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Dear Readers,

In the February 2024 issue of AMIGOS IAS Magazine, we address pressing global concerns that have far-reaching implications for India and the world. As UPSC aspirants, understanding these complex issues is crucial for those who will shape India's future policies.

The attacks on maritime routes by the Houthi militia in the Red Sea have emerged as a strategic concern, disrupting essential global trade pathways. This challenge to international security and the economies of the Red Sea littoral states, including India, has prompted a robust response with the U.S.-led Operation Prosperity Guardian. This initiative, backed by the Combined Maritime Forces, exemplifies the collaborative security efforts required to secure these vital waterways.

Concurrently, geopolitical shifts are evident in the Maldives, with the 'India-out' policy introduced by President Mohamed Muizzu reflecting a change in regional dynamics. This policy, coupled with the non-renewal of a hydrography agreement with India, signals a potential shift in the Indian Ocean's power structure. India's commitment to maintaining strong bilateral relations and continuing infrastructure investments is crucial in navigating this diplomatic shift.

The issue also touches upon the peace agreements in Northeast India, emphasizing their role in fostering stability and development. These agreements, aiming to resolve disputes and assimilate insurgent groups, are pivotal for the region's future.

Significant cultural events have also captured the nation's attention, including the consecration of the Ram Temple in Ayodhya, symbolizing a milestone in India's cultural heritage. This event, marked by the participation of various dignitaries, signifies India's diverse yet unified identity.

Additionally, National Youth Day on January 12, celebrating Swami Vivekananda's birth anniversary, inspired the youth with the theme "Viksit Yuva-Viksit Bharat," underscoring the importance of youth in national development.

This issue of AMIGOS IAS Magazine is designed to enrich UPSC aspirants' understanding, preparing them for their roles in upholding India's interests and fostering a peaceful global community.

With comprehensive coverage of these topics, AMIGOS IAS Magazine wishes its readers insightful learning and success in their endeavors.

Best wishes,

AMIGOS IAS Editorial Team

Jai Hind!

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CEC and Other EC's (Appointment, Conditions of Service and Term of Office) Act, 2023

Why is it in the news?

- The Chief Election Commissioner and other Election Commissioners (Appointment, Conditions of Service and Term of Office) Act, 2023, has recently received the President's assent.

Supreme Court Ruling in Anoop Baranwal vs. Union of India case, 2023

- In March 2023, the Supreme Court emphasized the need for an independent Election Commission of India (ECI) to ensure free and fair elections.
- The SC directed the formation of a committee comprising the Prime Minister, Chief Justice of India (CJI), and the Leader of the Opposition for appointing the CEC and ECs until a parliamentary law is enacted.
- The ruling cited recommendations from the Dinesh Goswami Committee on Electoral Reforms (1990) and the Law Commission's 255th report on Electoral Reforms (2015).

Key Provisions of the Act :

- The Act replaces the Election Commission (Conditions of Service of Election Commissioners and Transaction of Business) Act, 1991.
- The 1991 Act set the salary of the CEC and ECs at the same level as a Supreme Court judge. It did not provide for their appointment process, which continued to be decided by the President.
- It aims to comprehensively regulate the appointment, service conditions, and tenure of the Chief Election Commissioner (CEC) and other Election Commissioners (ECs), as well as the procedures for the functioning of the Election Commission.
- A **Selection Committee** is responsible for recommending the appointment of the CEC and ECs. The Committee is chaired by the Prime Minister and includes the Leader of Opposition or the leader of the largest opposition party in the Lok Sabha, along with a Union Cabinet Minister nominated by the Prime Minister.
- A **Search Committee**, led by the Minister of Law and Justice and comprising two other members not below the rank of Secretary to the Government of India, prepares a panel of five individuals for consideration by the Selection Committee.
- The Act specifies **eligibility criteria** for the appointment of CEC and ECs, requiring individuals to have held or be holding a post equivalent to the rank of Secretary to the Government of India.
- Additionally, appointees should be persons of integrity with knowledge and experience in the management and conduct of elections.
- The CEC and other ECs are entitled to a salary equal to that of a Judge of the Supreme Court.
- The CEC and other ECs are appointed for a term of six years from the date on which they assume office or until they reach the age of sixty-five, whichever is earlier.

- The Act explicitly states that the CEC and other ECs are not eligible for reappointment after the completion of their term. The CEC can only be removed from office following a process and grounds similar to that of a Supreme Court judge. An EC can be removed from office upon the recommendation of the CEC.
- The CEC or any EC has the option to resign at any time by writing to the President.

How are the CEC and ECs Currently Appointed?

- Constitutional provisions under Articles 324-329 empower the President to appoint the CEC and ECs based on the advice of the Union Council of Ministers.
- The Law Minister suggests suitable candidates to the Prime Minister, who advises the President on the appointment.
- The CEC can be removed through a process similar to that of a Supreme Court judge, and other ECs can be removed only on the CEC's recommendation.

Concerns Regarding the Act :

- **Independence of the Election Commission:** Critics argue that the Selection Committee, with a majority of members from the ruling government, may compromise the independence of the Election Commission.
- **Vacancy in Selection Committee:** The Act upholds the validity of the Selection Committee even if there is a vacancy or defect in constituting the Committee. In the absence of a Leader of Opposition, the Committee would consist exclusively of the Prime Minister and a Union Cabinet Minister.
- **Undermining the Role of Search Committee:** Critics argue that allowing the Selection Committee to go beyond the names suggested by the Search Committee may undermine the latter's role in identifying qualified candidates.
- **Limiting Eligibility Criteria:** The Act's limitation of eligibility criteria to civil servants may exclude other qualified individuals from consideration for the positions of CEC and ECs.
- **Lack of Parity in Removal:** The Act maintains the existing lack of parity in the removal process of the CEC and ECs.
- **Silence Over Post-Retirement Jobs:** Similar to the 1991 Act, the 2023 Act is silent on whether the CEC and ECs can be appointed to any post or office under the government after their retirement.

Global Practices in the Appointment of Electoral Body Members

- **South African Model:** Involves key figures such as the President of the Constitutional Court, representatives of the Human Rights Court, and advocates for gender equality for diverse representation.
- **United Kingdom Approach:** Candidates subject to approval by the House of Commons, adding scrutiny and accountability to the selection process.
- **United States Procedure:** President appoints members, and Senate confirmation ensures a balance of power and prevents unilateral decisions.

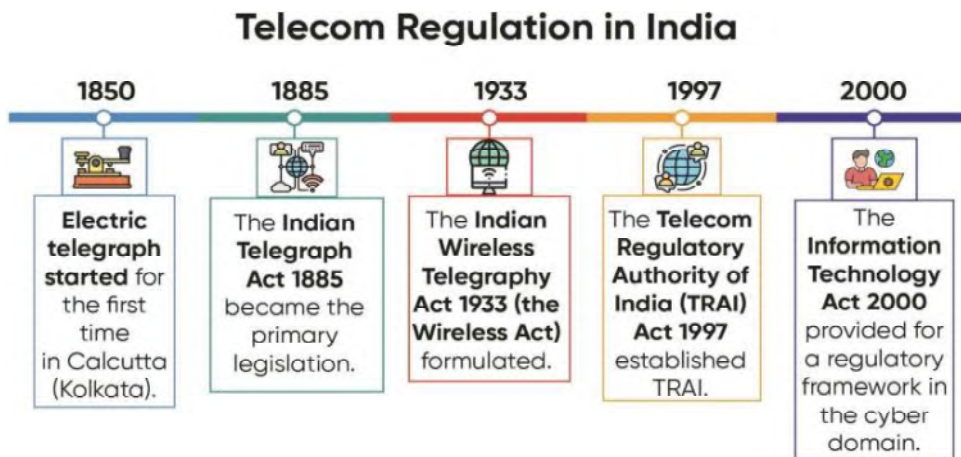
Way Forward :

- Recommendations from the **Goswami Committee on Electoral Reforms (1990) and the 255th Law Commission Report** suggest a more balanced composition of the Selection Committee, including the Prime Minister, Leader of the Opposition in Lok Sabha, and the Chief Justice of India.
- The Goswami Committee proposed restrictions on the eligibility of the CEC and ECs for any further government office, including the position of Governor, post-retirement.
- Both the Goswami Committee and the **Election Commission of India (ECI)** have recommended the establishment of an independent secretariat to ensure the administrative independence of the ECI.
- The 255th Law Commission Report suggests amending Article 324(5) of the Constitution to provide equal removal procedures for ECs as those applicable to the CEC.

Telecommunications Act, 2023

Why is it in the news?

- The President's approval of the Telecom Bill 2023 signifies a historic move to replace the archaic Indian Telegraph Act of 1885.



More about the News :

- The Telecom Bill 2023 is introduced to modernize the legal framework governing telecommunications in India.
- It seeks to bring about structural changes by replacing outdated legislation, namely the Indian Telegraph Act of 1885, the Indian Wireless Telegraphy Act of 1933, and the Telegraph Wires (Unlawful Possession) Act of 1950.
- Notably, the new legislation introduces amendments to the Telecom Regulatory Authority of India (TRAI) Act, 1997. These amendments redefine the eligibility criteria for individuals serving in TRAI, allowing those with significant professional experience to hold key positions.

Key Provisions of the Act	
Key Provisions	Details
Assignment of Spectrum	<ul style="list-style-type: none"> Structured approach to spectrum allocation. Options include auction or administrative allocation for specified uses. Administrative allocation extended to satellite broadband services, aligning with global norms.
Appointments to TRAI	<ul style="list-style-type: none"> Amendments to TRAI Act allow individuals with substantial professional experience (30 years for Chairperson, 25 years for members) to serve in key roles within the regulatory authority.
Adjudication Process	<ul style="list-style-type: none"> Establishment of an adjudicating officer for inquiries into civil offences. Appeals against Committee's orders related to breaches of terms and conditions can be filed with TDSAT within 30 days.

Protection of Users	<ul style="list-style-type: none"> Empowers the central government to implement measures safeguarding users' interests. Measures include obtaining prior consent for specific messages, creating Do Not Disturb registers, and mechanisms for reporting malware.
Right of Way	<ul style="list-style-type: none"> Entities building telecom infrastructure can seek the right of way over public or private property. Streamlines the process for necessary infrastructure development.
Powers of Interception, Search	<ul style="list-style-type: none"> Allows interception, monitoring, or blocking of messages on specified grounds. Grounds include considerations of state security, public order, and prevention of incitement of offences.
Authorization for Telecom-related Activities	<ul style="list-style-type: none"> Mandates prior authorization from the central government for the provision, operation, maintenance, or expansion of new telecommunication services and possession of radio equipment.
Regulation of OTTs	<ul style="list-style-type: none"> Specifies that Over-The-Top (OTT) platforms will not be subject to regulation under the Telecom Act 2023.
Other Provisions	<ul style="list-style-type: none"> Renames Universal Service Obligation fund as Digital Bharat Nidhi. Allows fund utilization for research and development in the telecom sector. Incorporates Trusted Sources regime to restrict imports of telecom equipment from hostile nations.

Concerns Over the Telecommunications Bill, 2023 :

- Critics argue that the bill provides a legal framework for mass surveillance and internet shutdowns, raising concerns about individual privacy and freedom.
- The bill mandates **“verifiable biometric-based identification,”** potentially compromising user anonymity and affecting whistleblowers and journalists who operate under the cover of anonymity.
- Users who fail to comply with identification requirements may face hefty penalties ranging from ₹ 25,000 to ₹ 1,00,000, potentially discouraging freedom of expression and dissent.
- Chapter IV grants **emergency powers to the Central government** in the interest of public safety and national security, allowing temporary possession of telecommunication services and networks during emergencies.
- Section 19 (f)** empowers the government to set standards for encryption and data processing, leading to concerns about breaking encryption and potential misuse of surveillance powers, especially in the context of recent spyware controversies.
- The bill allows interception of messages to prevent the incitement of offenses and empowers the government to suspend telecommunication services, similar to past instances in Manipur and Jammu and Kashmir, impacting freedom of communication.

Criticism from International Organizations and Experts :

- International groups like the Signal Foundation, Internet Freedom Foundation, and Internet Press Institute express concerns that message interception could lead to indiscriminate surveillance, undermining online safety for individuals, businesses, and governments.
- The bill's provision allowing the government to notify encryption standards without limitations creates uncertainties for service providers, impacting human rights in the digital age and trust in digital services in the Indian market.
- The bill's grant of authority to suspend the internet lacks procedural safeguards recommended by the Supreme Court and the Parliamentary Standing Committee on Information and Technology, potentially impacting human rights and trust in digital services.
- International organizations and experts demand the withdrawal of the bill in its current form due to the perceived threats to human rights, online safety, and trust in digital services.

Conclusion :

- A balanced and transparent regulatory environment is crucial for fostering innovation and growth in the telecom sector while safeguarding user privacy and industry interests

Supreme Court Legal Services Committee (SCLSC)

Why is it in the news?

- Recently, Justice BR Gavai has been nominated as the Chairman of the Supreme Court Legal Services Committee.

More about the news :

- This committee operates under Section 3A of the Legal Services Authorities Act, 1987.
- Its primary objective is to provide free and competent legal services to the weaker sections of society, particularly in cases falling under the jurisdiction of the Supreme Court.
- The composition of the committee involves a sitting Supreme Court judge as the chairman, along with other members possessing the experience and qualifications prescribed by the Central Authority (National Legal Services Authority or NALSA).
- Both the chairman and other members are nominated by the Chief Justice of India (CJI).

Constitutional Backing

- Article 39A** of the Indian Constitution states that the State must ensure that the operation of the legal system promotes justice on the basis of equal opportunity.
- It particularly emphasizes the provision of free legal aid through suitable legislation or schemes to ensure that opportunities for securing justice are not denied to any citizen by reason of economic or other disabilities.
- Additionally, **Articles 14 (right to equality) and 22(1) (rights to be informed of grounds for arrest)** make it obligatory for the State to ensure equality before the law and a legal system that promotes justice based on equal opportunity.

Legal Services Authorities Act

- Enacted in **1987**, the Legal Services Authorities Act provides a statutory foundation for legal aid programs in India.
- The Act aims to provide free and competent legal services to the following: Women and children; Members of SC/ST; Industrial workmen; Victims of mass disaster, violence, flood, drought, earthquake, industrial disaster; Disabled persons; Persons in custody; those persons who have annual income of less than the amount prescribed by the respective State Government, if the case is before any court other than the Supreme Court, and less than Rs. 5 Lakhs, if the case is before the Supreme Court, and Victims of Trafficking in Human beings or beggar.

National Legal Services Authority (NALSA)

- The National Legal Services Authority (NALSA) was constituted in 1995 under this Act to monitor and evaluate the implementation of legal aid programs and lay down policies for making legal services available.
- A nationwide network has been envisaged under the Act for providing legal aid and assistance.
- NALSA also disburses funds and grants to State Legal Services Authorities (SLSA) and non-governmental organizations (NGOs) for implementing legal aid schemes and programs.

State Legal Services Authorities (SLSA)

- In each state, a State Legal Services Authority (SLSA) is established to implement the policies and directions of NALSA.

- The SLSA provides free legal services to the people and conducts **Lok Adalats (people's courts)**.
- The SLSA is headed by the Chief Justice of the respective High Court, and the senior High Court judge serves as its Executive Chairman.
- While the Chief Justice of the High Court is the patron-in-chief of the SLSA, the Chief Justice of India (CJI) holds the position of patron-in-chief of NALSA.

District Legal Services Authorities (DLSA) and Taluk Legal Services Committees

- The Act also establishes District Legal Services Authorities (DLSA) in districts and Taluk Legal Services Committees in taluks or sub-divisions.
- Each DLSA is chaired by the District Judge of the respective district.
- Taluk or Sub-Divisional Legal Services Committees are headed by a senior civil judge.

A) With reference to National Legal Services Authority, consider the following statements: (Prelims 2013)

- 1) Its objective is to provide free and competent legal services to the weaker sections of the society on the basis of equal opportunity.
- 2) It issues guidelines for the State Legal Services Authorities to implement the legal programmes and schemes throughout the country.

Which of the statements given above is/are correct?

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

Answer (c)

B) In India, Legal Services Authorities provide free legal services to which of the following type of citizens? (Prelims 2020)

1. Person with an annual income of less than Rs. 1,00,000
2. Transgender with an annual income of less than Rs. 2,00,000
3. Member of Other Backward Classes (OBC) with an annual income of less than Rs. 3,00,000
4. All Senior Citizens

Select the correct answer using the code given below:

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

Answer: (a)

There is no such provision of free legal aid specifically for OBC. The free Legal Aid is not available for free for all senior citizens.

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Red Sea Trouble

Why is it in the news?

- The Surge in attacks on cargo ships by the Houthi militia in the Red Sea since November has significantly disrupted the vital maritime route linking Asia with Europe through the Suez Canal.

ISRAEL-GAZA WAR

Red Sea patrol force to counter Houthi attacks

The United States has announced a 10-nation force to protect trade in the Red Sea after attacks by Yemen's Houthi rebels forced shipping companies to halt operations.



Houthi Background

- Houthi movement originated in the 1990s against the dictatorship of Ali Abdullah Saleh.
- Currently involved in the Yemeni civil war since 2014, controlling territories in the west and northwest, including the capital Sana'a.
- Backed by Iran, the Houthis are in conflict with the Sunni-led Yemeni government, supported by Saudi Arabia and the UAE.

Reasons for Houthi Attacks :

- **Support for Hamas:** The Houthis have expressed solidarity with Hamas, particularly following Israeli military actions in Gaza in response to Hamas attacks on October 7.

- **Targeting Israel:** Houthi attacks specifically target ships traveling to Israel, including the use of drones and rockets against foreign-owned vessels.
- **Escalation of Attacks:** Houthis have escalated their attacks, employing drones and missiles against both ships in the Red Sea and launching them towards Israel.

Impacts of Houthi Attacks :

- **Global Trade Disruption:** About 12% of global trade volume and possibly 30% of global container traffic usually flows through the Red Sea. With houthis turning the region into a **no-go zone**, disrupts this significant trade route.
- **Risks of Military Escalation:** Western countries intensify naval activity in the Middle East to restore order with possibility of military actions against the Houthis to ensure free passage.
- **Economic Consequences:** Egypt, heavily reliant on revenue from the Suez Canal, faces economic challenges. Further, Israel, with only 5% of trade passing through Eilat, is comparatively less affected.
- **Supply Chain Disruptions:** Prolonged closure of the Suez route leads to increased trade costs as shipping is rerouted around Africa.

Impact on Indian Trade :

- Major cargo shipping lines have decided to cease operations on this route, and even smaller feeder vessels have stopped plying in these waters.
- A wide range of commodities, including chemicals, plastics, and petrochemicals, are severely affected due to inadequate margins to absorb the increased freight costs.
- Almost 90% of cargo, both inbound and shipped from India to the western hemisphere, which used the Red

Sea route, is now being rerouted through the Cape of Good Hope.

- Container Corporation of India reports that about 25% of its containers are being held back by Indian exporters due to the crisis.
- The longer route entails extra time, making imports costlier and necessitating improved inventory management.
- The increase in freight costs, potentially up to six-fold in some cases, coupled with longer voyage times, will be most keenly felt by low-value, high-volume cargo and perishables.
- India's import dependence on crude oil and petroleum products was 87.6% based on consumption in the April-September 2023 period.
- The crisis in the Red Sea poses challenges to India's energy security and may impact pump prices of essential fuels.

Operation Prosperity Guardian to Counter Houthi Attacks

- The U.S. and several nations have launched Operation Prosperity Guardian to address Houthi attacks in the Red Sea.
- The initiative involves a **10-nation force** to protect ships facing threats from drones and ballistic missiles in Houthi-controlled areas of Yemen.
- It aims to provide collective security against Houthi attacks. It won't escort specific vessels but offers umbrella protection for ships in the southern Red Sea region.
- The U.K., Bahrain, Canada, France, Italy, Netherlands, Norway, Seychelles, and Spain have joined the maritime security mission. China, despite having warships in the region, is notably absent from the initiative.
- The new initiative is coordinated by Combined Task Force 153 (CTF 153), established in April 2022 to enhance maritime security in the Red Sea, Bab al-Mandeb, and Gulf of Aden.

Combined Task Force 153 (CTF 153) :

- Focused on maritime security and capacity building in the specified regions.
- One of five task forces operated by the Combined Maritime Forces (CMF), established on April 17, 2022.

Combined Maritime Forces (CMF)

- An international naval partnership working to ensure maritime security and stability.
- Comprises various task forces, with CTF 153 specifically addressing challenges in the Red Sea, Bab al-Mandeb, and Gulf of Aden.

India's Response :

- **INS Mormugao, INS Kochi, and INS Kolkata** were deployed in the Arabian Sea in response to attacks on ships along the Red Sea trade route in West Asia.
- India closely monitoring the situation, with the Commerce Secretary engaging in discussions with officials and trade bodies.

Related International Conventions

- **United Nations Convention on the Law of the Sea (UNCLOS), 1982:** Addresses piracy, defines rights and responsibilities concerning seas.
- **UN Security Council Resolutions:** Facilitate international cooperation in dealing with acts of piracy.
- **Convention for the Suppression of Unlawful Acts Against the Safety of Maritime Navigation (SUA Convention), 1988:** Criminalizes offenses related to maritime navigation safety.
- **IMO Conventions and Guidelines:** Include measures to prevent and respond to acts of piracy and armed robbery against ships.
- **The International Convention Against the Taking of Hostages, 1979:** Its goal is to prevent, prosecute, and punish all acts of taking hostages, treating them as manifestations of international terrorism.
- **The United Nations Convention on Transnational Organized Crime, 2000:** It serves as a framework for global efforts to address the challenges posed by organized criminal activities on an international scale.

About the Red Sea :

- The Red Sea, extending from Egypt's Suez Canal to the narrow Bab el-Mandeb Strait, serves as a crucial trade route for global shipping and energy supplies.
- Egypt, Sudan, Eritrea, Djibouti, Saudi Arabia, and Yemen are its **littoral states**.

- The Suez Canal, operational since 1869, stands as one of the busiest canals globally, facilitating around **12% of global trade**, with 23,583 ships using it in 2022.
- The Red Sea acts as a bridge between the East and West, offering a more direct and shorter maritime trade route connecting Europe, Africa, the Middle East, and Asia.
- The Suez Canal, connecting the Red Sea to the Mediterranean, is an essential artificial waterway that enhances global trade efficiency, reducing shipping times and costs.
- The region is a significant source of oil and natural gas, with the Red Sea playing a crucial role in transporting energy resources.
- The trade routes through the Red Sea contribute to the economies of countries along its shores by generating employment, stimulating economic activity, and fostering international relations.

- Control of strategic chokepoints such as the Bab el Mandeb and the Suez Canal holds implications for global trade and security.
- Political stability and cooperation among countries bordering the Red Sea are essential for ensuring the smooth flow of goods.
- The Red Sea is protected by the **Combined Maritime Forces (CMF)**, a 39-nation partnership that includes the navies of the US, India, Australia, France, the UK, Saudi Arabia, and Yemen.

About Bab el-Mandeb :

- Narrow strait between Africa and the Arabian Peninsula, connecting the Red Sea to the Gulf of Aden.
- Also known as the Gate of Tears.
- Critical route for ships heading to the Suez Canal from the south.

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Peace Agreements in the Northeast

Why is it in the news?

- The **Northeastern Region (NER)** of India has historically faced challenges related to insurgency, cultural diversity, and territorial disputes.
- Recent developments have brought the region into focus as the Government of India has taken steps to address these issues through peace agreements and other initiatives.

Peace Agreements

United National Liberation Front (UNLF) Agreement:

- The oldest valley-based insurgent group in Manipur, UNLF, formed in 1964, has signed a peace agreement with the Government of India and Manipur.
- The UNLF's armed wing, the Manipur People's Army, is a significant player in the region.
- Despite internal divisions within UNLF, one faction led by Koireng has not participated in the peace talks.

United Liberation Front of Assam (ULFA) Memorandum of Settlement:

- ULFA, formed in 1979 with the demand for a sovereign Assam; and had a split in 2011.
- The pro-talk faction engaged in peace talks since 2011, while the ULFA (Independent) has not joined the peace process.
- The recent memorandum involves the Governments of India and Assam, along with ULFA representatives.

Recent Peace and Border Agreements

- Over the last five years, the Government has pursued a series of agreements to address various issues in the Northeast.
- Assam-Arunachal border agreement (2023): Resolved a pending border dispute between Assam and Arunachal Pradesh.

- **Assam-Meghalaya Inter-State Boundary Agreement (2022):** Settled disputes over six areas out of a total of twelve areas in the interstate boundary dispute between Assam and Meghalaya.
- **Adivasi Peace Accord (2022):** A memorandum of settlement (MoS) signed with representatives of eight Adivasi Groups to end the decades-old crisis in Assam.
- **Karbi Anglong Agreement (2021):** MoS with Karbi Groups to end the longstanding crisis in the Karbi Anglong area of Assam.
- **Bodo Accord (2020):** MoS with Bodo Groups of Assam to address the Bodo issue, stemming from demands for a separate state (Bodoland).
- **Bru-Reang Agreement (2020):** Resolved the 23-year-old Bru-Reang refugee crisis, settling more than 37,000 internally displaced people in Tripura.
- **NLFT (SD) Agreement (2019):** MoS with the National Liberation Front of Tripura (NLFT/SD).

Challenges for Peace and Stability in NER :

- **Cultural Differences:** Over 247 ethnic communities in NER with distinct languages, customs, and traditions resulting in exclusion and alienation among various groups.
- **Insurgency:** The region has been a hotspot for insurgency since Independence, involving numerous armed groups and factions.
- **Porous Borders:** Vulnerability to illegal infiltration, adding pressure on economic and environmental resources. Further, it enables cross-border passage for insurgents, criminals, arms, and drug traffickers.
- **Territorial Conflicts:** Existing inter-state and international territorial disputes, such as the Assam-Mizoram Border Dispute.

