



PREFACE

Welcome to our monthly current affairs magazine! We are thrilled to provide you with the latest information and updates on the most important events that happened in our country and around the world in the month of March 2024. Our magazine is designed to help you prepare for competitive examinations like UPSC and other State PSC Exams, and we hope that you will find it informative, engaging, and useful.

In this magazine, you will find a wide range of topics covering current affairs, including politics, economics, sports, science and technology, and many more. Our team of writers and editors work hard to bring you the most accurate and up-to-date information, so you can stay informed and prepared for any competitive exam.

We understand that preparing for competitive exams can be a daunting task, but we are here to make it easier for you. Our magazine is designed to be easy to read and understand, with clear and concise articles that will help you stay on top of the latest news and events.

We believe that knowledge is power, and we are committed to helping you achieve your goals. Whether you are preparing for a government job, entrance exam, or any other competitive exam, our magazine will provide you with the information and insights you need to succeed.

Thank you for choosing our magazine, and we hope that you find it helpful and informative.



ACKNOWLEDGMENTS

We extend our heartfelt gratitude and appreciation to the exceptional team of content developers who have played a pivotal role in shaping our UPSC Current Affairs Magazine. Your unwavering dedication, extensive research, and commitment to delivering high-quality content have been instrumental in making this publication a trusted resource for our readers.

Your relentless pursuit of current affairs, profound understanding of complex issues, and the ability to distil them into informative, concise, and engaging articles have set a benchmark in the field of competitive examination preparation.

We are proud to have a team that goes above and beyond, ensuring that our readers are well-informed and well-prepared for the UPSC examinations. Your exceptional contributions are the driving force behind our magazine's success.

Thank you for your hard work, expertise, and passion for delivering top-notch content. Your efforts have not only enriched our magazine but have also played a significant role in the educational journey of countless aspiring civil servants.

We look forward to continuing this remarkable journey of knowledge dissemination with your continued support and excellence.

With deep appreciation,

EKAM IAS ACADEMY



EKAM IAS ACADEMY, HYDERABAD

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POLITY

I. RIGHTS ISSUES

1. CONTRACT LABOUR AND THE CONTRACT LABOUR (REGULATION AND ABOLITION) ACT, 1970

SOURCE: THE HINDU

The recent Supreme Court observation stated that workers performing permanent nature work cannot be treated as contract labour under the Act to deny job regularization benefits.

This highlights the court's emphasis on protecting workers' rights and preventing exploitation in employment arrangements.

Contract Labour:

- Contract labour refers to workers hired through a contractor for an establishment, making them indirect employees.
- They differ from direct labour in terms of employment relationship and wage payment methods.
- Contractor's hire, supervise, and pay these workers, and are in turn remunerated by the establishment.

Contract Labour (Regulation and Abolition) Act, 1970:

- Enacted to regulate and abolish contract labour exploitation, ensuring better work conditions.
- Applicable to establishments with 20 or more contract workers on any day of the accounting year.
- Also applies to contractors employing 20 or more workers.
- Does not apply to intermittent work or establishments in special economic zones (SEZs).

Salient Features:

Registration and Licensing:

- Establishments must obtain registration to employ contract workers.
- Contractors with 20 or more workers need a license.
- Licenses are valid for specified periods, renewable as needed.

Payment of Wages:

- Contractors are responsible for paying wages within stipulated periods.
- Principal employers may be liable for unpaid wages if contractors fail to pay.
- Wages are fixed by the Commissioner of Labour.

Penalties:

- Violations may result in imprisonment for up to 3 months and fines up to Rs. 1000.

Advisory Boards:

- Central and State Advisory Boards advise governments on Act administration.

Prohibition:

- Governments, after consulting advisory boards, can prohibit contract labour in certain processes or operations.

II. LEGAL ISSUES

2. ASSAM GOVERNMENT REPEALING THE MUSLIM MARRIAGE ACT

SOURCE: TIMES OF INDIA

The recent approval of the Assam Repealing Ordinance 2024, repealing the Assam Muslim Marriage and Divorce Registration Act of 1935, has sparked discussions on Muslim personal law, its relevance, and the need for legal reforms.

Key Highlights of the Assam Muslim Marriage and Divorce Registration Act, 1935:

Enactment and Amendments:

- It with Muslim Personal Law, enacted in 1935, regulating the registration of Muslim marriages and divorces in Assam.
- A 2010 amendment made registration of Muslim marriages and divorces compulsory in the state, replacing the term 'voluntary' with 'compulsory'.



Procedures and Authorities:

- Authorized the state to grant licenses to register marriages and divorces for Muslims.
- Designated **Muslim registrars as public servants**, responsible for overseeing the registration process.

Reasons Behind the Repealing of the Act:

Alignment with Contemporary Norms:

- The Act permitted marriages below the legal marriageable age, contrary to modern legal standards, prompting the need for alignment with current societal norms.

Crackdown on Child Marriage:

- The government's decision to combat child marriage is a driving factor behind repealing the Act, aiming to eliminate underage marriages by removing provisions allowing their registration.

Informal Practices and Misuse:

- Informal mechanisms for marriage registration led to potential misuse by officials, raising concerns about underage marriages and divorces being facilitated without proper grounds.

Move towards Uniform Civil Code (UCC):

- Repealing the Act aligns with efforts to implement a Uniform Civil Code in Assam, streamlining marriage laws across communities under a common legal framework.

Arguments Against the Repeal:

Simplicity and Accessibility:

- The Act provided a simple and decentralized process for marriage registration, which **may not be easily replaced by the complexities of the Special Marriage Act**, potentially deterring some individuals from registering their marriages.

Criticism and Legal Challenges:

- The Act faced criticism and legal challenges from various quarters, indicating differing

viewpoints and concerns regarding its complete repeal.

Risk of Unregistered Marriages:

- Concerns were raised about the likelihood of increased instances of unregistered marriages following the repeal, posing challenges for legal recognition and protection of marital rights.

Muslim Personal Law

Definition: Muslim Personal Law comprises the set of rules governing personal matters for individuals adhering to Islam.

Scope: It covers various aspects like marriage, divorce, inheritance, and family relationships.

Sources: Derived primarily from the Quran, the Hadith (sayings and actions of Prophet Muhammad), and Islamic jurisprudence.

Polygamy: Permits men to have up to four wives simultaneously, as allowed by Sharia.

Nikah Halala: Requires a woman to marry and divorce another man before remarrying her former husband, seen as controversial.

Talaq-e-Hasan: Allows a Muslim man to divorce his wife by pronouncing Talaq once, with a waiting period of three months.

Triple Talaq: A contentious issue where a husband can instantly divorce his wife by saying "talaq" thrice, even through electronic means.

Talaq and Khula: Terms for divorce for men and women respectively, where a man can divorce through 'talaq' and a woman can seek separation through 'khula'.

III. LEGISLATURE

3. KARNATAKA HINDU RELIGIOUS INSTITUTIONS AND CHARITABLE ENDOWMENTS (AMENDMENT) BILL, 2024

SOURCE: THE HINDU

The Karnataka Hindu Religious Institutions and Charitable Endowments (Amendment) Bill, 2024, recently passed by the State Legislative Assembly



and Council, proposes significant changes to the existing law.

Key Highlights of the Bill:

Alteration of Taxation System:

- **Proposed diversion of 10% of gross income from temples earning over Rs 1 crore annually** to a common pool for temple maintenance.
- **Previous allocation was 10% of net income for temples** earning over Rs 10 lakh annually.
- Additionally, 5% of income from temples earning between Rs 10 lakh and Rs 1 crore would contribute to the common pool.

Utilization of Common Fund:

- The common fund may be utilized for religious studies, temple maintenance, and charitable causes.

Composition of Committee of Management:

- **Suggested addition of a member skilled in Vishwakarma Hindu temple architecture and sculpture** to the "committee of management" of temples.

Empowerment of Rajya Dharmika Parishat:

- The Rajya Dharmika Parishat would appoint committee chairpersons, handle religious disputes, temple statuses, and trustee appointments.

Concerns Regarding the Bill:

Potential Discrimination and Legal Scrutiny:

- The bill may be challenged for discriminating against Hindu temples and violating constitutional provisions guaranteeing equality and protection of laws.
- **Concerns raised under Article 14 (equality before the law) and Article 25 (freedom of religion) of the Constitution.**
- **Potential violation of Article 26**, which grants religious denominations autonomy to manage their religious affairs.

Fear of Corruption and Mismanagement:

- Apprehensions about governmental overreach and financial exploitation of

temple funds by the government appointed Rajya Dharmika Parishath.

- Risk of corruption and mismanagement leading to misuse of temple assets.

Temple Revenue Handling in Other States:

Telangana's Model:

- Similar to Karnataka, temples in Telangana contribute a percentage of their income to a "**Common Good Fund**" utilized for temple maintenance and other purposes.

Kerala's System:

- Distinct approach where state-run Devaswom Boards predominantly manage temples.
- Each board operates with a budget allocated by the state government, with separate laws governing temple administration under each board.

History of State Regulation of Temples:

British Religious Endowments Act of 1863:

- Aimed to secularize temple management by transferring control to local committees, marking the initial step towards state intervention in temple affairs.

Madras Hindu Religious Endowments Act (1927):

- Enacted by the Justice Party, it was among the earliest efforts by an elected government to regulate temples, laying the foundation for subsequent temple legislation.

Tamil Nadu HR&CE Act (1951):

- **Recommended by the Law Commission of India to prevent misuse of temple funds.**
- Established a Department of Hindu Religious and Charitable Endowments for temple administration, leading to the landmark Shirur Mutt case validating its constitutional validity.

Management of Other Religious Institutions:

Places of Worship Act, 1991:

- Freezes the status of religious places of worship as they existed in 1947, ensuring the maintenance of their religious character.



- Excludes ancient monuments and doesn't cover settled disputes or cases, including the Ram Janmabhoomi-Babri Masjid.

Constitutional Guarantees (Article 26):

- Grants religious groups the right to establish, maintain, and manage their institutions for religious and charitable purposes, ensuring autonomy in religious matters.

Shiromani Gurdwara Parbandhak Committee (SGPC):

- Manages Sikh Gurdwaras in India and abroad, directly elected by Sikh voters under the Sikh Gurdwaras Act, 1925.

Waqf Act of 1954:

- Established the Central Waqf Council and state Waqf Boards to manage Waqf properties and ensure their appropriate utilization for religious and charitable purposes according to Muslim law.

IV. EXECUTIVE

4. RAJYA SABHA ELECTIONS AND CROSS-VOTING

SOURCE: THE HINDU

The recent Rajya Sabha elections in Uttar Pradesh, Himachal Pradesh, and Karnataka have drawn attention due to instances of cross-voting by MLAs from different political parties.

This has sparked concerns regarding the integrity of the election process.

Rajya Sabha Election Process:

Background and Constitutional Provision:

- Article 80 of the Constitution stipulates that representatives to the Rajya Sabha are elected indirectly by the elected members of State Legislative Assemblies.
- Elections are held only if the number of candidates exceeds the number of vacancies.

Amendment to Representation of the People Act, 1951:

- In 2003, an amendment to the Representation of the People Act, 1951 mandated voting in Rajya Sabha elections to be conducted through an open ballot.
- MLAs are required to display their ballot papers to the authorized agent of their party, ensuring transparency in voting.

Process of Election in Rajya Sabha:

Seat Allocation:

- The Rajya Sabha comprises 250 members, with 12 nominated by the President and the rest elected by State Legislative Assemblies.
- Seats are distributed among states based on population, with larger states like Uttar Pradesh having more seats than smaller ones like Goa.

Indirect Election System:

- Members of State Legislative Assemblies elect Rajya Sabha members through proportional representation using the Single Transferable Vote (STV) system.
- Each MLA's voting power is determined by the population of their constituency.

Quotas and Preferences:

- Candidates must secure a specific quota of votes to be elected, calculated based on the total valid votes divided by the number of seats plus one.
- MLAs rank their preferences for candidates on the ballot paper, with surplus votes transferred to second preferences if a candidate exceeds the quota.

Surplus Votes and Elimination:

- Surplus votes from elected candidates are transferred to second preferences, and candidates with the fewest votes are eliminated.
- This process continues until enough candidates reach the quota to fill all available seats.

Ensuring Fairness and Transparency:

Open Ballot System:



- The open ballot system ensures transparency in voting and prevents unauthorized practices like crossvoting.

Proportional Representation:

- The STV system ensures that the representation in Rajya Sabha reflects the diversity of political opinions among MLAs.

Elimination of Wasted Votes:

- The system of surplus vote transfers and elimination ensures that votes are not wasted and that all available seats are filled.

Tenth Schedule and Anti-Defection Law:

- The Tenth Schedule, introduced in 1985, contains provisions related to the anti-defection law.
- It stipulates that a member of Parliament or a state legislature who voluntarily gives up the membership of their political party or votes against the party's instructions faces disqualification.
- Party instructions are typically conveyed by the party whip.

Applicability of Tenth Schedule:

- **The Election Commission clarified in July 2017 that the provisions of the Tenth Schedule, including the anti-defection law, do not apply to Rajya Sabha elections.**
- Thus, parties cannot issue whips to their members for Rajya Sabha elections, and members are not bound by party instructions in these elections.

Cross Voting:

- **Cross voting occurs when a member of a legislative body votes for a candidate or party other than their own during elections or voting processes.**
- In Rajya Sabha elections, cross voting happens when members of a political party vote for candidates from other parties instead of their own party's nominees.
- **Reasons for cross voting include disagreement with the party's candidate selection, inducements or pressures from**

other parties, personal relationships, or ideological differences.

V. JUDICIARY

5. SUPREME COURT: MARRIAGE CAN'T BE GROUND TO SACK WOMAN

SOURCE: TIMES OF INDIA

The recent directive from the Supreme Court (SC) to the Ministry of Defence to compensate a former permanent commissioned officer in the Military Nursing Service (MNS) has sparked discussions on gender equality and inclusivity in the armed forces.

This case highlights the ongoing struggle for women's rights and representation in military institutions.

Key Facts of the Case:

Background:

- A former permanent commissioned officer of the MNS was released from service in 1988 due to her marriage, as stipulated by Army Instruction No. 61 of 1977.
- The Armed Forces Tribunal (AFT) deemed her termination illegal in 2016 and directed her reinstatement with back wages.
- The Central government contested this ruling in the SC, leading to the recent directive.

SC's Observations:

- The SC ruled that her release from service was "wrong and illegal" and rejected the Centre's argument based on a rule in force at the time.
- The court deemed the termination as a coarse case of gender discrimination and inequality.

SC's Actions in Favor of Women Officers:

Union of India v. Lt Cdr Annie Nagaraja Case, 2015:

- The SC held that serving women Short Service Commission Officers in the Indian Navy were entitled to Permanent



Commission at par with their male counterparts.

Secretary, Ministry of Defence vs. Babita Puniya Case, 2020:

- The SC upheld the demands of women in the SSC, allowing them to seek a Permanent Commission or a full-length career.
- This ruling brought women officers in 10 streams of the Army at par with men.

Recent Directives:

- Following the 2020 ruling, the Army constituted the Number 5 Selection Board to induct all eligible female officers as Permanent Commission (PC) officers.
- In **Priyanka Tyagi v. Union of India Case, 2024**, SC emphasized the necessity for eligible women officers to receive permanent commission in the Indian Coast Guard.

Significance of Increasing Women's Representation: Gender Equality:

- Gender should not hinder qualification for a position. Technical expertise and decision-making skills are crucial in modern warfare.

Military Readiness:

- Allowing a mixed-gender force enhances military strength and addresses falling retention and recruitment rates.

Effectiveness:

- Restricting women limits the ability of commanders to select the most capable individuals for the job.

Global Scenario:

- Several countries have lifted bans on women serving in combat roles, promoting gender equality in the armed forces.

Role of MNS and Recent Developments:

MNS Overview:

- MNS is the only all-women corps of the Armed Forces, providing excellence in patient care.

Recent Developments:

- The Punjab and Haryana HC ruled that MNS officers cannot be denied ex-serviceman status, emphasizing equal treatment.

Way Forward:

Policy Reforms:

- Implement comprehensive reforms to eliminate discriminatory practices and ensure equal opportunities for women officers.

Awareness Programs:

- Conduct regular awareness programs and sensitivity training to promote a culture of gender equality and respect within the armed forces.

Support Systems:

- Establish support systems tailored to the needs of women officers, including maternity leave and childcare assistance.

6. SUPREME COURT'S RULING ON IMMUNITY FOR LEGISLATORS FACING BRIBERY CHARGES

SOURCE: INDIAN EXPRESS

The recent Supreme Court ruling in the **P V Narasimha Rao v State (CBI/Spe) Case, 1998**, commonly known as the **JMM bribery case**, marks a significant shift in the interpretation of **parliamentary privileges concerning bribery by lawmakers**.

This ruling overturns a 25-year-old majority opinion, clarifying that accepting bribes cannot be protected under parliamentary privileges.

Case Background:

- In the 1993 **P V Narasimha Rao case**, certain members of the **Jharkhand Mukti Morcha (JMM)** were accused of accepting bribes in exchange for voting against a **No-Confidence motion**, exposing corruption within the parliamentary system.
- **The Supreme Court's ruling in 1998 established immunity for MPs and MLAs from prosecution in bribery cases** if they fulfilled their end of the bargain,



prioritizing stability in governance over individual accountability.

Court's Observation in 2024 Case:

- The recent 7-Judge Constitution Bench overturned the 1998 verdict, emphasizing the detrimental impact of bribery on democratic principles and governance.
- **The court highlighted that accepting a bribe is a separate criminal act, unrelated to the core duties of lawmakers within the Parliament or legislative assembly.**
- The immunity provided under Articles 105 and 194 of the Constitution does not extend to cases of bribery, as clarified by Section 7 of the Prevention of Corruption Act.
- **This decision signifies a shift towards prioritizing accountability and integrity in governance, aiming to uphold the ideals of a responsible, responsive, and representative democracy in India.**

Parliamentary Privileges:

Definition and Sources:

- **Parliamentary privileges are special rights, immunities, and exemptions enjoyed by members of Parliament and their committees, defined in Article 105 of the Indian Constitution.**
- **Article 194 guarantees the same privileges to Members of Legislative Assemblies of states, based on constitutional provisions, laws made by Parliament, rules of both Houses, parliamentary conventions, and judicial interpretations.**

Privileges of Individual Member:

Freedom of Speech in Parliament (Article 105(1)).

- Immunity from any proceedings in court for statements made or votes given in Parliament (Article 105(2)).
- **Immunity to persons from proceedings in court for publications authorized by Parliament (Article 105(2)).**
- Prohibition on courts to inquire into the validity of any parliamentary proceedings (Article 122(1)).

- **Freedom from arrest in civil cases during House proceedings and 40 days before and after (Section 135A, Code of Civil Procedure, 1908).**

Collective Privilege of House:

- Right to immediate intimation of a member's arrest or release.
- **Immunity from arrest and legal process within House precincts without Chairman/Speaker permission.**
- Protection of proceedings of secret sittings.
- Confidentiality of evidence before parliamentary committees until laid on the House's Table.
- **Members or officers cannot disclose parliamentary proceedings in courts without House permission.**

7. SUPREME COURT RULING ON FIR AND GENERAL DAIRY

SOURCE: THE HINDU

The recent Supreme Court ruling in the case *Shailesh Kumar v. State of UP (now State of Uttarakhand)* 2024 clarifies the legal position regarding the registration of First Information Reports (FIRs) and General Diary entries by the police.

These ruling holds significance in ensuring proper documentation of cognizable offences and delineating the role of FIRs and General Diaries in police procedures.

Understanding FIR:

- **Definition:** A First Information Report (FIR) is a written document prepared by the police upon receiving information about the commission of a cognisable offence, where police can arrest without a warrant.
- **Mandatory Registration:** FIR registration is mandatory for cognisable offences under Section 154 of the Code of Criminal Procedure (CrPC), 1973.
- **Exceptions:** While FIR registration is mandatory, exceptions exist where a



preliminary inquiry may be necessary before registering an FIR.

- These include matrimonial disputes, commercial offences, medical negligence, corruption cases, and instances of abnormal delay in reporting.
- **Preliminary Inquiry:** Any preliminary inquiry must be completed within 7 days, as mandated by the Supreme Court in *Lalita Kumari v. Government of Uttar Pradesh & Others (2014)*.

Understanding General Diary:

- **Definition:** A General Diary is a record of daily activities and incidents maintained by police stations as per Section 44 of the Police Act, 1861.
- **Contents:** It includes details such as the arrival and departure of police officers, arrests, seizures of property, receipt and disposal of complaints, and any other relevant information deemed necessary by the officer in charge.
- **Role:** The General Diary serves as a comprehensive log of police station activities and assists in maintaining transparency and accountability in police operations.

Supreme Court Rulings:

Shailesh Kumar v. State of UP (now State of Uttarakhand) 2024:

- The Supreme Court emphasized that information disclosing a cognizable offence must be recorded as an FIR in the designated FIR book rather than in the General Diary.
- A General Diary entry cannot precede the registration of an FIR unless a preliminary inquiry is deemed necessary.

CBI v. Tapan Kumar Singh (2003):

- The Supreme Court ruled that a General Diary Entry may be treated as an FIR in an appropriate case if it discloses the commission of a cognisable offence.

- This ruling acknowledges the flexibility in using General Diary entries as FIRs under specific circumstances where necessary.

VI. ELECTIONS AND RPA

8. MODEL CODE OF CONDUCT COMES INTO FORCE FOR 2024 LOK SABHA ELECTIONS.

SOURCE: INDIAN EXPRESS

The Model Code of Conduct (MCC) plays a pivotal role in maintaining the integrity and fairness of elections in India.

Recently, with the announcement of voting dates for the Lok Sabha elections 2024 by the Election Commission of India (ECI), the MCC has once again come into force, highlighting its significance in electoral governance.

What is MCC and its Evolution?

About MCC:

- MCC is a consensus document agreed upon by political parties to regulate their conduct during elections.
- Mandated under Article 324 of the Constitution, MCC empowers the Election Commission to supervise and ensure free and fair elections.
- Operational from the announcement of election schedules until result declaration.
- Prohibits the government from making financial grants, ad hoc appointments, or promising infrastructural development during this period.

Enforceability of MCC:

- While lacking statutory backing, MCC gains strength through strict enforcement by the EC.
- Certain provisions can be enforced using corresponding statutes like the Indian Penal Code and the Representation of People Act.



Evolution of MCC:

- Originating from Kerala's election code in 1960, **MCC was formalized by the ECI in 1974.**
- Revised over the years to address challenges and include regulations for ruling parties' conduct.
- **Last revised in 2014**, MCC continually adapts to changing electoral landscapes.

Key Provisions of MCC:

General Conduct:

- Prohibits activities that could stoke communal tensions or promote hatred based on religion, caste, or community.
- Criticism of opponents should be focused on policies and performance, avoiding personal attacks.

Meetings and Processions:

- Parties must inform police of meeting venues for security arrangements.
- Coordination required to prevent clashes between processions of different candidates.
- Effigies representing opponents not permitted.

Polling Day:

- Only authorized personnel and voters allowed in polling booths.
- Party workers must have proper identification.
- Identity slips provided to voters must be devoid of any party symbols.

Party in Power:

- Ministers barred from using official machinery for election purposes.
- Restrictions imposed on combining official visits with election work.

Issues Associated with MCC?

Enforcement Challenges:

- Inconsistent enforcement due to lack of statutory backing.
- **Violations often go unpunished, undermining the effectiveness of MCC.**

Opposition to Legalization:

- Election Commission opposes legalization citing the need for swift elections.
- Lengthy judicial processes make legal enforcement impractical within the 45-day election period.

Ambiguity:

- Certain MCC provisions are vague, leading to confusion among political entities.
- Lack of clarity hampers proper understanding and adherence.

Limited Scope:

- Critics advocate expanding MCC to cover broader issues like electoral funding and social media.
- Current scope may not adequately address evolving electoral dynamics.

Timing Issues:

- MCC only effective during election periods, leaving room for misconduct outside these periods.
- Misuse of power could occur during non-election periods.

Impact on Governance:

- MCC's restrictions on government announcements may hinder governance during elections.
- Balance needed to ensure governance functions smoothly while upholding electoral integrity.

Need for Reform:

- Calls for reform to address MCC shortcomings and enhance its effectiveness.
- Reforms crucial for maintaining the credibility of electoral processes.

Way Forward

Strengthen Enforcement:

- Enhance mechanisms for enforcing MCC guidelines to ensure compliance by all parties.
- Strict monitoring and accountability mechanisms needed.

Clarify Provisions:

- Improve clarity and specificity of MCC rules to minimize ambiguity.



- Clear guidelines essential for proper understanding and adherence.

Expanding Scope:

- Broaden MCC's coverage to address emerging issues like digital campaigning and electoral funding transparency.
- Adapt to changing electoral dynamics for effective regulation.

Legalizing MCC:

- Evaluate proposals to legally institutionalize the MCC, providing statutory backing for enhanced effectiveness and enforceability.
- Legalization could empower the Election Commission to address corruption and ensure fair elections.

Public Awareness:

- Launch campaigns to educate voters, political parties, and candidates about the importance of MCC compliance.
- Awareness crucial for fostering a culture of electoral integrity and fairness.

Continuous Review:

- Establish a framework for regular evaluation and adaptation of the MCC to address evolving electoral challenges.
- Continuous improvement necessary for maintaining the relevance and effectiveness of MCC.

Conclusion:

The Model Code of Conduct (MCC) is vital for upholding the integrity and credibility of democratic elections. **Legalizing the MCC could empower the Election Commission to ensure fair elections, ultimately strengthening democracy in India.**

9. VOTE-FROM-HOME

SOURCE: TIMES OF INDIA

The Election Commission of India (ECI) introduced the 'vote-from-home' facility for the first time in Lok Sabha elections, aiming to facilitate voting for Persons with Disabilities (PwD) and senior citizens aged 85 and above.

Eligibility Criteria:

- **People Aged 85 and Above:** Senior citizens aged 85 and above are eligible for the vote-from-home facility.
- **Persons with Disabilities (PwD):** PwDs with a disability of at least 40%, certified by the appropriate authority, can avail of this facility.
- **Mediapersons Covering Polling Day Activities:** Mediapersons with authorization letters from the Election Commission are eligible.
- **Workers from Essential Services:** Essential service workers such as those in metros, railways, and healthcare are eligible.
- **Service Voters:** Armed forces personnel posted away from their hometowns, Central Armed Police Forces personnel deployed elsewhere, and those on poll duty qualify.

Availing the Facility:

- **Form 12D:** Interested individuals must submit Form 12D to the Assistant Returning Officer (ARO), stating their inability to visit the polling station.
- **Form Submission:** The form can be downloaded from the ECI website or obtained from the representative district officer's office.
- **Submission Deadline:** Form submission must be done within five days of the polling date notification.
- **Home Visit:** Upon form submission, a polling team, along with videographer and security personnel, will visit the elector's home for the postal ballot voting process.
- **Intimation:** The elector receives an intimation via SMS or post regarding the visit's date and approximate time.
- **Attempted Visits:** The home voting option will be attempted twice, with a second visit scheduled if necessary.
- **Absence Consequences:** If the voter is absent during both visits, further attempts will not be entertained, rendering them



ineligible to vote at polling booths or through the home voting scheme.

VII. POLICIES/SCHEMES/ACTS/REPORTS/ COMMITTEES IN NEWS

10. CINEMATOGRAPH (CERTIFICATION) RULES, 2024

SOURCE: HINDUSTHAN TIMES

The Ministry of Information and Broadcasting has introduced the Cinematograph (Certification) Rules, 2024, as part of the Cinematograph (Amendment) Act, 2023, replacing the outdated regulations from 1983.

These rules aim to modernize and streamline the film certification process in India, aligning it with contemporary technological advancements and audience expectations.

Key Aspects of the Cinematograph (Certification) Rules, 2024:

Alignment with Online Certification Processes:

- The rules have been revamped to synchronize with online certification procedures, ensuring transparency, efficiency, and convenience for the film industry stakeholders.

Reduction in Certification Timelines:

- Digitalization of processes has led to the reduction of certification timelines, eliminating transactional delays and enhancing the overall certification process.

Accessibility Features for Films:

- Films are mandated to incorporate accessibility features to ensure inclusivity for disabled individuals, adhering to specified guidelines.

Introduction of Age-Based Certification:

- The UA (Universal Adult) category has been subdivided into UA 7+, UA 13+, and UA 16+, serving as recommendations for parents to gauge the suitability of films for children based on age-appropriate content.

Enhanced Gender Representation:

- The rules advocate for increased representation of women in the Central Board of Film Certification (CBFC) Board and Advisory Panels, ensuring gender diversity and inclusivity.

System for Priority Screening of Films:

- Provision for priority screening of films has been instituted to expedite the certification process, particularly for filmmakers with urgent release commitments.

Perpetual Validity of Certificates:

- Certificates issued by the CBFC now hold perpetual validity, removing the previous restriction of validity for only 10 years.

Recertification for Television Broadcast:

- Edited films intended for television broadcast must undergo recertification, permitting only films with Unrestricted Public Exhibition category certification for television viewing.

Significance of the Cinematograph (Certification) Rules, 2024:

- The overhaul of the certification rules acknowledges the evolution of film technology and audience demographics, providing a contemporary and globally competitive framework for the Indian film industry.
- **These rules complement the amendments to the Cinematograph Act in 2023, simplifying the certification process and ensuring its relevance in the digital age.**

Central Board of Film Certification (CBFC):

- The CBFC, operating under the Ministry of Information and Broadcasting, regulates the public exhibition of films in India in accordance with the Cinematograph Act, 1952.
- **It comprises non-official members and a Chairman appointed by the Central Government, with Regional offices and Advisory Panels assisting in the examination of films.**



Film Industry in India:

- India boasts the world's largest film industry in terms of film production, producing over 3,000 films annually in more than 40 languages.
- Major film industries include Hindi, Telugu, and Tamil, contributing to a vibrant and diverse cinematic landscape.
- The Indian film industry, with a market size of over 172 billion Indian rupees in 2022, continues to evolve amidst the challenges posed by the Covid-19 pandemic and the rise of OTT platforms.
- The proliferation of OTT platforms has reshaped the entertainment landscape in India, catering to over 400 million users and contributing to the growth of the digital entertainment sector.
- The television and film industry in India is a significant source of employment, generating approximately 4.12 million jobs in the financial year 2022.

