carl Deckard filed a patent for a 3D printing technology known as Selective Laser Sintering [SLS], which is widely used for models and end-use parts in various industries.
- **1988:** Fused Deposition Modelling technology was invented.
- **1989:** GMBH, a German Additive Manufacturing company developed a process called Direct Metal Laser Sintering [DMLS] for 3D printing. This is the only technology capable of producing entirely metal parts.
- **1989:** S Scott Crump developed and patented Fused Deposition Modelling [FDM], the technique of 3D printing that is so simple and easy to use that it revolutionised the industry so that common people could use it in their homes to 3D print objects.

- **2001:** First Desktop 3D printer manufactured.
- **2002:** First human kidney 3D printed.
- **2005:** The Reprap project was founded by Dr Adrian Bowyer. This is a 3D printer which can print its own parts, to replicate itself.
- **2008:** First prosthetic leg 3D printed.
- **2011:** The first 3D-printed edible food is created.
- **2013:** The first 3D-printed rocket parts are printed by SpaceX.
- **2014:** NASA flies first zero-gravity 3D printer into space.
- **2014:** First 3D printed house built.
- **2017:** First 3D printed farms.
- **2018:** First 3D printed glass.



DOWN TO EARTH NOVEMBER 2023

1. Bt's takedown

Context: The recent surge in pink bollworm attacks on cotton crops in North India has triggered a significant agricultural crisis, casting doubt on the effectiveness of Bt cotton, a genetically modified variety designed to resist bollworm pests.

- The northern cotton belt, encompassing regions like Rajasthan, Punjab, and Haryana, has been grappling with recurrent pink bollworm attacks over the past five to seven years. The initial outbreaks in Haryana in 2017-18 have spread across states, posing significant challenges to cotton farmers in the region.

Impact of these pest infestations:

- **Farmers in Distress:** The severity of pink bollworm attacks has left farmers grappling with financial losses and emotional distress. Farmers facing pink bollworm attacks find themselves in a double bind as traders refuse to purchase their cotton, deeming it below the required quality standards. Traders at Agricultural Produce Market Committee (APMC) yards, such as in Hanumangarh district, Rajasthan, are particularly stringent, rejecting cotton even below the minimum support price.
- **Widespread Damage:** The pink bollworm infestation has spread across the cotton fields of Rajasthan, Punjab, and Haryana, marking the most severe attack since 2001.
- **Poor Cotton Quality:** The severity of the pink bollworm infestation is reflected in the decline of Rd levels, a measure of cotton quality. The pest-ravaged cotton often falls short, measuring around 66, contributing to significant economic losses for farmers.

Bt Cotton's Efficacy Questioned:

Bt cotton, once celebrated as a solution to pest-related challenges, is now under scrutiny as the pink bollworm displays unexpected resilience. Genetic changes in the pink bollworm population have led to resistance against Bt cotton.

Farmers Abandoning Cotton Farming: The shift towards alternative crops, such as horticulture or paddy, is driven by the need for more reliable and economically viable alternatives in the face of seemingly insurmountable pest challenges.

Need for Effective Pest Management: The urgent need for comprehensive and timely pest management strategies, including monitoring and integrated approaches. It emphasizes the importance of addressing the growing resistance of pests to genetically modified varieties like Bt cotton.

2. Easy targets

Context: In Ireland, many farmers are very upset because the government is thinking about getting rid of around 200,000 cows each year for three years. This would cost €200 million every year, and the government wants to do this to meet their goals about reducing climate pollution. Because of this idea, farmers have started big protests to show they don't agree.

- This makes people wonder why the government is focusing on farming to reduce pollution in rich countries around the world.

Emission from agriculture:

- Methane and nitrous oxide are key greenhouse gases from agriculture.
- Soil carbon emissions and farm energy use aren't counted in agricultural emissions.
- Methane and nitrous oxide contribute to 16% and 6% of global greenhouse gas emissions.

Global Trend in Agriculture Emission Reduction:

Several high-income nations, including the Netherlands, New Zealand, Canada, and Belgium, have directed their focus on curbing emissions from the agriculture sector to fulfill their national climate targets. The emphasis is particularly on mitigating methane and nitrous oxide emissions originating from livestock and nitrogen fertilizers, respectively.

Multilateral Treaties to Address Agricultural Emissions:

Two significant multilateral treaties, the Global Methane Pledge (gmp) and the European Green Deal, are guiding nations in their efforts to reduce agricultural emissions. The gmp commits 149 nations to a 25% reduction in methane emissions by 2030 compared to 2020 levels.

- The European Green Deal, signed by 27 countries, aims for a 55% reduction in greenhouse gas emissions by 2030 compared to 1990 levels.