- **Rivalry in Militant Groups:** Factionalism and splits within militant groups complicate negotiations. For instance, Rivalry between the National Socialist Council of Nagalim (NSCN) Muivah and Khaplang factions.
- **Lack of Efficient Infrastructure:** Insufficient physical and social infrastructure, including roads, waterways, educational institutions, and health facilities.

Initiatives for Peace and Stability :

- **Reduction of Disturbed Areas under AFSPA:** Large-scale reduction of disturbed areas under the Armed Forces Special Powers Act (AFSPA).
- **NESIDS (North East Special Infrastructure Development Scheme):** A central sector scheme supporting infrastructure development, including connectivity, in the North Eastern States.
- **Surrender-cum-Rehabilitation Scheme:** Incentive-based scheme to rehabilitate militants and discourage misguided youth from joining militant activities.
- **PM-DevINE:** Central sector scheme for rapid and holistic development of the Northeast Region through funding infrastructure and social development projects.
- **Northeast Natural Gas Pipeline Grid Project:** Involves the development, operation, and maintenance of a natural gas pipeline connecting eight states.
- **NITI Forum for North East:** Established to promote inclusive and sustainable economic growth in the Northeast.
- **Act East Policy:** Promotes economic, strategic, and cultural relations with the Asia-Pacific region, facilitating integration of the northeast region.

Way Forward :

- **Holistic Approach:** Back peace efforts with infrastructure projects, such as roads and railway lines, connecting the region with the rest of India.
- **Promoting Regional Industrial Value Chains:** Encourage industries like agro-processing, horticulture, and textiles, leveraging the region's competitive advantages.
- **Continued Peace Talks:** Government should act as a facilitator for ongoing peace talks with insurgent groups and amicable settlements of inter-state border disputes.

- **Preserve Culture:** Focus on preserving and promoting the unique dialects, languages, dance, music, food, and culture of the Northeast to bridge cultural differences.
- **Checking Illegal Migration:** Coordinate efforts between the Ministry of External Affairs, Ministry of Home Affairs, and State Governments to address illegal migration issues.
- **Border Management:** Strengthen border security through advanced technology, increased personnel, and improved infrastructure to counter trafficking and insurgency.
- **Amendments to North Eastern Council Act, 1971:** Consider amendments to restore the original conflict resolution provisions, enhancing the role of the North Eastern Council in addressing regional issues.

Current Progress

- Assam has seen a 60% reduction in the coverage of the Armed Forces (Special Powers) Act (AFSPA).
- Arunachal Pradesh now has AFSPA only in three districts and two police stations in one district.
- Tripura and Meghalaya have completely withdrawn AFSPA.

Maldives's 'India out' Plan

Why is it in the news?

- **Mohamed Muizzu, the President of Maldives**, has adopted an '**India-out**' policy, choosing Turkey for his first foreign destination.
- This signals a significant **shift in the foreign policy of Maldives**.

Steps taken by Maldives after Muizzu came into Power

- Muizzu selected **Turkey** for his first official visit after assuming the presidency, breaking from the tradition of choosing India.
- Maldives abstained from participating in the NSA-level Colombo Security Conclave, where it is a member-state along with India, Sri Lanka, and Mauritius.
- Muizzu expressed the intention to change the 'India First' policy adopted by his predecessor Solih and remove Indian military personnel from the island nation.
- The Maldives decided not to renew the **hydrography cooperation agreement** with India, signed in 2019, allowing India to conduct hydrographic surveys in its territorial waters. The agreement expires on June 7, 2024.

India's Reaction :

- India expressed a desire to maintain strong engagement with the Maldives and funded significant connectivity projects.
- Speculation arose in India about China developing a naval base in the Maldives, particularly after China's plans for an ocean observatory in Makunudhoo Atoll in 2018.

Narendra Modi's Visit to Lakshadweep

About

- Prime Minister Narendra Modi's visit to Lakshadweep marked an attempt to promote tourism in the region, both for its touristic potential and for political reasons.
- Modi's use of social media to showcase the beauty of Lakshadweep aimed to encourage Indian tourists to consider it as a vacation destination, which also served political interests by highlighting government initiatives in the region.

Readiness of Lakshadweep for Mass Tourism

- Accessibility to Lakshadweep is primarily through ships and flights from Kochi, limiting the influx of tourists.
- The requirement for permits to visit populated islands indicates a controlled approach to tourism, ensuring environmental and cultural preservation.

Concerns Raised by Experts and Conservationists

- However, experts and conservationists have raised concerns about the unsuitability of Lakshadweep for large-scale tourism due to its unique geographical, ecological, and sociological factors.
- The opposition to the Lakshadweep Development Authority Regulation (LDAR) scheme underscores apprehensions regarding potential adverse impacts on the environment and local communities.

Impact of Large-Scale Tourism on Ecology:

- Large-scale tourism activities such as dredging and desilting pose significant threats to Lakshadweep's fragile ecology, particularly coral reefs and marine biodiversity.
- Dredging can disrupt fish spawning grounds and destabilize river banks, leading to long-lasting environmental damage.

Lessons from Goa and Maldives:

- Goa's transformation from a tranquil coastline to a bustling tourist destination highlights the risks of unregulated tourism development, including environmental degradation and cultural disruption.
- Maldives' environmental challenges, including waste management and rising sea levels, serve as cautionary examples of the consequences of unsustainable tourism practices.

Maldives' Response to Lakshadweep's Tourism Promotion:

- Maldives perceives India's tourism promotion for Lakshadweep as **potential competition**, raising concerns about the sustainability of tourism development and its impact on the environment.
- Tensions between India and Maldives over tourism promotion underscore the complexities of diplomatic relations and regional dynamics.

Challenges of Mass Tourism in Lakshadweep:

- Lakshadweep faces challenges in infrastructure development for mass tourism, including the lack of an airport capable of accommodating heavy aircraft.
- Proposals for air connectivity and cruise tourism raise concerns about environmental degradation and the irreversible loss of natural assets.

Impact on Indian Tourism and Diplomatic Relations:

- Tensions between India and Maldives over tourism promotion could influence Indian travellers' preferences and have implications for diplomatic relations.
- India must balance its tourism objectives with diplomatic considerations and prioritize sustainable tourism practices to mitigate potential conflicts.

Risk of Overdevelopment and Environmental Degradation:

- Overdevelopment driven by profit motives poses a significant risk of irreversible damage to Lakshadweep's delicate ecosystem and cultural heritage.
- Protecting the islands' ecology and assets is imperative to safeguard against environmental degradation and ensure the long-term sustainability of tourism.

Conclusion:

- India must adopt a responsible approach to tourism development in Lakshadweep, emphasizing environmental conservation, community involvement, and sustainable practices.

- Prioritizing responsible tourism over profit-driven expansion is essential to preserve Lakshadweep's natural beauty and cultural integrity for future generations.

Concerns in India-Maldives Relations:

- Changes in government and constitutional crises have led to political instability.
- Concerns about large Chinese infrastructure projects and loans.
- Growing entanglement of smaller states in the Belt and Road Initiative (BRI) and other Chinese projects.
- Maldives facing an economic crisis, leading to project delays and debt issues.
- Differences in the approach to counterterrorism, with India urging firm action against rising extremism.

Why Maldives Needs India?

- India supplies everyday essentials, medicines, and construction materials.
- India is a major education provider for Maldivian students.
- Economic dependence with India as a top trading partner.
- India is Maldives' second-largest trade partner in 2022, with Rs 49 crore out of Rs 50 crore total trade being India's exports.
- India provides essential help during crises, including the 2004 tsunami and the 2014 drinking water crisis.
- Security cooperation includes joint exercises and Indian Navy readiness to protect the island nation.

Way Forward

- India needs increased engagement in the domestic politics of the Maldives.
- Need to Collaborate with Gulf partners to prevent potential destabilization by Turkey.
- Actively participate in Turkey's neighbourhood to strengthen India's position in the geopolitical landscape.
- Discuss ways to bolster India-Maldives relations, emphasizing economic cooperation, development, and people-to-people ties.

India and Maldives Relations

- The Maldives' proximity to India, at 70 nautical miles from Minicoy in Lakshadweep and 300 nautical miles from the mainland's western coast, makes it strategically important.

- India's geographic proximity to the Maldives is expected to remain crucial despite shifts in the Maldives' foreign policy.

Political Relations:

- India was among the first to recognize Maldives after its independence in 1965, with shared ethnic, linguistic, cultural, religious, and commercial links.
- Both nations are founding members of SAARC and have supported each other in multilateral areas.

Strategic Relationship:

- The Maldives, comprising 1,200 coral islands in the Indian Ocean, lies near key shipping lanes crucial for uninterrupted energy supplies to China, Japan, and India.
- It holds a special place in India's vision of 'SAGAR' (Security and Growth for All in the Region) and the 'Neighbourhood First Policy.'

Defence:

- A technical agreement on sharing 'White Shipping Information' was signed between the Indian Navy and the Maldives National Defence Force.
- 'Ekuverin' is a joint military exercise between India and Maldives.

Trade and Economy:

- India and Maldives signed a trade agreement in 1981 for the export of essential commodities.
- India provides essential food items and construction materials to the Maldives on favourable terms, resulting in a positive balance of trade.

Development Assistance Programme:

- India has played a crucial role in various areas, such as healthcare, education, infrastructure, and disaster relief, including operations like 'Operation Cactus.'



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1

POLITY & GOVERNANCE

1. Rules for Suspension of MPs

Why is it in the news?

- In a significant development, 78 Opposition Members of Parliament (MPs) from both Lok Sabha and Rajya Sabha have faced suspension due to their involvement in disrupting parliamentary proceedings.

More about the news

- The Speaker of Lok Sabha and Chairman of Rajya Sabha are responsible for maintaining order during parliamentary proceedings.
- In Lok Sabha, they act in accordance with Rules 373, 374, and 374A; in Rajya Sabha, Rules 255 and 256 guide their actions.

Disorderly Conduct

- Rule 373 (Lok Sabha) and Rule 255 (Rajya Sabha) empower presiding officers to intervene when an MP engages in disorderly conduct.
- Disorderly conduct includes actions that disrupt the normal functioning of the House, such as shouting, unruly behaviour, or any act that hinders the proceedings.

Naming the Legislator

- If disorderly conduct persists, Rule 374 (Lok Sabha) and Rule 256 (Rajya Sabha) allow the presiding officer to "name" the legislator responsible.
- "Naming" involves publicly identifying the disruptive MP, signalling a more serious phase of disciplinary action.

Rule 374A (Lok Sabha)

- Rule 374A, incorporated in 2001 in Lok Sabha, is designed to address grave and disorderly conduct.
- If an MP is "named" under this rule by the Speaker, the MP automatically stands suspended for a specific duration (five days or the remaining part of the session)

- This rule streamlines the process by eliminating the need for the House to pass a separate motion for suspension. This provision is unique to Lok Sabha; Rajya Sabha does not have an equivalent rule.

Duration of Suspension :

- MPs can be suspended for a maximum of the remaining part of the session.
- This serves as a measure to restore order without permanently excluding a member from participating in parliamentary affairs.
- However, the House retains the authority to reinstate a suspended member at any point during the session. Reinstatement typically involves the passage of a motion by the House to lift the suspension, allowing the MP to resume their duties.



Court Intervention :

- Article 122 of the Constitution prohibits the questioning of parliamentary proceedings before a court.
- Despite this constitutional provision, there have been instances where courts have intervened, particularly in cases where the procedural functioning of legislatures is seen to be in violation of constitutional principles or fundamental rights.

2. Parliamentary Standing Committee on Labour

Why is it in the news?

- The 52nd report of the Parliamentary Standing Committee on Labor, recently presented in Parliament, underscores persistent gaps in achieving the goal of eradicating child labor by 2025.
- It emphasizes the need for addressing challenges to fulfill the commitment to eliminating child labor.

Observations by the Committee

- The committee notes discrepancies in the definition of a 'child' across different legislations. For instance, the Child and Adolescent Labor (Prohibition and Regulation) Act, 1986 (CALPRA) defines a child as someone between 14-18 years, while the Right to Education Act defines it as 6-14 years.
- There is inconsistency in how employing children is classified as an offense. The CALPRA Act considers it a cognizable offense, whereas the Juvenile Justice Act treats it as non-cognizable, leading to ambiguity and delays in justice for affected children.

Key Suggestions/Recommendations

- The committee recommends bringing uniformity in the definition of a 'child' under various laws to avoid confusion and ensure consistency in legal frameworks.
- Proposes removing hazardous occupations from the list of approved jobs and processes for adolescents, promoting safer work environments.
- Recommends incorporating stricter punishments for offenders, including measures like license cancellation, property attachment, and a significant increase in fines.
- Suggests holding not only the direct employer accountable but also the principal employer and traffickers involved in child labour deployment.
- Advocates for the formulation of guidelines for the proper utilization of funds collected as fines from employers engaged in child labour.
- Recommends the establishment of a district-level fund to provide immediate relief and rehabilitation for child labourers, recognizing the need for comprehensive support.

- Proposes the inclusion of provisions in the CALPRA Act to take action against police officials who fail to register FIRs, aligning with similar provisions in the Protection of Children from Sexual Offences Act, 2012.
- Recommends the creation of a National Level Child Tracking Mechanism to facilitate coordination among states and the Centre, enhancing efforts to address and prevent child labor effectively.

3. Lok Sabha passes Bills to replace British-era criminal laws

Why is it in the news?

- Lok Sabha has approved three bills, namely Bharatiya Nyaya Sanhita Bill (BNS), Bharatiya Sakshya Bill (BS), and Bharatiya Nagarik Suraksha Sanhita Bill (BNSS), aimed at replacing outdated British-era criminal laws, introducing significant reforms in the Indian legal framework.

About Bharatiya Nyaya Sanhita Bill (BNS) :

- Replaces Indian Penal Code, 1860.
- The bill retains most offences from the IPC and introduces community service as a form of punishment.
- Sedition is eliminated as an offence and replaced with a new offence for acts endangering the sovereignty, unity, and integrity of India.
- For the first time, the bill defines terrorism and adds it as a separate offence in general criminal law. Terrorism is defined as an act that intends to threaten the unity, integrity, security, or economic security of the country.
- Introduces capital punishment for the offence of mob lynching.

About Bharatiya Sakshya Bill (BS) :

- Replaces Indian Evidence Act, 1872.
- The bill retains the distinction between primary (original documents) and secondary (that proves the contents of the original) evidence.
- Classifies electronic records, including information stored in semiconductor memory or communication devices, as primary evidence.
- Expands secondary evidence to include oral and written admissions and the testimony of a person skilled in examining documents.

About Bharatiya Nagarik Suraksha Sanhita Bill (BNSS):

- Replaces Criminal Procedure Code, 1973 (CrPC).
- The bill mandates forensic investigation for offences punishable with seven years of imprisonment or more.
- All trials, inquiries, and proceedings may be held in electronic mode.
- If a proclaimed offender has absconded to evade trial and there is no immediate prospect of arresting him, the trial can be conducted, and judgment pronounced in his absence.
- The bill permits police custody of up to 90 days as against the 15-day custody allowed till now.

4. Palna Scheme

Why is it in the news?

- The **Union Women and Child Development Minister** inaugurated the National Programme on Anganwadi-cum-Creches.

More about the news

- The government aims to establish 17,000 creches across the country as part of the Palna Scheme.
- A new **Standard Operating Procedure (SOP)** for anganwadi-cum-creche centres has been released.
- It outlines a comprehensive framework for the administration and implementation of the scheme.
- It includes details on the administrative hierarchy, roles, responsibilities of workers, and a monitoring checklist.

What is Palna Scheme ?

- Initially known as the National Creche Scheme, it was reorganized and renamed as Palna Scheme under the subscheme 'Samarthya' of 'Mission Shakti'.
- Focuses on providing a quality crèche care facility for the children of working women.
- Aims to support nutritional, health, and cognitive development of children.
- Enables mothers to engage in gainful employment.
- **Key Services include:** Sleeping facility; early stimulation for children below 3 years of age; pre-school education for children between 3 to 6 years; supplementary nutrition (locally sourced); growth monitoring, health checkups, and immunization in convergence with POSHAN 2.0.
- Operates on a funding ratio of 60:40 between the Union and the State government.

Mission Shakti

- It is a scheme aimed at women's safety, security, and empowerment.
- Mission Shakti has two sub-schemes Sambal and Samarthya.
- **Sambal is** for the safety and security of women and includes schemes such as One Stop Centre, Women Helpline, Beti Bachao Beti Padhao.
- **Samarthya** is for the empowerment of women and includes Ujjwala, Swadhar Greh, etc.

5. PM-DevINE Scheme

Why is it in the news?

- The Ministry of Development of North Eastern Region (DoNER) engaged with Northeastern Chief Ministers to address delays in the PM DevINE scheme, designed for comprehensive development in the region with an initial budget of Rs.1,500 crore.

About the scheme

- It's a Central Sector scheme with 100% central funding.
- Geared towards rapid and holistic development of the North-East Region.
- Fund infrastructure projects convergently, aligning with the **PM GatiShakti initiative**.
- Support social development projects based on the identified needs of the North-East Region.
- Facilitate livelihood activities for youth and women.
- Address development gaps in various sectors.
- Time frame for PM-DevINE scheme projects: Sanction by 2023-24, completion by 2025-26.
- Executed by the Ministry of Development of North Eastern Region (MDoNER).
- Implementation through the North Eastern Council or Central Ministries/agencies or State Government agencies.

6. MoU between MoRD and JioMart

Why is it in the news?

- The Ministry of Rural Development (MoRD) has formalized a collaboration through a Memorandum of Understanding (MoU) with JioMart.

More about the news

- The collaboration aims to facilitate the onboarding of Self-Help Groups (SHGs) associated with the

Deendayal Antyodaya Yojana-National Rural Livelihoods Mission (DAY-NRLM) onto the JioMart e-commerce platform.

- SHG sellers, once on-boarded, are set to receive benefits and guidance to enhance their online business presence and growth.
- The partnership is expected to amplify the visibility of products crafted by SHGs on the JioMart e-commerce platform.
- SHGs associated with DAY-NRLM stand to benefit from increased income through sustainable business growth online.
- The collaboration aims to boost the reach of MoRD's SARAS Collection, a platform showcasing daily utility products produced by rural SHGs.
- A key significance lies in expanding market access for SHG products to a larger consumer base, including Central and State Government buyers.

About SARAS Collection

- The SARAS Collection serves as a platform showcasing daily utility products created by rural Self-Help Groups.
- It is designed to provide market access to the products crafted by SHGs in rural areas, with a specific aim to reach Central and State Government buyers.

7. Enhanced Edition of Mission Karmayogi

Why is it in the news?

- Dr. Jitendra Singh, the Union Minister, marked Good Governance Day by launching the Enhanced Edition of Mission Karmayogi, introducing new features on the iGOT platform for civil servant capacity building.

More about the news

- Mission Karmayogi is a nationwide program dedicated to laying the foundation for the capacity building of civil servants.
- It represents a holistic approach to shaping the next generation of civil servants, acknowledging the importance of technology, innovation, progressiveness, and transparency in governance.
- The online learning platform, iGOT Karmayogi, serves as the educational backbone of Mission Karmayogi, providing a digital infrastructure for civil servants to access training and resources for their continuous development.

My iGOT

- This feature is designed to provide personalized and targeted training to civil servants.
- Officers can access specific training courses directly on their homepage, addressing their unique capacity building needs.
- With over 28 lakh users on the platform, it offers a vast array of approximately 830 highquality e-learning courses.
- **Blended learning** combines traditional inperson classroom courses with online learning elements, creating a flexible and dynamic training environment.
- **Curated programs** are tailored to meet the specific learning needs of Ministries, Departments, and Training Institutions.
- Course Providers have the flexibility to design learning journeys by selecting relevant content, resources, and assessments from the iGOT repository.



12 Domain-Specific E-learning Courses:

- These courses are designed to address the specific competency needs of civil servants at the Department of Personnel and Training (DoPT).
- Developed by the Karmayogi Digital Learning Lab (KDLL) of the DoPT, these courses aim to provide targeted and specialized training to improve the capacity of civil servants in managing day-to-day functional matters.
- The focus on domain-specific knowledge enhances the practical applicability of the training, making it more relevant to the responsibilities of civil servants.

VIKAS (Variable & Immersive Karmayogi Advanced Support):

- VIKAS is a blended learning program specifically designed to enhance the capacity of middle management civil servants in the Central Secretariat.

- The program focuses on the development of functional, behavioural, and technological competencies required in the Central Government.

8. Central Goods and Services Tax (Second Amendment) (CGST) Bill, 2023

Why is it in the news?

- The Lok Sabha has passed the CGST Bill, 2023, amending the Central Goods and Services Tax (CGST) Act, 2017.
- The amendments primarily target changes in the qualification criteria for members of the GST Appellate Tribunal (GSTAT) and raise the age limit for the President and Members of GSTAT.

CGST Act, 2017

- Provides for the levy and collection of CGST on intra-state supply of goods and services.
- The Act allows the central government to set up GSTAT based on the recommendation of the GST Council.
- GSTAT serves as the second appellate authority within the GST framework, hearing appeals against orders passed by the Appellate Authority under the CGST Act, 2017, and State GST Acts.

Composition of GSTAT

- Consists of a President, a judicial member, and two technical members.
- The Bill allows advocates with at least 10 years of experience to be appointed as judicial members of GSTAT. These advocates must possess substantial experience in matters related to indirect taxation.
- The minimum age for appointment as a member or president of GSTAT is set at 50 years.
- The Bill increases the age limit for the President of GSTAT from 67 to 70 years.
- The age limit for members of GSTAT is increased from 65 to 67 years.

9. PM Janjati Adivasi Nyaya Maha Abhiyan

Why is it in the news?

- The Ministry of Tribal Affairs has launched the "Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan" (PM JANMAN).

More about the news

- The campaign aims to raise awareness and ensure the full coverage of government schemes in Particularly Vulnerable Tribal Groups (PVTGs) majority tribal habitations.
- Provides essential documents during the campaign, including Aadhar card, community certificate, and Jan Dhan accounts.
- These documents are required for access to various government schemes such as Ayushman card, PM Kisan Samman Nidhi, and Kisan credit card.



About PM JANMAN

- Targets the development of 75 Particularly Vulnerable Tribal Groups (PVTGs) left out by schemes of various Ministries/Departments.
- **Funding:** Rs. 24,104 crores (Central Share: Rs. 15,336 crore, State Share: Rs. 8,768 crore).
- **Objective:** Saturate PVTG households with basic facilities, including safe housing, clean drinking water, sanitation, education, health, nutrition, road and telecom connectivity, and sustainable livelihood opportunities.
- PM-JANMAN involves 9 Ministries, including the Ministry of Tribal Affairs; Further, 11 critical interventions are planned through 9-line Ministries.
- Setting up Ayush Wellness Centres and extending Ayush facilities to PVTG habitations through Mobile Medical Units.
- Ministry of Skill Development and Entrepreneurship to facilitate skill and vocational training in PVTG habitations, multipurpose centres, and hostels based on community skills.

Particularly Vulnerable Tribal Groups (PVTGs)

- A more vulnerable subgroup among tribal groups in India.
- Characterized by primitive traits, geographical isolation, low literacy, zero to negative population growth, and backwardness.
- 75 PVTGs in India spread over 18 States and the Union Territory of Andaman & Nicobar Islands.

Recognition to PVTGs

- Dhebar Commission in 1973 created Primitive Tribal Groups (PTGs) as a separate category.
- In 1975, the Indian government identified the most vulnerable tribal groups, designating them as PVTGs, initially comprising 52 groups.
- An additional 23 groups were included in this category in 1993.

10. SHRESHTA Scheme

Why is it in the news?

- In the academic session 2023-24, the SHRESHTA Scheme facilitated the enrollment of 2,564 Scheduled Castes students in 142 private residential schools affiliated with CBSE/State Boards.

More about the Scheme

About

- The Scheme for Residential Education for Students in High Schools in Targeted Areas (SHRESHTA) provide high quality education to meritorious but economically disadvantaged Scheduled Castes (SC) students in CBSE affiliated reputed residential schools nationwide.
- **Nodal Ministry:** Ministry of Social Justice & Empowerment

Implementation Modes

Mode 1: SHRESHTA Schools

- Approximately 3000 SC students admitted to top private residential schools affiliated with CBSE/State Boards in classes 9th and 11th for education up to 12th standard.
- Selection through National Entrance Test for SHRESHTA (NETS) conducted by the National Testing Agency (NTA).
- Eligibility based on SC students with parents' annual income up to 2.5 lakh.
- Department covers total student fees, including school (tuition fees) and hostel fees (including mess charges).

Mode 2: NGO Operated Schools/Hostels

- NGOs and voluntary organizations operate schools/hostels with classes up to 12, receiving government Grant-in-aid.
- Continuation based on satisfactory performance.
- Grants cover school fees and residential charges for SC students.
- Schools allowed to collect fees from students other than SC admitted under the scheme.

Eligibility

- SC students studying in class 8th and 10th in the current academic year.

11. Aadhaar-based Payment System (ABPS) for MGNREGS Workers

Why is it in the news?

- As of January 1, 2024, Aadhaar based payment system (ABPS) is mandatory for Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) workers, ensuring efficient and transparent wage disbursements.

About MGNREGS

- Legal guarantee of **100 days** of wage employment annually for adult members of rural households.
- Utilizes Aadhaar Payment Bridge System (APBS) since 2017, made mandatory from January 1.
- Exemptions possible on a case-to-case basis for Gram Panchayats facing technical or Aadhaar related issues.

About ABPS

- ABPS uses the worker's unique 12-digit Aadhaar number as their financial address.
- To be paid under ABPS, Aadhaar details must be seeded to the job card, bank account, and mapped with the NPCI database.

Significance of the Move :

- Curbs corruption by eliminating fake beneficiaries.
- Ensures speedy payments and reduces rejections due to changes in beneficiaries' bank accounts.