VIII. PRELIMS POINTERS IN NEWS

11. PM-SURAJ PORTAL

SOURCE: PIB

Prime Minister Narendra Modi launched the PM-SURAJ portal virtually.

- The portal provides credit support to entrepreneurs from disadvantaged sections of society.
- It reflects the government's commitment to providing dignity and justice to the underprivileged.
- Approximately ₹720 crore worth of credit was disbursed to one lakh beneficiaries from Scheduled Castes, Denotified, Nomadic and Semi-Nomadic Tribes, Other Backward Classes, and Safai Karamcharis.
- The portal serves as a one-stop point for applying for and monitoring the progress of all loan and credit schemes available to disadvantaged sections.

- This initiative aims to empower marginalized communities and facilitate their participation in India's economic growth and development.

12. UCPMP (UNIFORM CODE OF PHARMACEUTICAL MARKETING PRACTICES)

SOURCE: ECONOMIC TIMES

The UCPMP (Uniform Code of Pharmaceutical Marketing Practices) for the Pharma industry was initially issued in 2014 on a voluntary basis.

Key Highlights of UCPMP 2024:

- Drug information must be balanced, up-to-date, verifiable, and should not mislead directly or indirectly.
- Brand names of products from other companies cannot be used without prior consent.
- Comparisons between drugs must be factual, fair, and substantiated.
- Promotional materials like mailings and journal advertisements should not disguise their true nature.
- Continuing Medical Education should adhere to transparent guidelines.
- No gifts or monetary advantages should be offered to healthcare professionals.
- Each association must have an Ethics Committee to handle complaints about pharma marketing practices.
- The Department of Pharmaceuticals may issue standing orders to address operational difficulties in implementing UCPMP.

Need for UCPMP:

- Ensures patient safety by preventing unethical marketing that downplays risks or misrepresents benefits.
- Directs resources towards medications addressing genuine medical needs, promoting responsible innovation.



- Upholds professional integrity by ensuring prescriptions are based on unbiased and accurate information.

13. THREE MEMBERS SWORN IN TO THE LOKPAL OF INDIA

SOURCE: PIB

Recently, the Lokpal of India, established by the Lokpal and Lokayuktas Act, 2013, reached its full strength with the administration of oaths to three new members by the Chairperson, Shri Justice Ajay Manikrao Khanwilkar.

This development is a significant step in enhancing the effectiveness of the anti-corruption ombudsman.

Lokpal of India:

- **Established by the Lokpal and Lokayuktas Act, 2013, the Lokpal serves as an anti-corruption ombudsman.**
- Comprises a chairperson and a maximum of eight members, with at least 50% being judicial members, appointed through a transparent process.
- **Jurisdiction covers the Prime Minister, Ministers, Members of Parliament, government officials, and employees of government-controlled organizations.**
- Endowed with powers to inquire into corruption allegations, recommend actions, and initiate investigations based on complaints or suo motu.
- **The Lokpal has its Investigation Wing for preliminary inquiries, with cases referred to investigative agencies for further action.**
- Besides recommending criminal proceedings, the Lokpal suggests preventive measures and systemic reforms to curb corruption in public administration.
- **Appeals against Lokpal decisions can be made to the Supreme Court.**

Challenges and Significance:

- Challenges faced by the Lokpal include resource constraints and coordination issues with existing anti-corruption bodies.
- **Despite challenges, the Lokpal signifies a crucial step in combating corruption, fostering transparency, and ensuring accountability in governance.**

14. NATIONAL MISSION FOR EDIBLE OILS - OIL PALM (NMEO-OP)

SOURCE: PIB

Prime Minister inaugurated the first Oil Palm Processing Mill in Arunachal Pradesh under the National Mission for Edible Oils - Oil Palm (NMEO-OP), signalling a significant step towards boosting oil palm cultivation and crude palm oil production.

About NMEO-OP:

- **Launched in August 2021 by the Government of India, NMEO-OP aims to substantially increase oil palm cultivation and crude palm oil production.**
- **It is a Centrally Sponsored Scheme with a special emphasis on the Northeast region and the Andaman and Nicobar Islands.**
- The scheme has a total outlay of Rs. 11,040 crores, with Rs. 8,844 crores as the Government of India share and Rs. 2,196 crores as the State share, including viability gap funding.

Targets:

- Increase oil palm cultivation area to 10 lakh hectares by 2025-26, from 3.5 lakh hectares in 2019-20.
- **Raise Crude Palm Oil production to 11.20 lakh tonnes by 2025-26, from 0.27 lakh tonnes in 2019-20.**
- Enhance consumer awareness to maintain a consumption level of 19.00 kg/person/annum by 2025-26.

Implementation Stakeholders:

- State Departments of Agriculture and Horticulture, Central University, ICAR-Institutions, Cooperatives, among others,



will be key stakeholders in implementing NMEO-Oil Palm.

Features:

NMEO-OP offers assistance for various activities including planting material, intercropping inputs, establishment of seed gardens, micro irrigation, training programs, and more, to support oil palm cultivation and processing.

Oil Palm Production in India:

- **Originating from West Africa, Oil Palm (*Elaeis guineensis*) is a relatively new crop in India, known for its high vegetable oil yield per hectare.**
- It yields two distinct oils, palm oil and palm kernel oil, serving both culinary and industrial purposes.
- Major oil palm-growing states include Andhra Pradesh, Telangana, and Kerala, contributing to 98% of total production.
- **Additionally, Karnataka, Tamil Nadu, Odisha, Gujarat, and Mizoram also have significant areas under oil palm cultivation.**

15. PB-SHABD

SOURCE: PIB

Union Minister of Information and Broadcasting launched PB-SHABD, a news sharing service from Prasar Bharati, DD News, Akashvani News, and updated News on Air mobile app at an event in National Media Centre, New Delhi.

About PB-SHABD:

- PB-SHABD stands for Prasar Bharti - Shared Audio Visuals for Broadcast and Dissemination.
- **It offers daily news feeds in various formats like video, audio, text, and photos.**
- **Utilizes Prasar Bharati's vast network of reporters, correspondents, and stringers to provide latest news from different parts of India.**
- Serves as a single point source of news content for all organizations.

- Offers news stories in major Indian languages across fifty categories.
- Allows customization of storytelling across different platforms.
- **Free of cost for the first year to assist smaller newspapers, TV channels, and digital portals.**

What is Prasar Bharti?

- Public Service Broadcaster established in 1997 under the Prasar Bharati Act.
- **Aims to conduct public broadcasting services for informing and entertaining the public.**
- Comprises Doordarshan Television Network and All India Radio, formerly under the Ministry of Information and Broadcasting.
- Headquartered in New Delhi.

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INTERNATIONAL RELATIONS

I. INDIA AND ITS NEIGHBOURHOOD

1. INDIA-BHUTAN RELATIONS

SOURCE: HINDUSTHAN TIMES

India and Bhutan share a longstanding relationship characterized by trust, goodwill, and mutual cooperation. Recent bilateral talks and agreements between the two nations highlight the significance of their ties in various domains.

Key Highlights of India-Bhutan Bilateral Talks:

Petroleum Agreement:

- Signed to ensure a reliable supply of petroleum products from India to Bhutan, fostering economic cooperation in the hydrocarbon sector.

Food Safety Collaboration:

- Agreement between Bhutan's Food and Drug Authority and India's FSSAI to enhance cooperation in food safety measures, facilitating trade and compliance with standards.

Energy Efficiency and Conservation:

- MoU signed to promote sustainable development by enhancing energy efficiency in households and promoting energy-efficient appliances.

Border Dispute Resolution:

- Ongoing discussions between China and Bhutan to resolve their border dispute, critical for regional security, particularly in the Doklam region.

Gelephu Regional Economic Hub:

- Bhutan's initiative to establish the Gelephu Mindfulness City (GMC) as a sustainable economic hub, fostering regional development and connectivity.

Significance of Bhutan for India:

Strategic Importance:

- Acts as a buffer state between India and China, crucial for India's security interests.
- India's assistance in defence and infrastructure has helped maintain Bhutan's sovereignty.

Economic Importance:

- **Largest trading partner of Bhutan**, with significant investments in hydropower projects, contributing to Bhutan's economy.

Cultural Importance:

- Strong cultural ties, with India supporting Bhutan in preserving its cultural heritage and providing education opportunities.

Environmental Importance:

- India's partnership in environmental initiatives helps Bhutan achieve its carbon-neutral goals and promotes sustainable development.

Challenges in India-Bhutan Relations:

China's Growing Influence:

- Increasing presence of China in Bhutan raises concerns for India's security interests.
- **Maintaining Bhutan's sovereignty amidst China's influence remains a challenge.**

Border Disputes:

- Recent border incursions by Chinese forces raise tensions and pose challenges to regional stability.

Hydropower Projects:

- While hydropower is vital for Bhutan's economy, concerns over project terms and public opposition pose challenges.

Trade Issues:

- Trade imbalance and Bhutan's desire for greater market access in India need to be addressed to strengthen economic ties.

Way Forward:

Infrastructure Investment:

- India can support Bhutan's economic growth through infrastructure development and tourism investment.

Cultural Exchange:



- Promoting cultural exchange programs can enhance mutual understanding and appreciation.

Strategic Cooperation:

- Strengthening strategic cooperation can address shared security concerns and combat transnational crimes.

India and Bhutan can navigate these challenges by deepening their cooperation across various sectors, ensuring the continued prosperity and stability of both nations and the region at large.

2. INDIA-SRI LANKA RELATIONS

SOURCE: THE HINDU

The recent agreement between the Sri Lanka Sustainable Energy Authority and the Indian company U-Solar Clean Energy Solutions to develop Hybrid Renewable Energy Systems in Sri Lanka highlights the growing cooperation between the two countries, particularly in the field of renewable energy.

Hybrid Renewable Energy System Project of Sri Lanka:

Overview:

- The project involves constructing hybrid renewable energy systems, combining solar, wind, battery, and standby diesel power systems.
- It aims to meet the energy requirements of Delft, Neduntheevu, Nainativu, and Analaitivu islands off the Jaffna peninsula.

Capacity:

- Includes 530 kW wind power, 1,700 kW solar power, 2,400 kWh battery power, and 2,500 kW standby diesel power system.

Geopolitical Context:

- India's grant assistance replaces a China-backed project, showcasing the broader competition for influence between India and China in the Indian Ocean region.
- Highlights the strategic significance of energy infrastructure and India's proactive role in the region.

India-Sri Lanka Relations:

Historical Ties:

- Deep-rooted cultural, religious, and trade ties dating back to ancient times.
- **Buddhism, originating in India, holds significance in Sri Lanka.**

Financial Assistance:

- India provided substantial aid during Sri Lanka's severe economic crisis in 2022, demonstrating strong bilateral support.

Debt Restructuring:

- India collaborated with the IMF and creditors to assist Sri Lanka in restructuring its debt, showcasing mutual cooperation.

Connectivity Vision:

- Both countries envision comprehensive connectivity, emphasizing renewable energy, logistics, port connectivity, and grid connectivity.

Economic Cooperation:

- **Exploring an Economic and Technology Cooperation Agreement (ETCA) to integrate economies and foster development.**
- Joint projects like the multi-product petroleum pipeline aim to ensure energy security and economic growth.

Technological Collaboration:

- **Sri Lanka's adoption of India's UPI service enhances fintech connectivity, aiding economic recovery.**

Economic Ties:

- **India is a significant export destination and investor in Sri Lanka, facilitating economic growth and development.**

Defence Cooperation:

- Conducting joint military and naval exercises enhances bilateral security cooperation and regional stability.

Participation in Groupings:

- Both countries are members of regional groupings like BIMSTEC and SAARC, strengthening regional cooperation.

Tourism:



- India is a major source of tourists for Sri Lanka, fostering people-to-people ties and cultural exchange.

II. INDIA RELATIONS WITH MAJOR POWERS

3. INDIA-EFTA TRADE DEAL

SOURCE: HINDUSTHAN TIMES

India and the European Free Trade Association (EFTA) recently concluded the Trade and Economic Partnership Agreement (TEPA), marking a significant milestone in their bilateral relations.

Key Highlights of TEPA:

About TEPA:

- Finalized after a decade of negotiations, TEPA comprises 14 chapters focusing on market access, trade facilitation, investment promotion, and other provisions.
- **Aims to increase foreign direct investments in India by USD 100 billion over 15 years**, generating 1 million direct jobs.

Tariff Offers:

- EFTA offers tariff concessions on 92.2% of tariff lines, covering 99.6% of India's exports.
- India offers concessions on 82.7% of tariff lines, covering 95.3% of EFTA exports, excluding sectors like dairy and coal.

Mutual Recognition:

- Includes provisions for Mutual Recognition Agreements in Professional Services, facilitating better integration in various sectors.

Market Integration:

- Provides an opportunity for Indian companies to access EU markets through Switzerland, fostering market integration.

Services Offered by EFTA:

- Offers improved access to services through digital delivery, commercial presence, and entry of key personnel.

European Free Trade Association (EFTA):

About EFTA:

- **Founded in 1960**, EFTA comprises Iceland, Liechtenstein, Norway, and Switzerland, promoting free trade among member states and their partners worldwide.

India-EFTA Relations:

- **India is EFTA's 5th-largest trading partner**, with two-way trade valued at USD 18.65 billion in 2022-23.
- Switzerland is India's largest trading partner within EFTA, followed by Norway.

India's Relations with EFTA Nations:

India and Norway:

- Enjoy a cordial relationship since 1947, with mutual support in international forums.
- Collaboration in areas like blue economy and research, exemplified by joint initiatives and task forces.

India and Switzerland:

- Established diplomatic ties soon after India's Independence, with significant trade and investment cooperation.
- Presence of numerous Swiss companies in India and Indian IT majors in Switzerland underscores bilateral economic relations.

India and Iceland:

- **Strengthened ties since 2005**, with support for India's UNSC candidature and recent collaborations in renewable energy.
- Mutual cooperation agreements aim at exploring renewable energy sources and decarbonization initiatives.

India and Liechtenstein:

- **Established diplomatic relations in 1993**, with FDI inflow from Liechtenstein supporting India's economic development.
- Continued engagement in trade and investment sectors, contributing to bilateral economic growth.

Conclusion:

The Trade and Economic Partnership Agreement between India and EFTA heralds a new era of



cooperation, promising increased trade, investment, and economic growth.

As India deepens its ties with EFTA nations, mutual benefits in various sectors are anticipated, contributing to regional stability and prosperity.

III. INDIA'S RELATIONS WITH OTHER NATIONS

4. NORDIC-BALTIC COOPERATION AT RAISINA DIALOGUE 2024

SOURCE: THE HINDU

The Raisina Dialogue 2024 witnessed the participation of the Nordic-Baltic countries (NB8) as representatives of a regional cooperation format.

Nordic-Baltic Cooperation:

Formation and Membership:

- Established in 1992, the Nordic-Baltic cooperation brings together Finland, Sweden, Norway, Denmark, Iceland, Estonia, Latvia, and Lithuania.
- Named the Nordic-Baltic Eight (NB8) in 2000, it was initiated by Toomas Hendrik Ilves, former Estonian Foreign Minister.

Chairmanship and Coordination:

- Sweden holds the chairmanship of NB8 in 2024, facilitating coordination and cooperation among member nations.
- The NB8 Wise Men Report, or Birkavs-Gade Report, outlines guidelines for enhancing cooperation among the eight countries.

NB8 Collaboration with India:

Diverse Fields of Collaboration:

- Collaboration between NB8 countries and India spans innovation, green transition, maritime affairs, health, intellectual property rights, technology, space, and tourism.
- Events like the 2nd CII India Nordic-Baltic Business Conclave in November 2023 fostered partnerships between India and NB8 nations.

Outreach Efforts of NB8:

e-PINE Format:

- Since 2003, NB8 countries have engaged in regular meetings with the United States at the political directors' level under the e-PINE format.
- This facilitates dialogue on various bilateral and global issues of mutual interest.

Northern Future Forum:

- An agreement in 2011 led to meetings between NB8 prime ministers and the United Kingdom, evolving into the Northern Future Forum.
- This forum serves as a platform for discussing shared challenges and opportunities among NB8 countries and the UK.

Expansion to NB6:

Creation of NB6 Format:

- With the Baltic countries' accession to the European Union in 2004, the NB6 format emerged.
- It includes EU member states Denmark, Finland, Sweden, Latvia, Lithuania, and Estonia, facilitating informal discussions on EU-related matters.

EU and Non-EU Dynamics:

- Iceland and Norway, though not EU members, actively participate in NB8 cooperation, demonstrating the inclusivity of the alliance.
- This arrangement underscores the commitment to regional collaboration and addressing common challenges irrespective of EU membership status.

IV. AGREEMENTS INVOLVING INDIA AND / OR AFFECTING INDIA'S INTERESTS.

5. INDIA PRESENTS DETAILED MODEL ON BEHALF OF G4 NATIONS FOR UNSC REFORM

SOURCE: THE HINDU



India, along with Brazil, Germany, and Japan, collectively known as the G4 nations, has presented a detailed model for reforming the United Nations Security Council (UNSC).

This initiative aims to address the existing disparities in representation and enhance the Council's effectiveness.

Key Features of the G4 Proposed Model:

Addressing Under-representation:

- The model acknowledges the glaring under-representation of key regions in the current composition of the UNSC, affecting its legitimacy and efficacy.

Membership Expansion:

- Advocates for increasing the Security Council's membership from 15 to 25-26 members, including 6 permanent and 4 or 5 non-permanent members.
- **New permanent members would be elected democratically by the UN General Assembly, ensuring a more inclusive representation.**

Flexibility on Veto:

- Offers flexibility on the veto issue, where new permanent members would refrain from exercising the veto until a decision on the matter is taken during a review process.
- Demonstrates a willingness to engage in constructive negotiations for the benefit of the international community.

Importance of UN Security Council Reform:

Representation and Legitimacy:

- Ensures that the decisions made by the UNSC are respected and implemented universally by reflecting the current global landscape in its composition.

Outdated Composition:

- The current composition, based on post-World War II geopolitics, does not accurately represent the current world stage, necessitating adjustments to ensure adequate representation.

Recognition of Contributions:

- Recognizes the contributions of countries like India, Germany, and Japan, which have made substantial contributions to the UN's mission and deserve permanent seats on the Security Council.

Risk of Alternative Decision-Making Forums:

- Without reform, there's a risk that decision-making processes could shift to alternative forums, potentially diluting the effectiveness of the UNSC.

Misuse of Veto Power:

- Criticisms of the veto power highlight the need for a more democratic and inclusive decision-making process within the UNSC to prevent misuse and ensure fair representation.

Procedure of UN Security Council Reforms:

First Stage:

- Requires endorsement by the General Assembly with a two-thirds majority, equivalent to at least 128 states, without granting the right of veto.

Second Stage:

- Involves amending the United Nations Charter, requiring ratification by at least two-thirds of the member states, including all five permanent Security Council members, adhering to their respective national procedures.

6. THE COUNTDOWN TO A PANDEMIC TREATY

SOURCE: THE HINDU

The WHO Pandemic Agreement, proposed in response to the COVID-19 pandemic, aims to enhance global pandemic preparedness and response.

Key Features of WHO Pandemic Agreement:

- **Strengthening Global Defences:** Focuses on learning from the challenges faced during the COVID-19 pandemic to improve future responses.



- **Equity in Access:** Aims to ensure fair and equitable access to vaccines, treatments, and medical resources for all countries.
- **Pathogen Surveillance:** Includes measures to enhance surveillance and reporting of pathogens with pandemic potential to detect outbreaks early.
- **Healthcare Workforce and Systems:** Aims to strengthen healthcare systems and workforce capacity worldwide to effectively manage future pandemics.
- **Supply Chain Management:** Addresses logistics and supply chain challenges to ensure the efficient distribution of medical supplies during emergencies.
- **Technology Transfer:** Encourages the transfer of technology to facilitate the production of vaccines, diagnostic tests, and other medical innovations.
- **Intellectual Property Waivers:** Discusses the possibility of waiving intellectual property rights to promote wider access to essential medical products.
- **Antimicrobial Resistance:** Includes provisions to address the growing threat of antimicrobial resistance, which poses challenges during pandemics.

Concerns Related to WHO Pandemic Agreement:

- **Disagreement Between Countries:** There are disagreements between developed and developing countries, particularly regarding financing and intellectual property issues.
- **Intellectual Property Rights:** The proposal to reduce or waive IP royalties for firms receiving public funding is contentious and raises concerns about innovation incentives.
- **Equitable Access and Sharing:** Developing countries are hesitant to share pathogen data without clear benefits, highlighting disparities in vaccine distribution.
- **Enforcement and Accountability:** Concerns exist regarding the effectiveness

of enforcement mechanisms within the agreement to ensure compliance.

- **Pathogen Sharing Mechanism:** The proposed WHO Pathogen Access and Benefit-Sharing System aims for fair data sharing but faces implementation challenges.

Conclusion:

Negotiations for the WHO Pandemic Agreement are ongoing, with the aim of reaching a consensus by the World Health Assembly in May.

While the agreement holds promise for improving global pandemic preparedness, the differing viewpoints among countries pose challenges.

Failure to reach a comprehensive agreement could have significant consequences for future pandemic responses.

UPSC MAINS QUESTION

Q. Analyze the main aspects and issues surrounding the WHO Pandemic Agreement. (150 WORDS)

V. PRELIMS POINTERS IN NEWS

7. DEVELOPING COUNTRIES TRADING SCHEME

SOURCE: THE HINDU

Exporters seeking duty concessions on shipments to the UK must adhere to the new British rules under DCTS.

Compliance with DCTS regulations is essential for exporters to avail of duty concessions and maintain trade relations with the UK.

Developing Countries Trading Scheme (DCTS):

- Introduced by the UK Government to aid developing countries integrate into the global economy, foster trade partnerships, and strengthen supply chains.
- **Aims to simplify and enhance preferential trading, reducing or eliminating tariffs on imports from eligible developing nations into the UK.**



- Designed to bolster trade, support development, and offer consumers access to a wider range of products at lower costs.
- Applicable to 65 countries, including least developed countries (LDCs) defined by the UN, low-income countries (LICs), and lower middle-income countries (LMICs) defined by the World Bank.

Key Features:

- Provides duty-free, quota-free trade to LDCs on all goods except arms.
- Offers duty-free, quota-free trade on 85% of eligible goods to most LICs and LMICs.
- Excludes countries deemed 'upper-middle income' for three consecutive years by the World Bank and those with a free trade agreement (FTA) with the UK from benefiting under DCTS.

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ECONOMY

I. UNEMPLOYMENT

1. UNEMPLOYMENT IN INDIA

SOURCE: THE HINDU

The Periodic Labour Force Survey (PLFS), conducted by the National Sample Survey Office (NSSO), in 2023, reported a significant decline in India's unemployment rate, marking the lowest figure in the past three years.

Key Highlights of the Report:

India's Unemployment Rate:

- The unemployment rate for individuals aged 15 and above dropped to 3.1% in 2023, a notable decrease from 3.6% in 2022 and 4.2% in 2021.
- Both females and males witnessed a decline in unemployment rates, with females registering 3% in 2023 and males 3.2%.

Recovery in Employment Scenario:

- Post the impact of the Covid-19 pandemic, there's been a recovery in the employment scenario, attributed to increased economic activity following the lifting of lockdowns.
- Urban areas saw a decrease in unemployment to 5.2% in 2023, while rural areas experienced a decline to 2.4%.

Economic Growth:

- India's economic growth surged to 8.4% in the third quarter of 2023-24, driven by sectors like manufacturing, mining & quarrying, and construction.
- The NSO's second advance estimate projected India's growth at 7.6% for the entire fiscal year 2023-24, surpassing the initial projection of 7.3%.

Periodic Labour Force Survey (PLFS)

About:

- Conducted by the National Statistics Office (NSO), PLFS aims to produce annual statistics on employment and



unemployment characteristics for rural and urban areas, with quarterly estimates for urban areas.

- The first annual report based on PLFS data was published in May 2019, covering the period July 2017-June 2018.

Objective:

- Estimate key employment and unemployment indicators like Worker Population Ratio, Labour Force Participation Rate, and Unemployment Rate.
- Provide both 'Usual Status' and 'Current Weekly Status' estimates for rural and urban areas annually.

Unemployment:

About:

- Unemployment refers to the condition where individuals actively seeking employment are unable to secure suitable jobs despite possessing the requisite skills.
- **It's measured using the unemployment rate formula:** $[\text{Number of Unemployed Workers} / \text{Total Labour Force}] \times 100$.

Types of Unemployment:

Structural Unemployment:

- **Arises due to mismatches between workforce skills and job requirements.**
- Highlights systemic issues within the labour market.
- Occurs when available positions demand skills that workers lack.

Cyclical Unemployment:

- **Tied to economic cycles, rising during downturns and falling during expansions.**
- Reflects the sensitivity of job availability to macroeconomic conditions.
- Increases during recessions when businesses cut down on hiring.

Frictional Unemployment/Transitional Unemployment:

- **Occurs during the transition period between jobs.**
- Reflects the temporary nature of job searches.

- Individuals actively seeking new employment opportunities contribute to this type of unemployment.

Underemployment:

- **Individuals employed in positions that underutilize their skills or offer insufficient working hours.**
- Contributes to a sense of economic inefficiency despite employment status.
- Represents a mismatch between worker skills and job requirements.

Hidden Unemployment:

- **Refers to individuals not actively seeking jobs due to discouragement or other factors.**
- Could potentially enter the job market if conditions improve.
- Often not reflected in official unemployment statistics.

Disguised Unemployment:

- **Arises when more labourers work than required for a given task.**
- Leads to decreased productivity as more labour is employed than necessary.
- Common in sectors with traditional modes of production.

Major Causes of Unemployment in India:

Population Size:

- India's large population intensifies competition for jobs, necessitating comprehensive strategies for economic development and job creation.

Skills Mismatch:

- Mismatch between workforce skills and job market demands underscores the importance of enhancing education and vocational training programs.

Informal Sector Dynamics:

- Informal sector complexities impact employment tracking, emphasizing the need for formalization and regulation to provide a clearer employment picture.

Policy Implementation Challenges:

- Effective implementation of employment policies is crucial, requiring alignment with



ground realities to generate tangible results.

Global Economic Factors:

- Influences from the global economy can impact India's employment scenario, highlighting the importance of policies fostering economic resilience.

II. BANKING AND FINANCIAL INTERMEDIARIES

2. INTEGRATED OMBUDSMAN SCHEME (RB-IOS)

SOURCE: THE HINDU

The Reserve Bank of India (RBI) has reported a significant spike of 68.2% in complaints under its Integrated Ombudsman Scheme (RB-IOS) for the financial year 2023, reaching a staggering figure of 703,000.

This surge marks a substantial increase compared to previous years, indicating a growing trend in grievances related to financial services.

Factors Behind the Surge in Complaints:

Public Awareness Initiatives:

- The central bank's robust public awareness campaigns have played a pivotal role in encouraging individuals to voice their concerns and grievances regarding financial services.
- Increased awareness of rights and available avenues for complaint resolution prompts more people to report issues they encounter with banks and non-bank payment system participants.

Streamlined Complaint Process:

- Implementation of a simplified and accessible process for lodging complaints has made it easier for the public to report issues they face with financial institutions.

Digital Transactions:

- The growing popularity of digital transactions, especially in mobile and electronic banking, has increased the

likelihood of encountering issues such as unauthorized or fraudulent transactions.

- The convenience of digital banking also means that any disruptions in the system can impact a large number of users simultaneously, leading to an increase in complaints.

RBI Integrated Ombudsman Scheme (RB-IOS):

About RB-IOS:

- **RB-IOS amalgamates three ombudsman schemes of RBI:** banking ombudsman scheme of 2006, Ombudsman scheme for NBFCs of 2018, and Ombudsman scheme of digital transactions of 2019.
- It aims to provide redressal of customer complaints involving deficiency in services rendered by RBI-regulated entities, including banks, NBFCs, and pre-paid instrument players.

Need for Integration:

- The integration addresses concerns regarding maintainable grounds for consumer challenges and rejection of complaints on technical grounds.
- Expansion of grounds for complaints and integration of systems are expected to elicit a positive response from consumers.

Key Features:

- **Defines 'deficiency in service' as grounds for filing a complaint, with specified exclusions,** ensuring complaints are not rejected arbitrarily.
- Centralized receipt and processing center in Chandigarh for initial handling of complaints in any language.
- **Provision for the use of Artificial Intelligence tools for better coordination and faster resolution.**
- Multilingual toll-free number for providing relevant information on grievance redress.

Appellate Authority:

- **RBI's Executive Director in charge of the Consumer Education and Protection Department** serves as the Appellate Authority under the integrated scheme.

Significance of RB-IOS:

- Improves grievance redress mechanism for resolving customer complaints against RBI's regulated entities.
- Ensures uniformity and streamlined user-friendly mechanisms, enhancing customer satisfaction and financial inclusion.

Conclusion:

The surge in complaints under the RBI Integrated Ombudsman Scheme highlights the importance of robust complaint resolution mechanisms in the financial sector.

The integration of ombudsman schemes aims to address consumer grievances effectively, ensuring a fair and transparent system for resolving disputes between consumers and regulated entities.

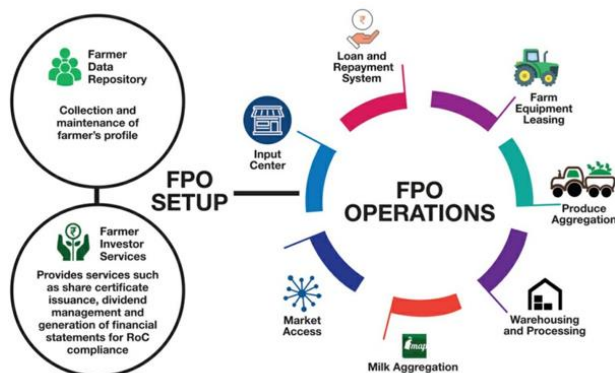
III. AGRICULTURE AND ALLIED

3. AROUND 5,000 FARMER PRODUCER ORGANIZATIONS (FPOS) REGISTERED ON ONDC PLATFORM

SOURCE: PIB

In a notable achievement, over 8,000 out of the targeted 10,000 Farmer Producer Organizations (FPOs) have been registered, with 5,000 integrated into the Open Network for Digital Commerce (ONDC) portal.