Concerns:

- While nations are announcing plans to cut emissions, experts express skepticism about the effectiveness and feasibility of such measures.
- Critics argue that making announcements without a comprehensive understanding of the potential impacts on farmers' livelihoods, prosperity, and nutrition is irresponsible.
- Some question the practicality of achieving emission reduction targets by 2030.

Challenges and Alternatives:

- There are limitations in attributing methane emissions solely to agriculture, emphasizing the distinction between biogenic methane from animals and fossil methane from sources like coal mining and oil drilling.
- Diversified approach, including investing in technologies such as feed additives that can reduce greenhouse gas emissions from livestock can be more effective..
- There is a need to consider the multifaceted contributions of the agriculture sector, evaluate the feasibility of proposed measures, and explore alternative solutions to ensure sustainable food production while addressing climate concerns.

3. Predicting Worries

Context: Global warming and climate change are making it more difficult for early warning systems to predict extreme weather events.

Prediction by IMD:

- As the UN plans to implement its Early Warnings for All initiative by 2027, its success depends on accurate prediction of extreme events.
- India Meteorological Department uses numerical weather prediction (nwp) models to generate alerts for heavy, very heavy and extreme rainfall by feeding data from weather monitoring stations and satellite images.
- The IMD's 10 meteorological offices present near river basins provide data to the Central Water Commission (cwc), which in turn alerts disaster authorities.
- However, in recent years there has been occurrence of flash floods away from river basins which is making it difficult for IMD to predict.
- IMD is collaborating with the World Meteorological Organization to predict Urban floods in New Delhi through data from satellites, ground stations, and soil and land use maps.

Challenges:

- Recent floods in Sikkim necessitated the focus on early warning systems for glacial lake outburst floods (glofs).
- However, the prediction of GLOF is a difficult task. For example, in the Hindu Kush Himalayan region, there are 25,600 glacial lakes within its five major river basins and only a few of the water bodies have been studied and identified for vulnerability to glofs.
- The geographical character of lakes also changes according to glacial retreats as a result of climate change.
- GLOF are volatile and can be triggered by various external events such as extreme rainfall, cloudburst events, avalanches or earthquakes. This further makes the task complex.
- Since maximum impact would be seen in downstream areas, Composite early warning systems at these vulnerable glof sites are required to inform people living near downstream areas. The system also needs to be maintained and the community has to be made aware for it to function well.
- With respect to cyclones, the extreme change in the character and behaviour of cyclones adds to complexity. For example, a recent phenomenon of rapid intensification in Cyclone Freddy which saw seven phases and also followed a zigzag pattern.
- While sea surface temperatures can be measured through satellites, monitoring the layers underneath requires data from instruments such as buoys and moorings.
- With respect to droughts and heat waves, the threshold levels need to be changed.
- The slow movement and longer stay of atmospheric blocking systems in the upper atmosphere is another challenge to predict. A recent example is the omega atmospheric blocking system, which caused the devastating floods in Libya in September 2023.
- It is expected that artificial intelligence and machine learning will fill the technology gaps in the reliability of weather forecasts and early warning.

4. Dangerous Distractions

Context: The ever growing conflicts such as the Russia war worsen the efforts that are needed to address climate change which is an existential threat facing the world

Volatile Geopolitics:

- As the world meets for the UN's climate conference (COP28) in Dubai, the geopolitical landscape has turned volatile with conflict between Israel and Palestine.
- The conflict also shows that the UN is not powerful enough to address the conflict as its directions are being ignored and discarded.
- The UN is also weakened and disabled with respect to climate change efforts also.
- Social media which is supposed to act as an agent of free speech has turned into a weapon to spread fake news and hatred.
- The development of modern technology such as artificial intelligence also poses a threat when there is a divide in society.
- In the last meeting of the transitional committee to decide on the Loss and Damage fund, which is critical for countries and communities affected by extreme weather events, the US, which is one of the largest emitters, walked out of the final agreement, citing that the fund needed to be voluntary in nature.

- This implies that the countries which require climate Finance are locked in a debt burden and in the vicious cycle of poverty and insecurity.
- Further, the precarious financial position of these countries is exploited by dubious agreements for swapping or buying land for carbon offset schemes.
- The unarmed war—between the so-called West and the so-called East (US v China)—is going to make things worse for the fight against climate change. By 2030, China will catch up with the US in terms of per capita emissions and share in the carbon budget.
- China also possesses key minerals and technologies needed for low-carbon transition, which gives it a head start over the rest of the world in terms of manufacturing everything from e-cars to solar panels. Additionally, China also provides finance for many countries.
- There is a need for global cooperation and not conflicts to address these issues.

5. The Zonian drying

Context:

The prolonged drought in the Amazon suggests that the rainforest is on the verge of reaching a critical tipping point with potentially catastrophic consequences for the global ecosystem, and the damage may be irreversible.