Recent Changes to Enhance MGNREGS Efficiency

- National Mobile Monitoring System (NMMS) app for MGNREGS worker attendance capture.
- SECURE application for estimating preparation and approval of MGNREGS works.

- **Geo-MGNREGA** for geo tagging completed works.
- **Project "UNNATI"** to upgrade the skill base of MGNREGS workers.

Aadhaar in Other Government Schemes

- Over 1100 government schemes and programs, both at the Centre and States, use Aadhaar.
- Examples include Pradhan Mantri Ujjwala Yojana, Pradhan Mantri Awas Yojana, Pradhan Mantri Fasal Bima Yojana, and Atal Pension Yojana.

12. SMART 2.0 Program

Why is it in the news?

- Recently SMART 2.0 (Scope for Mainstreaming Ayurveda Research among Teaching Professionals) program has been jointly launched by the Central Council for Research in Ayurvedic Sciences (CCRAS) and the National Commission for Indian System of Medicine (NCISM).

More about the news

- Aims to promote robust clinical studies in priority areas of Ayurveda through collaboration with academic institutions and hospitals.
- Seeks to generate tangible evidence demonstrating the efficacy and safety of Ayurveda interventions for translation into public healthcare.
- Focuses on safety, tolerability, and adherence to Ayurveda formulations in priority research areas like malnutrition, insufficient lactation, abnormal uterine bleeding, etc.
- Under SMART 1.0, around 10 diseases were covered, involving active participation from teaching professionals across 38 colleges.

CCRAS (Central Council for Research in Ayurvedic Sciences) :

- Apex organization operating under the Ministry of Ayush.
- Dedicated to formulating, coordinating, developing, and promoting research on scientific lines in Ayurveda.

NCISM (National Commission for Indian System of Medicine) :

- Statutory body constituted under the NCISM Act, 2020.
- Aims to enhance access to quality and affordable Ayurveda, Unani, Siddha, and Sowa-Rigpa (AUS&SR) medical education.

- Strives to ensure the availability of proficient AUS&SR medical professionals nationwide.
- Promotes equitable and universal healthcare with a community health perspective.
- Encourages the adoption of the latest medical research in AUS&SR.
- Maintains a national AUS&SR medical register.
- Enforces high ethical standards.
- Establishes an effective grievance redressal mechanism.

13. Railways Tightens RTI Norms

Why is it in the news?

- Indian Railways has implemented stricter norms for handling RTI (Right to Information) requests.
- The move follows Central Railway's disclosure of the cost of installing selfie points in response to an RTI application.

More about the news

- The new norms mandate that the general manager (GM) of the zone or the divisional rail-way manager (DRM) must approve all RTI responses for clearance. This includes responses to first appeals under the RTI Act.
- Contrary to the RTI Act's usual provisions, which do not assign the GM or DRM as appellate or competent authorities, these officials are now involved in approving responses and appeals.
- The changes aim to address concerns about the declining quality of responses to RTI applications handled by Zonal Railways and other field units.
- On September 27th, Indian Railways directed all 19 zonal railways and general managers to install selfie booths promptly at various stations.
- Selfie booths feature durable 3D fibre sculptures, acrylic boards, glass, and integrated lighting.
- They showcase central government initiatives such as Skill India, Ujjwala Yojana, Chandrayaan Mission, and others.
- The controversy sparked when the Central Railways, in response to an RTI application, revealed that a permanent selfie booth featuring PM Narendra Modi costs Rs. 6.25 lakh; Temporary booths cost Rs. 1.25 lakh each, leading to political controversy.
- The disclosure of costs related to selfie points led to political discussions and debates, prompting a

response from the Railways through the tightening of RTI norms.

- Hence, the tightened norms are introduced to enhance transparency and accountability in responding to RTI requests, particularly in light of controversial revelations.

14. PRERANA Program

Why is it in the news?

- The Ministry of Education has launched the 'Prerana' program, a week-long residential initiative targeting students in classes IX to XII.

More about the news

- The program takes place in Vadnagar, district Mehsana, Gujarat, at a Vernacular School established in 1888. Vadnagar is one of the oldest living cities in India.
- Each week, a batch of 20 students, consisting of 10 boys and 10 girls, is selected from different parts of the country to attend the program.
- PRERANA adopts an experiential and inspirational learning approach that integrates heritage with innovation, incorporating cutting-edge technology.

The program includes various activities aimed at holistic development:

- Yoga, mindfulness, and meditation sessions to promote physical and mental wellbeing.
- Experiential learning and thematic sessions to enhance practical knowledge.
- Hands-on interesting learning activities to engage participants in a creative and immersive learning experience.

PRERANA is structured around nine key themes, each emphasizing specific values and qualities:

- Swabhiman and Vinay
- Shaurya and Sahas
- Parishram and Samarpan
- Karuna and Sewa
- Vividhta and Ekta
- Shraddha, Vishwas
- Satyanishtha and Shuchita
- Navachar and Jigyasa
- Swatantrata and Kartavya

Purpose and Objectives:

- The primary goal of the program is to provide a meaningful, unique, and inspiring experience to participants.
- Empower students with leadership qualities, fostering a sense of responsibility.

- Inspire the youth and instil respect for India's unity in diversity.
- Contribute to shaping the youth as torchbearers for a developed India, embodying the philosophy of "Vasudhaiva Kutumbakam" (the world is one family).

15. No Local Body Representatives in J&K from January

Why is it in the news?

- Starting January 9, the term of nearly 30,000 local representatives in Jammu and Kashmir comes to an end, resulting in the loss of electoral representation at the grassroots level.

More about the news

- J&K has been under Central rule since the collapse of the BJP-PDP coalition government in June 2018.
- In September 2018, the Union government transferred 29 subjects, including primary health centres and schools, to Panchayats under the 73rd amendment.
- J&K partially adopted these changes after the 1993 passage of the 73rd Constitutional Amendment Act.
- In 2020, the Union Cabinet approved the adapted Jammu and Kashmir Panchayati Raj Act, creating **District Development Councils** in the UT, with members directly elected by the people and no involvement from the Legislative Assembly.
- New panchayat elections in J&K will be conducted following the ongoing delimitation exercise.

Constitutional Provisions for Local Body Elections

73rd Amendment Act, 1992 (Panchayati Raj):

- Enacted to strengthen the Panchayati Raj system in rural areas. Provides constitutional status to Panchayats (local self-government institutions at the village, intermediate, and district levels).
- Part IX of the Constitution contains provisions related to Panchayats.
- 29 subjects addressed in Schedule 11 concerning panchayats.

74th Amendment Act, 1992 (Urban Local Bodies):

- Aimed at strengthening Urban Local Bodies (ULBs) in urban areas.
- Provides constitutional status to Municipalities (local self-government institutions in urban areas).
- Part IXA of the Constitution contains provisions related to Municipalities.
- 18 subjects covered in Schedule 12 pertaining to municipalities.

16. India's new Hit-and-Run Law

Why is it in the news?

- Transporters and commercial drivers from states like Maharashtra, Chhattisgarh, West Bengal, and Punjab are protesting against recent legislation regarding hit and run incidents.

New Legislation (Bharatiya Nyay Sanhita, 2023)

- Section 106 (2) stipulates a penalty of up to 10 years in jail and a Rs.7 lakh fine for fleeing an accident spot without reporting to a police officer or magistrate.
- This law supplements the colonial-era **Section 304A of the Indian Penal Code, 1860**, related to causing death due to rash or negligent acts.

Reasons for the Protest

- Transporters argue that the law imposes stringent punishment even for unintentional accidents.
- Concerns about the penalty being excessive, not considering challenging work conditions, long driving hours, and difficult roads.
- Drivers argue that accidents may result from factors beyond their control, like poor visibility due to fog.
- Fear that the law could be misused by law enforcement agencies.

Need for the Law

- A response to alarming figures of road accidents in India, with over 1.68 lakh fatalities in 2022.
- Aims to deter drivers from reckless and negligent driving leading to death.
- Imposes a legal duty on the offender to report the incident, enforcing moral responsibility towards the accident victim.

Data Analysis

- National Crime Records Bureau recorded 47,806 hit-and-run incidents causing 50,815 deaths in 2022.
- Despite a 5% global decrease in road crash deaths, India witnessed a 12% YoY increase in road accidents and a 9.4% increase in fatalities in the same year.
- India, with 1% of the world's vehicles, accounts for about 10% of crash related deaths, causing a 5-7% annual GDP loss due to road crashes.

Suggestions

- Advocate for revisiting and reconciling clauses to treat truck drivers and individual vehicle drivers fairly.



- Note the exception for doctors in Section 106 (1), where the punishment is limited to two years with a fine for rash or negligent acts.
- Emphasize the need for graded liability and punishment, separating acts of rash and negligent driving under different degrees of liability.
- Propose alternatives for minor injuries, such as community service, license revocation, or mandatory driving retests, instead of equating them with criminal acts.

17. Maharashtra Speaker's Dismissal of Disqualification Petitions

Why is it in the news?

- The Speaker of Maharashtra dismissed all petitions seeking the disqualification of Members of the Legislative Assembly (MLAs). The disqualification under the anti-defection law was rejected by the Speaker.
- The primary reason cited was the absence of physical service of the whip to the concerned MLAs, coupled with the lack of other valid reasons.

About Whip

- In parliamentary language, a whip can refer to:
- A written order directing party members on a certain course of action.
- A designated party official authorized to issue such directives.
- The term originates from the British practice of "whipping in" lawmakers to ensure party discipline.

About Anti-Defection Law

- The anti-defection law, encapsulated in the 10th Schedule of the Constitution, was introduced by the Constitution (52nd Amendment) Act, 1985.

- Its purpose is to prevent political defections among elected representatives.

Conditions for Disqualification: Disqualification occurs if a member:

- Voluntarily gives up party membership.
- Votes or abstains against the party's direction, and the party does not condone the act within 15 days.
- An independent member becomes disqualified upon joining any political party after the election.
- A nominated member faces disqualification if joining a political party after 6 months from taking the seat.
- The law permits a political party to merge if at least 2/3rd of its legislators are in favour, with the Speaker having absolute power in deciding such cases.
- However, in the case of **Kihoto Hollohan vs Zachillhu (1992)**, the Supreme Court held that the Speaker's decision under the anti-defection law is subject to judicial review.

18. Supreme Court on Bilkis Bano's Case

Why is it in the news?

- The Supreme Court has nullified the remission granted by the Gujarat government to 11 convicts in the Bilkis Bano case.
- The court held that Gujarat was not the appropriate authority to decide on the remission petition since the trial took place in Maharashtra. Consequently, the remission orders were declared invalid.

Remission

- Remission refers to the reduction in the period of a sentence without altering the nature of the sentence.
- It allows the state to release convicts early under its remission policy.
- **Article 72** empowers the **President of India** to grant pardons, suspend, remit, reprieves, respites, or commute the sentence of a person convicted for specific offenses. This power applies to offenses tried by a court martial, offenses against laws under the executive power of the Union, and sentences of death.
- **Article 161** confers similar powers on the Governor, limited to matters under the executive power of the state.
- **Section 432** of the Criminal Procedure Code (CrPC) 1973 grants the government the power to suspend or remit sentences.



- **Section 433A** mandates remission only after 14 years of imprisonment.

Supreme Court Verdicts on Remission

- In the case of **Laxman Naskar versus Union of India (2000)**, the Supreme Court laid down five grounds for considering remission.
 - 1) The impact of the offense on society.
 - 2) The probability of the crime being repeated.
 - 3) The potential of the convict to commit crimes in the future.
 - 4) Whether any purpose is being served by keeping the convict in prison.
 - 5) The socio-economic condition of the convict's family.

State of Haryana vs. Rajkumar (2021):

- The Supreme Court clarified that Section 433-A of CrPC does not affect the constitutional powers conferred on the President/Governor under Articles 72/161.
- This reinforces the distinct constitutional authority of the President and Governor in matters of remission.

2

INTERNATIONAL RELATIONS

1. Maldives Terminates Hydrographic Survey Agreement with India

Why is it in the news?

- The Maldives government's decision **not to renew the agreement** with India for hydrographic surveys comes in the context of a deal signed in 2019 during the presidency of Ibra-him Solih.

More about the news

- Hydrographic surveys are vital for understanding the features of water bodies, including water depth, seafloor and coastline shape, and the location of potential obstructions. These surveys enhance the efficiency and safety of maritime transportation.
- The joint hydrographic surveys conducted in 2021, 2022, and 2023 aimed to produce updated Navigational Charts/Electronic Navigational Charts for various sectors, such as Tourism, Fisheries, and Agriculture.
- India supported the establishment of Hydrographic facilities within the Maldives National Defence Force (MNDF), aligning with its policy to assist the Maldives in strengthening its mari-time capabilities.

India's Historical Involvement in Hydrographic Surveys

- India, through its oldest Hydrographic Survey ship INS Sandhayak, has undertaken over 200 major hydrographic surveys along the Western and Eastern coasts of the Indian peninsula, the Andaman Sea, and in neighbouring countries such as Sri Lanka, Myanmar, and Bangla-desh.
- Indian survey ships have played a crucial role in assisting several countries, including Kenya, Mauritius, Mozambique, Maldives, Oman, Seychelles, Sri Lanka, and Tanzania, in conducting hydrographic surveys.

Reasons for non-renewal :

- The decision is linked to a change in political leadership, with President Mohamed Muizzu succeeding President Ibrahim Solih. President Muizzu is perceived as being more inclined towards China, in contrast to his predecessor's favourable stance towards India.
- China's increasing presence and influence in the Indian Ocean, notably through the Belt and Road Initiative (BRI), have altered the geopolitical dynamics of the region.
- During the election campaign, President Muizzu emphasized the termination of agreements with foreign countries unless they were beneficial to the Maldives, suggesting a potential re-evaluation of the country's foreign relations, including with India.

India-Maldives Relations

- Early diplomatic ties between India and the Maldives date back to 1965 when the Maldives gained independence from British rule.
- The Maldives holds strategic importance in the Indian Ocean, and India has consistently expressed interest in the stability and security of the region.
- Economic cooperation, defence and security collaboration, capacity building/training for the Maldivian National Defence Force (MNDF), and tourism are key pillars of the India-Maldives relationship.
- In 2021, India became the third-largest trade partner for the Maldives, with bilateral trade crossing the USD 300 million mark.

2. Economic Pact between India and EFTA States

Why is it in the news?

- Trade and Economic Partnership Agreement (TEPA) negotiations between India and EFTA face obstacles as Switzerland raises concerns, causing a logjam in the trade deal talks.

More about the news

- The negotiations for the Trade and Economic Partnership Agreement (TEPA) between India and the European Free Trade Association (EFTA) commenced in 2008 and experienced a hiatus before resuming in 2016.
- Recent negotiations encompass a comprehensive range of topics, including trade in goods and services, rules of origin, Intellectual Property Rights (IPR), trade and sustainable development, sanitary and phytosanitary measures, technical barriers to trade, trade remedies, and customs and trade facilitations.

European Free Trade Association (EFTA)

- EFTA is an intergovernmental organization consisting of Iceland, Liechtenstein, Norway, and Switzerland. Established in 1960, its primary goal is to promote free trade and economic integration among its member states.
- In 2022, the combined EFTA-India merchandise trade surpassed USD 6.1 billion. Notable imports to the EFTA States included organic chemicals (27.5%), while machinery (17.5%) and pharmaceutical products (11.4%) constituted the main exports to India.

Significance of TEPA :

- The EFTA states rank 10th globally in merchandise trade and 8th in services trade, highlighting the significant market potential.
- Recognizing the importance of reducing dependency on a few key trading partners, TEPA aims to mitigate risks associated with economic fluctuations in specific regions.
- A key component of trade agreements involves the reduction or elimination of tariffs on goods traded between participating countries. This strategic move can make Indian goods more competitive in EFTA markets, potentially boosting exports.



- EFTA companies excel in various sectors, including pharmaceuticals, biotechnology, machinery manufacturing, R&D driven technology products, geothermal-related technologies, marine technology, energy-related services, financial services, banking, and insurance.
- TEPA's positive business environment can attract foreign direct investment by providing stability and predictability for investors.
- EFTA has a successful track record of negotiating mutually beneficial trade agreements, boasting an extensive network of 29 free trade agreements (FTAs) with 40 partner countries.

Concerns :

- Harmonizing standards related to product quality, safety, and environmental regulations is crucial for smooth trade. Any differences may lead to additional compliance costs for businesses.
- Agreement on standards and enforcement mechanisms for patents, copyrights, trademarks, and other intellectual property issues is essential for a successful TEPA.
- Concerns may arise if obstacles to the free flow of services or restrictions on foreign investment in certain sectors are not adequately addressed.
- Ensuring that the trade deal includes provisions for maintaining or improving labour rights and environmental protections is crucial for sustainable and ethical trade practices.

Conclusion :

- The potential benefits of a TEPA between India and EFTA states are significant. It fosters a strong partnership and increases trade between trusted democratic partners that share values such as promoting sustainable development and gender equality.

- EFTA and India are committed to making these trade talks a priority, aiming for a swift process towards a balanced agreement with strong political involvement and guidance.

3. India-Oman Relations

Why is it in the news?

- Sultan of Oman's visit to India, the first since assuming office in 2020, signifies the importance both nations place on bilateral ties.

Some of the key highlights

Oman-India Joint Investment Fund

- Third tranche of \$300 million announced, demonstrating a commitment to economic collaboration.
- Joint venture between State Bank of India and Oman Investment Authority, emphasizing a balanced partnership.
- Aim is to channel funds into rapidly growing sectors of the Indian economy, fostering mutual economic growth.

Joint Vision Document

- **Adoption of "India-Oman Joint Vision: A partnership for the future"** reflects a shared commitment to longterm cooperation.
- Aligned with Oman Vision 2040 and India's development vision till 2047, providing a strategic framework for future engagements.

Agreement on Money Laundering

- Signing an agreement between Financial Intelligence Unit of India and National Centre for Financial Information of Oman underlines joint efforts to combat financial crimes.
- Focus on preventing money laundering strengthens financial cooperation.
- Anticipation of signing a Comprehensive Economic Partnership Agreement (CEPA) during the head of state visit highlights the commitment to deeper economic integration.

India-Oman Relations :

Economic Cooperation :	<ul style="list-style-type: none"> • Bilateral trade in 2022-23 at \$12.3 billion, showcasing the economic significance of the relationship. • India as the 2nd largest market for Oman's crude oil exports and 4th largest market for non-oil exports signifies the diversification of economic ties.
Defence Cooperation	<ul style="list-style-type: none"> • Regular biennial bilateral exercises (Al Najah, Eastern Bridge, Naseem Al Bahr) strengthen military to military cooperation. • Enhances mutual understanding and interoperability between armed forces.
Indian Diaspora	<ul style="list-style-type: none"> • Presence of around 700,000 Indians in Oman, including workers and professionals, under-scores people to people ties. • Some Indian families residing for over 150-200 years exemplify the historical depth of connections.
Maritime Cooperation	<ul style="list-style-type: none"> • Oman's strategic location at the Strait of Hormuz's gateway crucial for India's oil imports. • The 2018 pact granting India access to the Duqm port enhances maritime cooperation and trade facilitation.

Agreements:

- **Central Bank of Oman (CBO) and NPCI:** MOU signed in 2022 to link payment systems enhances financial connectivity. Facilitates smoother transactions and economic cooperation.
- **Oman News Agency and Asia News International:** Exchange of MOUs facilitates in-

formation exchange, fostering cultural and media ties.

Conclusion:

- Oman's role as a key pillar in India's West Asia Policy underscores its strategic importance.
- Its strategic location enhances mutual security and economic interests.



- Building on historical ties and adapting to the changing global landscape, India and Oman can jointly contribute to regional stability and prosperity.

4. China Bans Export of Rare Earths Processing Tech Over National Security

Why is it in the news?

- China expands export ban to include technology for manufacturing rare earth magnets, along-side existing restrictions on technology for extracting and separating these critical materials.

Reasons for China's Decision

- China added technology for manufacturing rare earth magnets to its "Catalogue of Technologies Prohibited and Restricted from Export."
- It is aimed at protecting national security and public interest.
- The ban extends beyond magnets, covering technology for producing rare earth calcium oxyborate and rare earth metals.
- Previous prohibitions on the production of rare earth alloy materials are also included.
- Earlier in August 2023, export permits for chipmaking materials like gallium and germanium implemented. Later, similar requirements extended to various types of graphite.
- China, as the world's leading processor of rare earths, imposing such restrictions raises concerns about potential disruptions in the supply chain for these critical minerals.

About Rare Earth Magnets

- Powerful permanent magnets made from alloys of rare earth elements.
- Notably neodymium magnets and samarium cobalt magnets.
- Known for exceptional strength and magnetic properties.

Rare Earths :

- Group of 17 metals crucial for creating magnets that convert power into motion.
- Essential for various applications, including electric vehicles, wind turbines, and electronics.

5. Angola's Withdrawal from OPEC

Why is it in the news?

- Angola has decided to withdraw from the Organization of the Petroleum Exporting Countries (OPEC).

OPEC

- Established in 1960 at the Baghdad Conference by Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela.
- Other members include Algeria, Equatorial Guinea, Gabon, Libya, Nigeria, the Republic of the Congo, and the United Arab Emirates.
- OPEC's primary goal is to coordinate and unify petroleum policies among member countries.
- Aims to secure fair and stable prices for petroleum producers and ensure an efficient, economic, and regular supply of petroleum to consuming nations.
- OPEC's headquarters is located in Vienna, Austria.

Significance of OPEC

- OPEC possesses more than 80% of the world's total crude oil reserves.
- OPEC+ (OPEC and 10 other major oil-exporting nations, including Russia) represents around 40% of the world's oil production.
- Oil prices are primarily determined by demand and supply dynamics. OPEC utilizes a spot or future sale mechanism for price regulation. (**Spot Prices:** Represent the cost of buying or selling oil immediately; **Oil Futures:** Contracts where parties agree to exchange a set amount of oil at a predetermined price on a specific date).
- OPEC uses **Brent Crude** as a benchmark for assessing the quality of crude oil.

- Another major benchmark is WTI (West Texas Intermediate).

Role of OPEC+

- OPEC+ is a coalition of OPEC and 10 other major oil-exporting nations, including Russia.
- Together, OPEC+ plays a significant role in influencing global oil production and prices.
- OPEC+ collectively controls a substantial portion of the world's oil production, impacting global energy markets.
- OPEC's influence extends globally, affecting energy policies and economies worldwide.

6. Migration and Mobility Agreement between India and Italy

Why is it in the news?

- The **Migration and Mobility Agreement** between India and Italy was officially signed on November 2, 2023.

More about the news

- The primary objective of the agreement is to facilitate the seamless movement of various categories of individuals, including workers, students, and professionals, between India and Italy. Additionally, it aims to address and enhance cooperation on issues related to illegal migration.
- The agreement ensures the preservation of the existing Italian visa regime for Indian nationals.
- It includes specific mechanisms designed to promote post-study opportunities, internships, and professional training. This aspect is particularly advantageous for Indian citizens seeking opportunities in Italy.
- Once approved by both participating nations, the Migration and Mobility Agreement becomes effective for a period of 5 years.
- Notably, the agreement is designed to automatically renew for successive periods, ensuring continuity, unless either India or Italy decides to terminate their participation.

Key Provisions of the Agreement

- A significant provision allows Indian students who have completed academic or vocational training in Italy to obtain **temporary residence** in the country for a duration of up to 12 months. This facilitates the gaining of initial professional experience, contributing

to the over-all mobility and skill development of Indian students.

- Under the existing Flows Decree, Italy has committed to offering increased reserved quotas for both seasonal and non-seasonal workers. This commitment spans the period from 2023 to 2025, aiming to accommodate and manage the flow of Indian workers to Italy during this timeframe.
- The agreement formalizes collaboration and cooperation between India and Italy in their joint efforts to **combat irregular migration**. By establishing a structured framework, the two nations aim to address challenges associated with irregular migration more effectively.
- To ensure the effective implementation and ongoing assessment of the agreement, a formal monitoring mechanism in the form of a **Joint Working Group (JWG)** is established. This group will convene periodically, either virtually or in person, to oversee the implementation of the agreement, discuss emerging issues, and foster continuous collaboration between India and Italy in the realm of migration and mobility.

7. Visit of External Affairs Minister to Russia

Why is it in the news?

- The **Minister of External Affairs of India** concluded a five day visit to Russia, engaging in discussions on crucial geopolitical issues.
- The talks covered a spectrum of topics, including concerns in the Indo-Pacific region, the Ukraine crisis, and the Israel-Gaza conflict.

Key Takeaways from the Visit

- A Protocol on Consultations was signed for the next four years (2024-2028), outlining plans for cooperation in economic, energy, connectivity, military technical, and people to people exchanges.
- Significant agreements related to the construction of future power generating units at the Kudankulam nuclear power plant were signed.

India-Russia Ties :

- Historical ties between India and Russia were established in the mid 1950s and strengthened during the Cold War era, particularly due to conflicts with Pakistan.

- The Soviet Union played a pivotal role in mediating cease fires and supporting India at the United Nations during conflicts.
- The relationship was formalized with the signing of the Treaty of Peace, Friendship, and Cooperation in 1971, which was later replaced by the Treaty of Indo-Russian Friendship and Cooperation in 1993.
- The declaration of the India-Russia Strategic Partnership in 2000 further solidified the bilateral relationship.

Security Council Cooperation

- Both nations maintain close cooperation between their Security Council secretariats, led by the National Security Advisors (NSA).
- Regular bilateral consultations are held, and meetings occur on the sidelines of various multilateral events.

Trade and Economic Cooperation

- The India-Russia Intergovernmental Commission for Trade, Economic, Scientific & Cultural Cooperation (IRIGC-TEC) serves as the primary mechanism for enhancing trade and economic cooperation.
- The **India-Russia Strategic Economic Dialogue (IRSED)** is another significant government to government mechanism.
- Bilateral trade reached an all-time high of \$18.23 billion from April to August 2022, with India's imports at \$17.23 billion and exports to Russia at \$992.73 million.
- Russia is a significant supplier of crude oil to India.