This initiative, launched in 2020 with a budget of Rs 6,865 crore, aligns with the Central government's objective of enhancing market access for growers, allowing FPOs to sell their produce online across the nation.



Central Sector Scheme for FPOs:

Economic Strengthening:

- Focused on aggregating small farmers to boost economic strength and market linkages.
- Financial assistance of up to Rs 18.00 lakh per FPO for 3 years, matching equity grants, and credit guarantee facilities.

Credit Guarantee Success:

- Credit Guarantee extended to 1,101 FPOs, covering over 10.2 lakh farmers, with a guaranteed coverage of Rs 246.0 crore.

Self-Reliant Farming:

- Aims to transform agriculture into self-reliant farming, fostering production, productivity, and rural economic growth, thereby creating job opportunities.

Role of FPOs in Agriculture Development:

Collective Bargaining Power:

- FPOs empower small farmers to act collectively, obtaining better prices for inputs and collectively selling produce, enhancing their bargaining power in the market.

Access to Resources:

- Facilitate access to vital resources like quality seeds, fertilizers, and credit facilities at competitive rates, which individual farmers may struggle to obtain.

Improved Farming Practices:

- Provide training and extension services on modern farming techniques, leading to increased productivity and sustainability.

Market Access and Diversification:

- Connect farmers to wider markets, reducing reliance on middlemen and increasing profit margins.
- Encourage value addition through processing and marketing of value-added products.

Empowerment and Community Development:

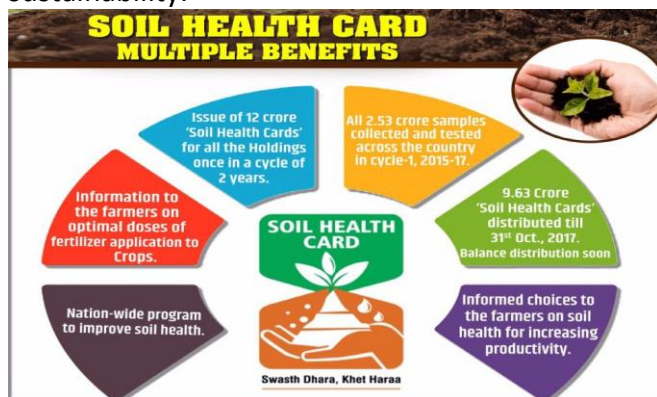
- Foster collective action, building stronger rural communities and promoting economic empowerment and social upliftment for farmers.

4. INDIA'S INITIATIVES FOR SUSTAINABLE AGRICULTURE

SOURCE: PIB

In a significant stride towards revolutionizing the agricultural sector and promoting sustainable farming practices, the Union Minister for Agriculture & Farmers and Union Minister for Rural Development jointly inaugurated four key initiatives in New Delhi.

These initiatives aim to address concerns related to soil health, fertilizer quality, and agricultural sustainability.



Inaugurated Initiatives for Soil Health Management:

Revamped Soil Health Card Portal and Mobile Application:

- The Soil Health Card portal has been revamped, accompanied by the introduction of a mobile application for soil sample collection and testing.
- It includes a registry of soil labs with real-time status and geo-coordinates mapping.
- Features a centralised dashboard at national, state, and district levels, with Geographic Information System (GIS) analytics.
- Provides real-time data on soil sample collection, lab testing, Soil Health Card generation, fertilizer management, and nutrient dashboard.
- Allows for real-time monitoring of progress, automatic capture of geo-coordinates during sample collection, and registration of plot details.

School Soil Health Programme:

- A collaboration between the Department of Agriculture & Farmers' Welfare and the Department of School Education and Literacy.
- Established 20 soil laboratories in rural Kendriya and Navodaya Vidyalaya schools.
- Provides study modules and training to students and teachers, with a customised mobile application for the program.
- **School students collect soil samples, test them in school labs, and create Soil Health Cards.**
- Aims to educate farmers on Soil Health Card recommendations, fostering critical thinking and practical learning.
- **A scaled-up version involves 1000 schools, with support from NABARD for setting up soil labs.**

Krishi Sakhi Convergence Programme (KSCP):

- Aims to empower Krishi Sakhis through training programs, transforming rural India.
- Certifies 70,000 Krishi Sakhis as "Para-Extension Workers" who guide Natural Farming and Soil Health Management.
- Implementing various schemes like the National Mission of Natural Farming (NMNF) and Pradhan Mantri Fasal Bima Yojana (PMFBY).
- Facilitates awareness creation and capacity building among farmers, acting as a link between farmers and agricultural departments.
- Trains Krishi Sakhis in agroecology, natural resource management, and conduct awareness generation meetings.

CFQCTI Portal:

- Introduced by the Central Fertilizer Quality Control and Training Institutes (CFQCTI) for sample collection and testing.
- Ensures quality control in fertilizer management by facilitating sample



verification, allocation to labs, and issuance of analysis reports.

Impact Envisaged by These Initiatives:

Promotion of Sustainable Agricultural Practices

- Promote sustainable practices like organic farming, ensuring long-term environmental and economic benefits.

Enhancement of Farmer Livelihoods:

- Addressing concerns related to soil health and agricultural sustainability seeks to enhance farmer livelihoods and economic well-being.

Credibility of Organic Farming:

- Efforts to enhance the credibility of organic farming through initiatives like Soil Health Card Portal and KSCP are expected to boost confidence in organic products.

Quality and Efficacy of Fertilizers:

- Addressing concerns related to fertilizer quality and efficacy aim to safeguard farmers' interests by ensuring the use of reliable inputs.

Concerns Regarding Soil Health in India:

Importance of Soil and Water Resources:

- Soil and water are fundamental for sustenance, with over 95% of food originating from them.
- Their symbiotic connection is crucial for agricultural systems and achieving sustainable development goals.

Challenges Faced:

- Around 50% of India's net sown area is rainfed, contributing to 40% of total food production.
- Challenges include low nutrient levels, land degradation affecting plant nutrients, and declining productivity.
- Inappropriate fertilizer application and soil erosion contribute to these challenges.

Need for Sustainable Practices:

- Sustainable food production requires practices like replenishment of nutrients, tailored fertilizer applications, and increasing organic content in soil.

Magnitude of Soil Erosion:

- India loses an estimated 3 billion tonnes of soil annually due to water and wind erosion, highlighting the urgency of soil conservation efforts.

UPSC MAINS QUESTION

Q. Discuss India's recent initiatives aimed at promoting sustainable agriculture. Evaluate the potential impact of these initiatives on enhancing farmer livelihoods and achieving long-term environmental sustainability. (150 WORDS)

5. NABARD TO LAUNCH ₹1000-CRORE BLENDED FUND FOR AGRI-STARTUPS

SOURCE: INDIAN EXPRESS

The National Bank for Agriculture and Rural Development (NABARD) has announced plans to introduce a Rs. 1,000-crore fund to support technology-driven agricultural startups and rural enterprises.

This initiative highlights the importance of fostering innovation in the agricultural sector to address emerging challenges and enhance efficiency.

Agri Startups and Associated Challenges:

- Agricultural startups, or agri startups, are young companies focusing on innovative solutions, technologies, or business models to improve efficiency and address challenges in the agricultural sector.

Services Offered by Agritech Startups:

- **Smart Agriculture Promotion:** Providing information on crop yields, rainfall patterns, pest infestation, and soil nutrition.
- **Farming as a Service:** Offering farming services and machinery rentals on a pay-for-use basis.
- **Big Data Analytics:** Developing farm-specific, data-driven diagnostics using technologies like Artificial Intelligence to enhance soil and crop health.

Challenges:

- **Business Model:** Agri startups often prioritize independent production and marketing, hindering scaling beyond initial success.
- **Lack of Seed Fund:** Startups require funding and mentorship to validate ideas and develop viable business plans, making small grant opportunities insufficient.
- **Incubators' Competence:** Agribusiness incubators need a network of professionals with diverse expertise to support startups effectively.
- **Limited Knowledge of Available Technology:** Budding entrepreneurs lack awareness of commercially viable agricultural technologies offered by research organizations.

Other Initiatives by the Government:

- **Digital Agriculture Mission (DAM), 2021:** Aims to promote digital technologies in agriculture to enhance productivity and farmer income.
- **Innovation and Agri-Entrepreneurship Development Programme:** Under Rashtriya Krishi Vikas Yojana (RKVY), focuses on fostering innovation and entrepreneurship in agriculture.
- **Priority Sector Lending for Agri-Startups:** Provides financial support to startups in the agriculture sector.
- **NIDHI Seed Support Program (NIDHI-SSP):** Under the Department of Science & Technology (DST), supports startups in various sectors, including agriculture.

Nabventures: Fund for Rural Agriculture Startup About:

- The government plans to launch a Rs. 750 crore Blended Capital fund to support agricultural startups and rural enterprises.
- Blended finance strategically utilizes development finance to mobilize additional resources towards sustainable development.

Objective:

- The fund aims to support pre-seed startups with unproven ideas or uncertain growth potential, particularly those hindered by insufficient equity for scaling.
- Startups in agritech, animal husbandry, fisheries, food processing, and biotechnology sectors will benefit from this initiative.

Supervision:

- The blended capital support will be managed by Nabventures, a wholly owned subsidiary of NABARD, to finance agri-based startups and rural enterprises.

IV. INFRASTRUCTURE

6. PM MODI FLAGS OFF FIRST INDIGENOUS HYDROGEN FUEL CELL FERRY

SOURCE: INDIAN EXPRESS

The recent launch of India's first indigenously built hydrogen fuel cell ferry boat under the Harit Nauka initiative marks a significant milestone in the country's journey towards embracing clean energy solutions and achieving its net-zero commitments.



Key Highlights About the Ferry:

About the Ferry:

- The vessel, launched under the Harit Nauka initiative, is India's first indigenously built hydrogen fuel cell ferry boat.
- It was built at the Cochin Shipyard, showcasing India's capabilities in clean energy technology.



- The vessel's launch is part of a larger program involving the foundation stone laid for a ₹17,300-crore project, including the outer harbor at the V.O. Chidambaranar Port.

Importance:

- The ferry will facilitate smooth and easy urban mobility through inland waterways, contributing to reducing traffic congestion and pollution in cities.
- It represents a pioneering step towards embracing clean energy solutions and aligning with the nation's net-zero commitments.

Harit Nauka Initiative:

About:

- The Ministry of Ports, Shipping and Waterways unveiled the Harit Nauka guidelines for inland vessels in January 2024.

Guidelines:

- States are required to make efforts to use green fuels for 50% of inland waterways-based passenger fleets within the next decade, and 100% by 2045.
- This initiative aims to reduce greenhouse gas emissions in alignment with the Maritime Amrit Kaal Vision 2047.

Hydrogen Fuel Cell:

About:

- Hydrogen fuel cells are a clean, reliable, and efficient source of electric power.
- They utilize hydrogen as a fuel to produce electricity through an electrochemical process, with water and heat as the only by-products.

Significance:

- **Zero Emission Solutions:** Hydrogen fuel cells offer a completely environmentally friendly alternative with no tailpipe emissions except water.
- **Quiet Operation:** Their quiet operation makes them suitable for various applications, including sensitive environments like hospitals.

Initiatives for Renewable Energy and Net-Zero Target:

Other Renewable Energy Initiatives:

- The Union Budget for 2021-22 announced the National Hydrogen Energy Mission (NHM) to develop a roadmap for utilizing hydrogen as an energy source.
- India has also undertaken initiatives like the Jawaharlal Nehru National Solar Mission (JNNSM), International Solar Alliance, PM-KUSUM, National Wind-Solar Hybrid Policy, and Rooftop Solar Scheme.

Net-Zero Target:

- **Net-zero refers to achieving carbon neutrality by balancing emissions with absorption and removal of greenhouse gases.**
- Over 70 countries, including India, have pledged to become net-zero by 2050 or 2070, aiming to mitigate climate change and promote sustainability.

The launch of the hydrogen fuel cell ferry boat and initiatives like Harit Nauka exemplify India's commitment to clean energy transition and environmental stewardship, laying the groundwork for a sustainable future.

7. NEW SATELLITE-BASED TOLL COLLECTION SYSTEM TO REPLACE OLD SYSTEMS

SOURCE: ECONOMIC TIMES

The Ministry of Road Transport and Highways in India has unveiled plans to introduce a new highway toll collection system based on the Global Navigation Satellite System (GNSS).

This system aims to revolutionize toll collection by leveraging satellite technology for accurate tracking and seamless transactions.

New Proposed Highway Tolling System:

Salient Features:

- Utilizes GNSS, including India's GAGAN, for precise location tracking.

- Involves fitting vehicles with On-Board Units (OBUs) for satellite communication.
- **Digital image processing logs highway coordinates for toll calculation.**
- Toll payments deducted from a digital wallet linked to the OBU, ensuring cashless transactions.
- **Enforcement measures include gantries with CCTV cameras for monitoring compliance.**

Benefits:

- **Smoother Traffic Flow:** Removal of toll plazas expected to reduce congestion.
- **Faster Commutes:** Frictionless toll collection leads to quicker travel times.
- **Fair Billing:** Users pay tolls only for the actual distance traveled, promoting fairness.

Challenges:

- **Payment Recovery:** Concerns regarding recovering tolls from depleted digital wallets or system tampering.
- **Enforcement Infrastructure:** Establishing a nationwide network of ANPR cameras requires significant development.
- **Privacy Concerns:** Addressing data security and user privacy is crucial.

FASTag:

- **FASTag employs RFID technology for toll payments while the vehicle is in motion.**
- It is affixed on the vehicle's windscreen and linked to the user's account for direct payments.
- Operated by the National Highway Authority of India (NHAI) under the Ministry of Road Transport and Highways.

GAGAN:

- **GPS Aided GEO Augmented Navigation (GAGAN) enhances the accuracy of GNSS receivers.**
- Collaboration between the Airports Authority of India (AAI) and the Indian Space Research Organization (ISRO).

- **Aims to provide precise navigation assistance for aircraft in Indian airspace, enhancing safety for civil operations.**



Conclusion:

The introduction of a GNSS-based highway tolling system represents a significant leap towards modernizing infrastructure and enhancing user experience on Indian highways.

Despite challenges, leveraging technologies like FASTag and GAGAN can contribute to smoother, safer, and more efficient transportation networks in the country.

8. INDIA'S FIRST UNDERWATER METRO IN KOLKATA

SOURCE: INDIAN EXPRESS

The Prime Minister inaugurated a metro train service between Howrah Maidan and Esplanade in Kolkata, marking the opening of India's first under-river metro tunnel.



Features of India's First Under-River Metro Tunnel:

- **East-West Corridor:** The tunnel is part of Kolkata Metro's East-West Corridor.
- **Under the Hooghly River:** It passes 13 meters below the Hooghly River's bed and 37 meters below ground level.



- **Stretch Details:** The 4.8 km underground section connects Howrah Maidan to Esplanade.
- **Cost:** Built at a cost of Rs 4,965 crore.
- **Deepest Metro Station:** Howrah Maidan station is the country's deepest metro station, located 32 meters below ground level.
- **Travel Time:** The metro is expected to cover the 520-meter stretch under the Hooghly River in 45 seconds.

Key Facts about River Hooghly:

- **Distributary of Ganges:** Hooghly is a distributary or arm of the Ganges River, about 260 km long.
- **Course:** Formed in Murshidabad, it flows through a heavily industrialized area of West Bengal, entering the Bay of Bengal through a 32-kilometer-wide estuary.
- **Water Source:** Majority of its water comes from the Farakka Feeder Canal, supplied by the Farakka Barrage diverting water from the Ganges.
- **Feeder Rivers:** Haldi, Ajay, Damodar, and Rupnarayan feed the lower reaches.
- **Important Cities:** Cities like Jiaganj, Azimganj, Murshidabad, and Baharampur are situated along the Hooghly.
- **Bridges:** Spanned by a cantilever bridge between Haora and Kolkata and the Bally Bridge between Bally and Baranagar.

V. PRELIMS POINTERS IN NEWS

9. RBI'S DRAFT GUIDELINES ON CLIMATE-RELATED FINANCIAL RISKS

SOURCE: INDIAN EXPRESS

The Reserve Bank of India (RBI) has introduced draft guidelines on the Disclosure Framework for Climate-related Financial Risks in 2024.

- **Purpose:** The guidelines aim to ensure that Regulated Entities (REs) disclose information regarding their climate-related financial risks and opportunities.

This disclosure is intended for users of financial statements.

Applicability:

- **Scheduled Commercial Banks:** The guidelines will apply to all Scheduled Commercial Banks, excluding Local Area Banks, Payments Banks, and Regional Rural Banks.
- **Urban Co-operative Banks (UCBs):** All Tier-IV Primary (Urban) Co-operative Banks are covered under the framework.
- **Financial Institutions:** The guidelines extend to All-India Financial Institutions, including EXIM Bank, NABARD, NaBFID, NHB, and SIDBI.
- **Non-Banking Financial Companies (NBFCs):** All Top and Upper Layer Non-Banking Financial Companies (NBFCs) are included in the applicability.

10. URBAN FRAMED SURVEY (UFS)

SOURCE: ECONOMIC TIMES

The Ministry of Statistics and Programme Implementation (MoSPI) has entered into a Memorandum of Understanding (MoU) with ISRO for the Urban Frame Survey (UFS) utilizing Bhuvan.

- The UFS is conducted by the Field Operations Division (FOD) of the National Sample Survey Office (NSSO).
- UFS blocks, designed as compact areal units, consist of 120-150 households in urban areas.
- Conducted in five-year phases, the UFS serves as a sampling frame for NSSO's large-scale Socio-Economic Surveys in the urban sector.
- Notably, the UFS in digital form was introduced for the first time during the 2017-22 phase, leveraging the Bhuvan platform for improved efficiency and accuracy.

11. NHAVA SHEVA PORT

SOURCE: THE HINDU

Customs officials recently seized a dual-use consignment on a Karachi-bound ship at Nhava Sheva port, suspecting its potential use of Pakistan's nuclear programs.



About Nhava Sheva Port:

- Located to the east of Mumbai, Nhava Sheva Port, also known as Jawaharlal Nehru Port, is a crucial port handling nearly half of India's imports and exports.
- Established in 1989, it was intended to alleviate congestion at the Port of Mumbai, initially featuring single terminals for bulk and container cargos.
- The port has expanded significantly and now boasts five privately-operated terminals for containerized cargo and a dedicated facility for handling bulk liquid cargo.
- Nhava Sheva Port shares a common entry channel with the Port of Mumbai, spanning 21 kilometers at a depth of 10.1 to 11 meters.
- Recognized globally, it is ranked among the top 30 container ports in terms of size and capacity, playing a pivotal role in India's maritime trade.

12. JUICE JACKING

SOURCE: INDIAN EXPRESS

The Reserve Bank of India (RBI) recently issued a warning to mobile phone users regarding a cyber threat known as juice jacking.



About Juice Jacking:

- Coined by investigative journalist Brian Krebs in 2011, juice jacking involves tampering with public USB charging ports to steal data or install malware on connected devices.
- It allows hackers to access sensitive information like passwords, credit card details, and addresses stored on targeted devices.
- Incidents of juice jacking have been reported in public spaces like airports, hotels, and shopping centers, raising concerns about data security.

Preventive Measures:

- The RBI advises mobile users to avoid connecting their devices to public USB ports and instead use personal chargers.
- Utilizing a virtual private network (VPN) and ensuring devices have the latest security updates installed can enhance protection against cyber threats.
- These precautions help safeguard personal and financial data from potential breaches and unauthorized access.

13. MEME COINS

SOURCE: HINDUSTHAN TIMES

Meme coins, a unique category of cryptocurrencies, have gained significant popularity in the digital currency space, originating from the growth of meme culture on the internet.



About Meme coins:

- Also known as 'memetic tokens' or 'community coins', meme coins are digital currencies created as satire or humorous tributes to internet culture.
- They feature quirky names, logos, and branding referencing popular memes, jokes, or internet phenomena.
- Meme coins are highly volatile, experiencing extreme changes in value over short periods, driven by current buzz surrounding the token.
- Typically, they have a massive or uncapped supply, leading to very low values per token.
- Leveraging blockchain technology, meme coins often use smart contracts on platforms like Ethereum and Solana.
- Creating a meme coin is relatively easy compared to traditional cryptocurrencies, facilitated by blockchain platforms and decentralized finance (DeFi) tools.
- Meme coins are primarily driven by speculation and community engagement, lacking fundamental value or unique use cases.
- Investing in meme coins carries significant risk due to rapid price fluctuations.

14. RICE BRAN

SOURCE: THE HINDU

The Central Government has extended the ban on exports of de-oiled rice bran for another four months, as per a recent notification by the Directorate General of Foreign Trade (DGFT).



About Rice Bran:

- Rice bran is a key byproduct of the rice milling process, comprising the outer brown layer of brown rice separated during milling.
- Approximately 5-10 kg of bran is generated from every 100 kg of paddy rice.
- It contains about 14-18% oil and is known for its health benefits, particularly in the form of rice bran oil, popular in Japan, Asia, and India.
- Rice bran oil is pale yellow, odorless, and has a nutty flavor, rich in unsaturated fats, vitamin E, and other nutrients.

Current Usage:

Primarily used as animal feed due to its oily nature, serving as an excellent binder in feed production.

Health Effects:

- Consumption of rice bran has various health benefits, including anti-diabetic, lipid-lowering, hypotensive, antioxidant, and anti-inflammatory effects.
- It improves bowel function and may decrease cholesterol absorption in the body, potentially preventing certain types of kidney stones.

15. WORLD GOLD COUNCIL

SOURCE: THE HINDU

The Reserve Bank of India (RBI) purchased 8.7 tonnes of gold in January, marking its largest acquisition since July 2022, as per data from the World Gold Council (WGC).

About World Gold Council:

- The World Gold Council (WGC) serves as the market development organization for the gold industry.



- Established in 1987, WGC operates as a non-profit association, consisting of leading gold mining companies worldwide.
- WGC's primary objective is to promote gold usage and demand through marketing, research, and advocacy efforts.
- **Headquartered in London, WGC has operational presence in India, China, Singapore, and the USA, covering markets representing about three-quarters of global gold consumption.**
- As the global authority on gold, WGC provides comprehensive analyses of the industry and advocates for increased gold consumption.
- **WGC works towards maximizing industry growth by monitoring consumption trends, advocating policies, ensuring fairness and sustainability in gold mining, and promoting gold usage across various sectors.**
- Additionally, WGC supports research for developing new uses and products containing gold, including the creation of the first gold exchange-traded fund.

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GEOGRAPHY

I. PRELIMS POINTERS IN NEWS

1. DOOMSDAY GLACIER

SOURCE: DOWN TO EARTH

Thwaites Glacier, dubbed the "Doomsday Glacier," is located in West Antarctica's Amundsen Sea.



- It's vast and fast-moving, roughly the size of Florida or Great Britain, making it a key subject of scientific research due to its sensitivity to climate change.
- **This glacier is crucial for global sea-level rise, contributing about 4% to the current rise.**
- Satellite data reveals alarming ice loss, estimated at nearly 50 billion tons annually, intensifying global sea-level elevation.
- **If Thwaites Glacier were to completely melt, it could raise global sea levels by over 2 feet.**
- It serves as a barrier, holding back neighboring glaciers containing around three meters of potential sea-level rise.
- **A significant concern is its marine-based configuration, with much of its mass below sea level.**
- As its grounding line retreats inland, deeper valleys allow more ice discharge into the sea, potentially triggering "marine ice sheet instability," hastening the glacier's melt.

2. LEAP YEAR

SOURCE: LIVEMINT

A leap year consists of 366 days, with an extra day added to February, making it February 29th, known as Leap Year Day.

It helps to synchronize the calendar with the solar year, which is approximately 365 days, 5 hours, 48 minutes, and 46 seconds.

Evolution of Leap Years:

- The Julian calendar initially introduced leap years to address discrepancies in the solar year.
- Over time, errors accumulated due to slight overcompensation, leading to calendar reforms by Pope Gregory XIII in 1582.
- **The Gregorian calendar refined the leap year rule, omitting three leap years every 400 years to align with the solar year more accurately.**

Math of Leap Year:

- Leap years occur every four years but with exceptions for end-of-century years not divisible by 400.
- **Years divisible by four are leap years, except for end-of-century years like 1900, which are not leap years.**
- The additional rule ensures better alignment with the solar year by compensating for slight time discrepancies.

Significance of Leap Years:

- Leap years prevent the calendar from drifting out of sync with the seasons, crucial for agricultural cycles and other seasonal activities.
- **By adding an extra day every four years, the calendar maintains synchronization with the solar year, ensuring accuracy in timekeeping.**

Impact on Seasons:

- Without leap years, seasons would gradually shift, impacting agriculture,

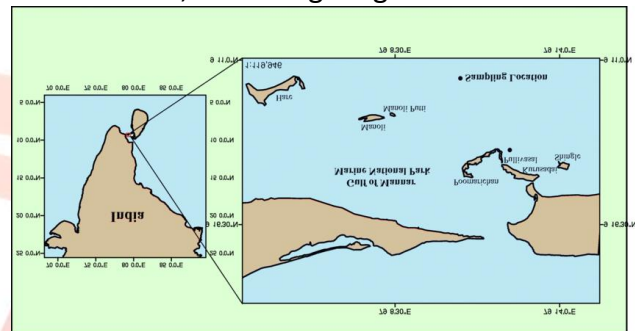
planting, and harvesting cycles based on seasonal changes.

- The extra day maintains the balance between the calendar and the seasons, ensuring consistency and predictability in seasonal transitions.

3. GULF OF MANNAR

SOURCE: DOWN TO EARTH

Recent research revealed a decline in coral cover in the Gulf of Mannar region from 37% in 2005 to 27.3% in 2021, indicating a significant reduction.



About Gulf of Mannar:

- **Geographical Location:** Located along the southeast coast of India, it's part of the Laccadive Sea of the Indian Ocean, encompassing 21 islands.
- **Dimensions:** Spans approximately 125 miles in breadth and 100 miles in length between the northwest coast of Sri Lanka and the southeast coast of India.
- **Boundaries:** Bounded to the northeast by Rameswaram (island), Adam's Bridge (a chain of shoals), and Mannar Island.
- **River Inflows:** Receives several rivers, including the Tambraparni from India and the Aruvi from Sri Lanka.

About Gulf of Mannar Marine National Park:

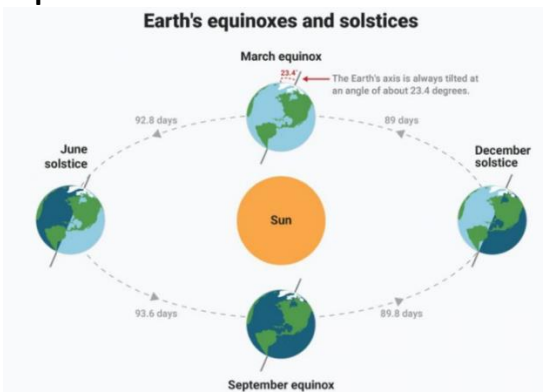
- **Biological Richness:** Gulf of Mannar is one of India's biologically richest coastal regions and the first Marine Biosphere Reserve in South and Southeast Asia.
- **Coral Reef Areas:** It is one of the four major coral reef areas in India, alongside the Gulf of Kutch in Gujarat, Lakshadweep, and Andaman and Nicobar Islands.

- **Biosphere Reserve Designation:** Designated as a Biosphere Reserve, it encompasses a chain of 21 islands and adjoining coral reefs off the coasts of the Ramanathapuram and Tuticorin districts.

4. VERNAL EQUINOX

SOURCE: THE HINDU

March 19 marks the spring or vernal equinox, signifying the first day of spring in the Northern Hemisphere.



- **Equinoxes occur twice a year when the Sun is exactly above the equator: around March 19-21 and September 22-23.**
- The term "equinox" means "equal night," as day and night are nearly equal in duration globally during these times.
- **The March equinox indicates the Northern Hemisphere tilting toward the sun, resulting in longer and sunnier days.**
- In the Northern Hemisphere, it's known as the vernal equinox, marking the onset of spring.
- Conversely, the September equinox signals the start of fall, known as the autumnal equinox.
- **As the Northern Hemisphere embraces spring, the Southern Hemisphere starts its tilt away from the sun, ushering in fall.**
- Consequently, in the Southern Hemisphere, the March equinox is the autumnal equinox, while the September equinox becomes the vernal equinox.

- **Effects of the March equinox include later sunrises, earlier sunsets, chillier winds, and falling leaves in the Southern Hemisphere, with the opposite occurring in the Northern Hemisphere.**

5. TOTAL SOLAR ECLIPSE

SOURCE: THE HINDU

A rare celestial event is set to take place on April 8, 2024, where a total solar eclipse will make the Sun disappear.



About Total Solar Eclipse:

- **Definition:** A total solar eclipse occurs when the Moon passes between the Sun and the Earth, completely blocking the Sun's disk and casting a large shadow on the Earth's surface.
- **Path of Totality:** People in locations within the path of totality, where the Moon's shadow entirely covers the Sun, will witness a total solar eclipse.

NASA's Description:

- **Darkening of the Sky:** According to NASA, during the eclipse, the sky will darken, resembling the onset of dawn or dusk.
- **Corona Visibility:** Weather permitting, observers in the path of totality can witness the Sun's corona, its outer atmosphere typically obscured by the Sun's bright face.

Solar Corona and Chromosphere:

- **Visible Corona:** The Sun's corona, an outer layer extending millions of kilometers into space, becomes exclusively visible during a solar eclipse.



- **Chromosphere Phenomenon:** The totality of this eclipse will allow viewers to see the chromosphere, appearing as a thin circle of pink around the Moon, along with the corona.

Rare Observations during Totality:

- **Star Visibility:** Viewers may see stars during the period of totality when the surroundings go completely dark.
- **Temperature Drop:** The event will be marked by a noticeable dip in air temperatures.

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HISTORY

I. INDIAN NATIONAL MOVEMENT

1. GUJARAT GOVERNMENT BEGINS ₹1,200-CRORE REDEVELOPMENT OF SABARMATI ASHRAM

SOURCE: THE HINDU

On the 94th anniversary of the historic Dandi March, the Prime Minister of India initiated the Sabarmati Ashram Redevelopment Project in Ahmedabad.