- **The Amazon rainforest, often referred to as the “lungs of the Earth,” is facing an unprecedented crisis. The following changes indicates the alarming situation:**
 1. **Drying rivers and alarming water levels:** Many rivers and their tributaries in Amazon rainforest have shown alarming decreases in water level. For example, water level of the Negro River marked its lowest flow in 121 years.
 2. **Deforestation Reaches a Point of No Return:** A 2022 long-term research report indicates that 26% of the Amazon rainforests are already at a point of no return due to rampant deforestation and degradation. Urgent protection measures are needed for the remaining 74%, with warnings that the entire region is inching closer to a tipping point if deforestation surpasses 40%.
 3. **Correlation to global ecosystem and change:** The drying up of the Amazon is identified as a planetary crisis and one of the nine tipping points in the climate system. Correlations between rising temperatures in the Amazon, Tibet, and the West Antarctic ice sheet underscore the interconnectedness of climate systems globally.
 4. **Ongoing Deforestation and Threats to ecosystem:** Deforestation is driven by various factors, including the oil industry, mining, and over 800 planned and operating hydroelectric plants. Large dams in Brazil, numbering 157 in operation and 21 under construction, pose a significant threat to the Amazon’s free-flowing tributaries.
 5. **Transition from Rainforest to a Dry Savannah-like Ecosystem:** The Amazon is losing its ability to recover from extensive destruction, with 34% of the Brazilian Amazon already undergoing a process of transformation. Savannization, a gradual transition of a tropical rainforest into grasslands, is occurring in the southeastern part of the region, primarily in Brazil and Bolivia.
 6. **Impact on Biodiversity:** Increased mortality of pink dolphins and other fauna is recorded due to water scarcity and heat waves. Large-scale deforestation caused by illegal timber exportation, cattle grazing, and soybean plantations is contributing to the disappearance of water sources, dependent flora and fauna, aggravating the adverse effects of the drought.
 7. **Sink has become a source:** Amazon Forest which is considered as the lungs of the earth, which sequestered carbon emission have now emits more carbon than it emits. with severe drought, drying water bodies, drying forests etc, the region has become a source of emission.

Global Consequences: The interconnectedness of tipping points is emphasized, with the degradation of the Amazon potentially leading to cascading effects globally.

The Amazon’s role in climate patterns, biodiversity, and ecosystem services underscores the need for immediate and concerted conservation efforts.

Conclusion: As the Amazon hurtles toward a tipping point, the global community faces a race against time to preserve this crucial ecosystem. Urgent and collaborative action is imperative to mitigate the interconnected environmental and humanitarian challenges posed by deforestation, drought, and the looming threat of irreversible transformation. The fate of the Amazon reverberates globally, making its preservation a shared responsibility for the well-being of our planet.

6. Known unknowns

Context: The Food Safety and Standards Authority of India (FSSAI) is under scrutiny following a recent Right To Information (RTI) investigation, revealing significant gaps in information regarding the importation of genetically modified (GM) varieties of fresh produce over the past five years.

The findings raise crucial questions about the safety of fruits and vegetables available in the Indian market and the regulatory measures in place.

- **Lack of Data and Testing:** The FSSAI lacks data on whether fresh food imports, especially fruits and vegetables, have included GM varieties. This information gap is alarming, considering the potential implications for public health and the environment.
- **Regulatory Orders and their enforcement:** The FSSAI relies on three regulatory orders issued in 2020-2021 to control the import of GM crops. The initial order allowed the importation of only non-GM food crops into India. However, subsequent orders showed a gradual relaxation of standards. The tolerance limit for adventitious presence of GM organisms in imported food crops was set at 1%, which is too high, raising concerns about the potential infiltration of GM varieties into the Indian market.
- **Increased Imports and Potential Risks:** India has witnessed a significant rise in fruit and vegetable imports, especially from countries known for cultivating GM varieties. The US, Brazil, and Argentina, major exporters to India, are also the top countries with large-scale GM cultivation. The lack of stringent monitoring and testing protocols poses potential risks to consumers, as GM varieties may enter the food supply chain unnoticed.
- **Lack of infrastructure for Monitoring and Surveillance:** Experts point out that India lacks the necessary infrastructure for monitoring and surveillance to ensure the exclusion of GM crops from imports. The absence of trained personnel and inadequate testing facilities at entry points exacerbates the challenge. The country's food-testing laboratories face limitations, with only 2% equipped to check for the presence of GM products.

Way forward: Advocates for food safety, such as Suman Sahai of Gene Campaign and Kavitha Kuruganti of the Alliance for Sustainable and Holistic Agriculture, emphasize the need for stringent measures. Suggestions include providing import preferences to nations not cultivating GM varieties and rigorous testing of consignments, even those accompanied by non-GMO certificates.

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