Defence

- India and Russia have a longstanding and comprehensive cooperation in the defence sector.
- The relationship has evolved from a traditional buyer-seller framework to joint research, development, and production of advanced defence technologies and systems.
- Notable defence acquisitions include India's purchase of the aircraft carrier **INS Vikramaditya** from Russia in 2004.

Nuclear Energy

- Russia is a crucial partner for India in the peaceful use of nuclear energy.
- The Kudankulam Nuclear Power Plant (KKNPP) is a flagship project, with construction beginning in March 2002.

Space Cooperation

- Both countries have a history of cooperation in the peaceful use of outer space.
- Collaboration extends to India's first human spaceflight program, **"Gaganyaan."**

Science & Technology

- India and Russia have a long history of cooperation in science and technology.
- A new Roadmap for Bilateral Science, Technology, and Innovation (STI) Cooperation has been developed and agreed upon for the next 5 years.

Cooperation in the Fight Against Covid-19

- The nations closely cooperate in the sphere of vaccine production, with SPUTNIK-V receiving approval for emergency use in India in 2021.

Emerging Issues

- Concerns arise over defence supplies, payment issues for imports, and a general decline in other bilateral engagements.
- India has been diversifying its defence procurements, reducing dependency on Russian arms and engaging with other countries like the U.S., Israel, France, and Italy.
- Challenges persist as it may take two decades for India to overcome its dependence on Russian supplies and spares.

Conclusion

- The development of India-Russia relations remains a key pillar of India's foreign policy.
- The historical alliance is characterized by cooperation in defence, oil, nuclear energy, and space exploration.
- While India has not condemned the Russian invasion of Ukraine, maintaining a stance for resolution through diplomacy and dialogue, the ties between India and Russia continue to evolve.
- Direct understanding between the two nations is highlighted as crucial, independent of external perceptions and geopolitical shifts.

8. India-Pakistan Nuclear Installations Exchange

Why is it in the news?

- India and Pakistan exchanged lists of nuclear installations and facilities through diplomatic channels in New Delhi and Islamabad.
- The exchange is covered under the Agreement on the Prohibition of Attack against Nuclear Installations and Facilities between India and Pakistan.
- This marks the 33rd consecutive exchange of such lists between the two countries, starting from January 01, 1992.

Prohibition of Attack against Nuclear Installations and Facilities (Non-Attack Agreement)

- Signed on December 31, 1988, and entered into force on January 27, 1991.
- The agreement requires India and Pakistan to inform each other of the nuclear installations and facilities to be covered under the agreement on January 1 of every calendar year.
- Both parties commit to refraining from undertaking, encouraging, or participating in any action aimed at causing the destruction or damage to nuclear installations or facilities in the other country.
- The term 'nuclear installation or facility' includes nuclear power and research reactors, fuel fabrication, uranium enrichment, isotopes separation, reprocessing facilities, and any other installations with nuclear fuel and materials.

Significance of the Agreement

- Reinforces commitment to durable peace and the development of **friendly bilateral relations**.
- Acknowledges the role of **confidence-building measures** in promoting bilateral relations based on mutual trust and goodwill.
- Recognizes the catastrophic potential of even a small nuclear exchange between India and Pakistan, highlighting the risk of a nuclear winter and its impact on global populations.

Nuclear Power in India

- India tested its first nuclear weapon in 1974, becoming the sixth country to detonate a nuclear weapon.
- Approximately 164 nuclear warheads with land-based, sea-based, and air-launch capabilities.

- Historically, India had a **No First Use policy**, but there were considerations of reassessment as of August 2019.
- Pursuing Nuclear Suppliers Group (NSG) membership, became a member of the Missile Technology Control Regime (MTCR) in 2016.
- India has not signed the Nuclear Non-Proliferation Treaty (NPT) nor the Comprehensive Test Ban Treaty.

Nuclear Power in Pakistan

- Pakistan became a nuclear power in 1998, testing its first nuclear weapon and having approximately 170 warheads.
- The U.S. Defense Intelligence Agency projected 60-80 warheads by 2020, but Pakistan's arsenal could grow to 220-250 warheads by 2025.
- Unlike India, Pakistan has not declared a No First Use policy but emphasizes smaller tactical nuclear weapons as a counter to India's conventional forces.
- Adopts a position of 'no first use' against non-nuclear weapon states, and follows a policy of 'full spectrum deterrence' to maintain a minimum credible deterrence against India.
- Pakistan stores nuclear warheads separately from missiles and assembles them only when they will be used.
- Similar to India, Pakistan is not a signatory of the Nuclear Non-Proliferation Treaty (NPT).

9. BRICS

Why is it in the news?

- BRICS expanded its membership to include five new nations: Egypt, Ethiopia, Iran, Saudi Arabia, and the United Arab Emirates.

- **Original BRICS Members:** Brazil; Russia; India; China; South Africa.
- Argentina decided to withdraw from its planned entry to BRICS.
- The last expansion of BRICS occurred in 2010 when South Africa joined the group.

Significance of Expansion

- The inclusion of new members increases multipolarity, challenging the established Western-led order and promoting a more balanced global power structure.

- Expansion fosters **South-South cooperation** among developing countries, encouraging collaboration and shared interests among nations with similar developmental goals.
- India benefits by advancing its claim as the leader of the **global south**, showcasing its influence in the international arena.
- The expanded BRICS group is better positioned to assert a collective voice in advocating for the restructuring of global institutions to better represent the interests of emerging economies.
- The inclusion of oil producing countries, such as Saudi Arabia and the United Arab Emirates, contributes to an increase in oil production among BRICS members, potentially impacting global energy dynamics.
- Established familial and ethnic ties between citizens on both sides prompted this arrangement in the 1970s (last revised in 2016).
- Every member of hill tribes, whether a citizen of India or Myanmar, residing within 16 km on either side, could cross the border with a border pass, usually valid for a year, allowing a two-week stay per visit.
- Recently, Manipur has urged the Union Ministry of Home Affairs to cancel FMR along the In-dia-Myanmar border.
- There is a call for completing the fencing along the border.

Challenges with BRICS

- The BRICS countries exhibit divergence in their world views. For instance, India perceives BRICS as non-Western, emphasizing cooperation, while China may see it as anti-Western, signalling a more confrontational stance.
- Economic and political sanctions on certain BRICS members may cause disruptions in trade and economic activities, affecting the overall stability of the group.
- There is an **internal trust deficit** among member states, and a lack of common understanding of standards, criteria, and procedures for expansion may hinder smooth collaboration.
- Overlapping memberships with other groups, such as **IBSA (India, Brazil, and South Africa)**, may lead to complexities and potential conflicts of interest.

10. India's Plan to End Free Movement Regime with Myanmar

Why is it in the news?

- India intends to terminate the Free Movement Regime (FMR) along its international border with Myanmar.
- This means that individuals from Myanmar who previously had the freedom to cross into India will now be required to obtain visas.

About Free Movement Regime (FMR)

- Indo-Myanmar has an open border with FMR within 16 km on both sides.

Background on Indo-Myanmar Border

- India shares a 1,643 km long border with Myanmar through Arunachal Pradesh (520 km), Nagaland (215 km), Manipur (398 km), and Mizoram (510 km).
- Myanmar provides an alternative access route to the Northeast of India.
- Both countries share heritage with religious, linguistic, and ethnic ties, and Myanmar has a significant population of Indian origin.
- Myanmar serves as **India's gateway to Southeast Asia and ASEAN**, aligning with India's 'Look East' and 'Act East' Policy.
- Following the 2021 military coup in Myanmar, over 40,000 refugees sought shelter in Mizoram, and approximately 4,000 refugees entered Manipur.
- The Kuki-Chin-Zo ethnic group among these migrants shares ethnic ties with communities in Mizoram and Manipur.
- Assam Rifles (AR) monitors and checks infiltration across this border.
- **Border security** is under the Union List (Schedule VII of the Constitution of India)

11. UN's Genocide Convention

Why is it in the news?

- South Africa has recently approached the International Court of Justice (ICJ) with a case accusing Israel of violating its commitments under the 1948 Genocide Convention.

UN Convention on the Prevention and Punishment of the Crime of Genocide

- The Genocide Convention is an essential instrument of international law that formally codified the crime of genocide for the first time.

12. India-Australia Economic Cooperation and Trade Agreement

- Adopted by the United Nations General Assembly on December 9, 1948, it was the inaugural **human rights treaty**.
- The Convention stipulates that **genocide is a crime** that can occur both in times of war and peace.
- It provides a comprehensive definition of genocide, encompassing acts committed with the intent to destroy, in whole or in part, a national, ethnical, racial, or religious group.
- Signatory countries can request relevant UN organs to take necessary actions to prevent and suppress acts of genocide.
- The Convention places an obligation on state parties to enact legislation and punish perpetrators, aiming to prevent and punish the crime of genocide.

The Convention specifies five acts that constitute genocide:

- 1) Killing members of the group.
- 2) Causing serious bodily or mental harm to members of the group.
- 3) Deliberately inflicting on the group conditions of life calculated to bring about its physical destruction in whole or in part.
- 4) Imposing measures intended to prevent births within the group.
- 5) Forcibly transferring children of the group to another group.

International Court of Justice (ICJ)

- The ICJ is the principal judicial organ of the **United Nations**.
- Established in June **1945** by the UN Charter and commenced its operations in April 1946.
- The primary role of the ICJ is to settle legal disputes submitted by states.
- It also provides advisory opinions on legal questions referred by authorized UN organs and specialized agencies.
- The ICJ consists of 15 judges elected for terms of office lasting nine years by the UN General Assembly and the Security Council.
- The Court is located at the **Peace Palace in The Hague**, Netherlands, making it the only one among the six principal UN organs not situated in New York.
- The official languages of the ICJ are English and French.

Why is it in the news?

- The India-Australia Economic Cooperation and Trade Agreement (ECTA), recently completed one year.
- It's a bilateral free trade agreement signed on December 2, 2022 and came into effect on December 29, 2022.

Objectives of ECTA

- Boost bilateral trade and investment by removing tariffs and trade barriers.
- Enhance market access for Indian and Australian goods and services in each other's markets.
- India agrees to Negative listing after 5 years, treating imported and locally produced goods/services equally, with exceptions listed in the negative list.
- Aims to streamline customs procedures to save time and costs for cross border trade.
- Encourages regulatory cooperation, including the harmonization of technical standards and regulations.

Expected Benefits for India

- Duty-free access for 96.4% of India's exports to Australia, including textiles, agriculture, and leather products.
- Exports expected to increase by \$10 billion by 2026-27.
- Total bilateral trade expected to surpass US \$45-50 billion by 2035.
- Anticipated creation of approximately 10 lakh new jobs in various sectors in India.
- Potential for increased foreign investment due to improved market access and a more predictable regulatory environment.

Achievements So Far

- India's exports to Australia grew by 14% year on year to \$5.87 billion between April and November 2023.
- Imports contracted by 19% year-on-year to \$11.46 billion in the same period.
- Trade deficit reduced to \$5.2 billion between April and November 2023, compared to \$8.6 billion a year ago.
- Agricultural exports from Australia to India increased by 50% since the agreement came into force.

- However, Challenges include differences in regulatory standards and potential implementation issues.

Conclusion

- Continued dialogue and collaboration between India and Australia are crucial to maximizing the benefits of the agreement.
- Successful implementation could pave the way for further cooperation, contributing to regional economic growth and development.
- Ongoing negotiations for concluding the Comprehensive Economic Cooperation Agreement (CECA) between India and Australia, but no defined deadline at present.

13. India-Nepal Joint Commission Meeting

Why is it in the news?

- The 7th India-Nepal Joint Commission meeting took place in Kathmandu, resulting in significant agreements.

Key Agreements

- Both nations agreed to collaborate on the development of renewable energy sources.
- India and Nepal outlined plans to export 10,000 MW of electricity over the next decade.
- The Indian Space Research Organisation (ISRO) will launch Nepal's Munal satellite using the Polar Satellite Launch Vehicle (PSLV).

A Brief Overview on India-Nepal Relations

- The India-Nepal Treaty of Peace and Friendship, established in 1950, serves as the bedrock for the relations between the two countries.
- Nepal holds a strategic position as a priority partner of India under its 'Neighbourhood First' policy.
- India stands as the largest trading partner of Nepal, with bilateral trade exceeding US\$ 7 billion in FY 2019-20.
- Bilateral defence collaboration includes the recruitment of Nepalese soldiers into the Gorkha regiments of the Indian Army.
- Joint military exercises, exemplified by Surya Kiran, strengthen military ties.
- A longstanding Power Exchange Agreement, in effect since 1971, addresses power requirements in border areas.

- Notable hydropower cooperation projects, such as the Mahakali Treaty (6,480 MW) and the Upper Karnali Project (900 MW), enhance energy collaboration.
- The construction of South Asia's first cross-border petroleum products pipeline, connecting Motihari in India to Amlekhgunj in Nepal, is undertaken and funded by the Indian Oil Corporation Ltd.

Both nations actively engage in regional and multilateral forums:

- Participation in BBIN (Bangladesh, Bhutan, India, and Nepal) initiatives.
- Contribution to BIMSTEC (Bay of Bengal Initiative for Multi Sectoral Technical and Economic Cooperation) efforts, enhancing regional cooperation.

14. Switzerland's Decision to Eliminate Import Duties

Why is it in the news?

- The Global Trade Research Initiative (GTRI) reports Switzerland's move to eliminate import duties, allowing tariff free entry from all countries.
- This decision has substantial implications for India's potential gains under the ongoing trade negotiations with the European Free Trade Association (EFTA).

European Free Trade Association (EFTA)

- EFTA consists of Iceland, Liechtenstein, Norway, and Switzerland.
- Established in 1960 to foster free trade and economic integration among its member states.
- In 2022, the EFTA-India merchandise trade surpassed USD 6.1 billion, making it a crucial trade partner for India.

More about the news :

- Initiated in 2008, the India's Trade and Economic Partnership Agreement (TEPA) with EFTA negotiations resumed in 2016, covering various aspects such as trade in goods and services, rules of origin, Intellectual Property Rights (IPR), trade and sustainable development, sanitary and phytosanitary measures, technical barriers to trade, trade remedies, and customs and trade facilitations.
- Switzerland's decision alters the dynamics of ongoing negotiations, introducing complexities that could affect India's gains under the proposed trade agreement.

- Switzerland, as India's top export destination in EFTA, eliminating import duties means increased competition for Indian products. This competitiveness challenges the effectiveness of the Free Trade Agreement (FTA) with EFTA.
- Further, exporting agricultural produce to Switzerland remains challenging due to existing tariffs, stringent quality standards, and complex approval requirements.
- EFTA, including Switzerland, shows reluctance in making agriculture tariffs zero, limiting India's potential gains in this sector.
- In FY2023, India witnessed a substantial trade deficit with Switzerland, with imports amounting to \$15.79 billion and exports at \$1.34 billion. Switzerland's tariff elimination is anticipated to widen this trade deficit further.

Conclusion:

- The current trajectory of the trade agreement might not favour Indian exports, leading to an imbalance with higher imports and an expanded trade deficit.
- India is urged to navigate these negotiations carefully, emphasizing the need to balance trade, safeguard domestic interests, and secure a mutually beneficial agreement that takes into account the evolving dynamics prompted by Switzerland's tariff policy change.

15. UAE-India Comprehensive Economic Partnership Agreement (CEPA) Council

Why is it in the news?

- The UAE-India Comprehensive Economic Partnership Agreement (CEPA) Council was launched at the India-United Arab Emirates (UAE) Business Summit.
- It aims to foster close partnerships and tangible cooperation across all levels of UAE and Indian business communities.
- Emphasizes collaboration in startups, women entrepreneurs, Micro, Small, and Medium Sized Enterprises (MSMEs), and the services sectors.

About India-UAE CEPA (Comprehensive Economic Partnership Agreement):

- Came into force in 2022.
- The first full free trade Agreement signed by India with any country in the past decade.
- Encompasses Trade in Goods and services, Rules of Origin, customs cooperation, and Dispute Settlement, among other aspects.
- Bilateral trade increased by approximately 15% since the CEPA came into force.

Significance of CEPA :

- Provides enhanced access for cross-border trade in services, particularly benefiting the pharmaceutical sector.
- Aims to raise bilateral merchandise trade to \$100 billion in five years from about \$43 billion in FY21.
- Special safeguard measures included to protect against a surge in imports from the UAE due to tariff concessions.

India-UAE

- UAE serves as a gateway to West Asian countries and Africa for Indian exporters.
- UAE is India's third-largest trading partner (2022-23) after China and the US, and the second-largest export destination.
- Both countries engage in maritime cooperation to maintain peace and security in the region through regular military exercises like Desert Eagle.

1. Tax Inspectors Without Borders (TIWB) Programme in Saint Lucia

Why is it in the news?

- Recently Tax Inspectors Without Borders (TIWB) launched a programme in Saint Lucia.
- India has been selected as the Partner Administration and will contribute Tax Experts to this programme.

More about the news

- The Tax Inspectors Without Borders (TIWB) initiative is designed to support countries in building their tax audit capacity. It operates with the goal of facilitating the transfer of tax audit knowledge and skills to developing country tax administrations, employing a practical "learning by doing" approach.
- The TIWB initiative aligns with the **OECD/G20 Base Erosion and Profit Shifting (BEPS)** actions, emphasizing the need for international cooperation to address challenges related to tax evasion and profit shifting.

What is TIWB Programme?

- TIWB is a joint initiative of the Organisation for Economic Cooperation and Development (OECD) and the United Nations Development Programme (UNDP). The initiative was officially launched in 2015.
- The TIWB Secretariat is located in Paris and is supported by UNDP's network of Country Offices in developing nations.
- TIWB aims to enhance international cooperation on tax matters, recognizing the importance of collaborative efforts in addressing global tax challenges. The initiative supports the domestic resource mobilization efforts of developing countries, recognizing the significance of revenue generation for sustainable development.

- TIWB facilitates targeted tax audit assistance programmes in developing countries across the globe, focusing on building the capacity of tax administrations.

TIWB Programme in Saint Lucia

- The recent launch of the TIWB programme in Saint Lucia involves a partnership with the TIWB Secretariat, where India has been selected as the Partner Administration.
- India, in its role as the Partner Administration, will contribute Tax Experts to assist Saint Lucia in enhancing its tax administration capabilities.
- The program in Saint Lucia will emphasize imparting technical knowledge and skills to tax officials, along with sharing best practices in tax administration.
- A notable aspect of the program is its focus on the efficient utilization of automatic exchange of information within the Common Reporting Standard (CRS) framework, aligning with global efforts to enhance transparency in tax matters.
- This initiative marks the seventh TIWB program supported by India, highlighting the country's ongoing commitment to international tax cooperation and capacity building in developing nations.

Base Erosion and Profit Shifting (BEPS)

- Base Erosion and Profit Shifting (BEPS) involves businesses moving earnings to tax jurisdictions with lower rates.
- BEPS affects the integrity of tax systems, allowing multinational corporations to gain a competitive advantage.
- BEPS has the potential to weaken the tax base of countries, including India. In practice, BEPS involves transferring earnings from high tax nations to low or no tax jurisdictions like tax havens.

BEPS Action Plan :

- Created by OECD and G20 in 2013 to address challenges posed by profit shifting and base erosion.
- Aims to develop comprehensive strategies for fair taxation, preventing tax avoidance.
- Emphasizes global collaboration to establish common standards and practices.
- Outlines specific measures to counteract negative effects of BEPS and enhance global tax transparency.
- One primary goal is to prevent multinational companies from avoiding taxes through artificial profit shifting, ensuring fair contributions.

2. Coal 2023 Analysis and Forecast to 2026 Report

Why is it in the news?

- International Energy Agency releases 'Coal 2023 Analysis and Forecast to 2026' Report.

About the Findings

- The analysis indicates a foreseen surge in the demand for coal in two of the world's most populous countries, India and China. This demand is likely driven by industrialization, urbanization, and sustained economic growth.
- In contrast, advanced economies, such as those in the European Union and the United States, are expected to witness a substantial decrease in coal demand, projecting a drop of approximately 20% in the year 2023. This decline aligns with the global shift towards cleaner and more sustainable energy sources.
- Projections for 2026 highlight India and Southeast Asia as the primary regions where coal consumption is expected to experience significant growth.

Significance of Coal in India

- Coal plays a pivotal role in India's energy landscape, constituting 55% of the country's total energy requirements. This heavy reliance on coal is substantiated by India's abundant coal reserves, ranking as the fifth largest in the world.
- The immediate transition from coal to alternative energy sources presents several challenges for India. These challenges include:
- **Threat to Energy Security:** With a burgeoning demand for electricity to fuel India's economic growth,

a rapid transition away from coal poses a potential threat to the country's energy security.

- **Job Loss Concerns:** The shift away from coal could result in the loss of over 7.25 lakh (725,000) direct jobs in the coal related industries, posing a significant socio-economic challenge.

Initiatives to Improve Coal Efficiency :

- To address the challenges associated with coal usage, several initiatives have been implemented to enhance the efficiency of coal-based power generation in India.
- The mandatory adoption of supercritical technology for **Ultra Mega Power Projects (UMPPs)** aims to improve the efficiency of coal based power plants.
- The Ministry of Coal has set an ambitious target of gasifying 100 Million Tonnes (MT) of coal by 2030. This initiative aims to diversify the use of coal and reduce environmental impacts.
- Efforts are underway to modernize old thermal power plants, enhancing their efficiency and reducing environmental impact.
- Installation of advanced technologies such as **Electrostatic Precipitators (ESPs)** to capture Fly ash and low NOx burners to minimize nitrogen oxide (NOx) emissions.
- Implemented by the Bureau of Energy Efficiency, the **Perform Achieve Trade (PAT)** scheme focuses on improving energy efficiency in industries. By incentivizing and trading energy savings, the scheme indirectly contributes to a reduction in coal consumption.

3. LEADS Ranking

Why is it in the news?

- The Ministry of Commerce and Industry (MoCI) has released the Fifth edition of the Logistics Ease Across Different States (LEADS) annual exercise.
- Modelled after the Logistics Performance Index (LPI) of the World Bank.

About LEADS

- Modelled after the Logistics Performance Index (LPI) of the World Bank.
- Launched in 2018, continuously evolving and incorporating both subjective and objective measures, distinguishing it from the solely perception-based LPI.

- Assessment based on three fundamental pillars: Infrastructure, Services, and Operating and Regulatory Environment.

Key Highlights of the 2023 LEADS Report

- Encompasses 11 states and 2 Union Territories, offering a comprehensive view of logistics performance across different geographical and administrative regions.

Performance Highlights from LEADS 2023		
Category	Region	States/UTs
Achievers	Coastal Group	Andhra Pradesh, Gujarat, Karnataka, Tamil Nadu
	Landlocked Group	Haryana, Punjab, Telangana, Uttar Pradesh
	North-East Group	Assam, Sikkim, Tripura
	Union Territories	Chandigarh, Delhi
Fast Mov-ers	Coastal Group	Kerala, Maharashtra
	Landlocked Group	Madhya Pradesh, Rajasthan, Uttarakhand
	North-East Group	Arunachal Pradesh, Nagaland
	Union Territories	Andaman & Nicobar, Lakshadweep, Puducherry
Aspirers	Coastal Group	Goa, Odisha, West Bengal
	Landlocked Group	Bihar, Chhattisgarh, Himachal Pradesh, Jharkhand
	North-East Group	Manipur, Meghalaya, Mizoram
	Union Territories	Daman & Diu/Dadra & Nagar Haveli, Jammu & Kashmir, Ladakh

Conclusion:

- LEADS serves as a valuable tool for assessing and improving logistics performance across di-verse regions.

Logistics Performance Index (LPI)

- The Logistics Performance Index (LPI) is released by the World Bank.
- It serves as an interactive benchmarking tool designed to assist countries in assessing their performance in trade logistics.
- The LPI focuses on measuring the ease of establishing reliable supply chain connections.
- It evaluates structural factors contributing to logistics efficiency, including the quality of lo-gistics services, trade and transport-related infrastructure, and border controls.
- The index incorporates key components, such as the quality of logistics services, the adequacy of trade and transport-related infrastructure, and the efficiency of border control pro-cedures.

4. Centre's Decision on State Borrowing

Why is it in the news?

- The **Finance Ministry** has made a significant decision to permit states to access an additional Rs.2.04 lakh crore in borrowings. This decision goes beyond the usual net borrowing limits set for states for the current fiscal year.
- As part of this decision, the Centre has approved an extra borrowing of 60,876.80 crore for states. This amount is in addition to their net borrowing ceilings, which are typically set at 3% of the Gross State Domestic Product (GSDP).

More about the news

- The additional borrowing is not a generic allowance but has a specific purpose. In this case, 22 states are granted this supplementary borrowing to address pension liabilities under the National Pension System (NPS). The NPS has been overseeing the management of government employee retirement savings since its inception in 2004.
- States typically operate under a net borrowing ceiling that is fixed at 3% of the Gross State Domestic Product (GSDP). For the fiscal year 2023-24, this ceiling is

equivalent to 8,59,988 crore, a figure recommended by the Fifteenth Finance Commission.

- States are provided with an additional 0.5% of GSDP in borrowing capacity. This incentive is tied to performance based criteria related to power sector reforms. As per the power ministry's recommendation for the fiscal year 2023-24, states are eligible to borrow Rs.1.43 lakh crore under this provision.

Constitutional Provisions :

- The decision regarding state borrowing aligns with constitutional provisions, notably Article 293(3). This article stipulates that a state may not raise any loan without the consent of the Government of India if there is still any outstanding part of a loan previously made by the central government or its predecessor.
- In practice, the Centre exercises its authority under Article 293(3) while considering the recommendations and guidance provided by the Finance Commission. This reflects a cooperative and coordinated approach between the central and state governments in managing fiscal matters.