Historical Significance of the Sabarmati Ashram: Establishment:

- **Founded by Mahatma Gandhi in 1917 on the western bank of the Sabarmati River in Ahmedabad.**

- Gandhi established five settlements during his lifetime, with Sabarmati Ashram being one of them.
- Currently managed by the Sabarmati Ashram Preservation and Memorial Trust (SAPMT).

Role in India's Independence Movement:

- **Served as the epicentre of Gandhi's socio-political activities and experiments with truth and non-violence.**
- Witnessed the launch of seminal movements including the Dandi March in 1930, along with other significant protests and movements.
- **Vinoba Bhave, a prominent disciple of Gandhi, resided at Sabarmati Ashram in a cottage called "Vinoba Kutir."**



Architectural and Philosophical Significance:

- Designed by Gandhi himself, reflecting principles of simplicity, self-sufficiency, and communal living.
- **Constructed using local materials and traditional techniques, embodying sustainability and harmony with nature.**

Legacy and Symbolism:

- Stands as a symbol of Gandhi's enduring legacy and his pivotal role in India's freedom struggle.
- **A pilgrimage site attracting visitors from around the world, offering insights into Gandhian philosophy and principles.**

The Dandi March:

Origins:

- Salt, traditionally produced in India, became a symbol of colonial exploitation due to British-imposed salt tax.

- Mahatma Gandhi identified the salt tax as an oppressive measure and launched the Salt Satyagraha to protest British rule.

Dandi March:

- Commenced from Sabarmati Ashram on March 12, 1930, with Gandhi leading the 24-day march spanning four districts and 48 villages.
- Symbolically broke the salt law on April 6, 1930, by picking up salt from the shores of Dandi, marking the beginning of the civil disobedience movement.

The Sabarmati Ashram Redevelopment Project:

Salient Features:

- A Rs 1,200 crore initiative to restore and rebuild the original Sabarmati Ashram.
- Aims to conserve and revive the architectural and cultural heritage of the ashram.

Objectives:

- Preserve the historical significance of the ashram and its association with Gandhi's life and teachings.
- Enhance visitor experience and promote Gandhian principles of truth, non-violence, and simplicity.

Expected Impact:

- Revitalization of the ashram as a cultural and educational hub, attracting tourists and researchers.
- Conservation of Gandhian heritage for future generations, fostering a deeper understanding of India's independence movement.

Conclusion:

The Sabarmati Ashram Redevelopment Project represents a commendable effort to preserve the rich historical legacy of Mahatma Gandhi and his contributions to India's freedom struggle.

By reviving this iconic landmark, the project aims to inspire present and future generations with Gandhian ideals of peace, harmony, and social justice.

UPSC MAINS QUESTION

Q. "Discuss the historical significance of the Sabarmati Ashram and its pivotal role in India's independence movement, with a focus on the Dandi March. (150 WORDS)

II. PRELIMS POINTERS IN NEWS

2. VIKRAMADITYA VEDIC CLOCK

SOURCE: LIVEMINT

The Prime Minister recently unveiled the Vikramaditya Vedic Clock, situated atop an 85-foot tower at Jantar Mantar in Ujjain, Madhya Pradesh.



About Vikramaditya Vedic Clock:

- It's the world's first 'Vedic Clock', displaying time according to ancient Indian Panchang.
- **Positioned within Jantar Mantar, it provides planetary positions, Muhurat, astrological calculations, IST, and GMT.**
- Calculates time from one sunrise to another, dividing it into 30 parts, each hour comprising 48 minutes.
- **Developed by Lucknow-based Sanstha Arohan, it's digitally connected, offering features through a mobile app.**

Why Ujjain?

- Ujjain boasts a rich heritage in timekeeping, historically significant for India's time zones.
- **Situated at the meeting point of the zero meridian and Tropic of Cancer.**
- Previously considered Bharat's time meridian before IST's adoption.

- Ujjain also releases Vikrami Panchang and Vikram Samvat calendars, making it an ideal location for the Vedic Clock.

3. DOWN SYNDROME, EDWARDS SYNDROME FOUND IN ANCIENT INDIVIDUALS

SOURCE: THE HINDU

Researchers have identified chromosomal disorders in prehistoric skeletal remains dating back approximately 5,500 years.

These findings shed light on the presence of genetic conditions like Down syndrome and Edwards syndrome in ancient populations.

Edward Syndrome



Types of Chromosomal Disorders:

- Chromosomal trisomy, characterized by having three copies of a chromosome, leads to conditions such as Down syndrome (trisomy 21) and Edwards syndrome (trisomy 18).
- **Down syndrome** results from an extra copy of chromosome 21, causing intellectual disabilities and health issues.
- **Edwards syndrome** occurs when a baby has three copies of chromosome 18, leading to physical growth delays during fetal development.

Ancient Cases:

- **Some identified cases of chromosomal disorders date back to ancient periods**, including the Bronze Age (about 2,700 BCE) and the Neolithic period (about 3,500 BCE).

- In early Iron Age Spain (800-400 BCE), researchers discovered three cases of Down syndrome and one case of Edwards syndrome in skeletal remains.
- These findings suggest a potentially higher frequency of trisomy carriers in ancient societies during specific historical periods.

4. PANDAVULA GUTTA DESIGNATED EXCLUSIVE GEO-HERITAGE SITE IN TELANGANA

SOURCE: THE HINDU

The recognition of Pandavula Gutta in Telangana and Ramgarh Crater in Rajasthan as geo-heritage sites marks a significant milestone in preserving India's geological legacy.

These sites offer valuable insights into prehistoric life and geological phenomena, contributing to scientific knowledge and cultural heritage.

Key Facts About Pandavula Gutta:

- **Location and Significance:** Pandavula Gutta, situated in the Jayashankar Bhupalpally district of Telangana, is an ancient geological marvel rich in rock shelters and habitation from the Mesolithic period to medieval times.
- **Prehistoric Artifacts:** The site boasts Palaeolithic cave paintings dating back to 500,000 BCE–10,000 BCE, depicting wildlife such as Bison, Antelope, Tiger, and Leopard, along with geometric designs and symbols.
- **Cave Paintings:** The cave paintings feature intricate designs in green, red, yellow, and white pigments, including swastika symbols, circles, squares, and weapons, offering a glimpse into the artistic expression of prehistoric communities.
- **Rock Climbing Destination:** The unique topography of Pandavula Gutta attracts rock climbing enthusiasts, providing opportunities for adventure and exploration amidst its ancient geological formations.



Key Facts About Ramgarh Crater:

- **Formation and Age:** Ramgarh Crater in Baran district, Rajasthan, was formed around 165 million years ago due to a meteor impact, spanning approximately 3 kilometers in diameter.
- **Ecological Importance:** Recognized as the Ramgarh Conservation Reserve under the Wildlife (Protection) Act, 1972, the crater contributes to the region's ecological balance and biodiversity, providing essential ecosystem services.
- **Cultural Heritage:** The presence of the Pushkar Talab complex within the crater adds to its cultural significance, with the wetlands recognized under Wetland (Conservation & Management) Rules, 2017, further enhancing its conservation status.



Geo-Heritage Site/National Geological Monuments:

- **Definition:** Geoheritage sites, also known as national geological monuments, possess significant scientific, educational, cultural, or aesthetic value due to their geological features, such as unique rock formations, fossils, or landscapes.

- **Protection Measures:** The Geological Survey of India (GSI) or respective state governments take necessary measures to protect and maintain these sites, ensuring their preservation for future generations.
- **Role of GSI:** Established in 1851, the GSI is a scientific agency tasked with creating and updating national geoscientific information and assessing mineral resources. It designates geo-heritage sites/national geological monuments for protection and maintenance.

5. GULAAL GOTA

SOURCE: INDIAN EXPRESS

In Jaipur, Rajasthan, the centuries-old tradition of celebrating Holi continues to thrive, featuring the unique practice of "Gulaal Gota," a tradition steeped in history and cultural significance.

About Gulaal Gota:

- **History:** Gulaal Gota is a small ball made of lac, filled with dry gulaal (colored powder), with its origins dating back approximately 400 years.
- **Raw Materials:** The primary material, **lac**, is sourced from **Chhattisgarh and Jharkhand**. Lac, a resinous substance secreted by certain insects, is used extensively in various applications, including lac bangles.
- **Artisan Community:** Gulaal Gotas are crafted by Muslim lac makers known as Manihaars in Jaipur. **The tradition was passed down from Hindu lac makers in Bagru, near Jaipur.**
- **Manufacturing Process:** Crafting Gulaal Gotas involves boiling lac in water to make it flexible, shaping it, adding colour, heating it, and then blowing it into a spherical shape with a blower called "phunkni."



Historical Significance and Economic Aspects:

- **Establishment:** Jaipur, founded in 1727 by Sawai Jai Singh II, dedicates a lane at the Tripoliya Bazaar to the Manihaar community, known as "Manihaaron ka Raasta."
- **Cultural Legacy:** This lane serves as a hub for selling lac bangles, jewelry, and Gulaal Gotas, preserving the city's artistic heritage. In the past, kings would toss Gulaal Gotas to the public during Holi festivities.
- **Economic Impact:** The demand for lac bangles has declined due to the rise of factories producing chemical-based bangles. However, the government has provided artisan cards to Gulaal Gota makers to access benefits from government schemes.

Challenges and Future Prospects:

- **Declining Demand:** The demand for traditional lac bangles has diminished, posing a challenge to the artisans who specialize in Gulaal Gota production.
- **Government Support:** The government has issued artisan cards to Gulaal Gota makers, offering access to various benefits. Additionally, artisans are seeking a Geographical Indication (GI) tag to protect their product from imitation.

Unique Holi Traditions Across India:

- **Holla Mohalla in Punjab:** Celebrated in Anandpur Sahib, Holla Mohalla features martial arts demonstrations and Sikh cultural activities.
- **Phaguwa in Bihar:** Phaguwa marks the arrival of spring with colorful festivities, including folk songs and Holika Dahan.

- **Lathmar Holi in Uttar Pradesh:** This tradition in Barsana and Nandgaon involves women playfully hitting men with sticks to symbolize the love between Radha and Krishna.
- **Yaoshang in Manipur:** Combining Hindu and Manipuri traditions, Yaoshang features dance and sports competitions.
- **Ukuli in Kerala:** Ukuli celebrations include music, dance, turmeric colors, and boat races, with praises of Lord Krishna.

6. MOHINIYATTAM

SOURCE: PIB

Why in news?

Kerala Kalamandalam, a deemed university for arts and culture, has made a historic decision to allow individuals of all genders to learn Mohiniyattam, an Indian classical dance form.



About Mohiniyattam:

- Mohiniyattam originated in Kerala and has ancient roots dating back to the Sanskrit text 'Natya Shastra'.
- **Initially performed by Devadasis in temples during the Chera kings' rule (9th to 12th centuries CE), it gained prominence during the 18th and 19th centuries with princely state patronage.**
- Traditionally a solo dance performed by female artists, Mohiniyattam embodies the graceful and gentle Lasya type of dance.
- Its themes revolve around love and devotion to deities, particularly Lord Vishnu or Lord Krishna.
- **Mohiniyattam combines dancing and singing, with songs typically in**

Manipravala, a blend of Sanskrit and Malayalam.

- Hand gestures and subtle facial expressions play a crucial role, with emphasis on graceful body movements.
- **Costumes include white or ivory cream traditional saris adorned with gold-laced brocade.**
- Instruments used during performances include Mridangam, Madhalam, Idakka, flute, Veena, and Kuzhitalam (cymbals).

7. BATTLE OF OKINAWA

SOURCE: INDIAN EXPRESS

The United States recently returned twenty-two historic artifacts to Japan that were looted following the Battle of Okinawa during World War II.



Battle of Okinawa Overview:

- The Battle of Okinawa (April 1–June 21, 1945) was the last major battle of World War II and one of the bloodiest.
- **Fought between U.S. and Japanese forces on Okinawa, the largest of the Ryukyus Islands.**
- Okinawa, located 350 miles from mainland Japan, was strategically important due to its airfields supporting tactical and strategic air operations.
- **Code named Operation Iceberg, it was the largest amphibious assault in the Pacific War, involving over 1,500 ships and approximately 548,000 American forces.**

- The battle resulted in immense casualties, with over 49,000 American casualties, about 150,000 Okinawan civilians killed, and approximately 110,000 Japanese defenders dead.
- **The brutality and casualties of the battle influenced the decision to use atomic bombs on Hiroshima and Nagasaki.**

Return of Artifacts:

- The returned artifacts were looted during or after the Battle of Okinawa and hold historical significance for Japan.
- Their return signifies a gesture of reconciliation and acknowledgment of the cultural heritage of Japan.

8. CHAUSATH KHAMBA RESTORATION

SOURCE: INDIAN EXPRESS

Chausath Khamba, near Nizamuddin Dargah, is a 17th-century marble structure housing the tomb of Mirza Aziz Koka, featuring 25 marble domes and intricate arches.



- Built in 1623-24 AD, its design possibly inspired by Persian pavilions, showcasing regional architectural influences.
- **Restoration efforts by Aga Khan Trust and ASI (2011-2014), co-funded by Germany, aimed at preserving its historical and architectural significance.**
- Historian Sam Dalrymple notes its resemblance to Gujarat's architecture, highlighting regional influence in ancient India.
- Early repair attempts caused damage, necessitating extensive restoration, mentioned in Sir Gordon Risley Hearn's book.

Persian Influence on Indian Architecture:

- Persian architectural styles profoundly influenced Indian architecture during medieval times, notably under the Delhi Sultanate and Mughal Empire.
- Indian buildings integrated Persian elements like domes, arches, minarets, intricate carvings, and geometric patterns.
- Indo-Islamic architecture emerged as a unique blend of Persian and indigenous Indian architectural traditions.
- Persian architects and craftsmen contributed to iconic Indian structures like the Taj Mahal, shaping the architectural landscape of the subcontinent.

9. RUPA TARAKASI

SOURCE: THE HINDU

Cuttack, Odisha's millennium city, has earned the Geographical Indication (GI) tag for its renowned silver filigree craft, known as Rupa Tarakasi.



About Rupa Tarakasi:

- **Exquisite Silver Craft:** Rupa Tarakasi is a sophisticated and exquisite silver craft practiced in Cuttack, Odisha.
- **Centuries-Old Tradition:** With roots as far back as the 12th century, this art form flourished under Mughal patronage and evolved through different rulers in Cuttack.

Process:

- **Silver Transformation:** Silver bricks are intricately transformed into thin wires or foils known as "tara," forming the basis for silver filigree with various designs (kasi).

- **Metal Alloy:** Various grades of silver are used in the alloy, supplemented by metals like copper, zinc, cadmium, and tin.

Artists and Craftsmanship:

- **Craftspeople:** The skilled artisans involved in filigree work are referred to as "Rupa Banias" or "Roupyakaras" in Odia.
- **Diverse Creations:** Rupa Tarakasi extends to crafting diverse items, including Odissi dance jewelry, decorative artifacts, accessories, and religious and cultural pieces.

Historical Significance:

- **Origin and Evolution:** While the exact origin remains unclear, the art form's presence dates back to the 12th century and evolved through different ruling periods in Cuttack.
- **Mughal Patronage:** The craft gained prominence and refinement under Mughal patronage.



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ENVIRONMENT

I. BIODIVERSITY AND CONSERVATION

1. 13,874 LEOPARDS IN INDIA, MADHYA PRADESH LEADS THE PACK

SOURCE: INDIAN EXPRESS

India's leopard population has increased by 8% from 12,852 in 2018 to 13,874 in 2022, as per the Environment Ministry report.

- **State-wise Numbers:** Madhya Pradesh reported the highest number of leopards (3,907), followed by Maharashtra, Karnataka, and Tamil Nadu.



Regional Variations and Decline:

- **Uttarakhand Decline:** Uttarakhand witnessed a 22% decline in leopard numbers, attributed to poaching and man-animal conflict.
- **Northeast Rise:** Arunachal Pradesh, Assam, and West Bengal collectively saw a 150% rise in leopard numbers to 349 animals.

Survey Details:

- **Coverage:** The survey covered 20 states, focusing on about 70% of the leopard's expected habitat in tiger reserves and protected forest areas.
- **Human-Leopard Conflict:** Leopards, being adaptable, are found not only in forest reserves but also in villages and sometimes

cities, contributing to human-wildlife conflict.

Conservation Insights:

- **Protected Areas:** Approximately one-third of leopards inhabit protected areas, emphasizing the conservation link between tiger reserves and leopard habitat.
- **Human Impact:** The report highlights the impact of human activities in multiple-use areas on leopard populations, distinguishing them from relatively stable tiger populations.

Survey Methodology:

- **Extensive Travel:** The survey involved extensive travel (6,41,449 km) by forest surveyors to track carnivore signs and estimate prey abundance.
- **Camera Traps:** Camera traps were utilized at 32,803 locations, capturing 4,70,81,881 photographs.

Leopard Overview:

- **Distribution:** Leopards are found across diverse habitats in India, including forests, mountains, grasslands, and scrublands, with the highest concentration in Central India and Eastern Ghats.
- **Conservation Status:** They are classified as "**Vulnerable**" on the IUCN Red List, facing threats like habitat loss, human-wildlife conflict, and poaching.

Significance:

- **Biodiversity:** Leopards are a key apex predator, maintaining ecological balance by controlling prey populations.
- **Economic Importance:** Tourism revenue is generated by protected areas with leopard populations.

Challenges:

- **Balancing Act:** The conservation of leopards requires a delicate balance with human development and addressing human-wildlife conflict.

2. HUMPBACK WHALES

SOURCE: INDIAN EXPRESS

Researchers have made a groundbreaking observation of humpback whales engaging in same-sex mating, a phenomenon previously undocumented in these majestic creatures.

This discovery adds a new dimension to our understanding of same-sex sexual behavior (SSB) in the animal kingdom.



Darwinian Paradox: Contradictions in Evolutionary Theory:

- **Prevalence of Homosexuality:** Over 1500 instances of SSB have been reported in various animal species, challenging Charles Darwin's theory that emphasizes reproduction as the primary goal of evolution.
- **Resource Diversion:** SSB appears counterproductive to evolutionary success as it diverts resources and time away from reproduction.

'Indiscriminate Mating' Hypothesis: Explaining Same-Sex Behavior:

- **Theory Overview:** The "indiscriminate mating" hypothesis suggests that ancestral species mated without sex-specific preferences to avoid missing reproductive opportunities.
- **Adaptive Behavior:** SSB persists as an adaptive behavior, ensuring reproductive success without being overly selective in mate choice.

Social Bonds and Evolution: Insights from Recent Studies:

- **Bailey and Zuk's Proposition:** Evolutionary biologists propose that SSB contributes to

positive social relationships, particularly in social species.

- **Correlation with Sociality:** Recent studies indicate a correlation between SSB and sociality, fostering bonds and alliances within groups and reducing intrasexual conflicts.

Survival Benefits of Same-Sex Behavior: Adaptive Evolution:

- **Mitigation of Aggression:** SSB in mammals, including humpback whales, is viewed as a convergent adaptation that mitigates intrasexual aggression.
- **Dominance Hierarchies:** Same-sex mating contributes to establishing dominance hierarchies, reducing conflicts within social groups and enhancing species survival.

Humpback Whales Overview:

- **Species and Characteristics:** Humpback whales belong to the baleen whale family, known for their massive size, toothless mouths, and baleen plates.
- **Feeding Mechanism:** They use baleen plates to filter prey from saltwater, showcasing their efficient feeding technique.
- **Size and Range:** Humpbacks have sleek bodies, reaching lengths up to 33 meters and weighing over 30,000 kilograms. They are found in all major oceans worldwide, often exploring deep offshore waters and seamounts.

IUCN Status and Migration:

- **Conservation Status:** Humpback whales are classified as "Least Concern" by the IUCN, indicating a relatively stable population.
- **Migration Patterns:** Except for the Arabian Sea population, humpbacks embark on extensive migrations, covering up to 10,000 kilometers annually.
- **Reasons for Migration:** Migration is driven by the distinct environments of

feeding and breeding grounds, adapting to dissimilar conditions.

Feeding Habits and Winter Migration:

- **Diet:** In the Southern Hemisphere, humpbacks feed on Antarctic krill, forming vast swarms of microscopic crustaceans during the summer.
- **Winter Movement:** During winter, humpbacks migrate north to warmer subtropical waters for mating and nesting, showcasing their dynamic behavior.

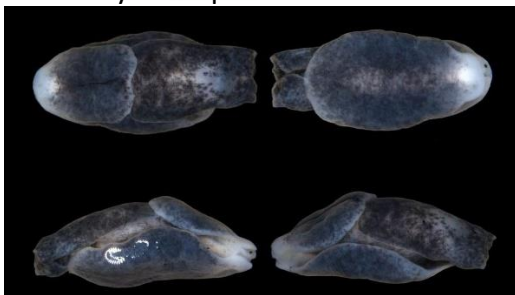
Unique Arabian Sea Population:

- **Exceptional Behavior:** The Arabian Sea humpback whales are unique, being the only stationary whales globally that both feed and breed in the same region.
- **Distinctive Traits:** Their behavior sets them apart, highlighting the adaptability and diversity within the humpback whale population.

3. ZSI NAMES A NEWLY DISCOVERED HEAD-SHIELD SEA SLUG AFTER PRESIDENT DROUPADI MURMU

SOURCE: THE HINDU

The Zoological Survey of India (ZSI) has discovered a new marine species of head-shield sea slug, *Melanochlamys droupadi*.



Characteristics and Habitat:

- **Physical Traits:** *Melanochlamys droupadi* has a small, brownish-black body and is hermaphroditic in nature.
- **Habitat:** The slug crawls on intertidal zones, leaving marks on sandy beaches,

and was discovered in Digha (West Bengal) and Udaipur (Odisha).

Reproductive Cycle and Specimens:

- **Reproduction:** Reproduction occurs between November and January, and specimens were deposited in Marine Aquarium Regional Centre and Estuarine Biology and Regional Centre.

Genus and Habitat Insights:

- **Melanochlamys Genus:** Species in the *Melanochlamys* genus are typically found in temperate regions of the Indo-Pacific Oceanic realm.
- **Tropical Species:** *Melanochlamys droupadi* joins three truly tropical species, including *Melanochlamys bengalensis* from the West Bengal and Odisha coast.

Unique Characteristics:

- **Protective Sheath:** The slug secretes transparent mucus forming a protective sheath and is known for crawling beneath smooth sand.

Biodiversity Conservation Importance:

- **Rich Marine Biodiversity:** The discovery underscores the rich marine biodiversity along the Indian coasts, emphasizing the necessity for conservation efforts.

4. UNRESTRAINED POACHING PLAYS A ROLE IN DISAPPEARANCE OF ODISHA'S LEOPARDS

SOURCE: THE HINDU

Odisha experiences a significant 25% decline in leopard numbers between 2018 and 2022, mainly due to poaching.

'Status of Leopards India' report reveals a decrease from 760 to 568 leopards nationwide.



Distribution in Protected Areas:

- Leopard densities rise in tiger reserves, signaling recovery efforts concentrated in protected zones.
- Exclusive occupancy reported in areas like Similipal and Satkosia tiger reserves, Hirakud, and Kotagarh wildlife sanctuaries.

Threats Identified:

- Major threats include poaching for bush meat, tiger and leopard skins, habitat loss, and road accidents.
- Authorities seize 116 leopard skins between 2018 and 2024, emphasizing the severity of poaching.

Poaching of Big Cats in India:

Issues Contributing to Poaching:

- **Demand in Traditional Medicine:** Belief in medicinal properties of tiger parts fuels illegal wildlife trade.
- **Human-Wildlife Conflict:** Population expansion into big cat habitats leads to conflicts and retaliatory killings.
- **Habitat Loss:** Degradation and shrinking natural habitats bring big cats closer to settlements, raising risks.
- **Limited Resources:** Underfunded anti-poaching efforts lack personnel and technology.

Ways Forward to Address Poaching:

- **Habitat Protection:** Identify and safeguard critical habitats, create movement corridors, and mitigate fragmentation.
- **Anti-Poaching Measures:** Invest in technology, intelligence networks, and frontline staff training.
- **Human-Wildlife Coexistence:** Compensate for losses, raise awareness, and minimize interactions.
- **Community Engagement:** Collaborate with local communities, reduce dependency on forests, and change attitudes.
- **International Cooperation:** Strengthen cross-border collaboration to crack down on illegal wildlife trade networks.

5. ETURNAGARAM WILDLIFE SANCTUARY

SOURCE: DOWN TO EARTH

Telangana is currently combating forest fires in the Tadvai region of Eturnagaram Wildlife Sanctuary.

Efforts are underway to control the fires and protect the diverse flora and fauna of the sanctuary.

Eturnagaram Wildlife Sanctuary Overview:

- Established in 1953, Eturnagaram Wildlife Sanctuary is situated near the borders of Maharashtra, Chhattisgarh, and Telangana.
- The sanctuary is traversed by the Dayyam Vagu river, dividing it into two parts, and the River Godavari also flows through it.
- Known for hosting the Sammakka Sarakka Jathra, one of Asia's largest tribal festivals, occurring every two years.

Vegetation and Flora:

- The sanctuary features tropical dry deciduous vegetation, characterized by teak, bamboo, madhuca, and terminalia trees.
- Climbers are abundant throughout the sanctuary, enhancing its biodiversity.



Fauna:

- Key species include the Indian gaur and giant squirrel, playing essential roles in the sanctuary's ecosystem.
- Home to various wildlife such as tigers, leopards, jackals, sloth bears, panthers, wolves, wild dogs, chousingha, and sambar.

6. CAPTIVE ELEPHANT TRANSFER RULES NOTIFIED

SOURCE: HINDUSTHAN TIMES

The Union environment ministry has notified Captive Elephant (Transfer or Transport) Rules, 2024



Captive Elephants under Wildlife Protection Act (WPA), 1972

- Elephants, categorized as Schedule I species under the WPA, 1972, are protected from capture or trade, whether they are in the wild or captive.
- **Section 12 of the Act permits the translocation of Schedule I animals for specific purposes such as education and scientific research, without causing harm to any wild animals.**
- Captive elephants, owing to their historical significance in forest management, timber transport, and religious practices, are owned but are subject to stringent transfer regulations.
- **Section 40(2) of the WPA mandates written permission from the Chief Wildlife Warden (CWW) for acquiring, possessing, or transferring captive elephants.**
- An amendment in 2021 broadened transfer reasons to include 'religious or any other purposes'.

Captive Elephant (Transfer or Transport) Rules, 2024

- These rules outline the procedure for transferring captive elephants within a state or between two states.
- **The notification authorizes the CWW of states and Union Territories (UTs) to**

permit or reject captive elephant transfers.

- The CWW can approve inter and intra-state transfers if the owner is unable to maintain the elephant or if the animal will have better care elsewhere.
- **Transfer is only allowed if the genetic profile of the elephant is registered in the Ministry of Environment, Forest and Climate Change's electronic monitoring application.**
- Applications for transfer must be made to the deputy conservator of forests (DCF) with jurisdiction over the elephant's registration area.
- **The DCF conducts an inquiry, verifies housing facilities, obtains a veterinary certificate, and forwards details to the CWW for approval within seven days.**

7. GREAT INDIAN BUSTARD

SOURCE: THE HINDU

The Supreme Court's initiative to establish an expert committee addresses the critical issue of the Great Indian Bustard's endangerment due to collisions with power cables.



Expert Committee Establishment:

- Three-judge Bench led by Chief Justice D.Y. Chandrachud formed an expert committee.
- **Includes experts from Wildlife Institute of India and representatives from Renewable Energy and Environment Ministries.**
- Special invitees from Central Electrical Authority and Central Transmission Utility also participate.

Committee's Objectives:

- Assess feasibility of underground and overhead electric lines in priority areas for the Great Indian Bustard.
- Aim to propose additional measures and priority areas for bird conservation.

Timeline and Expectations:

- Committee expected to submit its report to the Supreme Court by July 31.

The Great Indian Bustard:

- Listed as Critically Endangered due to habitat loss, hunting, and collisions with power lines.
- Native to grasslands and semi-arid regions of India and Pakistan.
- Known for distinctive appearance and heavy build.

Challenges to Preservation:

- Habitat destruction and fragmentation.
- **Illegal hunting and poaching.**
- **Collisions with high-tension power lines.**
- Lack of targeted conservation initiatives.

Conservation Efforts:

- Habitat restoration and establishment of protected areas.
- **Community engagement and awareness programs.**
- Initiatives to mitigate power line collisions.

Conclusion:

Urgent action is necessary to prevent the extinction of the Great Indian Bustard and preserve India's biodiversity. **The expert committee's efforts, along with conservation initiatives, are crucial in addressing this pressing issue and ensuring the survival of this iconic species.**

8. ORANS (SACRED GROVES)

SOURCE: DOWN TO EARTH

Communities in western Rajasthan express apprehension over the state's proposal to categorize orans (sacred groves) as deemed forests.



About Orans:

- **Orans are sacred groves in Rajasthan, serving as community-managed forests with deep cultural significance.**
- Preserved and maintained by rural communities, they often have associated local deities.
- Rich in biodiversity, these groves typically include water bodies and are integral to community life.

Cultural and Environmental Importance:

- **Communities in Rajasthan have conserved these groves for centuries, forming essential parts of their lives.**
- Orans are communal spaces for grazing livestock, hosting social events, festivals, and gatherings linked to agrarian cycles.
- **They serve as a natural habitat for the critically endangered Great Indian Bustard (GIB), a protected species under the Wildlife Protection Act.**

Sacred Groves Across India:

- Sacred groves are relic forest patches protected by communities as a mark of reverence to deities.
- These groves are vital repositories of biodiversity, offering refuge to numerous plant and animal species.
- **India boasts over 13,000 documented sacred groves, found prominently in states like Maharashtra, Karnataka, Kerala, and Tamil Nadu, known by different names like Kavu/Sarpa Kavu, Devarakadu/Devkad, and Jahera/Thakuramma in various regions.**



II. POLLUTION

9. MOUNTAINS OF PLASTIC ARE CHOKING THE HIMALAYAN STATES

SOURCE: THE HINDU

Plastic pollution has become an omnipresent issue, reaching from the highest mountain peaks to the deepest ocean trenches and even finding its way into human organs. The formation of microplastics, resulting from improper plastic disposal, is a growing concern with far-reaching consequences for biodiversity, freshwater sources, and human health.

Key Points:

Microplastics Formation and Regional Impact:

- Improper disposal causes large plastic pieces to degrade, forming harmful microplastics.
- **In the Himalayan region, microplastics are found in mountains, rivers, lakes, and streams, affecting major water bodies like the Indus, Ganges, and Brahmaputra.**
- Microplastics can get trapped in glaciers, releasing into rivers during snow melting, posing threats to aquatic ecosystems.

Causes of Plastic Pollution:

- **Rapid and unplanned urbanization, coupled with changing consumption patterns, contributes to the plastic waste crisis.**
- The rise in tourism exacerbates plastic pollution in environmentally sensitive areas, impacting ecosystems and biodiversity.

Current Situation and Initiatives:

- The National Green Tribunal has taken action against waste dumping in eco-sensitive areas in Himachal Pradesh.
- **States like Himachal Pradesh, Sikkim, and Mizoram have implemented laws and initiatives to curb plastic use.**
- Reports highlight plastic waste in crucial areas, including Ramsar sites and rivers like Nambul in Manipur.

Plastic Overshoot Day and Recycling Discrepancy:

- India reached its plastic overshoot day on January 6, 2023, indicating a gap in waste management capacities.
- **The mismanaged waste index reveals a significant disparity between waste management capacity and plastic consumption.**
- Despite claims, only 12% of plastic waste is recycled, while 20% is incinerated, highlighting a recycling discrepancy.

Legal Framework and Challenges:

- **Regulatory frameworks like Solid Waste Management Rules (SWM) 2016, Plastic Waste Management (PWM) Rules 2016, and Extended Producer Responsibility (EPR) 2022 guide waste management.**
- Hill areas' specific needs are not adequately recognized, posing challenges to effective waste management.

Role of Local Bodies and Waste Management:

- Local bodies play a vital role in waste management from collection to disposal.
- Limited devolution of power to local bodies hampers waste management efforts.

Recommendations and Way Forward:

- Resource allocation should consider the unique ecological sensitivity of the Himalayan region.
- **Empower local bodies, include traditional institutions, and create necessary infrastructure for effective waste management.**
- **Sustained public education campaigns are needed for waste segregation and management.**
- Geographical considerations, like higher operational costs, should be factored into Extended Producer Responsibility (EPR) in mountainous regions.

Data Gaps and Convergence:

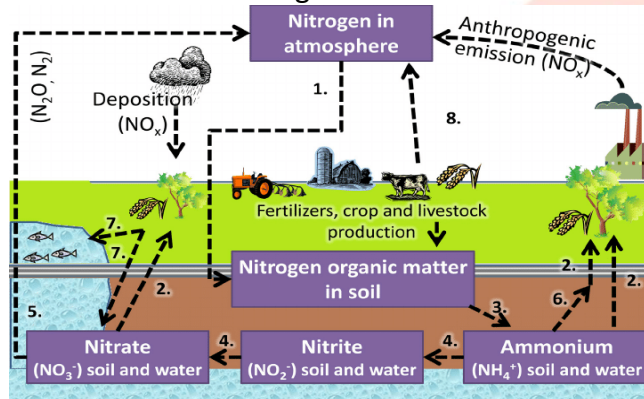
- Address data gaps related to waste generation and quality in the Indian Himalayan Region.

- **Converge existing schemes like Swachh Bharat Mission (SBM), MG-NREGA, and Finance Commission grants for creating infrastructure.**
- Leverage philanthropic contributions through the Swachh Bharat Kosh Trust for waste management.

10. NITROGEN POLLUTION

SOURCE: ECONOMIC TIMES

Recent research predicts that by 2050, one-third of global river sub-basins will confront severe water scarcity due to nitrogen pollution, highlighting the urgency of addressing this environmental challenge.



About Nitrogen Pollution:

- **Definition:** Nitrogen pollution denotes the excessive presence of nitrogen compounds in the environment, primarily in water bodies like rivers and lakes.
- **Causes:** The proliferation of nitrogen-based fertilisers, industrial activities, livestock farming, and biomass burning contribute to nitrogen pollution.
- **Magnitude:** Human-induced reactive nitrogen production surpasses natural processes, with 200 million tonnes lost annually, predominantly through agricultural practices.

Sources of Nitrogen Pollution:

- **Agricultural Activities:** Increased use of nitrogen-based fertilisers leads to groundwater leaching and surface water runoff.

- **Industrial Processes:** Manufacturing activities and fossil fuel combustion release nitrogen compounds into the environment.
- **Livestock Farming:** Animal waste, containing nitrogen compounds, contributes to water contamination.
- **Biomass Burning:** Wildfires and traditional fuel burning emit nitrogen oxides into the atmosphere.

Major Impacts of Nitrogen Pollution:

- **Eutrophication:** Excess nitrogen fosters algal growth, causing eutrophication and depleting oxygen levels in aquatic ecosystems.
- **Human Health:** Nitrogen pollution exacerbates respiratory conditions and poses risks of nitrate contamination in drinking water, affecting human health adversely.
- **Ozone Depletion:** Nitrous oxide emissions contribute to stratospheric ozone depletion, heightening health risks and environmental degradation.

Government Initiatives to Combat Nitrogen Pollution:

- **Bharat Stage (BS VI) Emission Standards:** Stringent vehicle and industrial emission norms aim to reduce nitrogen oxide and particulate matter emissions.
- **Nutrient-Based Subsidy (NBS):** Incentivising controlled-release fertilisers promotes efficient nutrient management.
- **Soil Health Cards:** Providing farmers with soil nutrient status and customised fertiliser recommendations enhances nutrient management.
- **Nano Urea:** Introduction of nano urea reduces conventional urea use, enhancing crop productivity while minimising nitrogen pollution.

Way Forward:

- **Sustainable Agricultural Practices:** Adoption of precision agriculture and cover



cropping reduces fertiliser use and minimises nutrient runoff.

- **Improved Wastewater Treatment:** Upgrading wastewater treatment infrastructure prevents nitrogen-rich compounds from entering water bodies.
- **Incentivizing Green Infrastructure:** Promoting green infrastructure projects helps mitigate nitrogen runoff by absorbing and filtering stormwater.
- **Enhancing Public Awareness:** Educating stakeholders about responsible nitrogen management fosters sustainable practices and pollution reduction.

11. ONLY 10 COUNTRIES HAD HEALTHY AIR QUALITY IN 2023: REPORT

SOURCE: INDIAN EXPRESS

India faces a severe air quality crisis, as highlighted by the World Air Quality Report 2023 by the Swiss organization IQAir. This report identifies India as the world's third most polluted country, with significant health implications for its population.

World's most polluted countries

Most polluted country ranking based on annual average PM2.5 concentration (µg/m³)

Rank	Country	2023	2022	2021	2020	2019
1	Bangladesh	79.9	65.8	76.9	77.1	83.3
2	Pakistan	73.7	70.9	66.8	59	65.8
3	India	54.4	53.3	58.1	51.9	58.1
4	Tajikistan	49	46	59.4	30.9	--
5	Burkina Faso	46.6	63	--	--	--
6	Iraq	43.8	80.1	49.7	--	39.6
7	United Arab Emirates	43	45.9	36	29.2	38.9
8	Nepal	42.4	40.1	46	39.2	44.5
9	Egypt	42.4	46.5	29.1	--	18
10	Democratic Republic of the Congo	40.8	15.5	--	--	32.1

Key Highlights of the World Air Quality Report 2023:

India's Air Quality Ranking:

- India ranks as the world's third most polluted country, with an average annual PM2.5 concentration of 54.4 micrograms per cubic meter.

- Bangladesh and Pakistan have surpassed India in pollution levels, ranking as the most and second most polluted countries, respectively.
- **Nine out of the top 10 most polluted cities globally are located in India.**
- Delhi retains its status as the world's most polluted capital city for the fourth consecutive year.

Local Pollution Hotspots:

- Begusarai in Bihar is identified as the world's most polluted metropolitan area, with an average PM2.5 concentration of 118.9 micrograms per cubic meter.

Health Impacts and WHO Guidelines:

- **Approximately 96% of the Indian population, totalling around 136 million individuals, face PM2.5 concentrations seven times higher than the World Health Organization's recommended levels.**
- Over 66% of Indian cities have reported annual averages higher than the WHO guideline of 35 micrograms per cubic meter.
- PM2.5 pollution, primarily from burning fossil fuels, is associated with increased rates of heart attacks, strokes, and oxidative stress, posing severe health risks.

Global Air Quality:

- Only seven countries worldwide, including Australia, Estonia, Finland, Grenada, Iceland, Mauritius, and New Zealand, met the WHO annual PM2.5 guideline.
- **Africa remains significantly underrepresented in air quality data, with a third of its population lacking access to such information.**
- Some countries, such as China and Chile, have reported decreases in PM2.5 pollution levels, indicating progress in combating air pollution.

Global Impact of Air Pollution:

- **Air pollution contributes to approximately seven million premature deaths annually**

worldwide, equating to approximately one in every nine deaths.

- PM2.5 exposure leads to various health issues, including asthma, cancer, stroke, and mental health complications.
- **Children exposed to elevated levels of fine particles may experience impaired cognitive development and worsened existing illnesses, such as diabetes.**

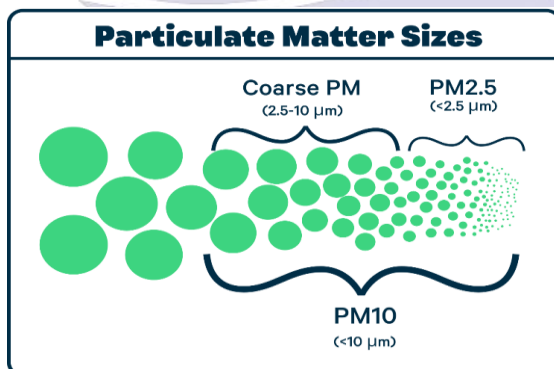
WHO Air Quality Guidelines:

Pollutants Covered:

- The World Health Organization regularly updates its air quality guidelines to protect public health from air pollution, covering both particulate matter (PM) and gaseous pollutants.
- **Particulate matter includes PM2.5 and PM10, along with gaseous pollutants like ozone (O3), nitrogen dioxide (NO2), sulfur dioxide (SO2), and carbon monoxide (CO).**

Understanding Particulate Matter (PM):

- Particulate matter consists of extremely small particles and liquid droplets suspended in the air, comprising various compounds.
- PM10 refers to coarse particles with a diameter of 10 micrometers or less, while PM2.5 denotes fine particles with a diameter of 2.5 micrometers or less.



Air Pollution:

- Air pollution results from the contamination of the environment by various chemicals, physical, or biological agents, originating from sources such as household devices, vehicles, industries, and wildfires.

- **Major pollutants, including particulate matter, carbon monoxide, ozone, nitrogen dioxide, and sulfur dioxide, contribute to respiratory diseases and high mortality rates.**
- Nearly all of India's population is exposed to unhealthy levels of ambient PM2.5, highlighting the pervasive nature of air pollution in the country.

Implications and the Way Forward:

Health and Economic Impacts:

- Air pollution poses significant health risks and economic burdens, with the loss of productivity and healthcare costs due to premature deaths and illnesses.
- **In India, economic losses attributable to air pollution accounted for USD 36.8 billion, representing 1.36% of the GDP.**

Strategies for Improvement:

- **Regulatory Strengthening:** Implement and enforce stringent air quality standards and emission limits, with penalties for non-compliance.
- **Transition to Clean Energy:** Accelerate the adoption of renewable energy sources, phase out fossil fuels, and promote sustainable transportation options like electric vehicles.
- **Industrial Improvement:** Mandate clean technologies in industries, promote waste minimization, and incentivize pollution control measures.
- **Public Awareness and Research:** Conduct awareness campaigns, involve the public in decision-making processes, invest in research for innovative pollution control technologies, and foster public-private partnerships.
- **Global Cooperation:** Collaborate internationally to address transboundary pollution, support developing nations with technical assistance and funding, and prioritize air quality management as a collective responsibility.

UPSC MAINS QUESTION

Q. Examine the implications of India's ranking as the world's third most polluted country in the World Air Quality Report 2023, and discuss the strategies required to mitigate the severe air quality crisis faced by the nation. (150 WORDS)

12. GLOBAL METHANE TRACKER 2024

SOURCE: DOWN TO EARTH

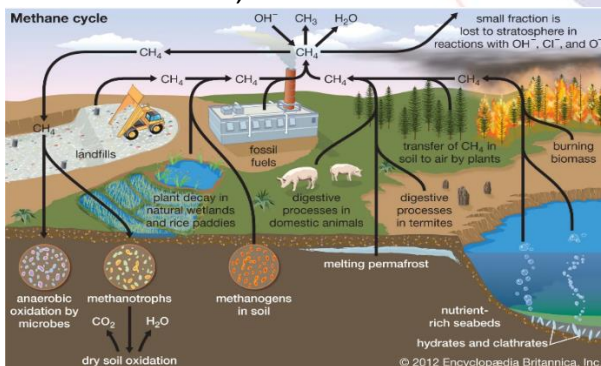
The International Energy Agency (IEA) released its **Global Methane Tracker 2024**, highlighting concerning trends in methane emissions worldwide.

Methane emissions from fuel usage reached near-record levels in 2023, underlining the urgency of addressing this potent greenhouse gas.

Major Highlights of Global Methane Tracker 2024:

Methane Emissions Overview:

- In 2023, methane emissions from fossil fuels totaled close to 120 million tonnes (Mt).
- An additional 10 Mt of methane emissions came from bioenergy, mainly from biomass use, a level consistent since 2019.



Rise of Major Methane Emissions Events:

- Major methane emissions events surged by over 50% in 2023 compared to 2022.
- **Notable incidents included significant fossil fuel leaks globally, with over 5 million metric tons of methane emissions.**
- A major well blowout in Kazakhstan persisted for over 200 days, indicating the severity of these events.

Top Emitting Countries:

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- Nearly 70% of methane emissions from fossil fuels originate from the top 10 emitting countries.
- **The United States leads in methane emissions from oil and gas operations, followed closely by Russia.**
- China ranks highest in methane emissions from the coal sector.

Importance of Cutting Methane Emissions:

- Reducing methane emissions from fossil fuels by 75% by 2030 is crucial for limiting global warming to 1.5 °C.
- **Achieving this goal requires approximately USD 170 billion in spending, less than 5% of the income generated by the fossil fuel industry in 2023.**
- Around 40% of emissions from fossil fuels in 2023 could have been avoided at no net cost.

Understanding Methane:

About Methane:

- Methane, represented by CH₄, is the simplest hydrocarbon, consisting of one carbon atom and four hydrogen atoms.
- **It is odorless, colorless, lighter than air, and burns with a blue flame in complete combustion.**

Contribution to Global Warming:

- Methane ranks as the second most important greenhouse gas (GHG) after carbon dioxide (CO₂), with a 20-year global warming potential (GWP) of 84.
- Despite its shorter atmospheric lifetime compared to CO₂, methane contributes significantly to global warming, accounting for about 30% of the rise in global temperatures since the preindustrial era.

Major Sources of Methane Emission:

- Natural sources such as wetlands and agricultural activities contribute to methane emissions.
- **Combustion and industrial processes, including burning of fossil fuels and biomass, also release methane.**

- Agricultural practices like enteric fermentation and rice cultivation are significant contributors to methane emissions.

Global Methane Pledge:

- Launched at UNFCCC COP26, the Global Methane Pledge aims for a 30% reduction in global methane emissions from 2020 levels by 2030.
- **India's decision not to sign the pledge stems from concerns regarding its focus on methane reduction over CO₂, potential impacts on agriculture-dependent livelihoods, and the country's significant role in rice production and livestock farming.**

Way Forward:

Improved Agricultural Practices:

- Adoption of sustainable agricultural practices like precision farming and integrated crop-livestock systems can reduce methane emissions from agricultural activities.

Methane-Capturing Technologies:

- Implementation of methane capture technologies in livestock operations and landfills can convert methane into usable energy, mitigating emissions.

Rice Cultivation Techniques:

- Promotion of techniques like System of Rice Intensification (SRI) and Direct Seeded Rice (DSR) can significantly lower methane emissions from rice paddies.

Biogas Production:

- Encouraging biogas production from organic waste offers a renewable energy source while mitigating methane emissions from waste decomposition.

13. INDIA'S NEED TO CURB BLACK CARBON EMISSIONS

SOURCE: THE HINDU

India's commitment to achieving net-zero emissions by 2070, announced during the

UNFCCC COP26 climate talks, highlights its dedication to combating climate change.

With a focus on renewable energy and initiatives like the Pradhan Mantri Ujjwala Yojana (PMUY), India aims to mitigate emissions, particularly black carbon, a significant contributor to air pollution and climate change.

About Black Carbon (BC)

- **Definition:** Black carbon (BC) is a dark, sooty material emitted during incomplete combustion of biomass and fossil fuels.
- **Impacts:** BC contributes to global warming by absorbing solar energy, hastening snow and ice melt, and poses health risks, linked to respiratory illnesses and cardiovascular diseases.
- **Sources:** Predominantly emitted from traditional cookstoves burning biomass, diesel engines, coal-fired power plants, and industrial activities.



Pradhan Mantri Ujjwala Yojana (PMUY)

- **Objective:** PMUY aims to provide clean cooking fuel, LPG, to rural households, reducing dependence on traditional fuels and mitigating black carbon emissions.
- **Features:** Offers financial support for LPG connections, complimentary gas stoves, first refill, and hotplates to beneficiaries.

Challenges:

- **Energy Needs:** Despite PMUY, many households still rely on traditional fuels, emitting high levels of black carbon.
- **Health Impacts:** Continued use of traditional fuels affects women and children, leading to indoor air pollution-related health issues.

- **Affordability:** Affordability challenges persist despite LPG subsidies, leading to continued use of cheaper traditional fuels.
- **Last-Mile Connectivity:** Inadequate infrastructure hampers LPG distribution in remote areas, perpetuating reliance on biomass burning.

Other Measures to Mitigate Black Carbon Emissions

- **Cleaner Fuels:** Promotion of cleaner fuels like CNG, LPG, and ethanol blending to reduce black carbon emissions.
- **SATAT Scheme:** Initiative to establish compressed bio-gas production plants for cleaner fuel options.
- **Crop Residue Management:** Promotion of agricultural machinery for in-situ crop residue management to reduce open burning.
- **National Clean Air Programme:** Targeted reduction in particulate matter concentration in cities to improve air quality.
- **FAME Scheme:** Promotion of electric vehicles to reduce emissions from fossil fuel-powered vehicles.

Way Forward

- **Coal-Bed Methane (CBM):** Local production of CBM gas can provide cleaner fuel alternatives, reducing reliance on traditional biomass.
- **Promoting LPG Adoption:** Increased awareness campaigns highlighting the benefits of LPG over traditional fuels.
- **Improving Supply Chain Efficiency:** Investment in infrastructure to enhance last-mile connectivity for LPG distribution.
- **Diversifying Clean Energy Sources:** Exploration of alternative clean energy sources like biogas and solar energy.
- **Community Engagement:** Involvement of local communities, especially women and youth, in decision-making processes regarding clean energy adoption.

UPSC MAINS QUESTION

Q. What are the key strategies proposed by India to mitigate black carbon emissions and achieve net-zero emissions, particularly focusing on initiatives like the Pradhan Mantri Ujjwala Yojana (PMUY) and other measures? (150 WORDS)

14. MEGHALAYA'S BYRNIHAT INDIA'S MOST POLLUTED CITY IN 2023: REPORT

SOURCE: NDTV

Byrnihat, Meghalaya, emerged as India's most polluted city in February, highlighting the alarming levels of PM2.5 and underscoring deteriorating air quality in northeastern urban centers.



Pollution Data:

- **Monthly average PM2.5 concentration in Byrnihat was 183 $\mu\text{g}/\text{m}^3$, surpassing Bihar's Araria, the second-most polluted city, by around 60 $\mu\text{g}/\text{m}^3$.**
- Other northeastern cities like Nalbari, Agartala, Guwahati, and Nagaon featured among the 30 most polluted cities in India.

Air Quality Monitoring in the Northeast:

- Six out of 11 cities with monitoring stations in the northeast exceeded the prescribed daily National Ambient Air Quality Standard.
- **Sivasagar, Silchar, Aizawl, and Imphal were the cleanest northeastern cities, with concentrations below the NAAQS.**

Implications and Urgent Need:

- The data underscore the urgent need for enhanced air quality monitoring in the northeast due to rising pollution from unregulated industrial activities and insufficient pollution control measures.

Reasons for Air Pollution in India:

- **Vehicle Emissions:** Growing vehicle numbers, especially older models, release pollutants like NOx and PM2.5.
- **Industrial Activity:** Industries, especially coal-fired power plants, contribute to sulfur oxides and particulate matter.
- **Crop Burning:** Stubble burning by farmers releases large amounts of smoke and ash.
- **Construction Dust:** Uncontrolled dust from construction sites adds to particulate matter.
- **Waste Burning:** Open burning of municipal and agricultural waste releases harmful toxins.

Way Forward:

- **Stricter Emission Norms:** Implement and enforce stricter emission standards for vehicles and industries.
- **Public Transport Boost:** Promote public transport and electric vehicles to reduce reliance on private vehicles.
- **Sustainable Farming Practices:** Encourage farmers to adopt stubble mulching or composting to avoid burning.
- **Dust Control Measures:** Implement effective dust control measures at construction sites.
- **Waste Management:** Promote waste segregation, composting, and recycling to reduce open burning.
- **Air Quality Monitoring:** Expand air quality monitoring networks, providing real-time data for public awareness.

III. RENEWABLE ENERGY

15. IN GUJARAT, HARNESSING THE VALUE OF DUNG TO BOOST FARMERS' INCOME

SOURCE: INDIAN EXPRESS

Banaskantha District Co-operative Milk Producers' Union in Gujarat has embarked on a groundbreaking initiative, converting dung into

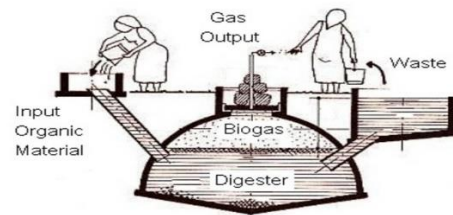
Bio CNG (compressed natural gas) and fertilizer. This innovative approach not only addresses waste management but also creates new revenue streams for dairy farmers.

How Farmers Are Harnessing the Value of Dung: Dung:

- An adult bovine animal produces 15-20 kg of fresh dung daily, while calves yield 5-10 kg.
- **Fresh dung, containing methane and water, is crucial for biogas production through anaerobic digestion.**
- Methane, a significant component of biogas, is generated in the rumen of bovines during fermentation.

Biogas Production Process:

- Fresh dung is mixed with water to form a slurry and undergoes anaerobic digestion in a sealed vessel reactor for 35 days.
- **The digestion process includes hydrolysis, acidogenesis, acetogenesis, and methanogenesis, resulting in biogas generation.**
- Biogas digesters reduce methane emissions from animal waste, contributing to greenhouse gas mitigation efforts.



Sketchmatic diagram of Biogas Production Plant

Biogas Purification and Compression:

- Raw biogas is purified to remove CO₂, H₂S, and moisture.
- **Purified biogas, compressed to 96-97% methane, is sold as BioCNG at Rs 72/kg.**

Utilization of Slurry for Fertilizer Production:

- After biogas production, the slurry undergoes dewatering and the separated solid residue is decomposed aerobically.
- **The decomposed solid residue is sold as PROM (phosphate-rich organic manure) or used for compost production.**



- The liquid part can be reused in the digester or sold as liquid-fermented organic manure.

Scalability and Replicability:

- The BioCNG model is scalable, utilizing dung from district member unions.
- **Gujarat's Kaira Union has a decentralized model involving Flexi Biogas plants, aiming for 10,000 installations.**
- Individual farmers can benefit from smaller Flexi plants for personal use and additional income generation.

Challenges:

Feedstock Management:

- Ensuring a steady supply and quality of organic feedstock for animals is crucial.
- Effective waste segregation and collection systems are needed to gather suitable feedstock.

Operational Efficiency:

- **Lack of knowledge and resources among individual farmers and smaller cooperatives may hinder proper maintenance of BioCNG plants.**
- Training programs, technical support, and standardized operating procedures are essential for efficient operations.

Technical and Financial Barriers:

- Access to financing options like subsidies and low-interest loans can help overcome initial capital barriers.
- Addressing technical challenges requires skilled labor, infrastructure development, and public-private partnerships.

Storage Systems for Biogas:

- Efficient storage and distribution systems are needed for BioCNG to reach end-users.
- **Proper storage systems like gas holders or cylinders ensure a consistent supply of BioCNG.**

Social Acceptance:

- Overcoming misconceptions about dung gas being unhygienic is crucial for wider adoption.

- Educational outreach and demonstrating the hygienic process are essential for promoting biogas models among rural farmers.

India's Initiatives Related to Biogas:

Sustainable Alternative Towards Affordable Transportation" (SATAT) Scheme:

- A government scheme promoting the production of Compressed Biogas (CBG) from various biofuels, including dung, for use in transportation.

GOBARdhan:

- An initiative aimed at promoting the sustainable management of cattle dung and solid waste in rural areas through biogas production.

National Biogas Programme:

- The Ministry of New and Renewable Energy (MNRE) supports the installation of biogas plants for cooking purposes in rural areas.
- MNRE provides Central Financial Assistance (CFA) for setting up biogas plants, with varying amounts based on plant size.

UPSC MAINS QUESTION

Q. "Discuss the challenges associated with managing the increasing volumes of solid waste and propose strategies for the safe disposal of toxic wastes to mitigate environmental hazards." (150 WORDS)

IV. GLOBAL WARMING AND CLIMATE CHANGE

16. AUSTRALIAN SCIENTISTS FIND CORAL BLEACHING IN GREAT BARRIER REEF

SOURCE: TIMES OF INDIA

The recent aerial surveys conducted by Australian authorities have revealed alarming levels of coral bleaching across two-thirds of the Great Barrier

Reef (GBR), emphasizing the urgent need for action to protect this crucial marine ecosystem.

The Great Barrier Reef, located off the coast of Queensland, Australia, is the world's largest coral reef system and a UNESCO World Heritage site.

However, it is facing severe threats due to factors like rising ocean temperatures and climate change.



Factors Contributing to Coral Bleaching in GBR:

Temperature Stress:

- **Warmer water temperatures can trigger coral bleaching, causing corals to expel the algae living in their tissues and turn white.**
- Above-average sea surface temperatures, exacerbated by climate change, have led to significant heat stress on the reef, worsening the bleaching phenomenon.

Climate Change Impact:

- Rising ocean temperatures due to climate change increase coral susceptibility to stress and mortality, leading to widespread bleaching events globally.

Other Environmental Stressors:

- Cold water temperatures, pollution, runoff, and extreme low tides can also induce coral bleaching, highlighting the multifaceted nature of this phenomenon.

Algae Relationship:

- Coral bleaching occurs when the symbiotic relationship between corals and algae is disrupted, impacting the corals' food source and making them vulnerable to disease.

Implications of Coral Bleaching:

Ecological Impact:

- Coral reefs are vital ecosystems that support diverse marine life.
- Bleaching can lead to habitat loss and biodiversity decline, affecting fish populations and marine plants.

Economic Consequences:

- Coral reefs are important for coastal protection, tourism, and fisheries, contributing USD 375 billion per year.
- Bleaching can impact industries reliant on healthy reef ecosystems.

Food Security:

- Coral reefs provide food and livelihoods for millions of people.
- Bleaching threatens seafood availability and disrupts the livelihoods of fishing communities.

Climate Change Indicator:

- Coral bleaching serves as a visible indicator of climate change impacts on marine ecosystems.

Loss of Ecosystem Services:

- Coral reefs provide essential services like shoreline protection and carbon sequestration.
- Bleaching diminishes their ability to provide these services, affecting marine ecosystems and coastal communities.

V. GLOBAL AGREEMENTS AND EFFORTS

17. SMALL ISLAND DEVELOPING STATES

SOURCE: TIMES OF INDIA

The UN Secretary-General emphasizes the crucial need for increased funding to support Small Island Developing States (SIDS) in facing the challenges of climate change.



About Small Island Developing States (SIDS):

- SIDS consist of 39 States and 18 Associate Members facing unique social, economic, and environmental vulnerabilities.
- They are located in three geographical regions: the Caribbean, the Pacific, and the Atlantic, Indian Ocean, and South China Sea (AIS).
- Recognized as a special case in 1992, SIDS are highly vulnerable due to low economic diversification, dependence on tourism and remittances, income flow fluctuations, raw material price volatility, and debt stress.
- The Exclusive Economic Zone (EEZ) controlled by SIDS is, on average, 28 times their land mass, highlighting their reliance on ocean resources.

UN Programmes of Action in Support of SIDS:

Barbados Programme of Action (BPoA):

- Enacted in 1994, BPoA prescribed specific actions for sustainable development, supported by the Barbados Declaration.

Mauritius Strategy (2005):

- Adopted to address gaps in implementing BPoA, ensuring comprehensive development for SIDS.

SAMOA Pathway (2014):

- Recognizes climate change and sea-level rise impacts, addressing challenges in economic development, food security, disaster risk reduction, and ocean management for SIDS.

VI. INDIAN INITIATIVES, EFFORTS, AND COMMITMENTS

18. LOW-CARBON ACTION PLAN (LCAP)

SOURCE: DOWN TO EARTH

Bihar has embarked on a significant initiative to bolster its waste management profile through the formulation of a Low-Carbon Action Plan

(LCAP) for the waste and domestic wastewater sector. This strategic endeavor aligns with Bihar's commitment to becoming a Net Zero state by 2070.

Components of the Low-Carbon Action Plan (LCAP):

Assessment and Inventory:

- Conducts a thorough assessment of existing waste management infrastructure, including solid waste and domestic wastewater sectors.
- Gathers data on waste generation, treatment methods, and greenhouse gas (GHG) emissions to inform the planning process.

Identification of Key Issues:

- Identifies challenges such as inadequate sewage collection and treatment, poor waste segregation, and unmanaged solid waste disposal.



Setting Targets and Goals:

- Establishes ambitious targets for emission reductions and waste management improvements, delineated for various timeframes including 2030, 2050, and 2070.