5. Reforming Sovereign Credit Rating Process Need of Hour : Office of CEA

Why is it in the news?

- The recent publication from the Office of Chief Economic Advisor (CEA) highlights the need for reforming the sovereign credit rating process due to opaque methodologies employed by credit rating agencies (CRAs).

More about the news

- India is currently rated investment grade by three major CRAs: Standard & Poor's (S&P), Moody's, and Fitch.
- Various parameters, including growth rate, political risks, debt burden, and exchange rate regime, are used by rating agencies to assess sovereign ratings.

Some of the Key Concerns:

- Fitch's methodology, giving greater weight to foreign ownership of banks, is criticized for ignoring the developmental role played by state run entities.
- Lack of transparency in the selection process of experts consulted by agencies.
- Ambiguity regarding the weights assigned to each parameter.

- Despite India's economic advancement, its rating has remained static at BBB for the last 15 years.
- Concerns raised about subjective assessments favouring advanced economies, potentially putting developing countries at a disadvantage.
- Credit rating agencies heavily rely on the World Bank's Worldwide Governance Indicators to assess the governance and institutional quality of countries.

Regulatory Framework in India :

- In India, the Securities and Exchange Board of India (SEBI) has implemented a regulatory framework for credit rating firms under SEBI (Credit Rating Agencies) Regulations, 1999.
- CRISIL, CARE, ICRA, Acuite Ratings, Brickwork Rating, India Rating and Research Pvt. Ltd, and Infomercs Valuation and Rating Pvt. Ltd. are some of the prominent credit rating agencies operating in India.

6. International Debt Report (IDR) 2023

Why is it in the news?

- World Bank has released its annual International Debt Report (IDR), 2023.

About the Report

- The report analyses external debt statistics for 122 low and middle income countries (LMICs).
- Public and publicly guaranteed (PPG) debt service payments by LMICs reached US\$443.5 billion in 2022.
- Over 1/3rd of this debt carries variable interest rates, posing a risk of sudden increases.
- Due to rising interest rates and unfavourable exchange rate movements, servicing external debt could become burdensome.
- India's debt service constituted 2% of the Gross National Income (GNI) in 2022.
- Debt servicing might crowd out spending on other development priorities such as health and education.
- Tighter monetary policies in advanced economies led to investors seeking attractive returns in US and European bond markets.
- Resulted in a net outflow of US\$127.1 billion from LMICs.

Recommendations:

- Scrutinize terms of debt instruments closely to identify risks and costs.
- Reduce a country's stock of nominal debt if trading at a deep discount.
- Swap outstanding debt for new debt to lengthen the average maturity and reduce short-term maturities.
- Combine debt relief with partial earmarking of freed-up resources for green projects.

External Debt

- Refers to money borrowed from a source outside the country. Vital source to supplement local revenue for development but adds vulnerability due to exchange rate fluctuations.

7. Stagflation

Why is it in the news?

- RBI officials report a decrease in the risk of stagflation from 3% in August to 1% based on current data.

What is Stagflation?

- It's an economic scenario characterized by simultaneous high inflation, low economic growth, and elevated unemployment.
- Popularized in the 1970s, notably observed in the U.S. during an oil shock, leading to high inflation, economic recession, and negative growth.
- Potential to destabilize the macroeconomic framework, creating an environment of uncertainty.

Suggestions for Addressing Stagflation

- Policymakers recommended to focus on increasing aggregate demand in the economy.
- Central bank advised to ease its policy stance.
- Government encouraged to increase spending, especially on infrastructure and other sectors, to stimulate economic growth.
- Some economists advocate for supply-side reforms to foster genuine economic growth.

8. Rupee Payment for Crude Oil

Why is it in the news?

- India made its first-ever rupee payment for crude oil from the UAE, aligning with the Reserve Bank of India's 2022 move allowing importers to pay in rupees and exporters to receive payments in the local currency.



More about the news

- India and the UAE signed a "Comprehensive Economic Partnership Agreement" (CEPA) in 2022.
- In July 2023, India formalized an agreement with the UAE for rupee settlements.
- India, the world's third largest energy consumer, relies on imports for over 85% of its oil needs. Key oil suppliers include Iraq, Saudi Arabia, Russia, and the UAE, with West Asia contributing 58% of all supplies.
- In the financial year 2022-23, India spent \$157.5 billion on crude oil purchases.

Internationalization of Rupee

- Involves making the rupee freely transactable by residents and non-residents, promoting its use as a reserve currency for global trade.
- Phased implementation, starting with promoting the rupee for import and export trade and then expanding to other transactions.

Settlement Mechanism in Rupee

- Settlements in rupees at market-determined exchange rates.
- Indian importers make payments in rupees, credited to a Vostro account in Indian banks of the partner country's corresponding bank.
- Surplus rupee balance in Vostro accounts can be used for investments, project payments, and export-import advanced flow management.

Benefits of Rupee Payment

- Reduces dependency on the US dollar for oil transactions. Mitigates the impact of the rupee's depreciation, which fell around 10% against the dollar in 2022. Slows the outflow of dollars from India.
- Boosts trade opportunities with sanctions-hit countries like Russia and Iran.
- Reduces dollar demand, streamlines transactions, and makes the Indian economy less vulnerable to global currency shocks.

9. NPCI's 'UPI Tap and Pay' Facility

Why is it in the news?

- National Payments Corporation of India (NPCI) has commenced the deployment of the 'UPI Tap and Pay' facility for payment apps.
- Mobiles and devices with NFC capability can utilize the UPI Tap and Pay service.

About UPI Tap and Pay and NFC :

- UPI Tap and Pay facility use near field communication (NFC) technology for capturing payee's UPI ID details.
- NFC allows devices with the capability to share information within a short range (4-5 centimetres) using electromagnetic radio fields.
- NFC-compatible device emits radio frequency signals interacting with an NFC tag within a short range.
- Unlike QR codes, NFC eliminates the need for quick response (QR) codes in the payment process.
- NFC tag is passive (can only send information), while the other device (e.g., smartphone) is active, capable of both sending and receiving information.

Benefits of NFC :

- Enables secure and convenient contactless payments.
- Utilizes encryption to ensure the security and privacy of transactions.
- Facilitates faster information sharing with NFC-enabled devices through peer-to-peer sharing.
- Can aid hospitals in better tracking patient information.

About NPCI :

- NPCI is an umbrella organization operating retail payments and settlement systems in India.
- An initiative of the RBI (Reserve Bank of India) and the Indian Banks' Association (IBA) under the Payment and Settlement Systems Act, 2007.
- Incorporated as a "Not for Profit" Company under Section 8 of the Companies Act 2013.

Note: Radio frequency identification (RFID) and Bluetooth also use radiofrequency, but their reach is much higher (RFID: 100 meters or more, Bluetooth: 10-100 meters).

10. GoI and ADB Agreement for Industrial Corridor Development

Why is it in the news?

- The Government of India and the Asian Development Bank (ADB) have signed a \$250 million loan agreement for Industrial Corridor Development in India.

More about the news

- The \$250 million policy based loan aims to support Industrial Corridor Development (Subprogramme 2).
- Focuses on developing alternative financing solutions, including green finance for industrial cluster development.
- Aims to enhance industrial workplace safety and integrate practices related to the environment and climate change.
- This loan builds on Subprogramme 1, where ADB approved a \$250 million loan in October 2021. Subprogramme 1 was designed to strengthen policy frameworks for the National Industrial Corridor Programme (NICP).

ADB

- The Asian Development Bank (ADB) is a multilateral financial institution headquartered in Manila, Philippines.
- ADB is committed to achieving prosperity, inclusivity, resilience, and sustainability in Asia and the Pacific.

Significance of Industrial Corridors

- Industrial corridors position India as a strong player in the Global Value Chain.
- Enhances India's competitiveness in manufacturing through the creation of highquality infrastructure.
- Industrial corridors contribute to the creation of better jobs.
- They play a role in alleviating poverty in states along the corridor.

National Industrial Corridor Programme (NICP)

- NICP aims at the development of futuristic industrial cities in India that can compete with the best manufacturing and investment destinations globally.
- The government has approved the development of 11 Industrial Corridors with 32 projects in four phases as part of NICP.
- Implementation is through the National Industrial Corridor Development and Implementation Trust.

11. RBI's Report Reveals Decadal Peak in Asset Quality for Indian Banks

Why is it in the news?

- In the second quarter of FY24, the Gross Non-Performing Assets (GNPA) ratio of Indian scheduled commercial banks (SCBs) experienced a continuous improvement, reaching a decadal low, as reported by the Reserve Bank of India's 'Trend and Progress of Banking in India' report.

Key Findings of RBI Report

- The asset quality of Indian scheduled commercial banks (SCBs) showed consistent improvement from the fiscal year 2018-19 to 2022-23, as indicated by Gross Non-Performing Assets (GNPA) ratios.
- The GNPA ratio for SCBs dropped to 3.9% in March 2023 and further decreased to 3.2% in September 2023, marking a decade low in non-performing assets.
- About 45% of the decline in SCBs' GNPA during 2022-23 was attributed to recoveries and upgradations, reflecting positive trends in asset recovery.
- In the fiscal year 2022-23, the consolidated balance sheet of SCBs (excluding Regional Rural Banks) witnessed a significant 12.2% growth, the highest in nine years. The primary driver of this expansion on the asset side was the rapid growth of bank credit, reaching its fastest pace in over a decade.
- **Non-Banking Financial Companies (NBFCs)** experienced a 14.8% expansion in their consolidated balance sheet during the fiscal year 2022-23, driven by double-digit credit growth.
- The RBI emphasized the role of qualitative metrics, including improved disclosures, robust code of conduct, and transparent governance structures, in contributing to financial stability.

Gross Non-Performing Assets (GNPA) Ratio

- GNPA refers to the total value of non-performing loans (NPLs) or bad loans held by a bank.
- Calculated by dividing the total value of GNPA by the total value of gross advances (loans) made by the bank, expressed as a percentage.
- GNPA ratio is a critical indicator of a bank's asset quality, closely monitored by regulators and investors to assess the financial health and risk profile of the banking sector.

- A lower GNPA ratio is generally considered favourable, indicating a healthier loan portfolio and better management of credit risk.

(Note: **Non-Performing Loans (NPLs)** are loans for which payments have not been made for a minimum period of 90 days)

12. RBI Facilitates Lending and Borrowing of G-Secs

Why is it in the news?

- The Reserve Bank of India (RBI) has implemented Government Securities Lending (GSL) Directions, 2023.

More about the news

- GSL refers to the lending of eligible Government Securities (G-Secs) for a fee, from the owner (lender) to a borrower. This lending is done against collateral in the form of other G-Secs and for a specified period.
- G-Secs issued by the Central government, excluding Treasury Bills (T-Bills), are eligible for lending/borrowing.
- Under GSL transactions, G-Secs issued by the Central Government, including T-Bills, and State Government bonds are eligible for use as collateral.

Objectives:

- Permitting lending and borrowing of G-Secs aims to add depth and liquidity to the G-sec market, facilitating efficient price discovery.
- The move is expected to expand participation in the securities lending market by investors.
- GSL is anticipated to enhance the operational efficiency of government bonds, particularly for insurers.

About Government Securities (G-Secs)

- G-Sec is a **tradeable instrument** issued by the Central or state Governments, acknowledging the government's debt obligation.
- G-Secs can be short-term, known as Treasury Bills (T-Bills), with maturities of less than one year, or long-term, referred to as Government bonds or dated securities with a maturity of one year or more.
- G-Secs carry virtually no risk of default, earning them the designation of risk-free gilt-edged instruments.

13. Bharatmala Phase 1 Extension

Why is it in the news?

- The deadline for **Bharatmala Phase 1**, a flagship highway development program under the **Ministry of Road Transport & Highways**, has been extended by six years to 2027-28.

Bharatmala Pariyojana

- Launched in 2017, it is an umbrella program for the highways sector, focusing on developing critical infrastructure gaps by constructing 34,800 km of National Highways by 2022.
- As of November 2023, 42% of the Bharatmala Phase 1 project has been completed.

Objectives:

- Optimize efficiency in freight and passenger movement across the country.
- Improve connectivity in the North East.
- Enhance efficiency of existing corridors through the development of Multimodal Logistics Parks.

Features:

- Utilizes satellite mapping to identify corridor upgradation requirements.
- Conducts technology-based automated traffic surveys at over 1,500 points.
- Origin-Destination study of freight movement across 600 districts.

Gaps in Highway Infrastructure

- Inadequacy in optimizing the National Highway network and road network due to resource constraints.

- Lack of integrated planning in connecting major corridors and ports with the hinterland.
- Presence of congestion points, even on developed corridors.
- Lack of accident response infrastructure.

PHASE-I OF BHARATMALA PARIYOJANA APPROVE IN CCEA MEETING CHAIRED BY PM

Components

1 44 Economic Corridors Length - 26,200 km Phase 1:9,000 km with Outlay of Rs.1,20,000 cr	5 Coastal & Port Connectivity roads Length - 2000 km with Outlay of 20,000 cr
2 Inter-Corridor Feeder Roads 116 Feeder Router Length - 7600 km Phase 1:6000 km With Outlay of Rs.80,000 cr	6 Expressways Length - 800 km with Outlay of Rs.40,000 cr
3 National Corridors Efficiency improvements Phase 1:5,000 km with Outlay of Rs.1,00,000 cr	7 Around 24,800 kms will be taken up in Ph-I of Bharatmala, in addition to 10,000 kms of balance road works under NHDP, taking the total to 34,800km at an estimated cost of approx Rs.5,35,000 cr
4 Border & International Connectivity Roads Length - 2000 km with Outlay of Rs.25,000 cr	

Components of Bharatmala Phase-I

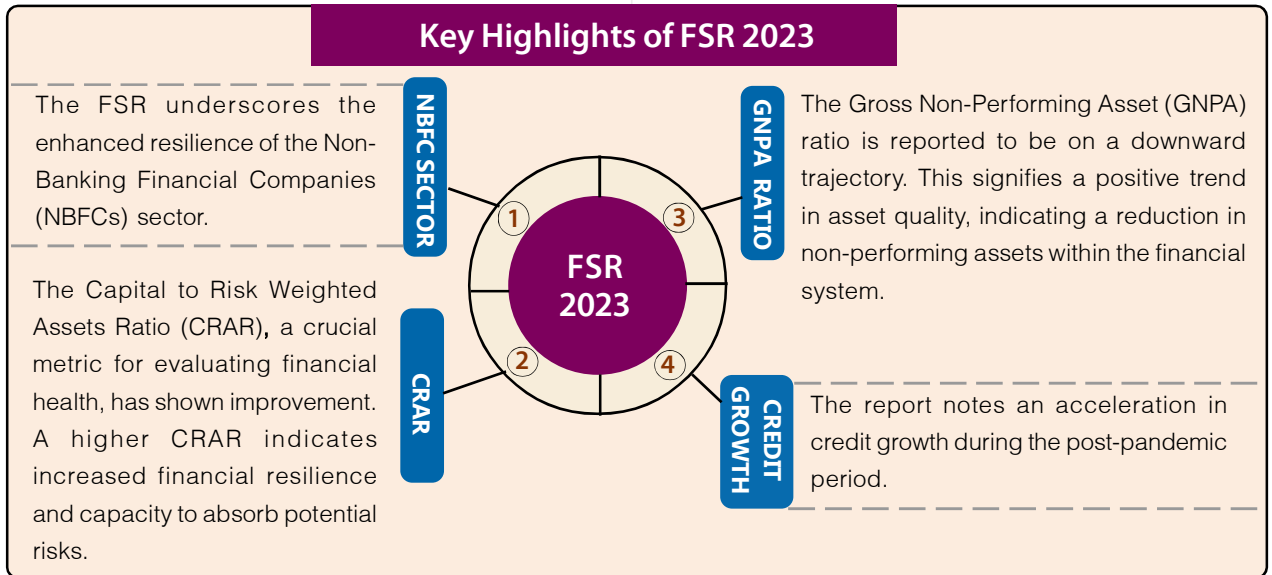
Category	Length (km)	Purpose
Economic Corridors	9000	Unlocking economic potential
Inter Corridor and Feeder Route	6000	Ensuring holistic connectivity
National Corridors Efficiency Improvement	5000	Enhancing efficiency
Border Roads and International Connectivity	2000	Boosting border connectivity
Coastal Roads and Port Connectivity	2000	Leveraging ports for progress
Greenfield Expressways	800	Express speeds for express gains
Balance NHDP works	10,000	Boosting allround connectivity

14. RBI's Financial Stability Report (FSR) 2023

Why is it in the news?

- The Financial Stability Report (FSR) is released biannually, providing a comprehensive assessment.

- The report is based on the evaluations and findings of the Sub-Committee of the Financial Stability and Development Council (FSDC).



What are Non-Banking Financial Companies (NBFCs)?

- NBFCs are companies registered under the Companies Act, 1956. They operate in various financial activities such as loans, advances, and acquisition of securities.
- NBFCs exclude institutions with their principal business in agriculture, industrial activity, trading, or the purchase or sale of immovable properties.
- NBFCs are primarily regulated and governed by the Reserve Bank of India (RBI). However, some NBFCs may also fall under the regulatory purview of other authorities such as the Securities and Exchange Board of India (SEBI), Insurance Regulatory and Development Authority of India (IRDAI), etc.
- Cannot accept demand deposits.
- Not part of the payment and settlement system and cannot issue cheques drawn on themselves.
- Deposit insurance facility is not available to depositors of NBFCs.
- NBFCs play a pivotal role in bridging the gap between traditional banks and customers, particularly in areas where the reach of traditional banks is limited. They contribute significantly to financial inclusion and access to credit.

Financial Stability and Development Council (FSDC)

- The FSDC was set up in 2010 with the objective of strengthening and institutionalizing mechanisms for maintaining financial stability, enhancing inter-regulatory coordination, and promoting the development of the financial sector.
- The ex-officio chairman of FSDC is the Finance Minister. The council aims to address systemic issues and ensure the overall stability and growth of the financial sector in India.

15. Payments Infrastructure Development Fund (PIDF) Scheme

Why is it in the news?

- The Reserve Bank of India (RBI) has extended the Payments Infrastructure Development Fund (PIDF) Scheme until 2025.

More about the news

- The Payments Infrastructure Development Fund (PIDF) Scheme was initiated in 2021 with an initial three-year duration.
- The primary goal of the scheme is to foster the deployment of payment acceptance infrastructure.
- Target areas include tier-3 to tier-6 centres, North eastern states, and Union Territories of Jammu & Kashmir and Ladakh.

- Notably, the scheme has been extended to cover street vendors under the PM Street Vendor's AtmaNirbhar Nidhi (PM SVANidhi Scheme) in Tier-1 and Tier-2 centres.
- PIDF operates under the oversight of an Advisory Council.
- The management and administration of the scheme are carried out by the Reserve Bank of India (RBI).
- The scheme encompasses various acceptance devices, including physical Point of Sale (PoS) terminals, mobile PoS (mPoS), General Packet Radio Service (GPRS), Public Switched Tele-phon Network (PSTN), among others.

To broaden the scope of beneficiaries and acceptance infrastructure, several enhancements have been introduced:

- Beneficiaries of the PM Vishwakarma Scheme are now included as merchants under the PIDF Scheme.
- Sound Box devices and Aadhaar enabled biometric devices are eligible for subsidy claims under the scheme.
- Uniform Subsidy for Special Focus Areas: The subsidy for special focus areas has been made uniform at 90% of the cost of the device, irrespective of the type of device, ensuring equitable support for targeted regions and initiatives.

Other initiatives to promote Digital payments

- **Aadhar Enabled Payment System (AePS):** Facilitates financial transactions on a Micro ATM using individuals' Aadhaar numbers.
- **Aadhar Payment Bridge System (APBS):** Simplifies bulk and recurring Government benefits and subsidy payments.
- **Unified Payments Interface (UPI):** Introduced as a single platform, merging diverse banking services and features under one umbrella.
- **Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA):** Initiative designed to promote digital literacy among rural populations.

16. India's Lithium Deal with Argentina

Why is it in the news?

- India is nearing a deal to acquire five lithium blocks for exploration and development in Argentina.
- The agreement will be signed between Khanij Bidesh India Ltd. (KABIL) and CAMYEN, a state owned mining and energy company in Argentina.

About Lithium

- Lithium is a chemical element (Li) belonging to the alkali metal group.
- It is a soft, silvery white metal and highly reactive.
- **Applications:** Primarily used in rechargeable lithium-ion batteries; Widely employed in electronic devices (smartphones, laptops) and electric vehicles.
- **Energy Storage:** Lithiumion batteries crucial for energy storage in portable devices, electric vehicles, and grid energy storage.
- **Global Production:** Major lithium producing countries include Australia, Chile, and Argentina.
- **Lithium Triangle:** Refers to a region in South America (Argentina, Bolivia, and Chile) with significant lithium reserves. Holds 58% of the world's known lithium reserves.

India and Lithium Triangle Countries (LTCs)

- India increasing diplomatic outreach to LTCs for accessing lithium. Seeking lithium resources for lithium-ion battery production, especially for electric vehicles and renewable energy storage.
- Ambitious plan under the PLI scheme to manufacture Advanced Chemistry Cell (ACC) to boost battery production.
- Despite aspirations, India currently imports 100% of its lithium metal, mainly from East Asian countries.
- States like Telangana aiming to become the EV manufacturing hub of India.
- Simultaneously exploring lithium deposits in places like Jammu and Kashmir.

Conclusion

- Part of India's strategy for a stable supply chain of critical minerals, essential for lithiumion battery production.
- Government promoting electric vehicles for environmental concerns and reducing dependence on fossil fuels. Securing a reliable supply of lithium crucial for the development and growth of the electric vehicle industry in India.

17. Financial Intelligence Unit India (FIU IND)

Why is it in the news?

- FIU IND has issued compliance show cause notices to nine offshore Virtual Digital Asset Service Providers (VDA SPs).

About Financial Intelligence Unit - India (FIU-IND)

- FIU-IND was set up by the Government of India in 2004 as the central national agency responsible for receiving, processing, analyzing, and disseminating information related to suspect financial transactions.
- It operates as an independent body, reporting directly to the **Economic Intelligence Council (EIC) headed by the Finance Minister**.
- FIU-IND is a multi disciplinary body with a sanctioned strength of 75 personnel, drawn from various organizations, including Central Board of Direct Taxes (CBDT), Central Board of Excise and Customs (CBEC), Reserve Bank of India (RBI), Securities Exchange Board of India (SEBI), Department of Legal Affairs, and intelligence agencies.
- It is **not a law enforcement agency** and does not maintain any regional office or employ-ees outside its office at New Delhi, India.

More about the news :

- The compliance action is taken against these offshore entities for allegedly operating illegally without adhering to the provisions of the Prevention of Money Laundering Act, 2002 (PMLA).
- In an effort to curtail the operations of these offshore entities, FIU IND has written to the Secretary of the Ministry of Electronics and Information Technology, urging the blocking of Uniform Resource Locator (URLs) associated with them.
- The objective is to prevent these entities from continuing their operations in India without complying with the regulatory obligations outlined in the PMLA.
- In March 2023, Virtual Digital Asset Service Providers (VDA SPs) in India were brought under anti-money laundering/counter-financing of terrorism regulations.
- VDA SPs are mandated to comply with the Prevention of Money Laundering Act, 2002 (PMLA), including verifying the identities of onboarded clients and maintaining records of financial positions and potentially suspicious transactions.

- VDA SPs engaging in activities like exchange between virtual digital assets and fiat currencies, transfer of virtual digital assets, safekeeping or administration of virtual digital assets, or instruments enabling control over virtual digital assets are required to be registered with FIU IND as Reporting Entities.
- The objective of the PMLA and its reporting obligations is to enable the monitoring and tracking of financial transactions to curb money laundering and terror financing. The recent move is part of broader efforts to bring Virtual Digital Asset Service Providers under the Anti Money Laundering/Counter Financing of Terrorism (AML-CFT) framework.
- As of now, 31 VDA SPs have registered with FIU IND. However, several offshore entities, despite serving a substantial part of Indian users, were not getting registered and coming under the Anti Money Laundering (AML) and Counter Financing of Terrorism (CFT) framework.

Other Regulatory Steps and Global Perspectives

- The **Bureau for International Settlements (BIS)** highlighted three highlevel policy options in a report about financial stability from crypto assets in emerging economies (August 2023): outright ban, containment, and regulation.
- BIS argued that an outright ban may not be enforceable due to the pseudo anonymous nature of crypto markets, potentially leading to a loss of market transparency.
- Containment, or controlling the flows between crypto markets and traditional financial systems, might not address vulnerabilities in crypto markets and could pose financial stability risks.

Conclusion

- As the cryptocurrency landscape evolves globally, regulatory interventions are imperative to protect investors and prevent illicit financial activities.
- The actions taken by the Indian government signal a proactive stance in addressing potential risks associated with the use of virtual digital assets.

18. Inauguration of Ayodhya Dham Junction Railway Station

Why is it in the news?

- PM Narendra Modi inaugurated Phase 1 of Ayodhya Dham Junction Railway Station with elevators, escalators, food plazas, and other modern amenities.
- The station is designed to be '**accessible for all**,' emphasizing inclusivity.
- Ayodhya Dham Junction holds the status of an '**IGBC certified green station building**,' indicating a commitment to environmental sustainability.

New Amrit Bharat Trains

- Darbhanga Ayodhya Anand Vihar Terminal Express
- Malda Town-Sir M. Visvesvaraya Terminus (Bengaluru) Express

New Vande Bharat Trains

- PM launched six new Vande Bharat Trains with routes including Shri Mata Vaishno Devi Katra-New Delhi, Amritsar-Delhi, Coimbatore-Bangalore Cantt, Mangalore-Madgaon, Jalna-Mumbai, and Ayodhya-Anand Vihar Terminal.

Other Projects

- PM dedicated three railway projects worth Rs. 2300 crore for regional rail infrastructure strengthening.
 - 1) Rooha Chakeri-Chanderi Third Line
 - 2) Jaunpur-Ayodhya-Barabanki Doubling
 - 3) Malhaur-Daliganj Doubling and Electrification

About Amrit Bharat Express

- Amrit Bharat Express, formerly Vande Sadharan, is a non-air-conditioned, cost effective sleeper cum unreserved service express trains run by the Indian Railways.
- The trains connect cities over 800 km apart or requiring more than ten hours of travel with existing services.
- Manufactured by Integral Coach Factory at Chennai.
- The first service commenced on December 30, 2023.

Key Features:

- Operates on "**push-pull**" technology with locomotives at both ends for better acceleration.
- Operates at a maximum speed of 130 km/h.
- Each train-set consists of 22 coaches.
- Improved facilities include comfortable seats, better luggage rack, mobile charging points with suitable

holders, LED lights, CCTV, public information system, among others.

About Vande Bharat Trains

- Indigenously designed and manufactured semi-high-speed, self-propelled trains.
- Represents a major leap for Indian Railways in terms of speed and passenger convenience.
- Manufactured by the Integral Coach Factory (ICF), Chennai, under the 'Make in India' program.

Key Features:

- Train set technology adaptation for increased speed and efficiency.
- Train sets are faster, easier to maintain, consume less energy, and offer greater operational flexibility.
- Currently, two operational routes: New Delhi to Varanasi and New Delhi to Katra.
- Plans to manufacture 400 new trains with aluminium bodies for better efficiency and reduced weight.
- Operate without a locomotive, based on distributed traction power technology.
- Passenger amenities include onboard WiFi, entertainment, GPS-based passenger information, CCTVs, automatic doors, rotating chairs, and bio-vacuum toilets.
- Maximum speed of 160 kmph, reducing journey time by 25% to 45%.
- Intelligent braking system with power regeneration for improved energy efficiency.

19. PLI Scheme for Automobile Sector

Why is it in the news?

- The government extended the tenure of the Production Linked Incentive (PLI) Scheme for the Automobile and Auto Components sector by one year with partial amendments.

About the PLI-Auto Scheme

- The Union Cabinet approved the PLI-Auto Scheme in 2021.
- The scheme has a budgetary outlay of Rupees 25,938 crore.
- Initially planned for a period of 5 years (FY2022-23 to FY2026-27).
- Aimed at boosting the manufacturing of **Advanced Automotive Technology (AAT) Products**.

- The scheme facilitates and promotes deep localization for AAT products, contributing to the creation of domestic and global supply chains.
- The PLI-AUTO Scheme primarily focuses on Zero Emission Vehicles (ZEVs), including Battery Electric Vehicles (BEVs) and Hydrogen Fuel Cell Vehicles.

Recent Amendments to the PLI-Auto Scheme

- The incentive under the amended scheme will be applicable for a total of five consecutive financial years, starting from the financial year 2023-24.
- The disbursement of the incentive will occur in the financial year 2024-25.
- An approved applicant will be eligible for benefits for five consecutive financial years, but not beyond the financial year ending on March 31, 2028.
- If an approved company fails to meet the threshold for an increase in Determined Sales Value over the first year's threshold, it will not receive any incentive for that year.

20. Kochi-Lakshadweep Islands Submarine Optical Fiber Connection

Why is it in the news?

- PM Narendra Modi inaugurated the Kochi-Lakshadweep Islands Submarine Optical Fiber Connection (KLI-SOFC) project, bringing high-speed internet connectivity to the Lakshadweep Islands.

More about the news

- The Kochi-Lakshadweep Islands Submarine Optical Fiber Connection (KLI-SOFC) project involves extending submarine cable connectivity from Kochi to eleven Lakshadweep Islands, including Kavaratti, Agatti, and Minicoy.
- Previously, communication with the Lakshadweep Islands relied solely on satellite connections, with limited bandwidth capacity that couldn't meet the growing demand for connectivity.
- The project aims to provide high-speed wireline broadband connectivity through Fiber to the Home (FTTH) and 5G/4G mobile networks to the population of Lakshadweep Islands.
- The project is funded by the Universal Services Obligation Fund (USOF), under the Department of Telecommunication.

- The submarine optical fibre connection spans a total link distance of 1,868 kilometres.
- BSNL (Bharat Sanchar Nigam Limited) serves as the Project Executing Agency.
- M/s NEC Corporation India Pvt Ltd has received the contract for the project's implementation.
- The project involves various activities such as Marine Route Survey, Submarine Cable laying, Civil Construction of CLS (Cable Landing Stations) stations, Installation, Testing, and Commissioning of End Terminals (SLTE).

Benefits of the Project

- Significant contribution to the 'Digital India' and 'National Broadband Mission' objectives of the Government of India.
- Expected to boost E-Governance, Tourism, Education, Health, Commerce, and Industries in the Lakshadweep region.
- Anticipated to lead to enhanced standards of living and accelerated social and economic development on the islands.
- The bandwidth created under this project will be available to all Telecom Service Providers (TSPs), strengthening their telecom services in the Lakshadweep Islands.

21. CCI Study on Iron Ore Market

Why is it in the news?

- The Competition Commission of India (CCI) has undertaken a comprehensive study to assess the competitive landscape within the iron ore market.

More about the news

- Iron ore, primarily composed of magnetite and hematite, constitutes a significant portion of India's mineral wealth.



- The study reveals that India contributes 7% of the global iron ore production, positioning it as the world's 4th largest producer.
- India demonstrates a commendable level of self-sufficiency in iron ore production, a crucial raw material for various industries, particularly the steel sector.
- Despite India's dominance in iron ore production, there has been a notable increase in iron ore exports. The concern stems from the fact that iron ore, in its raw state, has relatively low market value compared to finished products like steel.
- The study highlights the allocation of captive mines (mines owned by companies for self-use) to specific players as a factor creating entry barriers in the industry.
- The Mines and Minerals (Development and Regulation) Amendment Act, 2021, has introduced changes allowing companies with captive mines to sell up to 50% of surplus iron ore in the open market.
- The study expresses concern over the differential pricing of iron ore for different end-users, which could potentially lead to anti-competitive practices in the market.

Key Recommendation

- CCI's key recommendation is to discourage the export of raw iron ore. The rationale is that iron ore is a non-renewable national resource, crucial for various domestic industries, and prioritizing export of higher value-added products like finished steel would align with the vision of a self-reliant India (Atmanirbhar Bharat).
- The study recommends the **use of cutting-edge technologies** to upgrade low-grade iron ore to higher grades which can potentially enhance its market value and contribute to the competitiveness of the Indian iron and steel sector.
- Encouraging the transformation of production processes into sustainable mineral production modes aligns with global trends and environmental considerations.

22. RBI Framework for Acceptance of Green Deposits

Why is it in the news?

- The **Reserve Bank of India (RBI)** recently released updated guidelines elucidating key provisions related to the Green Deposits Framework.

About Green Deposits

- Green deposits resemble regular bank deposits, with a crucial distinction.
- Financial institutions committing to allocate funds from these deposits to support environmentally friendly initiatives characterize them.
- For instance, funds mobilized through green deposits might be specifically directed towards financing projects such as those related to renewable energy to combat climate change.

Updated RBI Guidelines

- RBI emphasizes that raising green deposits is not mandatory for financial institutions, including banks and non-banking financial corporations (NBFCs).
- Green deposits can be invested in short-term liquid instruments but are restricted to a one-year maturity. This restriction persists until the funds are effectively allocated to green activities or projects.
- The framework becomes applicable to green deposits raised by banks from June 1, 2023.
- After financing green activities/projects, banks are barred from securing additional green deposits.
- Banks are required to pay interest on green deposits.
- There is no restriction on premature withdrawal, subject to established guidelines.
- Early withdrawal does not negatively impact activities funded by green deposits, and there is no penalty for non-allocation to green projects.
- Banks have the provision to offer overdraft facilities against green deposits, adhering to the guidelines specified in the RBI circular dated April 19, 2022.
- Green deposits are allowed to be denominated in Indian Rupees exclusively within the framework.
- Deposits acquired within this framework fall under the protective ambit of the **Deposit In-surance and Credit Guarantee Corporation**.
- The specified activities within the green deposit framework align with those outlined in sovereign green bonds. Consequently, investments in sovereign green bonds are included within the framework.

23. Geographical Indications (GI)

Why is it in the news?

- Various products from States/UTs like Odisha, Arunachal Pradesh, West Bengal, Jammu and Kashmir, and Gujarat have received the Geographical Indications (GI) tag.

States/UTs	GI Tagged Products
Odisha	<ul style="list-style-type: none"> * Lanjia Saura paintings * Dongaria Kondh shawl * Khajuri Guda * Dhenkanal Magji * Similipal Kai Chutney * Nayagarh Kanteimundi Brinjal * Koraput Kalajeera Rice
Arunachal Pradesh	<ul style="list-style-type: none"> * Handmade Carpets * Wancho Wooden Craft * Adi Kekir (Ginger)
West Bengal	<ul style="list-style-type: none"> * Tangail Saree * Garad Saree * Korial Saree * Kalonunia Rice * Sundarban Honey
Jammu and Kashmir	<ul style="list-style-type: none"> * Ramban Anardana
Gujarat	<ul style="list-style-type: none"> * Kachchhi Kharek

GI Tag

About:

- A GI is a distinctive sign used on products originating from a specific geographical region, possessing qualities or a reputation attributable to that origin.

- Covered under the Paris Convention for the Protection of Industrial Property as part of Intellectual Property Rights (IPRs).
- Also included in the WTO's Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement.

GI Registration in India:

- Administered by the **Geographical Indications of Goods (Registration and Protection) Act of 1999**.
- Identifies agricultural, natural, or manufactured goods.
- GIs are registered by the Registrar of **Geographical Indications (RGI)**.
- RGI operates under the jurisdiction of the Controller-General of Patents, Designs, and Trade Marks.
- Initial registration is valid for 10 years.
- Option for renewal is available for continued protection.
- Overseen by the Department for Promotion of Industry and Internal Trade under the Ministry of Commerce and Industry.

Significance:

- Confers legal protection against unauthorized use.
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4

SCIENCE AND TECHNOLOGY

1. JN.1 Subvariant of COVID-19

Why is it in the news?

- A case of the JN.1 subvariant of COVID-19 identified in Kerala during routine surveillance by INSACOG.

About JN.1

- A subvariant of Omicron (BA.2.86 or Pirola) with an additional spike protein mutation.
- Shows the potential for rapid spread and immune evasion, emphasizing the need for ongoing monitoring.
- Reported symptoms include fever, runny nose, sore throat, headache, and mild gastrointestinal symptoms.

About INSACOG (Indian SARS-CoV-2 Genomics Consortium)

- A network of genomic laboratories dedicated to monitoring COVID-19 in India from a genomic perspective.
- Involves the participation of the Indian Council of Medical Research (ICMR).

2. Kakrapar-4 Nuclear Reactor Attains Criticality

Why is it in the news?

- The Fourth unit of the Kakrapar Atomic Power Project (KAPP-4) in Gujarat has achieved criticality.

About Criticality

- State where the chain reaction of nuclear fission in a reactor is self-sustaining.
- Each fission event produces enough neutrons for further fissions, maintaining a constant rate of fission and energy release.
- Initial step in nuclear energy generation.

About Kakrapar Atomic Power Station (KAPS)

- Nuclear power plant located in Surat, Gujarat.
- Operated by the Nuclear Power Corporation of India Limited (NPCIL).
- Uses Pressurized Heavy Water Reactors (PHWRs).
- Fuel: Natural uranium.
- Coolant and Moderator: Heavy water.
- Four reactors - two 220 MW units and two 700 MW units.
- Total Capacity: 1,840 MW.
- The 700 MWe units are the largest indigenous nuclear power reactors built by NPCIL.
- Unit-3 and Unit-4 have steellined inner containment systems to prevent radioactive material escape.
- Passive decay heat removal systems for safe cooling even during shutdown.

State of Nuclear Energy in India

- Nuclear energy constituted approximately **2.8 percent** of India's total energy production.
- NPCIL operates 23 reactors.
- Total Capacity: 7,480 MW.
- Ongoing construction projects and sanctioned projects aim to increase nuclear power capacity to 22,480 MW by 2031.

3. National Geoscience Data Repository (NGDR) Portal

Why is it in the news?

- The **Ministry of Mines** is set to launch the **NGDR Portal** in New Delhi, marking a significant step in harnessing and disseminating geospatial data.

More about the news

- The NGDR initiative is jointly led by the Geological

Survey of India (GSI) and the Bhaskaracharya Institute of Space Applications and Geoinformatics (BISAG-N), showcasing collaboration between geological and space technology entities.

- The NGDR Portal serves as a comprehensive online platform designed to facilitate the access, sharing, and analysis of geospatial information across the nation.
- It acts as a centralized repository for diverse geological and geospatial data, contributing to informed decision making in various sectors.
- The NGDR Portal represents a significant leap forward in democratizing critical geoscience data, providing stakeholders from industries and academia unprecedented access to invaluable resources.
- This initiative aligns with the broader goal of enhancing transparency, efficiency, and collaboration in geospatial data utilization.

Geological Survey of India (GSI)

- Founded in **1851**, GSI boasts a rich legacy as an attached office of the Ministry of Mines, emphasizing its historical significance in geological research and resource assessment.
- Headquartered in **Kolkata**, GSI operates on a national scale, addressing the geological needs of India and its offshore regions.
- GSI is tasked with creating and updating national geoscientific information. It conducts mineral resource assessments, providing crucial data for the mining and minerals sector.
- Systematic documentation of geological processes, both surface and subsurface, contributes to a comprehensive understanding of India's geological landscape.
- GSI employs various methodologies, including ground surveys, airborne and marine surveys, mineral prospecting, and multi-disciplinary studies encompassing geo technical, geo environmental, glaciology, and seismo tectonics.

Bhaskaracharya Institute of Space Applications and Geoinformatics (BISAG-N)

- BISAG-N operates as an Autonomous Scientific Society registered under the Societies Registration Act, 1860, affiliated with the Ministry of Electronics and Information Technology (MeitY), Government of India.

- BISAG-N is mandated to undertake technology development, research, and development in the realm of geo-spatial technology.
- It facilitates national and international cooperation, emphasizing collaboration and knowledge exchange.
- Capacity building and support for technology transfer and entrepreneurship development further enhance the institute's role in advancing geo-spatial technology.
- Situated in **Gandhinagar, Gujarat**, BISAG-N strategically operates in a region known for its focus on technological advancements.

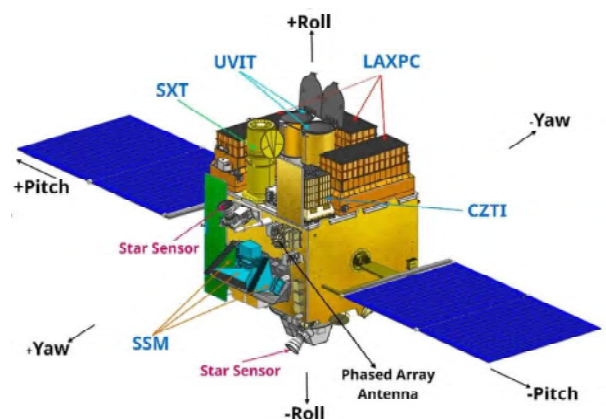
4. AstroSat

Why is it in the news?

- AstroSat, India's first multiwavelength space-based observatory, detected bright subsecond X-ray bursts.
- These bursts originated from a newly identified neutron star known as a magnetar.

More about the news

- The neutron star in focus, **SGR J1830-0645**, exhibits an ultrahigh magnetic field.
- Magnetars, in general, are characterized by magnetic fields much stronger than Earth's magnetic field.
- Scientists utilized AstroSat's observational capabilities for a comprehensive study of SGR J1830-0645.
- This study likely involves analysing the X-ray bursts and other emissions from the magnetar.



Magnetars

- Magnetars are a specific type of neutron star distinguished by their **ultrahigh magnetic fields**.

- The magnetic fields of magnetars are significantly more powerful than the Earth's magnetic field.

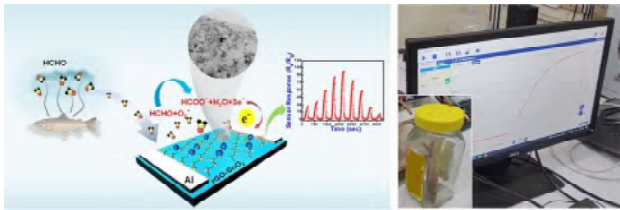
AstroSat

- AstroSat was launched in 2015 by the Indian Space Research Organization (ISRO).
- It serves as India's premier space based observatory for conducting observations across multiple wavelengths, providing valuable insights into celestial phenomena.

5. New Non-Invasive Formaldehyde Sensor

Why is it in the news?

- Researchers have developed a new, cost-effective formalin sensor designed to detect the presence of formaldehyde in adulterated fish.



Formaldehyde

- Formaldehyde is a **colourless, pungent gas** used in various industrial processes, including as a preservative in some foods, notably in fish in developing countries.
- Banned in many countries due to its carcinogenic nature.

Present Techniques for Detection :

- **Commercial formalin sensors** for fish traditionally rely on either electrochemical or colorimetric principles.
- **Electrochemical sensors** are effective but often expensive, while colorimetric sensors are more budget-friendly.
- Both methods are invasive and face challenges in achieving precise and selective detection, especially at low levels.

Characteristics of the New Non-Invasive Formaldehyde Sensor

- Developed using tin oxide-reduced graphene oxide composite (rGO-SnO₂).
- Reduced graphene oxide (rGO) is known for detecting toxic gases, while tin oxide (SnO₂) is recognized for its ability to detect formaldehyde.

Advantages:

- The sensor employs a non-invasive technique for detecting formalin in adulterated fish.
- Exhibits prolonged stability, ensuring consistent performance.
- Has a low-level detection limit, enabling the identification of formaldehyde even at low concentrations.
- The development is relatively cost-effective, making it a practical solution for widespread use.
- Regarded as a breakthrough in the field of food adulteration, addressing issues associated with traditional detection methods.

6. FEAST Software

Why is it in the news?

- Vikram Sarabhai Space Centre (VSSC), part of ISRO, has developed FEAST, a Finite Element Analysis (FEA) software.

About Finite Element Analysis (FEA) :

- FEA is a computerized method used to predict how a product or structure reacts to real-world forces and environmental conditions.
- FEAST will be utilized for performing FEA of various types of structures, including rockets, air-craft, satellites, buildings, etc.
- The software enables the analysis of structural behaviour under different conditions, contributing to the design and development of diverse engineering projects.
- Previously, users relied on expensive software versions from foreign firms for Finite Element Analysis. FEAST aims to reduce this dependency on costly foreign software.

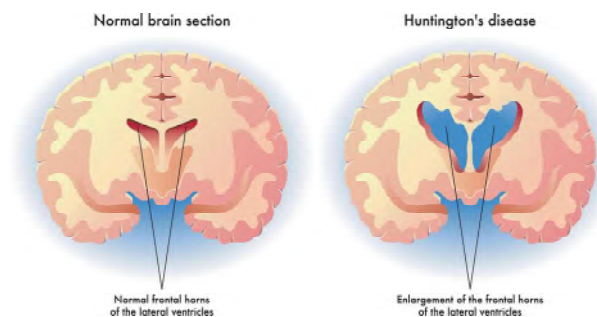
Vikram Sarabhai Space Centre (VSSC)

- Located in Thiruvananthapuram, Kerala, is the lead centre of ISRO.
- It is specifically responsible for the design and development of launch vehicle technology within the **Indian Space Research Organisation (ISRO)**.

7. Huntington's Disease (HD)

Why is it in the news?

- Scientists used genetically engineered fruit flies (*Drosophila melanogaster*) to probe the molecular intricacies underlying the progression of Huntington's disease.



About Huntington's Disease :

- HD is a **genetic disorder** characterized by its impact on the brain, leading to a triad of symptoms: progressive motor dysfunction, cognitive decline, and psychiatric manifestations.
- It follows an **autosomal dominant pattern of inheritance**, meaning that an individual has a 50% chance of inheriting the mutated gene if one parent carries it. The disease typically manifests in mid-adulthood.
- The root cause of HD lies in a mutation in the huntingtin (HTT) gene. This mutation results in the production of an abnormal form of the huntingtin protein.
- The **huntingtin gene (HTT)** was identified in 1993, marking a crucial milestone in understanding the genetic basis of Huntington's disease.

Symptoms:

- Individuals with HD often exhibit uncontrollable jerking or writhing motions, known as chorea.
- Difficulties in coordination and balance are common, contributing to the overall motor dysfunction.
- The disease progresses, impacting essential functions like speech and swallowing.
- HD affects cognitive abilities, leading to changes in thinking and reasoning.
- Memory functions are impaired, contributing to the overall cognitive decline.
- Individuals may experience challenges in concentrating and making decisions.

- As of now, there is no cure for HD. Treatment strategies focus on managing symptoms to enhance the quality of life for individuals living with HD.

8. SLIM Mission

Why is it in the news?

- Japan's **Smart Lander for Investigating Moon (SLIM)** spacecraft has successfully entered lunar orbit and is poised for a moon landing on January 19, potentially becoming the fifth country to achieve a soft landing on the moon.

More about the news :

- The Smart Lander for Investigating Moon (SLIM) mission is Japan's inaugural lunar surface endeavour, aiming to demonstrate precision landing capabilities on the Moon with a specific target of landing within 100 meters of the Shioli crater.
- The mission was constructed by the **Japan Aerospace Exploration Agency (JAXA)**.
- SLIM was launched on September 7, 2023, sharing its launch with the X-Ray Imaging and Spectroscopy Mission (XRISM) space telescope.
- SLIM weighs a mere **590 kg**, which is approximately one-seventh of the weight of Chandrayaan-3, mainly achieved by carrying significantly less fuel.
- SLIM utilized Earth's gravity to build kinetic energy, aligning its trajectory with the moon for a more controlled and deliberate approach.
- The spacecraft follows a larger, more elongated path, strategically designed to be deflected into deeper space by the combined gravitational forces of the Earth and Moon. This unique trajectory allows SLIM to return near the Moon after it has decelerated further, facilitating its capture by the Moon's orbit.
- Upon achieving a soft landing, SLIM plans to deploy two small rovers known as **Lunar Excursion Vehicles (LEV) 1 and 2**. These rovers will conduct detailed studies of the lunar surface in the vicinity of the landing site, collect temperature and radiation data, and endeavour to explore the Moon's mantle.
- The success of SLIM is of paramount importance for the **Lunar Polar Exploration (LU-PEX) Mission**, a collaborative effort between the Indian Space Research Organization (ISRO) and JAXA. SLIM's low weight and precision landing capabilities could serve as a valuable reference and contribute to the planning and execution of **Chandrayaan 4**.

XRISM Space Telescope

- The X-Ray Imaging and Spectroscopy Mission (XRISM) space telescope, launched along-side SLIM, aims to investigate celestial X-ray objects in the Universe.
- It utilizes high-throughput imaging and high-resolution spectroscopy for its scientific objectives.

9. Antarctic Circumpolar Current (ACC)

Why is it in the news?

- Scientists have identified an ancient underwater mountain range concealed within the world's most robust ocean current, the Antarctic Circumpolar Current (ACC).
- The discovery took place in the Southern Ocean, an expansive region comprising the southernmost waters below 60 degrees south latitude, encircling the entire Antarctic continent.

- **Southern Ocean:** The Southern Ocean is a distinct body of water that surrounds Antarctica.

Antarctic Circumpolar Current (ACC) :

- The ACC is the only ocean current that flows entirely around the globe. It encircles the Antarctic continent and flows eastward, traversing the southern portions of the Atlantic, Indian, and Pacific Oceans.
- The ACC is notable for its strength and the comprehensive reach of its influence across multiple ocean basins.
- The current plays a crucial role in connecting and influencing the Southern Ocean ecosystem, impacting climate and ocean circulation patterns globally.

Ocean currents

- Ocean currents are the continuous, predictable, directional movement of seawater. It is a massive movement of ocean water that is caused and influenced by various forces. They are like river flows in oceans. Ocean water moves in two directions: horizontally and vertically.
- Horizontal movements are referred to as currents, while vertical changes are called upwellings or downwellings.
- Ocean currents impact humankind and the biosphere due to their influence on climate.

10. International Space Station (ISS)

Why is it in the news?

- Russia and the United States agree to extend joint International Space Station (ISS) flights until 2025.



About International Space Station (ISS)

- Large spacecraft orbiting Earth, serving as a habitat for astronaut and cosmonaut crews.
- **Key Partners:** European Space Agency (ESA), NASA (United States), JAXA (Japan), CSA (Canada), and Roscosmos (Russia).
- Launched in 1998, the first module named Zarya.
- Weighs almost 400 tonnes, covering an area as large as a football pitch.
- Built in space piece by piece through more than 40 missions.
- Houses a unique science laboratory for critical research in fluids, combustion, life support systems, and radiation environments.
- Orbits Earth at an average altitude of approximately 250 miles, completing one orbit every 90 minutes.

Significance of ISS

- Provides a microgravity environment.
- Enables crucial research that cannot be conducted elsewhere in areas such as fluids, combustion, life support systems, and radiation environments.
- Plays a critical role in advancing human space exploration.

11. Radiocarbon Dating

Why is it in the news?

- Radiocarbon dating brought the first verifiable way to keep time to many fields of science, significantly transforming them.

What is Radiocarbon Dating ?

- Radiocarbon dating is a method used to determine the **age of organic materials** by measuring the amount of **carbon-14, an isotope of carbon**.
- Carbon-14 is created in the Earth's atmosphere when cosmic rays interact with nitrogen-14, producing carbon-14. This process is continuous due to cosmic rays continually passing through the atmosphere. Carbon-14 combines with atmospheric oxygen to form radioactive carbon dioxide, which enters the bodies of plants, animals, and other biomass through the carbon cycle.
- In the early 1940s, chemists Martin Kamen and Sam Ruben synthesized carbon-14 in the lab, discovering its relatively long half-life of around 5,000 years. Further, Willard Libby proposed using carbon-14 to date organic materials.