Intervention Strategies:

- Proposes low-carbon interventions like improving waste segregation, enhancing collection and transportation systems, implementing efficient treatment technologies, and promoting methane recovery from wastewater.

Community Engagement and Policy Enforcement:

- Recognizes the importance of active participation from stakeholders and policy-



driven enforcement mechanisms to ensure compliance with waste management regulations and promote sustainable practices.

Benefits of LCAPs:

Environmental Benefits:

- Mitigates climate change by reducing emissions, thereby slowing global warming and its associated impacts like extreme weather events and rising sea levels.

Public Health Benefits:

- Improves air quality by reducing reliance on fossil fuels, leading to fewer respiratory illnesses and promoting healthier communities.

Economic Benefits:

- Creates new jobs in renewable energy sectors and generates long-term cost savings from reduced reliance on imported fossil fuels.

Challenges of LCAPs:

Upfront Costs:

- Initial investment required for transitioning to renewable energy sources or energy-efficient technologies.

Changing Habits:

- Resistance from individuals to lifestyle changes such as increased use of public transport or reduced reliance on personal vehicles.

Political Will:

- Sustained effort needed to implement low-carbon plans, facing potential political resistance from industries that may be disrupted.

Equity Concerns:

- Ensuring fairness in the transition to a low-carbon economy to avoid placing unequal burdens on disadvantaged groups.

Initiatives Related to Waste Management in India:

Solid Waste Management Rules 2016:

- Focuses on waste segregation at source, manufacturer responsibility for waste

disposal, and user fees for waste collection and processing.

Waste to Wealth Portal:

- Identifies, develops, and deploys technologies to treat waste for energy generation and material recycling.

Waste to Energy:

- Converts municipal and industrial solid waste into electricity and/or heat for industrial processing.

Plastic Waste Management Rules 2016:

- Mandates measures to minimize plastic waste generation, prevent littering, and ensure segregated storage of waste at source.

Project REPLAN:

- Aims to produce carry bags by mixing processed plastic waste with cotton fibre rags.

Plastic Waste Management (Amendment) Rules, 2022:

- Specifies responsibilities of stakeholders to manage plastic waste effectively and prevent environmental pollution.

Way Forward for LCAP Implementation:

Spread the Burden:

- Utilize a mix of public and private funding sources to lessen the initial financial strain.

Focus on Long-term Savings:

- Emphasize the cost benefits of LCAPs in the long run to incentivize adoption of low-carbon technologies.

Set Ambitious but Achievable Goals:

- Establish clear, phased milestones to demonstrate progress and engage stakeholders effectively.

Job Training and Retraining:

- Invest in programs to equip people with skills for the low-carbon economy, ensuring a just transition for all.

Make Low-Carbon Options Attractive:

- Invest in public transportation infrastructure, create bike lanes, and offer subsidies for electric vehicles to encourage sustainable practices.

VII. PRELIMS POINTERS IN NEWS

19. ROEN OLMI

SOURCE: INDIAN EXPRESS

Two researchers in Goa have successfully synthesized gold nanoparticles using a wild mushroom known as Roen Olmi.



About Roen Olmi:

- **Termitomyces Species:** Roen Olmi is a mushroom of the Termitomyces species that grows on termite hills.
- **Local Name:** Known as 'roen olmi' locally in Goa, it is appreciated for its taste and is considered a culinary delight.
- **Habitat:** Endemic to the Western Ghats, it thrives in the thick forest cover and high humidity, primarily growing in association with termites.

Ecological Significance:

- **Biodegrading Fungus:** Roen Olmi, being a Termitomyces species, plays a crucial role as a biodegrading fungus in forest and grassland ecosystems.
- **Soil Enrichment:** It contributes to converting 50% of dead plant material on the ground into nutrient-rich soil.

Culinary and Medicinal Importance:

- **Edible Nature:** All Termitomyces species, including Roen Olmi, are edible and valued for their unique texture, flavor, and nutrient content.
- **Ethno-medicinal Significance:** Termitomyces species, including Roen Olmi, are recognized for their ethno-

medicinal importance in various indigenous communities in Asia and Africa.

- **Antioxidant and Antimicrobial Properties:** These mushrooms possess beneficial antioxidant and antimicrobial properties.

20. BUTTERFLY CICADA

SOURCE: DOWN TO EARTH

Why in news?

Scientists recently identified a new species of cicada called "Butterfly Cicada" in Meghalaya. The cicada belongs to the genus Becquartina, adding to the seven known species in the genus.

- This discovery marks the first-ever record of the genus Becquartina in India.
- The cicada earned its nickname due to its colorful wings and is scientifically named "bicolour" for its two distinct color forms.



Features:

- **Found in Garo Hills and Ri-Bhoi districts of Meghalaya, preferring thick forests and native vegetation.**
- Active from April to June, with calling patterns varying between the two districts.
- Wings feature rich saffron at the basal one-third and matte black with saffron spots at the apical two-thirds.

About Cicadas:

- **Cicadas belong to the family Cicadidae and are known for their sound-producing abilities.**
- They have two pairs of membranous wings, prominent compound eyes, and three simple eyes.
- **Male cicadas produce loud noises by vibrating membranes near the base of the abdomen.**

- Female cicadas lay eggs in woody plant tissues, typically dropping from the plant after hatching.

Cicadas are diverse, with over 3,000 species known, primarily found in tropical regions like deserts, grasslands, and forests.

21. CANNABIS

SOURCE: INDIAN EXPRESS

Cannabis, derived from the Cannabis sativa plant or true hemp, is prevalent across the Indo-Gangetic plains and the Deccan region.

Known as Ganzai in Telugu, Ganja in Tamil, and Bangi in Kannada, it yields three main products: fibre, oil, and narcotics.



Bhang and its Preparation:

- Bhang, a popular drink during Holi, is made from the seeds and leaves of the cannabis plant.
- The seeds and leaves are ground into a powder, filtered, and mixed with cold, flavored milk or thandai for consumption.

Other Uses of Cannabis:

- Hemp-seed oil substitutes linseed oil in varnish industries and is used in soft soap manufacturing, besides having medicinal properties.
- Cannabis ash is applied to animals' skin for treating haematoma.
- Controlled cultivation for fiber and seed extraction is allowed in certain states for industrial or horticultural purposes.

Regional Cultivation and Practices:

- Cultivation occurs in areas like Chhota/Bada Bhangal of Kangra and the

Karsog area of Mandi district in Himachal Pradesh.

- In Jammu and Kashmir, bhang-treated paddy seeds aid in germination, and cannabis plants are utilized for controlling threadworms in paddy nurseries.
- Cannabis leaves are crushed to make a paste for treating honey bee or wasp stings.

22. COCOA BEANS

SOURCE: DOWN TO EARTH

A shortage of cocoa beans has led to the near shutdown of processing plants in Ivory Coast and Ghana, which collectively produce 60% of the world's cocoa.



About Cocoa:

- Cocoa is a vital plantation crop primarily grown for chocolate production worldwide.
- Native to the Amazon basin of South America, it thrives in the humid tropics around the equator.

Climatic Conditions:

- Ideal growing conditions include an altitude of up to 300 meters above sea level.
- Requires annual rainfall of 1500-2000 mm and a temperature range of 15°-39°C, with the optimum at 25°C.
- Thrives in deep, well-drained soils with a pH range of 6.5 to 7.0, commonly found in clay loam and sandy loam soils.

Shade Requirement:

- Evolved as an under-storey crop, cocoa requires about 50% of available light,

making it suitable for cultivation in plantations.

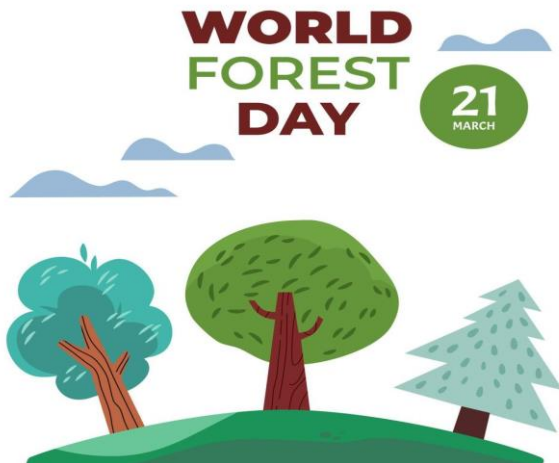
Major Producing Regions:

- Around 70% of the world's cocoa beans come from West African countries such as Ivory Coast, Ghana, Nigeria, and Cameroon.
- In India, cocoa cultivation primarily occurs in Karnataka, Kerala, and Tamil Nadu, often as an intercrop with arecanut and coconut.

23. WORLD FOREST DAY

SOURCE: INDIAN EXPRESS

Celebrated annually on March 21, World Forest Day highlights the importance of forests and trees in our lives.



- Aims to promote the value of various types of forests and encourage participation in forest-related campaigns such as planting drives.
- Coordinated by the Food and Agriculture Organization of the United Nations (FAO) and the United Nations Forum on Forests.

History:

- Proposed in 1971 by the General Assembly of the European Confederation of Agriculture.
- March 21 was chosen by the United Nations due to its coincidence with the

Vernal Equinox and Autumn Equinox in the northern and southern hemispheres.

Theme for This Year:

- The theme for the current year is "Forests and Innovation: New Solutions for a Better World."
- Emphasizes the role of innovation in addressing challenges related to forests and promoting sustainability.

24. BRUCETHOA ISRO

SOURCE: DOWN TO EARTH

Brucethoa ISRO is a new species of deep-sea isopod discovered off the Kollam coast, Kerala.



- It is a tiny fish-parasitic crustacean found in the gill cavity of the Spinyjaw greeneye.
- Named in honor of the Indian Space Research Organisation (ISRO) for its successful space missions.
- Females of the species are larger, growing up to 19 mm in length and 6 mm in width, while males are about half the size.

What are Isopods?

- Isopods are an order of invertebrates, belonging to the crustacean group, which includes crabs and shrimp.
- There are approximately 10,000 species of isopods worldwide, living in various habitats from mountains to the deep sea.
- They come in diverse shapes and sizes, ranging from micrometers to half a meter in length.

Features:

- Isopods have two pairs of antennae, compound eyes, and four sets of jaws.

- Their body consists of seven segments with walking legs and a short abdominal section composed of six segments, called "pleons."
- About half of isopod species live in the ocean, while others inhabit coastal waters and plants.
- Some marine species are parasitic on other animals.

25. PEATLANDS

SOURCE: DOWN TO EARTH

Canals used to drain peatlands in Southeast Asia are identified as hotspots for greenhouse gas emissions.



About Peatlands:

- Peatlands are wetland ecosystems where waterlogged conditions prevent complete decomposition of plant material, resulting in the accumulation of peat.
- They cover 4.23 million km², making up 2.84% of the Earth's terrestrial surface.
- Predominantly found in boreal and temperate regions of the Northern Hemisphere, especially in Europe, North America, and Russia.
- Peatlands vary in their state, from actively accumulating peat to those used for economic purposes like agriculture and forestry.
- Around 84% of peatlands are in natural or near-natural conditions, while drained peatlands constitute about 16% of total peatlands.

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Carbon Storage in Peatlands:

- Peatlands are rich in carbon and act as the largest natural terrestrial carbon store globally.
- They store more carbon than all other vegetation types combined.
- Damaged peatlands contribute significantly to greenhouse gas emissions, accounting for nearly 5% of global anthropogenic CO₂ emissions.

26. EUSCORPIOPS KRACHAN

SOURCE: DOWNTOEARTH

A new species of scorpion, scientifically named Euscorpions Krachan, was recently discovered.



About Euscorpions Krachan:

- It belongs to the subgenus Euscopiops and is named after the Krachan National Park in Thailand, where it was found.
- Scorpions in this genus are known for their limited distribution ranges and high endemism.
- They primarily inhabit mountainous areas, particularly where there are many rock crevices.
- Features of Euscorpions Krachan include small size, measuring just over 1 inch in length, and a brownish color, with females being darker than males.
- They possess eight eyes and eight legs, typical of scorpions.
- Similar to other scorpions in the Scorpions genus, it is believed that Euscorpions

Krachan employs ambush or sit-and-wait strategies while hunting.

27. GOLDEN LANGURS

SOURCE: THE HINDU

According to the latest survey, India is home to approximately 7,396 Golden Langurs.



Protection Status:

- **IUCN:** Endangered
- **CITES:** Appendix I
- **Wildlife Protection Act:** Schedule-I

Characteristics:

- Belong to the colobines, a group of Old World monkeys.
- Coat color varies seasonally, turning cream-colored in summer and dark golden in winter.
- Diurnal and arboreal, they live in troops ranging from 3 to 15 individuals.

Habitat:

- Endemic to subtropical and temperate broadleaf forests in Assam (Brahmaputra River Valley) and Bhutan.

28. PARROT FEVER

SOURCE: THE HINDU

Parrot fever, also known as psittacosis, has resulted in the deaths of five individuals across Europe in a recent outbreak.

- **It is caused by the bacterium *Chlamydophila psittaci* (*C. psittaci*), which**

can infect various mammals but is most commonly found in birds.



- **The disease primarily affects birds but can be transmitted to humans through inhalation of contaminated particles from feathers or droppings.**
- Those who work closely with birds, like poultry workers, veterinarians, and pet-bird owners, are at higher risk of contracting psittacosis.
- **Human-to-human transmission of the disease is very rare.**
- Symptoms of psittacosis include fever, headache, muscle pains, coughing, difficulty breathing, and pneumonia-like symptoms.
- **Severe cases can lead to complications such as myocarditis or neurological symptoms.**
- **Treatment involves oral antibiotics like doxycycline or tetracycline for two to three weeks.**
- Supportive care, including over-the-counter medications for symptom relief and proper hygiene practices, is crucial for recovery.

29. TAENIOGONALOS DEEPAKI

SOURCE: THE HINDU

Entomologists from the Ashoka Trust for Research in Ecology and the Environment identified a new species of wasp in the Western Ghat region of Karnataka, named *Taeniogonalos deepaki*.



Key Details about Taeniogonalos deepaki:

- **Location:** Discovered in the Belgaum region of Karnataka.
- **Name Origin:** Named after Dr. Deepak Deshpande, a medical doctor and nature enthusiast who collected the specimen.
- **Taxonomic Classification:** Belongs to the genus Taeniogonalos within the family Trigonalyidae of the order Hymenoptera.
- **Distribution:** The genus is found in various regions globally, including Afrotropical, oriental, eastern palaeartic, nearctic, Australian, and neotropical areas.

Additional Findings:

- Scientists also provided the first male description of another species, Taeniogonalos eurysona.
- **Most Taeniogonalos species have been reported from southern India.**

Understanding Parasitoids:

- **Parasitoids are organisms who's young develop on or within another organism (host), ultimately leading to the host's death.**
- They exhibit characteristics of both predators and parasites, with their larvae developing on or within other insects, known as hyperparasitoids in the case of the Trigonalyidae family.

30. CYCAS CIRCINALIS

SOURCE: INDIAN EXPRESS

The Cycas circinalis, commonly known as Eenthu Pana in Kerala, is facing the threat of extinction in the northern part of the state due to a rapidly spreading and unidentified plant disease.



Overview of Cycas Circinalis:

- **Popular Names:** Known by various names like Mund isalu (Kannada), madana kama raja (Tamil), and Malabari supari (Marathi) in different regions.
- **Cycad Family:** Belongs to the cycads family (Cycadaceae), considered one of the most endangered plant groups globally, with origins dating back 300 million years.

Distinctive Features:

- **Physical Characteristics:** An evergreen, palm-like tree that can reach a height of 25 ft, often found in dense, seasonally dry scrubby woodlands in hilly areas.
- **Adaptation:** Facultative deciduous during extremely dry periods.
- **Unique Harvesting Challenge:** Similar to areca nut, Eenthu Pana requires complete dryness for preparation, posing difficulties as it's typically harvested during the rainy season.
- **Slow Growth:** Typically bears fruits after 40 to 50 years.

Geographical Distribution:

- **Restricted Range:** Endemic to the Western Ghats, found in states like Kerala, Karnataka, Tamil Nadu, and the southern part of Maharashtra.
- **Indian Cycad Diversity:** Out of the nine recognized cycad species in India, six are endemic to the country.

Significance and Applications:

- **Nutraceutical Plant:** Holds significance for indigenous communities in the Western Ghats, serving as a nutraceutical plant with cultural and dietary importance.

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SCIENCE AND TECHNOLOGY

I. MEDICAL HEALTH / VACCINES / DISEASES

1. A BOLD STEP TOWARDS A CERVICAL CANCER-FREE FUTURE

SOURCE: THE HINDU

The push for HPV vaccination for girls in the 2024-25 interim Budget marks a new era in women's health in India.

Cervical cancer poses a significant health burden in India, being the second most common cancer among women with alarming rates of mortality.

However, concerted efforts and initiatives are underway both nationally and globally to combat this disease and its underlying cause, the Human papillomavirus (HPV).

Initiatives to Eliminate Cervical Cancer:

Initiatives in India:

- **Development of Cervavac:** India's indigenous HPV vaccine, Cervavac, has made significant strides in making vaccination more affordable and accessible.
- **Sikkim's Successful Model:** Through effective community education and outreach, Sikkim achieved an impressive 97% HPV vaccination rate.
- **U-WIN Portal Rollout:** Similar to Co-WIN, the U-WIN portal aims to track immunizations across the country, including HPV vaccines.

Initiatives Worldwide:

- **WHO's '90-70-90' Targets:** The WHO aims for ambitious vaccination, screening, and treatment targets by 2030 to combat cervical cancer effectively.
- **Rwanda's Campaign:** Rwanda's vaccination program has shown promising

results in reducing HPV prevalence, particularly among women.

- **Southeast Asia Region:** Several countries in this region, including Bhutan and Thailand, have introduced nationwide HPV vaccination programs.
- **Bhutan's Leadership:** Bhutan has been a pioneer in implementing nationwide HPV vaccination programs, achieving high coverage rates among targeted populations.

Challenges in Eliminating Cervical Cancer:

- **Combatting Vaccine Hesitancy:** Addressing misinformation and myths surrounding the HPV vaccine remains a significant challenge.
- **Achieving Equitable Access:** Ensuring access to HPV vaccination for all, especially in underserved areas, is crucial.
- **Building Robust Infrastructure:** Developing adequate healthcare infrastructure for widespread vaccination presents challenges.
- **Implementing Tracking Systems:** Efficient tracking systems like the U-WIN portal pose logistical challenges.
- **Raising Awareness and Education:** Increasing awareness and understanding of HPV and cervical cancer in diverse cultural contexts is essential.
- **Ensuring Vaccine Affordability:** Making vaccines like Cervavac affordable and accessible remains critical.

2. HEPATITIS B IS A PUBLIC HEALTH CONCERN IN INDIA

SOURCE: THE HINDU

Hepatitis, characterized by liver inflammation, poses a significant health concern globally, with various causes including viral infections and lifestyle factors.

About Hepatitis:

- **Definition:** Hepatitis refers to the inflammation of the liver, which can occur

due to viral infections, alcohol consumption, drug abuse, or autoimmune responses.

- **Symptoms:** Common symptoms of hepatitis include fever, fatigue, loss of appetite, nausea, vomiting, abdominal pain, dark urine, joint pain, and jaundice.
- **Causes:** Hepatitis can be caused by hepatotropic viruses (A, B, C, D, E), other viral infections like varicella, drug and alcohol misuse, fatty liver hepatitis, or autoimmune responses.

	Type of Hepatitis				
	A	B	C	D	E
Source of virus	feces	blood/ blood-derived body fluids	blood/ blood-derived body fluids	blood/ blood-derived body fluids	feces
Route of transmission	fecal-oral	percutaneous permucosal	percutaneous permucosal	percutaneous permucosal	fecal-oral
Chronic infection	no	yes	yes	yes	no
Prevention	pre/post-exposure immunization	pre/post-exposure immunization	blood donor screening; risk behavior modification	pre/post-exposure immunization; risk behavior modification	ensure safe drinking water

Types of Hepatitis:

Hepatitis A virus (HAV):

- Transmitted through contaminated food or water.
- Preventable with vaccines.

Hepatitis B virus (HBV):

- Transmitted from mother to child, through early childhood contact, or via sex or unsafe injections.
- Preventable with vaccines.

Hepatitis C virus (HCV):

- Primarily transmitted through unsafe healthcare, blood transfusions, injection drug use, and sexual practices.
- Curable with Direct-acting antiviral medicines (DAAs).

Hepatitis D virus (HDV):

- Occurs in individuals with chronic HBV infection.
- Prevention through hepatitis B immunization.

Hepatitis E virus (HEV):

- Prevalent in East and South Asia, transmitted through contaminated water.
- Vaccine available in some countries.

Government Initiatives to Tackle Hepatitis:

National Viral Hepatitis Control Program:

- Aims to eliminate viral hepatitis as a public health threat in India by 2030.

Universal Immunization Programme (UIP):

- Offers free vaccination against Hepatitis B along with other vaccine-preventable diseases.

Recommendations for Improved Awareness and Prevention:

Public Education Campaigns:

- Launch comprehensive public education campaigns to raise awareness about Hepatitis B transmission, symptoms, and preventive measures.

Community Outreach Programs:

- Conduct community outreach programs in collaboration with healthcare providers to disseminate information about Hepatitis B and encourage vaccination.

School and Workplace Initiatives:

- Integrate Hepatitis B education and vaccination programs into school and workplace health initiatives to reach a wider audience.

Healthcare Provider Training:

- Provide training to healthcare providers to enhance their knowledge about Hepatitis B diagnosis, treatment, and counselling.

Accessible Testing and Vaccination Centres:

- Establish accessible testing and vaccination centres across the country to ensure easy access to diagnostic services and vaccines.

3. COVID-19-RELATED IMMUNIZATION DISRUPTIONS

SOURCE: DOWN TO EARTH

The COVID-19 pandemic has significantly disrupted global immunization efforts, leading to concerns about increased disease burden and outbreak risks.

A recent study published in The Lancet Global Health titled "Estimating the Health Effects of COVID-19-Related Immunization Disruptions in 112 Countries During 2020–30: A Modelling Study" sheds light on these challenges and provides recommendations for mitigating their impact.

Key Highlights of the Report:

Global Immunisation Decline:

- The pandemic caused a decline in global immunization coverage, potentially resulting in increased disease burden and outbreak risks.
- **Disruptions to vaccination programs for diseases such as Measles, Rubella, HPV, Hepatitis B, meningitis A, and yellow fever could lead to approximately 49,119 additional deaths from 2020 to 2030.**
- Overall, disruptions in vaccination coverage across 14 pathogens may result in a 2.66% reduction in the long-term effect, translating to fewer deaths averted.

Importance of Catch-Up Vaccines:

- Catch-up vaccination activities are crucial, especially for diseases like measles and yellow fever, which experienced an immediate increase in burden post-pandemic.
- **These activities have the potential to prevent approximately 79% of excess deaths related to certain diseases.**

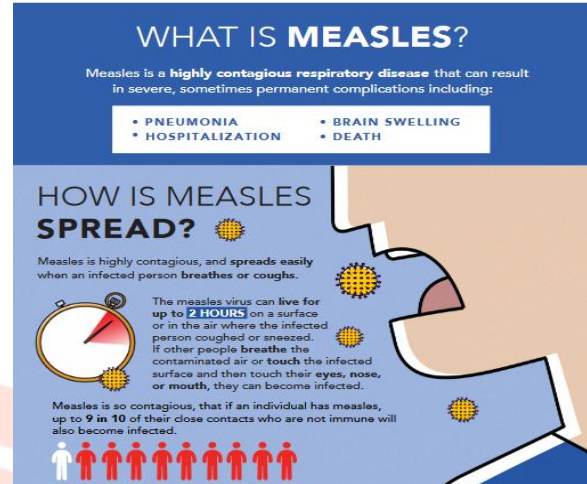
Impact on DTP Vaccine Coverage:

- The pandemic affected coverage for Diphtheria, Tetanus, and Pertussis (DTP) vaccines, leading to an additional 6 million children missing out on vaccination globally in 2021.

Resurgence of Measles Cases:

- Several countries reported a resurgence of measles cases, including those where measles was previously eradicated.
- **In 2021, around 61 million measles vaccine doses were postponed or missed due to COVID-19-related delays.**

- There was an increase in measles cases and deaths globally in 2022 compared to 2021, with millions of children missing vaccine doses, particularly in countries like Nigeria, Pakistan, and India.



Recommendations:

- Implementing catch-up vaccination activities could potentially avert 78.9% of excess deaths between 2023 and 2030.
- **Timely and targeted implementation of catch-up vaccination activities tailored to specific cohorts and regions is crucial.**
- Continued immunization efforts, especially for vaccines like HPV, are essential for long-term public health benefits.

Major Initiatives Related to Immunisation:

Global:

- **Immunisation Agenda 2030 (IA2030):** A global vision and strategy aiming to reduce by 50% the number of children receiving zero vaccine doses, achieve 500 introductions of new or under-utilised vaccines, and attain 90% coverage for essential childhood vaccines by 2030.
- **World Immunisation Week:** Celebrated annually in the last week of April to raise awareness about the importance of immunization.
- **Big Catch-Up Initiative:** Launched by organizations like WHO, UNICEF, and the Bill & Melinda Gates Foundation to boost vaccination among children following declines driven by the COVID-19 pandemic.

Indian:

- **Universal Immunization Programme (UIP):** Provides free immunization against 12 vaccine-preventable diseases nationally and three diseases sub-nationally, including milestones such as polio eradication in 2014 and elimination of maternal and neonatal tetanus in 2015.
- **Mission Indradhanush:** Launched in 2014 by the Ministry of Health and Family Welfare to vaccinate all unvaccinated and partially vaccinated children under the UIP, implemented in several phases.

4. COVINET

SOURCE: WHO

Why in news?

The World Health Organisation (WHO) recently launched a new network for coronaviruses, known as CoViNet. It is a network of global laboratories specializing in human, animal, and environmental coronavirus surveillance.

- Its primary objective is to identify and monitor potentially novel coronaviruses that may emerge in the future.
- The network integrates animal health and environmental surveillance to provide timely risk assessments, aiding in the formulation of WHO policies and protective measures.

Key Features of CoViNet:

- CoViNet aims to expand laboratory capacities in low- and middle-income countries to monitor MERS-CoV and other novel coronaviruses.
- Data generated by CoViNet will inform the work of WHO's Technical Advisory Groups on Viral Evolution and Vaccine Composition, ensuring global health policies are based on the latest scientific information.
- Currently, CoViNet comprises 36 laboratories from 21 countries across all six WHO regions.

- Indian laboratories such as the Council of Scientific and Industrial Research-National Environmental Engineering Research Institute, the Indian Council of Medical Research-National Institute of Virology in Pune, and the Translational Health Science and Technology Institute are part of this network.

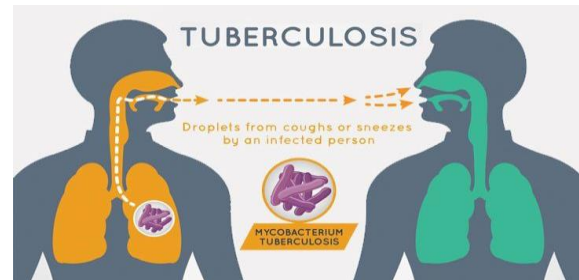
About World Health Organisation:

- Established in 1948, WHO is a specialized agency of the United Nations dedicated to promoting global health and safety.
- It consists of 194 member states and operates through the World Health Assembly (WHA), the highest decision-making body.
- The WHO Secretariat implements policies approved by the WHA, led by the Director-General, supported by a senior management team.
- Additionally, WHO operates through six regional offices: Africa, the Americas, Southeast Asia, Europe, Eastern Mediterranean, and Western Pacific.

5. INDIA TB REPORT-2024

SOURCE: INDIAN EXPRESS

The India TB Report 2024, released by the Union Health Ministry, highlights significant improvements in narrowing the gap between estimated and actual cases of tuberculosis (TB), signaling enhanced detection and treatment efforts.



Reduction in Missing Cases: Tracking Progress:

- The number of missing TB cases decreased from 2 lakh in the previous year to 2.3 lakh in 2023, showcasing a consistent decline

attributed to the Ni-kshay portal's effective surveillance.

- Government's Ni-kshay portal facilitates better tracking of TB patients, leading to improved surveillance and follow-up.

Increase in Private Sector Reporting: Changing Landscape:

- Private sector reporting witnessed a notable increase, contributing to 33% of total reported cases in 2023, indicating a shifting trend in reporting patterns.
- This shift signifies a growing involvement of the private sector in TB detection and reporting, supplementing efforts from government health centers.

Incidence and Mortality Rates: New Methodology:

- Despite a slight increase in TB incidence to 27.8 lakh cases in 2023, the mortality rate remained constant at 3.2 lakh deaths, based on a new methodology accepted by the WHO.
- India's adoption of an in-country model for estimating TB cases and deaths resulted in a significant drop in mortality figures compared to the global report by WHO.

Achieving Treatment Targets: Focus on Drug Susceptibility Testing:

- Treatment initiation for diagnosed TB patients reached 95%, meeting the 2023 target, showcasing significant progress in treatment accessibility.
- Moreover, there has been a notable increase in drug susceptibility testing for diagnosed patients, emphasizing the importance of early detection of drug-resistant TB.

Conclusion:

- The India TB Report 2024 reflects positive trends in TB detection, treatment initiation, and mortality reduction, yet highlights the need for continued efforts to enhance private sector participation, expand drug susceptibility testing, and

ensure access to appropriate therapies for all TB patients.

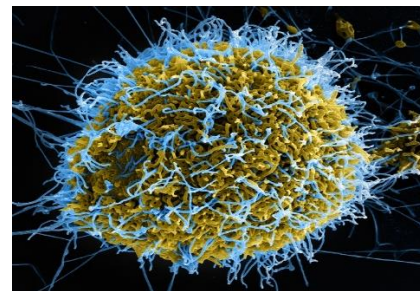
Steps to Address the TB Crisis:

- **Prioritizing Patients and Communities:** Ensure a person-centered approach to TB care, addressing the diverse needs of patients and communities.
- **Bridging Policy Intent with Realities:** Strengthen TB diagnosis and treatment interventions, particularly in rural areas, and ensure availability of free, quality-assured TB drugs.
- **Making TB Care Humane:** Strengthen community-based TB care models to address social, economic, and mental health needs of patients.
- **Adopting Multi-Sectoral Approach:** Address socio-economic determinants of TB through poverty alleviation, improved nutrition, and better living conditions.
- **Leveraging Technology:** Utilize AI and digital health solutions for TB diagnosis, adherence, and surveillance, alongside investing in vaccine development for TB elimination.

6. EBOLA VIRUS DISEASE

SOURCE: DOWN TO EARTH

Scientists have discovered a new mechanism through which Ebola replicates in the human body, identifying a potential target for drugs to combat the viral disease.



About Ebola virus disease

- Ebola virus disease (EVD) is a severe illness caused by various species of viruses from the genus Ebolavirus, primarily found in sub-Saharan Africa.

- It was named after the Ebola River near a village in the Democratic Republic of Congo where the disease was first observed.
- Ebola is less contagious than common viruses like colds or flu and is transmitted through contact with infected animals such as monkeys, chimps, or fruit bats, and then from person to person through bodily fluids.
- The disease outbreaks mainly occur in Africa, with occasional occurrences elsewhere.
- Symptoms of Ebola include flu-like symptoms initially, progressing to severe vomiting, bleeding, and neurological issues.
- Currently, there is no specific treatment for Ebola, though experimental vaccines and therapeutics are under testing.
- Recovery depends on factors like the initial viral exposure, early treatment initiation, age, and immune response of the patient.
- Mortality rates for EVD vary from 25 percent to 90 percent, with an average of 50 percent, often due to shock from fluid loss rather than blood loss.

7. FOOT-AND-MOUTH DISEASE (FMD)

SOURCE: THE HINDU

Foot-and-Mouth Disease (FMD) has affected approximately 60% of milch cattle in Pilibhit district, Uttar Pradesh.



About Foot-and-Mouth Disease:

- FMD is a highly contagious viral disease that affects livestock, including cattle,

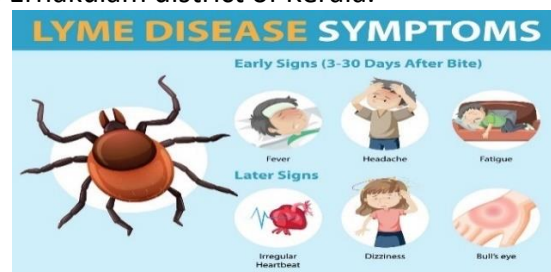
swine, sheep, goats, and other cloven-hoofed ruminants.

- It is not transmitted to horses, dogs, or cats.
- Intensively reared animals are more prone to FMD compared to traditional breeds.
- FMD is a transboundary animal disease (TAD) that significantly impacts livestock production and disrupts regional and international trade in animals and animal products.
- It should not be confused with hand, foot, and mouth disease, which affects humans and is caused by a different virus.
- The virus responsible for FMD belongs to the aphthovirus family Picornaviridae.
- There are seven strains of FMD virus endemic in different countries globally.
- Immunity to one strain does not provide protection against others.
- Symptoms of FMD include fever and blister-like sores on the tongue, lips, mouth, teats, and hooves.
- While rarely fatal in adult animals, FMD often results in high mortality rates among young animals.
- The disease causes substantial production losses, leaving affected animals weakened and debilitated.
- FMD was the first disease recognized by the World Organisation for Animal Health (OIE) for its official status.

8. LYME DISEASE

SOURCE: DOWNTOEARTH

A case of Lyme disease was recently reported in the Ernakulam district of Kerala.



About Lyme disease:

- Lyme disease is a vector-borne infectious disease caused by the bacterium *Borrelia burgdorferi*.
- It is primarily transmitted to humans through the bite of infected black-legged ticks, also known as deer ticks.
- Lyme disease cannot spread between humans, from pets to humans, or through air, food, or water. Other common insects like lice, mosquitoes, fleas, and flies do not transmit it.
- It is prevalent in wooded and grassy areas worldwide, especially during warmer months, and is commonly reported in North America, Europe, and some parts of Asia.
- Early symptoms of Lyme disease typically appear between 3 to 30 days after an infected tick bite and may include fever, headache, fatigue, and a characteristic "bull's-eye" red rash called erythema migrans (EM).
- Erythema migrans serves as a hallmark sign for early diagnosis and management.
- If left untreated, Lyme disease can lead to more severe complications affecting the joints, heart, and nervous system.
- Treatment usually involves antibiotics such as doxycycline or amoxicillin, especially in the early stages, while intravenous antibiotics may be required in later stages.

II. SPACE TECHNOLOGY

9. KULASEKARAPATTINAM: A SWEET SPOT FOR SMALL ROCKET LAUNCHES

SOURCE: HINDUSTAN TIMES

Prime Minister Narendra Modi lays foundation stone for new spaceport at Kulasekarapattinam in southern Tamil Nadu



Kulasekarapattinam Spaceport:

- **Location:** The spaceport is located in Kulasekarapattinam, near Tiruchendur in Thoothukudi district, southern Tamil Nadu.
- **Objective:** It will focus on launching Small Satellite Launch Vehicles (SSLVs) on a commercial basis.
- **Facilities:** The spaceport will have 35 facilities, including a launch pad, rocket integration facilities, ground range, checkout facilities, and a mobile launch structure (MLS).

Launch Capacity and Location Advantage:

- **Capacity:** The spaceport is designed to launch 24 satellites per year using a mobile launch structure.
- **Location Advantage:** Spread over 2,350 acres, it enables fuel savings for small rocket launches by allowing rockets to be launched directly south over the Indian Ocean without crossing landmasses, unlike the existing site at Sriharikota.

Cost and Funding:

- **Estimated Cost:** The project is estimated to cost Rs. 986 crore.
- **Funding:** The foundation stone for the spaceport was laid by the Prime Minister.

Small Satellite Launch Vehicles (SSLVs):

- **Configuration:** SSLV is a 3-stage Launch Vehicle with three Solid Propulsion Stages and a liquid propulsion-based Velocity Trimming Module (VTM) as a terminal stage.
- **Specifications:** It is 2m in diameter, 34m in length, with a lift-off weight of 120 tonnes.

- **Capacity:** SSLV can launch a 500kg satellite into a 500 km planar orbit.

Key Features of SSLVs:

- **Low Cost:** SSLVs are designed for cost-effectiveness.
- **Quick Turn-around:** They have low turn-around time, providing flexibility in accommodating multiple satellites.
- **Launch Flexibility:** SSLVs offer launch-on-demand feasibility and require minimal launch infrastructure.

10. KALAM-250 ROCKET

SOURCE: INDIAN EXPRESS

Why in news?

Skyroot Aerospace, a prominent space-tech company, recently achieved a significant milestone by conducting a successful test firing of the Kalam-250 rocket at the Indian Space Research Organisation's (ISRO) Satish Dhawan Space Centre in Sriharikota, Andhra Pradesh.

The Kalam-250 serves as the second stage of the Vikram-1 space launch vehicle and represents a leap forward in India's space exploration efforts.



About Kalam-250:

- Stage-2 of the Vikram-1 space launch vehicle.
- Features a high-strength carbon composite rocket motor and a high-performance Ethylene-Propylene-Diene terpolymers (EPDM) thermal protection system (TPS).
- Includes a carbon ablative flex nozzle and high-precision electro-mechanical actuators for thrust vector control.
- Crucial for propelling the launch vehicle from the Earth's atmosphere into outer

space.

Key Facts about Vikram-1 Rocket:

- **Named after Dr. Vikram Sarabhai, the father of India's space programme.**
- Multi-stage launch vehicle capable of placing around 300 kg of payloads in low-earth orbit.
- **Built by Hyderabad-based Skyroot Aerospace, a leading space startup.**
- Features an all-carbon-fibre-bodied design capable of launching multiple satellites into orbit.

Significance of Vikram-1:

- Utilizes solid-fuel technology and simpler design, enabling rapid assembly and launch capabilities.
- **Requires minimal infrastructure for launch and can be assembled and launched within 24 hours from any site, enhancing flexibility and efficiency in space missions.**

11. WHITE DWARFS

SOURCE: THE HINDU

Astronomers have reported the discovery of four white dwarf stars belonging to a rare DAQ spectral subclass.



About White dwarfs:

- White dwarfs are stellar remnants formed after a dying star exhausts its nuclear fuel and sheds its outer layers to form a planetary nebula.
- **They represent the end stage of stars like the Sun after nuclear fusion ceases.**
- **Despite being extremely hot, white dwarfs no longer undergo nuclear fusion reactions.**

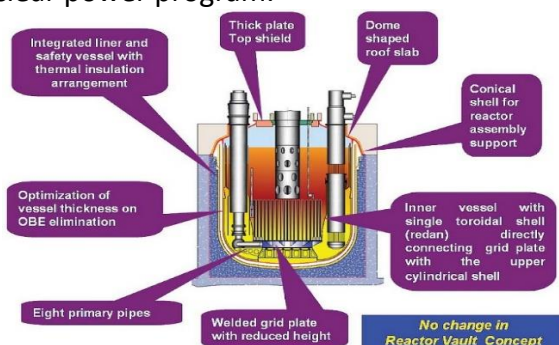
- Typically, a white dwarf is half as massive as the Sun but only slightly larger than Earth, making them incredibly dense.
- **Newly formed white dwarfs contain helium, carbon, and oxygen nuclei surrounded by highly energetic electrons.**
- Unlike other stars, white dwarfs are supported by electron degeneracy pressure due to stellar contraction.
- **Without accreting matter from nearby stars, white dwarfs cool over billions of years, eventually becoming 'black dwarfs'.**
- White dwarfs' luminosity helps astronomers measure the age of star formation in specific regions.
- **They serve as important cosmological tools, providing insights into the stars they originated from.**
- In 2006, Hubble became the first telescope to directly observe white dwarfs in globular star clusters, revealing them as the dimmest stars ever seen in such clusters.

III. EMERGING TECHNOLOGIES

12. PM MODI TO LAUNCH PROJECTS WORTH OVER RS 62K CRORE IN TELANGANA, VISIT TN NUCLEAR POWER PLANT

SOURCE: INDIAN EXPRESS

Prime Minister Narendra Modi's attendance at the core loading of India's indigenous 500 Mwe Prototype Fast Breeder Reactor (PFBR) in Kalpakkam marks a significant milestone in India's nuclear power program.



Key Points:

Prototype Fast Breeder Reactor (PFBR):

- **Developed by BHAVINI, the PFBR represents a crucial advancement in India's nuclear power program.**
- Core loading involves the installation of control, blanket, and fuel sub-assemblies to facilitate power generation.
- PFBR is designed to promote self-sufficiency in fuel supply through a closed fuel cycle.

Advantages of PFBR:

- The sodium cooled PFBR produces more fuel than it consumes, contributing to self-sufficiency and sustainability.
- **Advanced safety features and minimized nuclear waste make Fast Breeder Reactors (FBRs) a safe and clean energy source.**
- PFBR marks progress towards thorium utilization in the third stage of India's nuclear power program.

Thorium Utilization in India's Nuclear Program:

- India possesses abundant thorium reserves, making it crucial for long-term energy security.
- With limited uranium resources, thorium serves as a viable alternative for sustainable nuclear power.
- **Thorium plays a key role in the third stage of India's nuclear program, focusing on advanced nuclear technologies and closed fuel cycles.**

Fast Breeder Reactors (FBRs) and Their Role:

- **FBRs produce more fissile material than they consume, crucial for sustaining nuclear fission chain reactions.**
- Key differences from thermal reactors include the use of fast neutrons, higher fuel efficiency, and reduced long-lived radioactive waste.
- **FBRs are integral to utilizing thorium as fuel, contributing to self-sufficiency and reducing dependency on imported uranium.**

UPSC MAINS QUESTION

Q. Explain the concept of nuclear waste and the challenges associated with its management. Discuss India's approach to nuclear waste management and suggest measures for addressing the challenges in handling nuclear waste effectively. (150 WORDS)

13. WHAT IS NUCLEAR WASTE AND WHAT ARE THE CHALLENGES OF HANDLING IT?

SOURCE: THE HINDU

India recently achieved a significant milestone in its nuclear program by loading the core of its prototype fast breeder reactor (PFBR), moving towards stage II of its three-stage nuclear program.

However, effective management of nuclear waste remains a crucial challenge in the field of nuclear energy.

Nuclear Waste:

- **Definition:** Nuclear waste refers to the radioactive byproducts generated during nuclear fission reactions in nuclear reactors.
- **Generation Process:** Neutrons bombard the nuclei of certain elements, leading to nuclear fission reactions that produce radioactive waste materials.
- **Characteristics:** Highly radioactive and hazardous, nuclear waste must be safely stored to prevent environmental contamination and human exposure.

Managing Nuclear Waste:

- **Storage:** Nuclear waste, known as spent fuel, is initially stored underwater for several decades to cool down before being transferred to dry casks for long-term storage.
- **Treatment Facilities:** Nuclear power plants have liquid waste treatment facilities to manage radioactive liquid waste generated during reactor operation.

Disposal Methods:

- **Geological Disposal:** Some advocate for burying nuclear waste deep underground in sealed containers within geologically stable formations.
- **Reprocessing:** Involves separating usable materials like plutonium and uranium from spent nuclear fuel for recycling. However, reprocessing also yields weapons-usable plutonium.

Challenges in Managing Nuclear Waste:

- **Geological Disposal Risks:** Geological disposal poses risks of radioactive material exposure if containers are disturbed, as demonstrated by incidents like the Waste Isolation Pilot Plant accident in the US.
- **Private Sector Exclusion:** Lack of private sector involvement may hinder innovation and technological advancements in nuclear waste management.
- **Underutilized Funds:** Despite the existence of funds for nuclear waste management, such as the US Nuclear Waste Fund, they often remain underutilized.
- **Lack of International Cooperation:** Inadequate international collaboration hampers the development of effective nuclear waste management strategies.

India's Approach to Nuclear Waste Management:

- **Reprocessing Facilities:** India operates reprocessing plants in Trombay, Tarapur, and Kalpakkam to recycle spent nuclear fuel and produce plutonium for reactors and other purposes.
- **Current Practices:** India's reprocessing facilities handle spent nuclear fuel, with capacities ranging from 50 to 100 tonnes of heavy metal per year.



Way Forward:

- **Emphasize Reprocessing:** Focus on reprocessing technologies to recycle valuable materials from spent nuclear fuel and reduce the volume of high-level waste.
- **Vitrification Techniques:** Employ vitrification processes to encapsulate radioactive waste in glass, ensuring long-term stability and containment.
- **Invest in R&D:** Allocate resources for research and development to explore alternative disposal methods and innovative technologies for nuclear waste management.
- **Regulatory Oversight:** Strengthen regulatory frameworks to enforce safety standards and mitigate environmental and health risks associated with nuclear waste.
- **International Collaboration:** Foster international cooperation to share knowledge, develop best practices, and ensure responsible management of nuclear waste on a global scale.

Conclusion:

Effective management of nuclear waste is imperative for the safe and sustainable use of nuclear energy.

By implementing robust strategies and fostering international cooperation, countries like India can address the challenges associated with nuclear waste management and pave the way for a cleaner and safer energy future.

14. REVERSE OSMOSIS

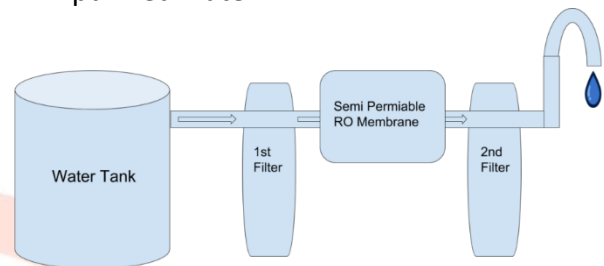
SOURCE: PIB

Reverse Osmosis (RO) water purification has gained widespread popularity due to its effectiveness in eliminating contaminants and reducing Total Dissolved Solids (TDS) levels in water.

However, concerns have emerged regarding the loss of essential minerals like calcium and magnesium during the RO process.

What is the RO Water Purification Method?

- RO is a water purification process that utilizes a semi-permeable membrane to remove impurities from water.
- **Water is forced through the membrane under pressure, allowing water molecules to pass while blocking contaminants.**
- This method effectively removes dissolved solids, chemicals, microorganisms, and other impurities, producing clean and purified water.



Reasons for Growing Demand for RO Water:

Poor Water Quality:

- Regions facing challenges with poor quality groundwater or tap water seek clean drinking water alternatives due to issues like brackish taste and contamination.

Perceived Health Benefits:

- Consumers believe that RO water is safer and healthier to drink compared to untreated water, contributing to its popularity.

Convenience and Accessibility:

- RO water is readily available through purification plants and domestic systems, offering convenience and ease of access.

Increasing Urbanization:

- Urban areas experiencing groundwater contamination and municipal water quality issues drive the demand for RO water purification systems.

What are the Concerns Related to the RO Process?

Loss of Essential Minerals:

- RO systems remove essential minerals like calcium and magnesium, potentially leading to micronutrient deficiencies and health issues.



Extreme Reduction in TDS Levels:

- Studies indicate significant reductions in TDS levels in RO water, resulting in a scarcity of essential minerals.

Health Impacts:

- Removal of beneficial minerals can contribute to health problems such as joint pain, heart disease, and magnesium deficiency.

Recommended TDS Limits for Safe Drinking Water:

Bureau of Indian Standards (BIS):

- Maximum TDS limit for safe drinking water: 500 mg/l (ppm); permissible limit: 2,000 mg/l.

World Health Organization (WHO):

- TDS in drinking water should range between 600 and 1,000 mg/l according to WHO standards.

International Standards:

- Countries like Europe, the US, and Canada set TDS standards at 500 to 600 mg/l.

Technologies to Address Mineral-Related Issues Within RO Systems:

TDS Controllers and Mineral Infusion Cartridges:

- To tackle TDS-related concerns, manufacturers of RO systems have introduced TDS controllers (or modulators) and mineral infusion cartridges (or mineralisers) for both commercial and residential units.
- TDS controllers assist in regulating TDS levels in purified water, while mineral cartridges incorporated within the system infuse targeted minerals into the water during the filtration process.
- **Moreover, the decrease in TDS levels tends to lower the pH of water, resulting in increased acidity.**
- Consequently, modern RO systems are equipped with alkaline cartridges to introduce compounds such as bicarbonates and hydrogen oxide into the water stream.

Way Forward:

Assessment of Water Needs:

- Emphasis should be on assessing regional water conditions to determine the necessity of RO systems.

Alternative Technologies:

- Alternative purification technologies should be considered based on specific contaminant concerns in different regions.

Local Authority Responsibility:

- Local authorities must ensure that water supplied meets BIS standards, especially in areas prone to contamination.

UPSC MAINS QUESTION

Q. Explain the Reverse Osmosis (RO) water purification method and discuss the concerns associated with it. What measures can be taken to address these concerns and ensure safe drinking water for all? (150 WORDS)

15. PROMOTING CLEAN COAL TECHNOLOGY: COAL GASIFICATION

SOURCE: PIB

The Ministry of Coal in India is actively promoting coal production while emphasizing a shift towards cleaner energy alternatives. The recently launched Coal Gasification Mission is a significant step in this direction, aiming to gasify 100 million tonnes of coal by 2030.

Importance of Coal in India:

- **Coal constitutes nearly 70% of India's total electricity generation and is a crucial input in industries like steel, sponge iron, cement, and paper.**
- Recognizing environmental concerns, the ministry is committed to adopting clean coal technologies to ensure a resilient and sustainable energy ecosystem.

Coal Gasification Mission:

- **Aims to gasify 100 million tonnes of coal by 2030 through surface coal/lignite gasification projects.**

- Strategic bilateral agreements and MoUs have been established for collaborative efforts, including partnerships between BHEL & CIL and IOCL, GAIL & CIL.
- **A financial assistance scheme with ₹8500 crores allocation supports government PSUs and the private sector in Coal/Lignite Gasification Projects.**
- Joint venture agreements, such as the one between CIL and BHEL, signify significant progress in the adoption of gasification technology.

Benefits and Objectives:

- **The adoption of gasification technology aims to reduce import reliance, contribute to Aatmanirbhar Bharat Abhiyaan, and generate employment opportunities.**
- The government actively engages in clean coal initiatives such as CBM extraction, Coal to Hydrogen, CCS, and coal beneficiation for enhanced environmental sustainability.
- Research and development investments prioritize improving coal utilization efficiency and developing innovative technologies for long-term competitiveness and sustainability.

Coal Gasification Technology:

- **Definition:** The process that converts coal into a gas mixture containing carbon monoxide, hydrogen, and other compounds, known as synthesis gas or syngas.
- **Chemical Process:** Involves reacting coal with oxygen, steam, and/or air under high temperatures and pressures to break down complex hydrocarbons into simpler gaseous components.
- **Syngas Composition:** Typically consists of carbon monoxide (CO), hydrogen (H₂), carbon dioxide (CO₂), methane (CH₄), and trace impurities.
- **Applications:** Syngas can be used as a versatile feedstock for chemicals, fuels, and electricity. It can be converted into

liquid fuels through Fischer-Tropsch synthesis.

- **Environmental Benefits:** Gasification allows for the capture and storage of pollutants, reducing environmental impact compared to traditional coal combustion. It enables more efficient carbon capture and storage (CCS) technologies.
- **IGCC Technology:** Integrated Gasification Combined Cycle integrates coal gasification with a combined cycle power generation system, enhancing overall efficiency and reducing emissions.

Challenges and Future Outlook:

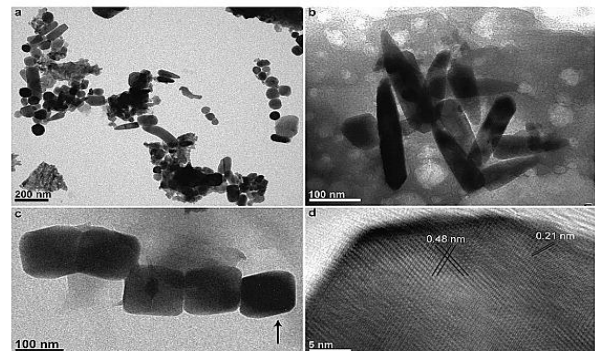
- Challenges include high capital costs and the need for advanced gas cleaning technologies, requiring careful byproduct management.
- **Ongoing research aims to improve gasification efficiency, reduce costs, and address environmental concerns, contributing to the continued development and deployment of coal gasification technology.**

IV. PRELIMS POINTERS IN NEWS

16. MAGNETOFOSSILS

SOURCE: DOWN TO EARTH

Scientists discovered a 50,000-year-old sediment in the Bay of Bengal containing a giant magnetofossil.



About Magnetofossils

- Magnetofossils are fossilized remains of magnetic particles created by

magnetotactic bacteria found in geological records.

- **Magnetotactic bacteria are prokaryotic organisms that align themselves along the earth's magnetic field.**
- **They use tiny crystals made of iron-rich minerals like magnetite or greigite to navigate changing oxygen levels in water bodies.**
- The sediment core from the Bay of Bengal contained pale green silty clays and abundant foraminifera.
- **Microscopy confirmed the presence of conventional magnetofossils alongside giant ones.**
- **The Bay of Bengal's low oxygen concentration at depths of 1,000-1,500 m was evident.**
- Fluctuations in monsoon and distinct geological periods were confirmed through magnetic mineral particles.
- **Rivers like Godavari, Mahanadi, Ganga-Brahmaputra, Cauvery, and Penner played a vital role in magnetofossil formation.**
- Nutrient-rich sediment from these rivers combined with suboxic conditions in the Bay of Bengal favored magnetotactic bacteria growth.
- **Freshwater discharge and oceanographic processes sustained suboxic conditions, allowing bacteria to thrive.**

17. OLA'S KRUTRIM AI

SOURCE: PIB

Ola, an Indian multinational ridesharing company, introduced Krutrim AI earlier this year, positioning it as "India's own AI."

- **Purpose:** Krutrim AI is designed to serve as a personalized assistant, simplifying both personal and professional tasks for users.
- **Bridging Cultural Gap:** This AI model aims to bridge the gap between conventional AI

and the specific needs rooted in Indian languages and culture.

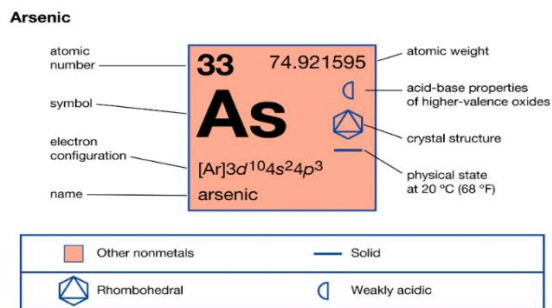
Technological Components:

- **Natural Language Processing (NLP):** Utilizes NLP to understand the nuances of human language, including colloquialisms and cultural contexts.
- **Machine Learning (ML):** Employs ML algorithms to learn from extensive data sets and enhance its responses over time.
- **Deep Learning:** Utilizes Deep Learning, a sophisticated ML branch, to recognize patterns and analyze complex data.
- **Understanding User Intent:** Unlike traditional AI models, Krutrim AI goes beyond keyword matching and statistical probabilities to understand the user's intent accurately.
- **Functionality:** Krutrim AI assists with various tasks, including writing emails, seeking information, acquiring new skills, planning travel, discovering recipes, and more, catering to a range of creative and knowledge retrieval needs.

18. ARSENIC

SOURCE: INDIAN EXPRESS

In India, states like West Bengal, Jharkhand, Bihar, Uttar Pradesh, Assam, Manipur, and Chhattisgarh are reported to be severely affected by arsenic contamination of groundwater, surpassing permissible levels.



- **Occurrence:** Arsenic is a naturally occurring, semimetallic element found widely in the Earth's crust and distributed in air, water, and land.

- **Forms:** It exists in both gray and yellow crystalline forms and is classified as a chemical element in Group 15 of the periodic table.
- **Toxicity:** Arsenic is highly toxic in its inorganic form and poses significant health risks when consumed.

Exposure Routes:

People are exposed to elevated levels of inorganic arsenic through various means, including drinking contaminated water, using such water for food preparation and irrigation, industrial processes, consuming contaminated food, and smoking tobacco.

- **Health Impacts:** Long-term exposure to inorganic arsenic can lead to chronic arsenic poisoning, causing skin lesions and skin cancer, among other effects.

19. HYODOL DOLLS

SOURCE: INDIAN EXPRESS

The South Korean government deployed around 7,000 Hyodol dolls to provide companionship to senior citizens and remind them to take medications, addressing the growing social issue of loneliness among the elderly in South Korea.



About Hyodol Robot:

- **These AI care robots resemble cuddly soft toys but possess advanced language processing and emotion recognition capabilities, enabling them to engage with seniors through conversation and music.**
- They offer customized care for seniors by collecting data through conversations and interactions with them.

- **The robots come with a companion app and web monitoring platform for caretakers to remotely monitor seniors' well-being.**
- **Safety features include alerts for prolonged inactivity and touch interaction capabilities.**
- Additional features include health coaching, voice messages, 24-hour reminders, music, quizzes, exercise suggestions, and more.

Technology Used:

- The AI robot utilizes a large language model for holding conversations and provides convenient intelligent services.
- It can be linked to smart home devices and offers an easy-to-use interface for all users, including caregivers.

20. PRITZKER ARCHITECTURE PRIZE

SOURCE: MINT

Japanese architect Riken Yamamoto has been honored with the prestigious 2024 Pritzker Architecture Prize

About Pritzker Architecture Prize:

- Highest international award in architecture, dubbed the "Architecture Nobel" and "the profession's highest honor."
- Established in 1979 by the Pritzker family of Chicago through their Hyatt Foundation.
- Awarded annually to living architects for significant achievement in the field.
- Aims to honor architects whose work demonstrates talent, vision, and commitment to humanity and the built environment.

Works of Riken Yamamoto:

- He is the Ninth laureate from Japan.
- Notable works include the Hiroshima Nishi Fire Station (2000), featuring a transparent façade and glass walls allowing passersby to observe.

- The Koyasu Elementary School (2018) showcases spacious, open terraces promoting interaction and facilitating arts education.

Prize Details:

- The laureate receives \$100,000 and a bronze medallion in recognition of their contributions to architecture and humanity.

21. Devin AI

SOURCE: THE HINDU

Cognition, a US-based company, introduced Devin, claimed to be the world's first fully autonomous AI software engineer.

About Devin AI:

Devin AI is hailed as the world's premier AI software engineer.

Capabilities:

- Devin possesses advanced software development skills, including coding, debugging, and problem-solving.
- It employs machine learning algorithms to continuously enhance its performance and adapt to new challenges.
- Capable of building, deploying, and fine-tuning AI models independently.
- Executes complex engineering tasks efficiently, recalling relevant context, self-learning, and rectifying errors.
- Proactively collaborates with users, providing real-time progress reports and accepting feedback.

Performance:

- On the SWE-Bench benchmark, Devin autonomously resolved 13.86% of issues compared to the previous state-of-the-art model's 1.96% unassisted and 4.80% assisted resolutions.
- Enhances efficiency, speeds up software development processes, generates code instantly, and reduces development costs significantly.

- Immune to human errors or inconsistencies, ensuring reliable performance.

22. WEARABLE TECHNOLOGY

SOURCE: THE HINDU

Samsung unveiled Galaxy Ring, a new smart ring-shaped wearable device, at the Galaxy Unpacked event.



About Wearable Technology:

- Wearable technology encompasses electronic devices worn as accessories, embedded in clothing, or even tattooed on the skin.
- Varieties include smart watches, fitness trackers, head-mounted displays, smart jewelry, and smart clothing.
- Equipped with sensors, software, and connectivity technology.

Working:

- Sensors collect user data, which is then transmitted wirelessly to a processing device.
- Operates within the Internet of Things (IoT) ecosystem, akin to smart home technology.
- Enables remote control and data interpretation.

Benefits:

Smart rings leverage capillaries for accurate readings and boast longer battery life compared to smartwatches.

Drawbacks:

Limited functionality compared to smartwatches; unlikely to feature GPS or a screen.



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SECURITY

I. SECURITY FORCES AND THEIR MANDATE

1. INS JATAYU

SOURCE: PIB

Indian Navy will commission Naval Detachment Minicoy as INS Jatayu on 06 Mar 2024, with the Chief of the Naval Staff in attendance.