Radiocarbon Dating Process

- Libby assumed that the concentration of carbon-14 in the Earth's atmosphere remains constant over thousands of years, and carbon-14 can diffuse into various ecosystems, maintaining equilibrium.
- When an organism dies, it no longer replenishes carbon-14 through activities like breathing and consuming food. The concentration of carbon-14 in the organism decreases over time through radioactive decay.
- Radiocarbon dating measures the remaining carbon-14 in a sample, allowing scientists to calculate how long ago the organism died. The method was validated by dating objects with known ages.

Tools of Radiocarbon Dating

- Libby used a Geiger counter to study radioactive decay. It detects radiation emitted during decay, and Libby's team developed the "**anti-coincidence counter**" to enhance precision.
- Modern radiocarbon dating utilizes sophisticated methods like **Accelerator Mass Spectrometry (AMS)**, which can analyze tiny organic samples. AMS accelerates ions, making isotopes more separable.

Significance

- Radiocarbon dating revolutionized archaeology and geology, providing the first objective dating method for organic remains.
- It allowed dating archaeological sites, comparing ages of objects, and exploring human history,

migration patterns, civilizations' rise and fall, language evolution, and climate changes.

- In India, radiocarbon dating has been used to date objects from temples and mosques.

Conclusion

- Ongoing research aims to refine the technique. In 2018, deviations in the radiocarbon cycle were reported, potentially affecting dating accuracy for certain periods. In 2020, researchers proposed improvements to increase the time resolution of radiocarbon dating, enhancing its precision within specific timeframes.

12. XPoSat Mission of ISRO

Why is it in the news?

- ISRO's Polar Satellite Launch Vehicle (PSLV-C58) successfully launched XPoSat (X-ray Polarimeter Satellite) and 10 other payloads from the Satish Dhawan Space Centre in Sriharikota.
- With XPoSat's launch, India becomes the second country after the United States to send an observatory dedicated to studying astronomical sources like black holes and neutron stars.

XPoSat Mission

- XPoSat is the first dedicated scientific satellite from ISRO, specifically designed to investigate the polarization of intense X-ray sources in space.
- Polarization, a characteristic of waves, including electromagnetic waves like X-rays, describes the orientation of wave oscillations. In X-rays, polarization provides valuable information about source properties and the environment through which the X-rays travel.
- XPoSat operates in a **Low Earth Orbit** at an altitude of approximately 650 km, with a low inclination of around 6 degrees.

The Payloads are:

- POLIX (Polarimeter Instrument in X-rays): Instrument for measuring polarization in X-rays.
- XSPECT (X-ray Spectroscopy and Timing): Instrument for X-ray spectroscopy and timing studies.
- The satellite is expected to be operational for approximately 5 years.

PSLV Orbital Experimental Module-3 (POEM-3)

Experiment

- PSLV features an experimental module known as POEM-3 (PSLV Orbital Experimental Module-3).
- POEM allows in-orbit scientific experiments using the spent final stage (PS4) of PSLV as a stabilized platform to perform experiments.
- The XPoSat mission marks the third time ISRO has utilized the POEM platform to demonstrate space technologies.

13. Square Kilometre Array Observatory (SKAO)

Why is it in the news?

- India has approved joining the SKA (Square Kilometre Array) project with a financial commitment of Rs 1,250 crore.

More about the news

- SKAO is an **intergovernmental organization** with participation from ten countries: Australia, Canada, China, India, Italy, New Zealand, South Africa, Sweden, the Netherlands, and the UK.
- The headquarters of SKAO is located in the **United Kingdom**.
- SKAO's primary goal is to build and operate cutting-edge radio telescopes to transform the understanding of the Universe.
- The observatory aims to explore the formation and evolution of galaxies, delve into fundamental physics in extreme environments, and investigate the origins of life.
- The observatory consists of two telescopes situated at radio-quiet sites in South Africa and Australia.
- Associated facilities are established to support the operations of these telescopes.

India's Contribution

- India actively contributes to SKAO through the **National Centre for Radio Astrophysics (NCRA)**, which is based in Pune.
- India has been involved in the development of SKA since the 1990s, showcasing a sustained commitment to radio astronomy advancements.
- India's primary contribution lies in the development and operation of the Telescope Manager element.

- Specifically involved in creating the "neural network" or the essential software that facilitates the functioning of the telescope.

Giant Metrewave Radio Telescope (GMRT) :

- GMRT is operated by the National Centre for Radio Astrophysics (NCRA), which is part of the Tata Institute of Fundamental Research.
- Recognized as the world's largest and most sensitive radio telescope, operating within the frequency range of 110-1,460 MegaHertz.
- GMRT played a pivotal role in scientific breakthroughs, contributing to the detection of nanohertz gravitational waves for the first time.
- Specifically, GMRT's involvement enabled the identification of gravitational waves originating from massive black hole pairs, each several million times more massive than the Sun.

14. D2M Technology for Mobile Phones

Why is it in the news?

- The government is exploring the potential of D2M (Direct to Mobile) technology for its innovative applications and advancements.

More about the news

- **D2M (Direct-to-Mobile)** technology explores the convergence of broadband and broadcast, allowing mobile phones to receive terrestrial digital TV signals.
- Similar to FM radio, D2M technology involves a receiver within the mobile device that can tap into different radio frequencies.
- D2M technology enhances the reliability of communication during emergencies by eliminating the reliance on internet or cellular networks.
- Ensures that critical information reaches users even in situations where traditional communication channels may be compromised.
- Enables authorities to reach a large population directly and quickly.
- Disaster Management audio content is delivered in a targeted manner, ensuring that relevant information reaches specific areas or communities.

15. India to Utilize SpaceX Falcon-9 Rocket for GSAT-20 Communications Satellite Launch in 2024

Why is it in the news?

- NewSpace India Limited (NSIL), the commercial arm of ISRO, has opted to use a SpaceX Falcon-9 rocket to launch the communication satellite GSAT-20 in the year 2024.

About GSAT-20 (Renamed GSAT-N2)

- GSAT-20 is classified as a high throughput Ka-band satellite.
- Uniquely, it will be fully owned, operated, and funded by NewSpace India Limited (NSIL).
- Weighing 4700 kg, GSAT-20 has been meticulously designed to meet the challenging service requirements of remote and unconnected regions.
- Significantly surpassing the launch capacity of ISRO's most potent rocket, the LVM-3, which can handle spacecraft weighing up to 4000 kg into Geosynchronous Transfer Orbit (GTO), GSAT-20 showcases technological advancements.
- The GSAT-20 satellite is specifically tailored to cater to the demanding service needs of remote and unconnected regions, emphasizing the significance of satellite technology in bridging digital divides.
- GSAT-20 marks the second instance of a "demand-driven" satellite launch facilitated by NSIL.
- In a prior successful mission, NSIL launched GSAT-24, with TataPlay securing its capacity for Direct-To-Home broadcasting, illustrating the practical implementation of demand-driven initiatives.
- The launch of GSAT-20 aligns with India's 2020 space sector reforms, wherein NSIL is mandated to operate in a "demand-driven mode." In this mode, the identification of end customers for satellite capacity occurs before the satellite's launch, streamlining the utilization of space assets.

NSIL

- NewSpace India Limited (NSIL) is a pivotal entity as the commercial arm of ISRO, incorporated in March 2019.
- Operating as a Central Public Sector Enterprise under the Department of Space, NSIL plays a crucial role in commercializing space activities.

- NSIL presently oversees and manages 11 communication satellites in orbit, further solidifying its position in the space industry.
- NSIL's mandate encompasses several critical aspects of space operations, including owning satellites for Earth Observation and Communication applications.
- Additionally, NSIL provides launch services for satellites, fostering satellite building through the Indian industry, and facilitating technology transfer to enhance indigenous capabilities.

16. Zosurabalpin: New Antibiotic Against Drug-Resistant Bacterium

Why is it in the news?

- Researchers have made a significant breakthrough in antibiotic discovery with the identification of a new class named '**Zosurabalpin.**'
- This antibiotic is specifically designed to combat the drug-resistant bacterium, **Acinetobacter baumannii**, particularly the carbapenem resistant strain known as CRAB.

More about the news

- Zosurabalpin is characterized as an **antibody** demonstrating efficacy against conditions induced by CRAB, such as pneumonia and sepsis, particularly observed in mouse models.
- The antibiotic is derived from a tethered macrocyclic peptide (MCP), a class of molecules.
- Scientists identified this MCP for its selective lethality towards *A. baumannii*.
- Further optimization of the MCP was undertaken to enhance its efficacy and tolerability, leading to the creation of Zosurabalpin.
- Zosurabalpin operates through a previously unknown mode of action.
- It inhibits the transport of **lipopolysaccharide (LPS)** molecules within the bacterium. This inhibition is achieved by blocking a complex of proteins responsible for LPS transport.
- LPS transport is crucial for the construction of the outer-membrane structure in Gram-negative bacteria.
- The blocking of LPS transport disrupts the normal functioning of the bacterium, leading to an abnormal accumulation of LPS within the bacterial cell. The

abnormal buildup of LPS disrupts the bacterium's cellular functions, ultimately causing its death.

- Zosurabalpin has demonstrated high efficacy against a wide range of clinically tested samples of CRAB in laboratory settings.
- This promising efficacy holds potential for addressing the challenge posed by drug resistant strains of *Acinetobacter baumannii*.

17. Researchers Engineer Plant Cells to Produce Cancer Drug

Why is it in the news?

- Researchers at Indian Institutes of Technology (IIT) Madras and Mandi have achieved metabolic engineering of plant cells to enhance the production of the anti-cancer drug, camptothecin (CPT).
- Camptothecin is traditionally obtained from **Nathapodytes nimmoniana**, a native and endangered plant. This plant has seen a 20% decline in the past decade, leading to its listing on the IUCN red list.

More about the news

- Researchers at IIT Madras's Plant Cell Technology Lab developed a genome-scale metabolic model for *N. Nimmoniana* plant cells using computational tools. The model was designed to understand and manipulate the metabolic processes within plant cells.
- Plant cultures were grown in the laboratory, and cells were extracted. These plant cells were then genetically engineered to enhance the production of camptothecin.
- In 2021, IIT Madras researchers identified a microbe as a sustainable and highly productive alternative source for camptothecin.
- The engineered plant cells provide an alternative source for camptothecin, contributing to the production of crucial cancer treating drugs.
- The technology used for model based rational metabolic engineering of plant cells can be adapted for enhancing the production of various high-value phytochemicals derived from plants.
- By offering a laboratory-based alternative for drug production, the research helps in conserving natural resources and reduces dependency on endangered plant species.

About Camptothecin (CPT)

- Camptothecin is a vital **anti-cancer drug lead molecule** used in the production of drugs like Topotecan and Irinotecan.
- Traditionally extracted from plants like *Camptotheca acuminata* (native to Eastern Asia) and *Nothapodytes nimmoniana* (native to India).
- The Chinese variety of the plant is critically endangered, and the Indian variety has seen a significant population decline.
- The Chinese variety has only 4,000 species remaining, and the Indian variety, native to the Western Ghats, has experienced a 20% decline in the last decade.

18. Lakshadweep's First Solar Project with BESS Technology

Why is it in the news?

- Lakshadweep has inaugurated its inaugural solar project employing Battery Energy Storage System (BESS) Technology.

About Battery Energy Storage System (BESS) Technology

- BESS is a critical technology supporting the efficient storage of energy in renewable systems.
- Different types of Energy Storage Systems include Mechanical, Electrochemical (BESS), Thermal, Electrical, and Fuel Cells.
- BESS utilizes various electrochemical reactions for electricity storage, examples being Lithium-Ion (Li-Ion) and Sodium-Sulphur (Na-S) batteries.
- Two main categories of BESS are traditional solid rechargeable batteries and flow batteries.



- BESS is essential for achieving net-zero emission targets by 2070, aligning with initiatives like Panchamrit.

- It plays a crucial role in improving grid stability during variable renewable generation.

Challenges in BESS Development in India:

- The development of BESS in India is relatively slow compared to countries like China.
- Challenges include low domestic production, inadequate raw material availability (e.g., lithium, cobalt, nickel), a lack of high-quality R&D infrastructure, technology transfer issues, and high installation costs.

India's Initiatives in BESS:

- The Ministry of Power (MoP) has launched initiatives such as the Scheme for Viability Gap Funding (VGF) for BESS development.
- The scheme envisions 4,000 MWh of BESS projects by 2030-31, providing financial support of up to 40% of the capital cost as VGF.
- The **National Framework for Promoting Energy Storage Systems** was unveiled in 2023, outlining a comprehensive approach to promoting energy storage systems.

19. Rejupave Technology in Road Construction

Why is it in the news?

- **Rejupave technology** employed for constructing high-altitude bituminous roads along the Indo-China border in Arunachal Pradesh.

About Rejupave

- Developed as a liquid bio-based asphalt modifier cum rejuvenating agent.
- Collaborative effort between CSIR-Central Road Research Institute and Verma Industries.
- Formulated as a bio-based product using 100% bio oil. Aims to be environmentally sustainable and reduce the ecological footprint.

Benefits:

- Addresses construction challenges under low and sub-zero temperature conditions.
- Eliminates issues of increasing road levels caused by overlay.
- Enables recycling of aggregates and bitumen, contributing to natural resource conservation.

20. PRITHvi Vlgyan (PRITHVI) Scheme

Why is it in the news?

- The Union Cabinet has approved the **"PRITHvi Vlgyan (PRITHVI)"** scheme with a total cost of Rs. 4,797 crores, to be implemented from 2021-26.

About the Scheme

- PRITHvi Vlgyan (PRITHVI) is a comprehensive scheme designed to address all five components of the Earth system, including the atmosphere, hydrosphere, geosphere, cryosphere, and biosphere.
- The scheme falls under the purview of the Ministry of Earth Sciences.

Objectives:

- Monitor essential indicators of Earth System dynamics and changes through long-term observations of the atmosphere, ocean, geosphere, cryosphere, and solid earth.
- Create modelling systems to comprehend and forecast weather, ocean conditions, and climate risks. Focus on understanding the science behind climate change.
- Explore polar and high seas regions for the discovery of new phenomena and resources, contributing to a deeper understanding of global climate changes.
- Develop technology for sustainable exploration and utilization of oceanic resources for societal applications.
- Translate knowledge and insights from Earth systems science into services for societal, environmental, and economic benefit.

The scheme subsumes five existing schemes of the Ministry of Earth Sciences (MoES):

- **ACROSS (Atmosphere & Climate Research-Modelling Observing Systems & Services):** Focuses on long-term observations and advanced modelling systems for weather and climate predictions.
- **O-SMART (Ocean Services, Modelling Application Resources and Technology):** Targets sustainable exploration and utilization of marine resources, utilizing cutting edge technology.
- **PACER (Polar Science and Cryosphere Research):** Aims to explore the mysteries of the Earth's poles and glacial regions, contributing to a deeper understanding of global climate changes.

- **SAGE (Seismology and Geosciences):** Strives to strengthen earthquake monitoring and research on the Earth's solid components.
- **REACHOUT (Research, Education, Training, and Outreach):** Fosters talent development and ensures effective translation of research into services directly benefiting society.

21. Aditya-L1 Mission

Why is it in the news?

- Recently, ISRO executed a critical manoeuvre to position Aditya-L1 into the L1 orbit.

About Aditya-L1 Mission

- Aditya-L1 is a pioneering space-based observatory developed by ISRO specifically designed to study the Sun. Unlike traditional missions, Aditya-L1 doesn't physically approach the Sun. Instead, it establishes a space observatory at the Lagrange point 1 (L1), about 1.5 million km away from Earth, allowing continuous observation of the Sun even during eclipses.
- Aditya-L1 orbits the L1 point, a position where the gravitational forces of the Earth and the Sun are balanced, providing a unique vantage point for solar observation.
- The mission is anticipated to have a lifespan of five years.
- It aims to study phenomena such as coronal heating, coronal mass ejection, and preflare and flare activities.
- Its payloads are designed to gather crucial information on the dynamics of space weather and the propagation of particles and fields in the solar environment.

Payloads (Instruments):

- **Visible Emission Line Coronagraph (VELC):** Focuses on studying the Sun's Corona; Conducts imaging and spectroscopy; and Observes Coronal Mass Ejections (CMEs).
- **Solar Ultraviolet Imaging Telescope (SUIT):** Concentrates on imaging the Photosphere and Chromosphere; Provides narrow and broadband imaging; and Measures variations in solar irradiance.
- **Solar Low Energy X-ray Spectrometer (SoLEXS):** Investigates soft X-ray flares emitted by the Sun; Operates across a wide X-ray energy range.



- **High Energy L1 Orbiting X-ray Spectrometer (HEL1OS):** Studies hard X-ray flares from the Sun; Operates over a broad X-ray energy spectrum.
- **Aditya Solar Wind Particle Experiment (ASPEX):** Analyses electrons and protons in the Solar wind; Studies energetic ions in the Sun's vicinity.
- **Plasma Analyser Package For Aditya (PAPA):** Examines electrons and protons in the Solar wind; Investigates energetic ions.
- **Advanced Tri-axial High Resolution Digital Magnetometers:** Focuses on studying the interplanetary magnetic field at the L1 point;

About Lagrange Point

- Lagrange points are locations in space where gravitational forces of two large masses, like the Earth and the Sun, precisely balance the centripetal force required for a smaller object to orbit with them.
- Named in honour of Italian-French mathematician Joseph-Louis Lagrange.
- Comprising three unstable points (L1, L2, L3) and two stable points (L4, L5).
- Spacecraft positioned at Lagrange points reduce fuel consumption needed to remain in a stable position.
- L1 offers an uninterrupted view of the Sun, making it ideal for solar observation.
- Notable operational spacecraft at L1 include WIND, Solar and Heliospheric Observatory (SO-HO), Advanced Composition Explorer (ACE), and Deep Space Climate Observatory (DSCOVR).

22. Plasma Waves Detected in Martian Upper Atmosphere

Why is it in the news?

- Scientists detected **high-frequency plasma waves** in the upper atmosphere of Mars, providing valuable insights into the plasma processes within the Martian environment.

About Plasma Waves

- Plasma waves are oscillations or fluctuations in the density of charged particles (electrons and ions) within a plasma, a state of matter where gas particles become ionized, resulting in a mix of positively charged ions and free electrons. Charged particles collectively form various types of waves.
- Plasma waves can exhibit different frequencies, including low-frequency waves (e.g., ion acoustic waves) and high-frequency waves (e.g., electron plasma waves).

Observations on Mars

- Researchers utilized high-resolution electric field data from NASA's MAVEN spacecraft to investigate high-frequency plasma waves in the Martian plasma environment.
- Two distinct wave modes were observed, categorized as broadband or narrowband, with frequencies below and above the electron plasma frequency in the Martian magnetosphere.
- These waves exhibit distinctive features in the frequency domain, offering a tool to explore how electrons gain or dissipate energy in the Martian plasma environment.

Note: Mars lacks an intrinsic magnetic field hence, high-speed solar wind from the Sun interacts directly with the Martian atmosphere, resembling an obstacle in the flow.

Roles of Plasma Waves on Earth

- Researchers frequently observe various plasma waves in Earth's magnetosphere, a magnetic field cavity around the planet.
- Plasma waves play a crucial role in energizing and transporting charged particles throughout the magnetosphere.
- Specific plasma waves, such as electromagnetic ion cyclotron waves, act as a cleaning agent for Earth's radiation belt, which are hazards to satellites.

23. ISRO's Successful Test of Polymer Electrolyte Membrane Fuel Cell on POEM3

Why is it in the news?

- ISRO successfully tested a 100 W Polymer Electrolyte Membrane Fuel Cell Power System (FCPS) on the orbital platform POEM3, launched aboard PSLV-C58 on January 1, 2024.

More about the news

- Its objective is to evaluate Polymer Electrolyte Membrane Fuel Cell (PEM FC) functionality in space and gather data for designing systems for future missions.
- During a brief test on POEM, the system generated 180 W of power using hydrogen and oxygen gases stored in high-pressure vessels.
- Offered extensive data on the performance of static and dynamic systems within the power system, providing insights into the underlying physics.
- With India proposing a space station by 2035, the Fuel Cell Power System (FCPS) payload could find applications in this ambitious space project.

About Hydrogen Fuel Cells

- Generate electricity directly from hydrogen and oxygen gases, producing pure water and heat as byproducts.
- Operate on electrochemical principles, akin to batteries, as opposed to combustion reactions in conventional generators.

About Polymer Electrolyte Membrane Fuel Cell (PEM FC)

- Also known as proton exchange membrane fuel cells.
- Utilize a proton-conducting polymer membrane as the electrolyte, typically using hydrogen as fuel.
- Operates at relatively low temperatures and can quickly vary output to meet changing power demands.
- Mainly developed for transport applications and also explored for stationary and portable fuel-cell applications.

24. The Dark Side of AI Voice Cloning

Why is it in the news?

- Rising concerns surround **AI voice cloning** due to a surge in related scams, raising fears about the misuse of this technology.
- Market US reports a significant growth in the AI voice cloning market, estimating its value at \$1.2 billion in 2022, and projecting a substantial increase to nearly \$5 billion by 2032, re-reflecting a notable CAGR of 15-40%.

What is Voice Cloning ?

- Scammers use online programs like Murf, Resemble, and Speechify by uploading audio clips to replicate voices accurately.
- Recently, AI-generated speeches, like that of imprisoned ex-PM Imran Khan, were used for political purposes.

Diverse Applications :

- **Legacy Preservation:** AI voice cloning keeps the voices of loved ones alive for future generations. Apple's iOS 17 introduced voice cloning to aid those at risk of losing their voice to degenerative diseases.
- **Personalized Experiences:** Custom virtual assistants, interactive storytelling, and immersive digital interactions.
- **Gaming:** Meta's SeamlessM4T translates nearly 100 languages in realtime, enhancing gaming experiences.
- **Accessibility:** Provides a voice for those losing it due to illness or disability.
- **Song Creations:** YouTube's Dream Track allows the creation of song clips featuring AI vocals with permission from pop stars.
- **Creative Applications:** Enhancing storytelling, audio games, and immersive experiences.

Emerging Issues :

- **Scams and Threats:** Incidents like a fake kidnapping in Arizona, U.S., using an AI cloned voice for ransom.
- **Reporting Challenges:** Many AI voice cloning cases go unreported, leading to underestimation of the issue.
- **Disinformation:** AI voice clones contribute to the spread of fake news, exemplified by Emma Watson's alleged reading of Mein Kampf.
- **Privacy and Consent Concerns:** Unauthorized recording and use of voices without consent raise ethical and privacy concerns.
- **Ethical Considerations:** Potential exploitation, manipulation, and emotional harm through impersonation and misuse.
- **Social Implications:** Impact on identity, trust, and communication dynamics in the digital age.
- **Hate Speech:** Misuse of AI voice cloning tools for generating celebrity hate speech. For instance, conservative political pundit Ben Shapiro's alleged

racist comments against Democrat politician Alexandra Ocasio-Cortez.

Measures Taken

- **Regulatory Frameworks:** Emphasizes the importance of robust legal and ethical guidelines. For instance, the U.S. Federal Trade Commission considers adopting measures to deter deceptive voice cloning.
- **Technological Safeguards:** Watermarking and authentication mechanisms to identify and verify cloned voices.
- **Public Awareness:** Vital to educate the public about voice cloning technology and potential risks.
- **Voice Cloning Challenge:** Launched by the U.S. Federal Trade Commission to gather ideas for detecting, evaluating, and monitoring cloned devices.
- **Responsible Development:** Promoting ethical and transparent use of voice cloning for positive societal impact.

India: A Prime Target for AI Voice Cloning Scams

- A report titled '**The Artificial Imposter**' revealed alarming statistics about AI voice clone scams in India:
- Published in May last year, the report highlighted that 47% of surveyed Indians either experienced or knew someone who fell victim to AI generated voice scams.
- This percentage is nearly twice the global average of 25%, making India the top target for AI voice scams.
- A specific incident in December involved a Lucknow resident falling victim to a cyberattack that used AI to mimic the voice of the victim's relative. The attacker requested a substantial amount to be transferred through UPI.
- McAfee reported that Indians exhibit particular vulnerability to such scams: 66% of Indian participants admitted they would respond to a voice call or a phone call that seemed to be from a friend or family member urgently in need of money.
- The report also highlighted that 86% of Indians were prone to sharing their voice data online or via voice notes at least once a week. This frequent sharing of voice data has made Indians more susceptible to AI voice clone scams, as attackers exploit this readily available information.

25. AI Bio-Imaging Bank for Cancer Detection

Why is it in the news?

- **Tata Memorial Hospital (TMH)** in Mumbai, India's largest cancer hospital, has introduced AI with a '**Bio-Imaging Bank**' for early-stage cancer detection.

Bio-Imaging Bank

- Contains radiology and pathology images along with clinical details, outcome data, treatment specifics, and additional metadata.
- Purposefully designed for training, validation, and rigorous testing of AI algorithms.
- Utilizes deep learning to create a cancer specific tailored algorithm for early detection.
- It involves data from 60,000 patients.
- Primarily addresses head and neck cancers and lung cancers; Aims for a minimum of 1000 patients for each cancer type.
- Targets tasks like screening for lymph node metastases, nucleus segmentation, classification, and predicting biomarkers (e.g., HPV in oropharyngeal, EGFR in lung cancer).
- Funded collaboratively by the Department of Biotechnology, IIT-Bombay, RGCIRC New Delhi, AIIMS-New Delhi, and PGIMER-Chandigarh.

AI for Early Cancer Detection

- Analyses radiological and pathological images, learning from extensive datasets to identify unique features associated with different cancers.
- Enables early detection of tissue changes and potential malignancies.
- TMH teams segment and annotate images, correlating them with biopsy results, histopathology reports, and genomic sequences to develop algorithms.