About INS Jatayu:

- Second Naval base in Lakshadweep after INS Dweeprakshak in Kavaratti.
- Strengthens Indian Navy's presence in Lakshadweep, enhancing operational surveillance and reach while fostering capacity building and comprehensive development.

Key Facts about Minicoy Island:

- Southernmost island of Lakshadweep, strategically located on vital Sea Lines of Communications (SLOCs).
- Naval Detachment Minicoy, operational since the early 1980s, is under the command of Naval Officer-in-Charge (Lakshadweep).

Significance of Naval Detachment:

- Establishment of an independent Naval unit with necessary infrastructure enhances Indian Navy's operational capability in the islands.
- Augments operational reach, facilitating Anti-Piracy and Anti-Narcotics Operations in the Western Arabian Sea.
- Strengthens Indian Navy's role as the first responder in the region and improves connectivity with the mainland.

2. NARCOTICS CONTROL BUREAU (NCB)

SOURCE: PIB

In a recent maritime operation, the Indian Navy and the Narcotics Control Bureau (NCB) collaborated to intercept a suspicious vessel carrying nearly 3300 kilograms of contraband.

This joint effort underscores the crucial role played by the NCB in combating drug trafficking and abuse in India. Let's delve into the key aspects of the Narcotics Control Bureau and its functions.

About Narcotics Control Bureau (NCB):

Establishment and Legal Mandate:

- Formed in March 1986 under Section 4(3) of the Narcotic Drugs and Psychotropic Substances Act, 1985, the NCB serves as

the central authority to effectively combat drug abuse and illicit trade.

- Its primary objective is to prevent, investigate, and prosecute drug offenders while implementing preventive measures to curb the demand and supply of narcotics and psychotropic substances.

Powers and Functions:

- Under the supervision of the Central Government, the NCB exercises various powers and functions:
- Coordinates actions among different offices, state governments, and authorities under relevant laws like the NDPS Act, Customs Act, etc.
- Implements international conventions and protocols to combat illicit drug trafficking.
- Provides assistance to foreign authorities and international organizations to facilitate universal action against drug trafficking.
- Coordinates with other ministries, departments, and organizations on matters related to drug abuse.

Operational Structure and Functions:

- The NCB serves as the apex coordinating agency and operates through zones and sub-zones.
- These zones collect and analyze data on drug seizures, study trends, and work closely with customs, state police, and other law enforcement agencies.
- Besides enforcement activities, the NCB focuses on raising awareness about drug abuse, educating the public, and providing support to affected individuals.
- It maintains the National Data Bank on Narcotic Drugs and Psychotropic Substances and updates the National Register of Treatment Providers and Narcotic Drug Dependents.

Reporting and Support:

- The NCB directly reports to the Ministry of Home Affairs (MHA) and receives administrative and financial support from

the Government of India for its smooth functioning and strengthening.

3. SAMUDRA PAHEREDAR

SOURCE: THE HINDU

External Affairs recently visited the Indian Coast Guard ship Samudra Paheredar in Manila Bay, Philippines, as part of its deployment to ASEAN countries.



Samudra Paheredar:

- Samudra Paheredar is a specialized Pollution Control Vessel (PCV) of the Indian Coast Guard.
- It is the second PCV of India, built by ABG Shipyard in Surat and commissioned in 2012.
- The ship is stationed on the East Coast of India in Vishakhapatnam, Andhra Pradesh.
- Samudra Paheredar measures 94.10 meters in length, with a maximum displacement of 4,300 tons.
- It is powered by 3,000-kilowatt twin diesel engines and twin shaft generators, enabling a maximum speed of 21 knots.
- With an endurance of 6,500 nautical miles at economical speed, the ship can stay at sea for 20 days.
- Its primary role is pollution response at sea, equipped with advanced equipment like hi-sprint booms, skimmers, and side sweeping arms for oil spill mitigation.
- The ship has a storage capacity of 502 kilolitres for oil recovery operations.
- Special features include an integrated platform management system, power

management system, and high-powered external firefighting system.

- **Samudra Paheredar is capable of operating one twin-engine ALH/Chetak helicopter.**

4. INS TIR AND INS SUJATA

SOURCE: FINANCIAL EXPRESS

INS Tir and INS Sujata are set to participate in the upcoming India Mozambique Tanzania (IMT) TriLateral (TRILAT) Exercise.



- **The IMT Trilateral Exercise is a joint maritime exercise scheduled to take place from March 21 to March 29, 2024.**
- The first edition of the IMT TRILAT exercise occurred in October 2022, featuring INS Tarkash alongside the Tanzanian and Mozambique Navies.
- **The current edition is planned in two phases, starting with the harbour phase from March 21 to March 24. INS Tir and INS Sujata will engage with the respective Navies at the ports of Zanzibar (Tanzania) and Maputo (Mozambique).**
- During the harbour phase, joint training activities such as Damage Control, Fire Fighting, Visit Board Search and Seizure procedures, Medical Lectures, Casualty Evacuation, and Diving operations will be conducted.
- **The sea phase focuses on countering asymmetric threats, Visit Board Search and Seizure procedures, boat handling, manoeuvres, firing exercises, and joint EEZ surveillance.**
- The exercise will conclude with a joint debrief scheduled at Nacala (Mozambique).

- Indian Naval ships will be open for visitors during the harbour stay and will partake in sports and cultural exchanges with host Navies.

5. SEA DEFENDERS-2024

SOURCE: PIB

The United States Coast Guard's (USCG) Bertholf ship has arrived in Port Blair, preparing for the 'Sea Defenders-2024' joint exercise.



Sea Defenders-2024 Joint Exercise:

- A collaborative effort between the Indian Coast Guard and the United States Coast Guard.
- **Location:** Off the coast of Port Blair, Andaman and Nicobar Islands.

Focus and Activities in the Exercise:

- The two-day exercise concentrates on maritime piracy and asymmetric threats.
- **Activities include simulated drone attacks on commercial merchant traffic, joint maritime search and rescue operations, firefighting, marine pollution response, and counter-drug interdiction exercises.**
- A simulated medical evacuation will enhance preparedness for emergency situations.

Importance and Cooperation:

- Emphasizes international cooperation in addressing maritime challenges.
- Highlights the partnership between the Indian and US Coast Guards.

Key Facts about Indian Coast Guard (ICG):

- Established in 1978 under the Coast Guard Act, operating as an independent Armed force.
- Ensures maritime security, assists distressed vessels and fishermen, and protects the maritime environment.

- Functions under the Ministry of Defence, headed by the Director General Indian Coast Guard (DGICG), with headquarters in New Delhi.

II. PRELIMS POINTERS IN NEWS

6. THE VERY SHORT-RANGE AIR DEFENCE SYSTEM (VSHORADS) MISSILE

SOURCE: ECONOMIC TIMES

The Defence Research and Development Organisation (DRDO) recently conducted two successful flight tests of the Very Short-Range Air Defence System (VSHORADS) missile.

- VSHORADS is a fourth-generation Man Portable Air Defence System (MANPAD) designed to counter low-altitude aerial threats over short distances.



- These missiles are short-range, lightweight, and portable, allowing individuals or small groups to operate them.
- Developed by DRDO's Research Centre Imarat (RCI), Hyderabad, in collaboration with other DRDO laboratories and Indian industry partners.

Key Features include:

- Designed to protect ground forces and critical assets from aerial threats like helicopters and low-flying aircraft.
- Offers a range of up to 6 kilometers.
- Incorporates advanced technologies such as a Dual-band IIR Seeker, miniaturized Reaction Control System, and integrated avionics.
- Propelled by a dual-thrust solid motor.

Both the missile and launcher are portable, enabling quick deployment over challenging terrain.

7. WHAT IS GREY ZONE WARFARE, MENTIONED BY INDIA'S CHIEF OF DEFENCE STAFF RECENTLY?

SOURCE: INDIAN EXPRESS

Grey zone warfare refers to a type of informal conflict that falls between outright war and peaceful coexistence. In this form of warfare, tactics such as economic actions, cyberattacks, and disinformation campaigns are utilized to gain strategic advantages without engaging in direct military confrontation.

Key Points:

Historical Context:

- Grey zone warfare traces its roots back to the Cold War era when the United States and the Soviet Union engaged in intense rivalry.
- Given the nuclear capabilities of both superpowers, direct conflict was considered too risky, leading to the adoption of tactics operating in the grey zone.
- Parties with limited resources or power utilized grey zone tactics to gain advantages over technically superior adversaries.

Examples of Grey Zone Warfare: Chinese Actions:

- Recent actions by China in the South China Sea illustrate grey zone tactics.
- China's expansive territorial claims in the region have led to confrontations with neighbouring countries like the Philippines.
- Chinese maritime militia and coast guard activities near disputed reefs have sparked tensions, aiming to assert control without escalating to direct conflict.
- Similarly, Chinese military activities near Taiwan aim to pressure the island nation without triggering full-scale confrontation.

Grey Zone Tactics of Other Nations:

- The United States has also employed grey zone tactics, including economic sanctions and maritime reconnaissance activities.
- These measures are part of broader strategies to influence and pressure adversaries without resorting to overt military actions.

Risks and Implications:

- Grey zone warfare blurs the lines between peace and conflict, making it challenging for nations to respond effectively.
- Operating in this ambiguous space may provoke unintended military reprisals and escalate tensions between nations.

8. BALLISTIC MISSILES

SOURCE: TIMES OF INDIA

North Korea recently launched short-range ballistic missiles towards its eastern waters coinciding with the opening of a democracy summit in South Korea by the United States Secretary of State.



- Ballistic missiles are rocket-propelled weapons that follow a predetermined trajectory to deliver a payload to a target.
- They are initially powered by rockets but follow an unpowered trajectory after launch.
- Ballistic missiles can carry various types of payloads, including conventional explosives, chemical, biological, or nuclear weapons.
- They can be launched from different platforms, including land-based silos, mobile platforms, submarines, ships, and aircraft.

- Ballistic missiles are classified based on their range:
 - **Short-range:** less than 1,000 kilometers (approximately 620 miles), also known as "tactical" missiles.
 - **Medium-range:** between 1,000 and 3,000 kilometers (approximately 620-1,860 miles), also known as "theater" missiles.
 - **Intermediate-range:** between 3,000 and 5,500 kilometers (approximately 1,860-3,410 miles).
 - **Long-range:** more than 5,500 kilometers (approximately 3,410 miles), also known as intercontinental or strategic missiles.
- Short- and medium-range ballistic missiles are categorized as theater ballistic missiles, while long-range ones are termed as strategic ballistic missiles.



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SOCIETY

I. VULNERABLE SECTIONS OF THE SOCIETY

1. FRENCH LAWMAKERS TO ENSHRINE ABORTION RIGHTS IN FRANCE'S CONSTITUTION

SOURCE: INDIAN EXPRESS

The recent approval by French lawmakers to enshrine abortion rights in France's constitution has sparked discussions globally regarding reproductive rights and legal provisions related to abortion.

What is Abortion?

- **Abortion is the deliberate termination of a pregnancy, usually within the first 28 weeks of gestation.**
- It can be performed through medical procedures or medications, depending on the pregnancy's stage and individual preferences.
- Abortion is a highly debated topic involving ethical, moral, religious, and legal considerations.

Proponents of Abortion Rights

- **Proponents argue that abortion is a fundamental reproductive right, allowing individuals autonomy over their bodies and futures.**
- Access to safe and legal abortion services is crucial in preventing unwanted pregnancies and safeguarding women's health.

Opponents of Abortion

- **Opponents, often called "pro-life," believe abortion is morally wrong and should be restricted or prohibited entirely.**
- They argue that life begins at conception, and terminating a pregnancy violates the rights of the unborn fetus.

Legal Provisions Related to Abortion in India

Parameter	MTP Act, 1971	MTP Act, 2021
Contraceptive Failure	Married Women can avail	Both Married & Unmarried Women can avail
Limit of Gestation	Upto 20 weeks	Upto 24 weeks
Opinion of Doctor	1 RMP - 12 weeks 2 RMP - 20 weeks	1 RMP - 20 weeks 2 RMP - 24 weeks
Foetal Abnormalities	20 weeks limit on gestation	No limit on gestation

- Historically, abortion was prohibited in India until the enactment of the Medical Termination of Pregnancy (MTP) Act, 1971.
- **The MTP Act legalized safe and legal abortions, aiming to protect women's health and reduce maternal mortality.**
- **Amendments in 2021 extended abortion access up to 24 weeks for specific cases like rape survivors and established Medical Boards for cases of substantial fetal abnormalities.**
- The Constitution of India guarantees the right to reproductive choice and autonomy for women under Article 21.

Concerns Related to Abortion

- **Unsafe Abortions:** Unsafe abortions contribute significantly to maternal mortality, especially among women in poor families or outside marriages.
- **Preference for Male Child:** Selective abortion of female fetuses persists in regions where male children are favored over females.
- **Shortage of Medical Experts:** Rural areas face a shortage of obstetrician-gynaecologists, impacting access to safe abortion services.

Way Forward

- Ensure access to safe and legal abortion services without stigma or barriers.
- Expand abortion services in urban and rural areas, train healthcare providers, and raise awareness about women's rights.
- **Support healthcare providers in delivering non-judgmental care while addressing ethical and legal concerns.**

UPSC MAINS QUESTION

Q. Discuss the recent approval of enshrining abortion rights in France's constitution and its global implications on reproductive rights. Analyze the legal provisions related to abortion in India. (150 WORDS)

2. HUMAN DEVELOPMENT REPORT 2024

SOURCE: THE HINDU

The Human Development Report (HDR) is an annual publication by the United Nations Development Programme (UNDP) that assesses the global state of human development.

The 2023-24 HDR, titled 'Breaking the Gridlock: Reimagining Cooperation in a Polarised World,' sheds light on various aspects of human development, offering insights into global inequalities and progress.

About the Human Development Report:

Origins:

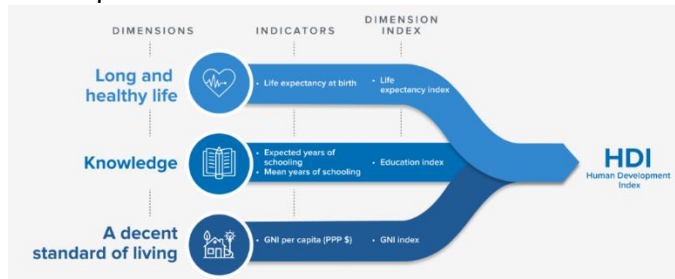
- HDRs have been released since 1990, exploring different themes through the human development approach.
- Produced by the Human Development Report Office for the UNDP.

Human Development Index (HDI):

Composite index measuring average achievement in human development based on:

1. Life expectancy at birth
2. Expected years of schooling
3. Mean years of schooling
4. Gross national income (GNI)

Provides a snapshot of a country's overall development status.



Key Highlights of the Report:

Global Performers:

- **Top three countries:** Switzerland, Norway, and Iceland.
- **Bottom three countries:** Somalia, South Sudan, and Central African Republic.
- Notable performances by bigger economies like the USA, UK, Japan, and Russia.
- The report excludes the Democratic People's Republic of Korea (North Korea) and Monaco.

Growth Disparity:

- Rich countries experience unprecedented development, while half of the world's poorest nations lag behind.
- Inequality reduction trend reverses, leading to widening gaps between wealthy and poor nations.

Democracy Paradox:

- Support for democracy coexists with endorsement of leaders undermining democratic principles.
- Political polarisation and inward-looking policy approaches emerge due to a sense of powerlessness.

Global Inequalities:

- Economic concentration amplifies global inequalities.
- Dominance of a few countries in global trade and tech industry exacerbates disparities.

India's Progress:

- **Life Expectancy:** Increased to 67.7 years in 2022 from 62.7 years the previous year, indicating improved healthcare and living conditions.
- **Gross National Income (GNI) Per Capita:** Rose to USD 6951, showing economic growth and rising standards of living.
- **Expected Years of Schooling:** Reaching 12.6 per individual, reflecting advancements in education access and quality.
- **HDI Score:** India achieved an HDI score of 0.644 in 2022, placing it at 134 out of 193



countries, indicating 'medium human development'.

- **Positive Change:** From an HDI of 0.434 in 1990, India has seen a 48.4% improvement, signifying developmental progress.
- **Gender Inequality:** Notable strides made, with a Gender Inequality Index (GII) of 0.437, surpassing the global average, showcasing advancements in gender equality.
- **Neighbouring Countries' Comparison:**
 - Sri Lanka and China ranked higher in the 'High Human Development' category, while Bhutan and Bangladesh rank above India in the 'Medium Human Development' category.
 - Nepal and Pakistan ranked lower than India, indicating varied levels of development among neighbouring nations.

3. DYNAMICS OF SELF-HELP GROUPS (SHGs) IN INDIA

SOURCE: INDIAN EXPRESS

Self-Help Groups (SHGs) have emerged as a powerful tool for empowering women and fostering economic growth in India.

The recent research study conducted by the State Bank of India (SBI) sheds light on the evolving dynamics of SHGs and the emergence of 'Lakhpati Didis', contributing significantly to India's economic landscape.

Key Highlights of the Study:

Rise of SHGs and Lakhpati Didis:

- India is witnessing a significant surge in the number of SHGs, reaching approximately 8.5 million, with around 92.1 million members actively involved.
- **The introduction of the Lakhpati Didi initiative, aimed at empowering women within SHGs to earn at least Rs 1,00,000 annually, marks a transformative shift.**

- Launched in 2023, the Lakhpati Didi program initially targeted 2 crore women but has been revised to 3 crore by 2024-25, underscoring the growing economic contributions of women.

Bank Linkage and Credit Access:

- **The SHG Bank Linkage Programme (SHG-BLP) has been instrumental, with nearly 97.5% of SHGs now having bank accounts.**
- This robust banking relationship facilitates timely credit access, crucial for economic value addition, with the SHG portfolio of Scheduled Commercial Banks (SCBs) nearing Rs 2 trillion.

Credit Utilisation and Repayment:

- The average credit limit sanctioned to SHGs has seen a substantial increase, 2.2 times higher in FY24 compared to FY19.
- **Notably, credit repayment has also witnessed significant improvement, increasing by 3.9 times in FY24 compared to FY19, indicative of judicious financial management.**

Digital Inclusion:

- Initiatives such as Bank Mitras and Digital Didis have played a pivotal role in promoting financial inclusion on a large scale.
- **Efforts like SARAS Melas are commendable, yet further integration into digital platforms like the Open Network for Digital Commerce (ONDC) can enhance accessibility and efficiency.**

Income Growth:

- **Female SHG members have experienced a notable surge in income, with urban members witnessing a 4.6 times increase during FY19-FY24.**
- Approximately 65% of rural SHG members have observed upward mobility in relative income levels, highlighting the positive impact of SHGs on livelihoods.

State-wise Progress:

- While Andhra Pradesh and Telangana lead in SHG proliferation, states like Tamil Nadu,

Uttarakhand, Kerala, Punjab, and Gujarat have also witnessed significant income growth among female SHG members.

- **By FY27, India is poised to have millions of Lakhpati Didis across various states, further contributing to economic empowerment and growth.**

Key Initiatives Related to SHGs:

Deendayal Antyodaya Yojana – National Rural Livelihoods Mission (DAY – NRLM):

- Implemented in mission mode, it organizes rural women into SHGs to enhance their incomes and quality of life.
- Sub-schemes like Start-up Village Entrepreneurship Programme (SVEP) and Mahila Kisan Sashaktikaran Pariyojana (MKSP) aim to promote entrepreneurship and empower women in agriculture.

Micro Enterprise Development Programme (MEDPs):

- Supported by NABARD, MEDPs provide skill development training to matured SHGs to enhance their production activities and bridge skill deficits.

Scheme for Promotion of Women Self-Help Groups (WSHGs) in Backward and Left Wing Extremism (LWE) Districts:

- This scheme focuses on establishing sustainable WSHGs in challenging areas, facilitating credit linkage, livelihood support, and ensuring loan repayments through anchor agencies.

II. HEALTH SECTOR

4. CREDIT ASSISTANCE PROGRAM FOR JAN AUSHADHI KENDRAS

SOURCE: PIB

The recent inauguration of a credit assistance program for Jan Aushadhi Kendras (JAK) by the Union Minister for Chemicals & Fertilizers and Health & Family Welfare marks a significant step towards improving access to affordable medicines across India.

Jan Aushadhi Kendra Credit Assistance Program: Program Overview:

- Government of India to provide credit/loan assistance to operators/entrepreneurs running Jan Aushadhi Kendras nationwide.
- **Utilizes Goods and Services Tax (GST) and India's Digital Public Infrastructure (DPI) for unsecured working capital loans to small businesses.**
- Operators can access loans and infrastructure funding to establish and maintain their Jan Aushadhi Kendras.

Objectives:

- Empower small entrepreneurs and promote entrepreneurship in the healthcare sector.
- **Enhance accessibility to affordable medicines for all sections of society.**
- Strengthen the healthcare ecosystem by promoting the availability of quality generic medicines.



Jan Aushadhi Kendras:

About:

- Government initiative under the Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP) scheme.
- Aims to provide affordable and quality medicines to the public.

PMBJP Scheme:

- Revamped as Pradhan Mantri Jan Aushadhi Yojana (PMJAY) in 2015 and further enhanced as PMBJP in 2016.
- **Focuses on providing generic drugs through exclusive outlets known as Jan Aushadhi Kendras.**
- Offers generic medicines at significantly lower prices compared to branded drugs, reducing healthcare expenses.

Benefits:



- **Increased affordability:** JAKs have reduced healthcare costs and out-of-pocket expenses significantly.
- **Improved access:** Essential medicines are more readily available, especially in underserved areas.
- **Promotion of rational medicine use:** JAKs provide information on the appropriate use of medicines, reducing misuse.

Expansion:

- PMBJP has expanded rapidly, with around 11,000 Jan Aushadhi Kendras operating across the country.
- Government aims to increase the number of JAKs to 25,000 in the next two years.

SIDBI:

- Small Industries Development Bank of India (SIDBI) is the primary financial institution for promoting and financing the Micro, Small, and Medium Enterprise (MSME) sector.
- Established in 1990 under the Ministry of Finance, SIDBI supports MSMEs through various financial and developmental schemes.
- Facilitates credit assistance and infrastructure development for small entrepreneurs, including operators of Jan Aushadhi Kendras.

PMBI:

- Pharmaceuticals and Medical Devices Bureau of India (PMBI) is responsible for implementing the PMBJP.
- Coordinates the supply, procurement, and marketing of generic drugs through Jan Aushadhi Kendras.

5. FAIR SHARE FOR HEALTH AND CARE REPORT

SOURCE: INDIAN EXPRESS

The World Health Organization (WHO) recently unveiled its "Fair Share for Health and Care" report, shedding light on the persistent gender gap in global healthcare.

Key Highlights of the Report:

Gender Disparities in Health and Care Workforce:

- Women constitute 67% of the paid global health and care workforce and perform around 76% of all unpaid care activities.
- **Despite their significant presence, women are underrepresented in leadership roles within the healthcare sector.**
- Chronic underinvestment in health systems perpetuates the cycle of unpaid care work, hindering women's economic empowerment and gender equality.

Devaluation of Caregiving:

- Caregiving, predominantly performed by women, faces devaluation, resulting in lower wages, poor working conditions, and reduced productivity.
- Gender pay gaps limit women's ability to invest in their families and communities, affecting overall well-being.

Higher Levels of Violence:

- Women in healthcare encounter higher levels of gender-based violence, with a quarter of workplace violence globally occurring in the healthcare sector.
- **Addressing violence against women in healthcare settings is crucial for ensuring a safe and supportive work environment.**

Global Crisis of Care:

- **Decades of underinvestment in health and care work contribute to a global crisis of care, hindering progress towards Universal Health Coverage (UHC) and leaving billions without access to essential health services.**
- Unpaid care work disproportionately burdens women, exacerbating gender disparities in healthcare.

Government Initiatives to Tackle Gender Disparity:

Economic Participation and Health and Survival:

- **Beti Bachao Beti Padhao initiative ensures the protection, survival, and education of the girl child.**



- **Mahila Shakti Kendra** empowers rural women through skill development and employment opportunities.
- **Mahila Police Volunteers** act as a link between police and the community, facilitating women in distress.
- **Rashtriya Mahila Kosh** provides micro-credit to poor women for livelihood and income-generating activities.

Female Entrepreneurship:

- **Stand-Up India and Mahila e-Haat** promote female entrepreneurship through financial support and online marketing platforms.
- **Entrepreneurship and Skill Development Programme (ESSDP)** fosters entrepreneurship among women.

Education and Empowerment:

- **Kasturba Gandhi Balika Vidyalaya** provides education in Educationally Backward Blocks (EBBs) to empower girls.
- Political reservation reserves 33% of seats in Panchayati Raj Institutions for women, enhancing their political representation.

Recommendations to Address Gender Disparity in Healthcare:

Improve Working Conditions:

- Enhance working conditions for health and care workers, especially in feminized occupations.
- Ensure equal pay for work of equal value and promote gender diversity in leadership roles.

Invest in Public Health Systems:

- Allocate resources to strengthen public health systems and address gaps in healthcare infrastructure.
- Prioritize investment in quality care to uphold the rights and well-being of caregivers.

Capacity Building and Empowerment:

- Conduct capacity building programs for elected women representatives to enable effective participation in governance processes.

- **Promote female entrepreneurship and economic empowerment** through skill development and financial support initiatives.

UPSC MAINS QUESTION

Q. Discuss the findings of the World Health Organization's "Fair Share for Health and Care" report, highlighting the persistent gender disparities in global healthcare. (150 WORDS)

6. REPORT TURNS SPOTLIGHT ON INDIA'S 'ZERO-FOOD CHILDREN'

SOURCE: DECCAN HERALD

A recent study sheds light on a critical issue in Uttar Pradesh, India, where a staggering 28.4% of children aged 6-23 months are identified as "zero-food children," facing severe malnutrition. This alarming situation is further exacerbated by economic challenges, limited awareness, time constraints, shifting social dynamics, and personal struggles.

Child Nutrition Crisis in Uttar Pradesh:

Prevalence:

- Recent studies reveal that 19.3% of Indian children aged 6 to 23 months are "zero-food children."
- **India ranks third globally, with over six million zero-food children, surpassed only by Guinea (21.8%) and Mali (20.5%).**
- Uttar Pradesh alone accounts for a concerning 28.4% of zero-food children in India.

Factors Contributing to the Crisis:

- **Economic Challenges:** Poverty and marginalization worsened by rapid urbanization and nuclearized families.
- **Limited Awareness:** Lack of awareness about children's nutritional needs and prevalent misconceptions.
- **Time Constraints:** Working mothers from economically disadvantaged backgrounds struggle to find time for complementary feeding.



- **Social Dynamics:** Nuclear families, coupled with industrialization, leave limited resources for child feeding beyond the mother.
- **Personal Struggles:** Cases like Sunita Gautam's highlight challenges faced by mothers, including a husband's alcoholism hindering childcare efforts.

Call for Intervention:

- Public health specialists emphasize the urgent need for awareness, support, and interventions to address this critical issue in Uttar Pradesh.

What are Zero-Food Children?

"Zero-food children" refer to infants aged 6 to 23 months who haven't consumed any substantial calorie-containing food within a 24-hour period.

Impact:

- **Health Consequences:** Stunted growth weakened immune systems, and higher susceptibility to diseases.
- **Cognitive Development:** Impaired brain development affecting learning abilities.
- **Inter-generational Cycle:** Malnourished children are likely to become malnourished parents, perpetuating the cycle.

Way Forward:

- **Nutrition Programs:** Strengthen and expand existing government programs like ICDS (Integrated Child Development Services).
- **Education and Awareness:** Promote nutritional awareness among parents and communities.
- **Agricultural Interventions:** Enhance agricultural practices to improve food diversity and availability.
- **Healthcare Infrastructure:** Strengthen healthcare facilities, particularly in rural areas.
- **Public-Private Partnerships:** Collaborate with the private sector for innovative solutions and resource mobilization.

7. LANCET REPORT ON INDIA'S FERTILITY RATE AND DEMOGRAPHIC SHIFT

SOURCE: INDIAN EXPRESS

The recent Lancet report sheds light on India's Total Fertility Rate (TFR) projection, indicating a decline to 1.29 by 2050.

This demographic trend, coupled with the aging population scenario, poses significant challenges to India's demographic dividend.

Key Highlights of the Lancet Study:

Decline in TFR:

- India's TFR has plummeted to 1.29, well below the replacement rate of 2.1, signifying a significant demographic shift.

Aging Population Factor:

- By 2050, one in five individuals in India will be above the age of 60, as per projections. The elderly population is expected to more than double from 149 million in 2022 to 347 million by mid-century, as per the UN Population Fund's (UNPF) India Ageing Report.

Comparison with China:

- China has also experienced a decline in TFR to a record low, leading to a contraction in its working-age population by more than 40 million.

Consequences of Declining Fertility Rate:

Increase in Aged Population:

- The rise in the elderly population poses challenges related to care, support, and healthcare services, with over 20% of India's population projected to be senior citizens by 2050.

Shrinking Workforce:

- A smaller working-age population could result in labor shortages, impacting economic growth.
- China's experience, where the working-age population contracted significantly, serves as a pertinent example.

Endangering Demographic Dividend:



- Once fertility rates fall below the replacement rate, as experienced in developed nations, it becomes challenging to reverse the trend.
- India's TFR hovering just below the replacement rate, coupled with projections of peak working-age population share in the late 2030s and early 2040s, emphasizes the need to maximize India's demographic dividend.

Way Forward:

Skill Development:

- Addressing skill deficits and enhancing the knowledge economy are imperative to capitalize on the demographic dividend effectively.

Diversifying Employment Patterns:

- Creation of jobs outside the agricultural sector and ensuring employment opportunities in formal sectors are essential to harness the potential of the workforce.

Social Security Measures:

- The government must prioritize adequate social security and healthcare provisions for the growing elderly population.
- Additionally, opportunities should be created for the elderly to contribute effectively to the economy.

Addressing Regional Imbalance:

- Recognizing the non-uniformity of TFR rates across Indian states, policymakers need to address regional demographic imbalances comprehensively.
- Strategies should be tailored to accommodate the varying demographic trends across different regions of the country.

UPSC MAINS QUESTION

Q. What are the enduring effects of a decreasing fertility rate over time? How can we tackle the challenges presented by this declining fertility trend? (150 WORDS)



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