Significance

- AI-driven early diagnosis has demonstrated a 98 percent correctness rate after cross verification by doctors.
- AI's potential lies in tailoring treatment approaches based on diverse patient profiles, thus optimizing therapy outcomes.
- Reduces radiation exposure for paediatric patients undergoing CT scans by 40%.

26. DRDO's Counter-Drone System Development

Why is it in the news?

- The Defence Research and Development Organisation (DRDO) has achieved a significant milestone by completing the development of its advanced counter drone system.

Key Features of Counter-Drone System :

- The counter-drone system is a comprehensive solution that covers the entire spectrum of drone threats, from detection to identification and neutralization.
- The technology embedded in the system allows for the effective counteraction of drone at-tacks.
- Soft kill measures and hard kill methods can be implemented, providing a flexible response to various types of drones, including micro drones.
- Users have the flexibility to customize the system to address specific challenges and adapt it to different scenarios. This adaptability enhances the system's effectiveness in diverse operational environments.
- To facilitate wider production and deployment, DRDO has transferred the technology to key private industries. Beneficiaries include Bharat Electronics Limited (BEL), Adani, Larsen & Toubro (L&T), and Icom.

Other Noteworthy DRDO Technologies

- **Tapas Medium Altitude Long Endurance (MALE) UAV:** Currently in advanced developmental trials; Designed for Intelligence, Surveillance, Target Acquisition, and Reconnaissance (ISTAR) applications.
- **Note:** ISTAR represents a military concept integrating various technologies for gathering and analysing information, crucial for strategic and tactical decision-making.
- **Archer - Short-Range Armed UAV:** Undergoing developmental flight trials; Primarily designed for reconnaissance, surveillance, and addressing low-intensity conflict situations.

27. Superconductivity in LK-99

Why is it in the news?

- A group of scientists has made a significant breakthrough by identifying signs of superconductivity in a material known as **LK-99**, even at room temperature.
- This discovery challenges the conventional understanding of superconductivity, which typically occurs at extremely low temperatures.

What are Superconductors ?

- Superconductors are materials capable of conducting electricity with zero resistance, enabling the seamless transport of electrons from one atom to another.
- The conventional range for superconductivity lies between 240 K and 275 K, approximately equivalent to -33 degrees Celsius to 2 degrees Celsius. At these temperatures, no heat, sound, or any other form of energy is released from the material.

Properties of Superconductors

- **Electronic Effect:** Zero-resistance transport of electric current through the material.
- **Thermodynamic Effect:** Drastic reduction in electronic specific heat at the superconducting transition temperature. (Note: Specific heat measures the heat required to increase the temperature of electrons in the material by 1 degree Celsius).
- **Spectroscopic Effect:** Electrons are restricted from attaining certain energy levels, unique to the superconducting state.
- **Meissner Effect:** The material undergoing superconducting transition expels any magnetic field from its bulk to the surface, known as the Meissner effect.

Types of Superconductors

- Type I Superconductors: Loss of superconducting state under the influence of a strong magnetic field.
- Type II Superconductors: Gradual reduction in superconductivity with increasing magnetic field strength, leading to complete loss at a higher threshold.

Applications of Superconductors

- Superconducting magnets facilitate the development of **Magnetic Levitation (Maglev) trains**, utilizing magnetic repulsion for frictionless, high-speed travel.

- Superconductors enable highly efficient electrical power transmission with minimal loss, crucial for various applications.
- **SQUIDS (Superconducting Quantum Interference Devices):** Used for magnetic cardiograms by detecting magnetic fields generated by electric currents in the heart.
- Superconductors enhance the efficiency of power grids and act as fault current limiters, preventing damage during power surges or faults.

28. New Solar Power Scheme for PVTGs Habitations/Villages

Why is it in the news?

- President has recently approved the implementation of a solar power scheme for Particularly Vulnerable Tribal Groups (PVTGs) Habitations/Villages under Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan (PM JANMAN).

PM JANMAN

- The PM JANMAN program involves 11 critical interventions across 9 ministries over a span of 3 years.
- It combines Centrally Sponsored Schemes with State Governments/UT Administrations and Central Sector Schemes through line Ministries/Departments.

Key Components of the Scheme :

- **Objective:** A comprehensive initiative aiming to saturate PVTG households and habitations with essential facilities, including safe housing, clean drinking water, sanitation, and improved access to education.
- Provides off-grid solar power solutions, including Solar Home Lighting Systems (SHLS) for scattered unelectrified households.
- **Solar Mini-grids** for clusters of households in PVTG habitation/hamlet.
- Installation of Off-grid Solar power packs with battery banks.
- Respective **Distribution Companies (DISCOMs)** in PVTG areas are designated to carry out the implementation.
- The scheme is scheduled for implementation from 2023-24 to 2025-26.

- Oversight by the **Ministry of New and Renewable Energy (MNRE) and Ministry of Tribal Affairs (MoTA)** to ensure effective implementation.
- Vendors responsible for the scheme will establish a helpline number in the local language or the language of the PVTG area to address grievances promptly.

About Particularly Vulnerable Tribal Groups (PVTGs)

- Centrally recognized special categories within the Scheduled Tribes (STs).
- Initially termed **Primitive Tribal Groups (PTGs)** in 1975 and later renamed **PVTGs in 2006**.
- Criteria for identification include a preagricultural level of technology, low literacy, economic backwardness, and a declining or stagnant population.
- Currently, there are **75 identified PVTGs**, for whom this scheme aims to provide sustain-able and clean energy solutions, addressing their unique needs and challenges.

29. Delhi HC's Ruling on PepsiCo's Patent Claim for Potato Variety (FL 2027) under PPVFR Act

Why is it in the news?

- PepsiCo appealed under the **Protection of Plant Varieties and Farmers' Rights (PPVFR) Act, 2001** against the PPVFR Authority's order revoking registration for the potato variety FL 2027.

More about the news

- FL 2027 is a specialized potato variety cultivated exclusively for PepsiCo's chips, known for its low external defects.
- It exhibits high dry matter and solids content, along with stable sugars, making it particularly suitable for chip manufacturing.

About PPVFR Act

- India enacted the PPVFR Act to fulfil its obligation under the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) of the World Trade Organization (WTO). This agreement mandates the provision of protection to new plant varieties.
- To be eligible for registration under the PPVFR Act, a plant variety must meet the criteria of Distinctiveness, Uniformity, and Stability (DUS).

- Involves the registration and protection of new varieties, farmers' variety, and extant variety.
- Rewards are provided for the conservation of plant genetic resources.
- Researchers have the right to use any registered variety for experimental purposes.
- Breeders enjoy exclusive rights to produce, sell, import, or export the registered variety.

PPVFR Authority

- Established in 2005 as a statutory body under the PPVFR Act.
- Operates under the Ministry of Agriculture and Farmers Welfare.
- Functions include the registration of new plant varieties, rewarding farmers for conservation efforts related to plant genetic resources, and maintaining the national register of plant varieties and the national gene bank.

30. Peregrine Mission One

Why is it in the news?

- Peregrine Mission One encountered a technical issue within its propulsion system, resulting in a critical loss of propellant.

About the Mission

- It is a lunar landing mission conducted by the private spaceflight company **Astrobotic**.
- The mission is partially funded by NASA.
- It involves the Peregrine lander, a cargo transport craft designed to carry multiple payloads from various clients to the lunar surface simultaneously.
- The primary goal of Peregrine Mission One is to pave the way for the Artemis program.
- The Artemis program aims to land humans on the lunar surface by the end of the decade.
- Peregrine Mission One carried several scientific payloads to the lunar surface, contributing to lunar exploration and research.

The payloads include:

- Near Infrared Volatile Spectrometer System (NIRVSS)
- Linear Energy Transfer Spectrometer (LETS)
- Laser Retroreflector Array (LRA)
- PROSPECT Ion-Trap Mass Spectrometer for Lunar Surface Volatiles (PITMS)
- Navigation Doppler Lidar (NDL)

31. Proba-3 Mission

Why is it in the news?

- India is set to launch the **European Space Agency's (ESA)** groundbreaking Proba-3 mission in September 2024.
- The mission will be facilitated by India's Polar Satellite Launch Vehicle (PSLV-XL) rocket.



More about the news

- The Proba-3 mission is led by the European Space Agency (ESA), showcasing international collaboration in space exploration.
- Proba-3 is hailed as the world's first precision formation flying mission.
- It aims to establish a 144-metre long solar coronagraph through two small satellites, demonstrating precise formation flying in space.
- Proba-3 comprises two distinct components - a **Coronagraph spacecraft and an Occulter spacecraft** designed in the shape of a solar disc.
- The Coronagraph instrument enables scientists to study the Sun's corona in unprecedented proximity and detail.
- By maintaining a tight formation approximately 150 meters apart, the Occulter spacecraft will cast its shadow precisely onto the Coronagraph's telescope.
- This strategic positioning will create an artificial eclipse, allowing the Coronagraph to capture images of the faint solar corona in visible, ultraviolet, and polarized light for extended durations.

Significance of the Mission:

- Proba-3's unique positioning will offer new insights into the origins of **coronal mass ejections (CMEs)**, solar eruptions that can disrupt satellites and power grids on Earth.

- The mission will measure total solar irradiance, monitoring changes in the Sun's energy output that could impact Earth's climate.
- Proba-3's formation flying serves as a testbed for upcoming multisatellite missions, emphasizing its role in advancing space exploration capabilities.

32. Advanced Nuclear Energy for Enriched Life (ANEEL)

Why is it in the news?

- Clean Core Thorium Energy, a Chicago-based company, has developed Advanced Nuclear Energy for Enriched Life (ANEEL), a new nuclear fuel combining Thorium and High Assay Low Enriched Uranium (HALEU).

HALEU

- HALEU is defined as uranium enriched between 5% and less than 20% of the U-235 isotope.
- It is crucial for advanced nuclear reactor designs, although not widely available commercially.

More about the news

- ANEEL can be utilized in existing **Pressurized Heavy-Water Reactors (PHWRs)**, making it compatible with India's indigenous reactor system.
- Offers a quicker and more accessible alternative for deploying thorium, especially in nations lacking infrastructure for other green energy sources.
- Reduces operation costs and nuclear waste significantly compared to natural uranium.
- ANEEL fuel bundles have a longer lifespan and burn more efficiently.
- The spent ANEEL fuel cannot be repurposed for weapons, ensuring non-proliferation.

About Thorium in India

- India has the world's largest reserves of Thorium, estimated at 1.07 million tonnes, contained in the natural mineral monazite.
- Monazite, a thorium-bearing mineral, is found in sand deposits.
- DAE has established 11.93 million tonnes of in situ resources of Monazite in India, containing about 1.07 million tonnes of thorium.
- Utilizing this thorium can position India to produce substantial green energy, potentially enabling the country to achieve net-zero emissions by the targeted year 2070.

5

ENVIRONMENT AND BIODIVERSITY

1. Pangolakha Wildlife Sanctuary

Why is it in the news?

- A tiger has been spotted at an elevation of 3,640 meters in the Pangolakha Wildlife Sanctuary in Sikkim.
- This marks the highest elevation in India where tigers have been observed, surpassing the previous record of 3,630 meters in Arunachal Pradesh.

About Pangolakha Wildlife Sanctuary

Key Features	Details
Location	Situated at the trijunction of Sikkim, Bengal, and Bhutan.
Geographical	The Pangolakha range in the east
Boundaries	separates Sikkim from Bhutan. Linked to Neora Valley National Park of West Bengal.
Connectivity	Connects with forests of Samtse and Haa district in Bhutan.
Size	Largest wildlife sanctuary in Sikkim.
Vegetation	Alpine-temperate-subtropical vegetation.
Biodiversity	Features high-altitude lakes like Lake
Hotspot	Tsongmo, a biodiversity hotspot for migratory birds.
Origin of Rivers	Rivers like Rangpo and Jaldhaka originate from nearby lakes within the sanctuary.
Flora	Rhododendrons, silver fir, juniper, and moss-covered oaks.
Wildlife	Home to Red Panda (Sikkim's state animal), Himalayan Black Bear, Musk Deer, among others.

Eco-regions	Encompasses various eco-regions like
En-compassed	Terai-Duar savanna, Eastern Himalayan broadleaf forests, Himalayan subtropical pine forests, among others.

2. Nationally Determined Contribution (NDC) Targets

Why is it in the news?

- India has successfully met two of its initial NDC targets well ahead of the stipulated time, showcasing the country's commitment to addressing climate change.

Initial NDC Targets (2015)

- **Emission Intensity:** India aimed to reduce the emissions' intensity of its GDP by 33 to 35 percent by 2030 from the 2005 level.
- **Non-fossil Fuel Power Capacity:** Another goal was to achieve about 40 percent cumulative electric power installed capacity from non-fossil fuel based energy resources by 2030. India has not only met but surpassed its target, achieving a cumulative non-fossil fuel power capacity of 43.81% by October 2023.

Updated NDC Targets (August 2022)

- **Emission Intensity (2030):** The updated target is to further reduce the emission intensity of India's GDP by 45% by 2030, compared to the 2005 level.
- **Non-fossil Fuel Power Capacity (2030):** The new goal is to meet 50% of the cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030.

About NDC

- **Nationally Determined Contribution (NDC)** is a climate action plan developed by each country to outline its efforts in reducing greenhouse gas emissions and adapting to the impacts of climate change.
- The **Paris Agreement** mandates that each participating country submits its NDC, outlining its targets and strategies for climate action.
- NDCs are expected to be updated every five years to reflect evolving commitments and advancements in climate science and technology.

3. India's First Winter Arctic Expedition

Why is it in the news?

- India has embarked on its maiden winter expedition to the **Arctic region**, showcasing its commitment to advancing scientific research in extreme environments.
- The Arctic's unique conditions provide an opportunity to study celestial phenomena with minimal interference.

More about the news

- The Raman Research Institute (RRI) scientists have been selected as the initial group to conduct a series of experiments during this expedition.
- The expedition is funded by the Earth Sciences Ministry, reflecting the government's support for scientific exploration and research initiatives.
- The National Centre for Polar and Ocean Research in Goa is the coordinating agency, highlighting the collaborative and interdisciplinary nature of the expedition.
- The researchers aim to assess the radio frequency environment in Norway's Arctic Svalbard region. This evaluation is crucial for determining the suitability of the region for precise astronomy measurements.
- The Arctic's unique conditions provide an opportunity to study celestial phenomena with minimal interference.
- The expedition seeks to establish India's continuous year-round presence at the **Himadri station** in the Arctic. This station is integral to India's Arctic research initiatives.

- Scientists at RRI are working on the SARAS series, designed to study the faint cosmological signal from hydrogen emerging from the cosmic dawn. The cosmic dawn represents the era when the first stars and galaxies emerged in the universe.
- **Significance of Experiments:** The experiments hold the potential to open up possibilities for deploying low-frequency radio telescopes in the Arctic region, contributing to advancements in astronomical research.

Research Initiatives in the Arctic by India

Himadri

- India's first permanent Arctic research station, located at Spitsbergen, Svalbard, Norway.
- Inaugurated on July 1, 2008, by the Minister of Earth Sciences.
- Positioned strategically at a distance of 1,200 kilometres from the North Pole.



IndARC (Indian Arctic Research Program)

- India's first underwater moored observatory in the Arctic region.
- Deployed in 2014 at Kongsfjorden fjord, Svalbard, Norway.
- Study the Arctic climate and its influence on the monsoon, showcasing India's commitment to understanding global climate dynamics.

4. Provisions for Conservation of Marine Species

Why is it in the news?

- The Union Minister of State for Environment, Forest and Climate Change provided an update to Lok Sabha, outlining comprehensive measures undertaken to safeguard marine species and promote marine conservation initiatives.

More about the news :

- India has established **130 Marine Protected Areas**.
- Additionally, 106 Important Coastal and Marine Biodiversity Areas (ICMBAs) have been identified.

These areas are strategically chosen to safeguard the diverse marine ecosystems.

- Several threatened marine species have been listed as Scheduled animals under the **Indian Wildlife Protection Act of 1972**. This legal protection ensures conservation efforts and penalties for violations.
- Threatened species such as marine turtles, humpback whales, and dugongs are prioritized under the **Integrated Development of Wildlife Habitat (IDWH)** scheme. The scheme focuses on the assessment and monitoring of these prioritized species, contributing to their conservation.
- A **Dugong Conservation Reserve** has been established in Palk Bay, emphasizing the commitment to preserving dugongs and the associated marine species. The reserve likely includes measures to protect seagrass habitats, critical for the survival of dugongs.
- The **National Marine Turtle Action Plan** aims to conserve marine turtles and their habitats across India. This plan likely incorporates strategies for nesting site protection, hatchery management, and mitigation of threats to ensure the wellbeing of marine turtles.
- Launched in 2021, **Project Dolphin** is a comprehensive government initiative focused on the conservation of both oceanic and riverine dolphin species. The project reflects a holistic approach, considering the diverse habitats and characteristics of different dolphin species.
- **Coastal Regulation Zone (CRZ) Notification, 2019**: Enacted under the Environment (Protection) Act 1986, the CRZ Notification, 2019 provides a legal framework for managing and conserving ecologically sensitive areas (ESAs) along the coast. Specific attention is given to conserving Mangroves, Seagrasses, Sand Dunes, Corals, Coral Reefs, and Turtle Nesting Grounds among other crucial ecosystems.
- The **Biological Diversity Act 2002**, along with associated rules, serves as a comprehensive legal framework for the protection, conservation, and sustainable use of marine species and biodiversity in general.
- **Financial Assistance**: The Ministry of Environment, Forest and Climate Change (MoEFCC)

grants funds to maritime states under centrally sponsored schemes. Funds, such as those from the Compensatory Afforestation Fund Management and Planning Authority (CAMPA), are specifically allocated for dugong conservation.

- **Centre for Marine Living Resources and Ecology (CMLRE)**: Operating under the Ministry of Earth Sciences (MoES), CMLRE is tasked with developing management strategies for marine living resources. Activities include ecosystem monitoring and modelling, contributing to the scientific understanding and sustainable management of marine resources.
- The **Marine Megafauna Stranding Management Guidelines, 2021**, serves as a comprehensive set of guidelines for managing stranding and entanglement events. The guidelines aim to improve coordination among various stakeholders involved in responding to and mitigating the impact of such events on marine megafauna.

5. RAMP Programme

Why is it in the news?

- The Union Minister for Micro, Small and Medium Enterprises (MSME) inaugurates three sub-schemes under the RAMP (Rejuvenation, Adoption, and Multiplication) programme.

Sub-schemes under RAMP :

MSME Green Investment and Financing for Transformation Scheme (MSE GIFT Scheme):

- Aims to facilitate MSMEs in adopting green technology.
- Provides interest subvention to make green technology more accessible.
- Offers credit guarantee support to encourage MSMEs to invest in sustainable practices.

MSE Scheme for Promotion and Investment in Circular Economy (MSE SPICE Scheme):

- Aims to promote circular economy projects within the MSME sector.
- Provides credit subsidies to incentivize MSMEs to adopt circular economy practices.
- Contributes to the MSME sector's goal of achieving zero emissions by 2070.

MSE Scheme on Online Dispute Resolution for Delayed

Payments:

- Addresses the issue of delayed payments for Micro and Small Enterprises.
- Integrates modern IT tools and Artificial Intelligence in the resolution process.
- Aims to streamline dispute resolution and mitigate the impact of delayed payments on MSMEs.

About RAMP Programme

- RAMP is a **Central Sector Scheme** that receives assistance from the **World Bank**.
- The international collaboration enhances the financial and technical resources available for the program.
- The Ministry of Micro, Small and Medium Enterprises (MSME) is the nodal ministry responsible for overseeing the RAMP programme.

Objectives:

- Improves access to market opportunities and credit facilities for MSMEs.
- Strengthens institutions and governance structures both at the Central and State levels.
- Enhances linkages and partnerships between the Central and State governments.
- Addresses the pervasive issue of delayed payments, providing relief to MSMEs.
- Promotes sustainable and environmentally friendly practices within the MSME sector.

6. Protection of Black Tigers

Why is it in the news?

- Recent parliamentary reply by the Union Minister of State for Environment highlights conservation efforts for Black Tigers.

About Black Tigers

- Rare colour variant known as Melanistic Royal Bengal Tiger.
- Not a distinct species but a variant of the Bengal tiger.
- **IUCN Status:** Classified as **Endangered**, emphasizing the need for conservation efforts.
- **Population in India:** Predominantly found in the Simlipal Tiger Reserve in Odisha; All India Tiger Estimation 2022 recorded 16 tigers, with 10 being melanistic.

- **Cause of Black Colour:** Result of a single mutation in the Transmembrane Aminopeptidase Q (Taqpq) gene; It is a **pseudo melanism phenomenon**, not related to an excess of melanin. Geographical isolation in Simlipal leads to inbreeding, increasing the frequency of the recessive gene.

Conservation Efforts by the Government

- The **National Tiger Conservation Authority (NTCA)** issued SOP for the active management of tiger rehabilitation in source areas.
- Simlipal Tiger Reserve acknowledged as a unique genetic cluster.
- Receives funding through the Centrally Sponsored Scheme of **Integrated Development of Wildlife Habitats (CSS-IDWH)**.
- Allocation supports various aspects like conservation, awareness, habitat management, etc., under the Tiger Conservation Plan.

Integrated Development of Wildlife Habitats (IDWH)

- Centrally sponsored initiative providing technical and financial assistance to states for wild-life habitat protection.

Components :

- **Support to Protected Areas:** Encompasses National Parks, Wildlife Sanctuaries, Conservation Reserves, and Community Reserves.
- **Protection of Wildlife Outside Protected Areas:** Focuses on safeguarding wildlife in regions beyond designated protected zones.
- **Recovery Programmes:** Aims at saving critically endangered species and their habitats.

Simlipal Biosphere Reserve :

- Formally designated as a tiger reserve under Project Tiger in May 1973.
- Declared a wildlife sanctuary in 1979 with an initial area of 2750 sq. km.
- Named after 'Simul,' the red silk cotton trees in the area.
- Declared a biosphere reserve by the Government of India in 1994.
- Part of the UNESCO World Network of Biosphere Reserves since 2009.
- Situated in the Mayurbhanj district of Odisha.
- 7th largest national park in India and Asia's second-largest Biosphere Reserve.

- Located in the eastern end of the Eastern Ghat.
- Protected Areas Within Simlipal: Simlipal Tiger Reserve; Hadgarh Wildlife Sanctuary; Kuldiha Wildlife Sanctuary.
- High biodiversity with approximately 94 species of orchids and 3,000 plant species; Dominant tree species include Sal.
- Home to Bengal tigers, Asian elephants, gaurs, and chausingha; Diverse reptile population, including the King cobra and Tricarinate hill turtle.
- At least 12 rivers traverse the plain area, draining into the Bay of Bengal. The Prominent rivers include Burhabalanga, Palpala Bandan, Salandi, Kahairi, and Deo.
- Features waterfalls like Joranda and Barehipani Falls.
- Inhabited by tribes such as Erenga Kharias and Mankirdias. The other dominant tribes include Ho, Gonda, and Munda.

7. Development of 'Electronic Soil' for Hydroponic Cultivation

Why is it in the news?

- Researchers have developed 'electronic soil' (e-Soil), a low-power bioelectronic growth substrate designed for hydroponic cultivation.
- e-Soil can electrically stimulate the root system and growth environment of plants.

About Hydroponics

- Hydroponics is a system of agriculture that utilizes nutrient-laden water rather than soil for plant nourishment.



- The re-use of nutrient water supplies makes process-induced eutrophication (excessive plant growth due to overabundant nutrients) and general pollution of

land and water unlikely, since runoff in weather-independent facilities is not a concern.

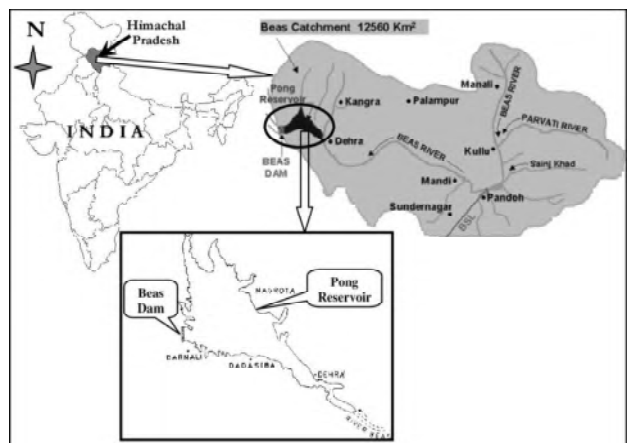
Benefits of Hydroponics

- Ensures precise control of nutrients, leading to faster growth, higher yields, and superior quality produce.
- Enables vertical cultivation in large towers, maximizing space efficiency.
- Dramatically reduces water usage compared to conventionally grown plants.
- Plants grown through hydroponics experience significantly fewer pests.

8. Pong Dam Eco-Sensitive Zone

Why is it in the news?

- The **Himachal Pradesh** state government is undertaking a re-evaluation of the ecosensitive zone boundaries around Pong Dam to address challenges faced by the local population and to support agricultural activities, particularly during periods of low water levels.



About Eco Sensitive Zones (ESZ)

- ESZ, or Ecologically Fragile Areas, are designated areas around protected regions such as national parks and wildlife sanctuaries, notified by the Ministry of Environment in India.
- The primary aim of declaring an area as an ESZ is to act as a **"shock absorber,"** regulating and managing human activities around protected areas to preserve ecological balance.

Pong Dam Wildlife Sanctuary

- Situated in the **Kangra district** of Himachal Pradesh, it is also known as Pong Dam Reser-voir or Pong Dam Lake.

- The dam was constructed in 1975 and was subsequently declared a wildlife sanctuary in 1983.
- Recognized internationally, the Pong Dam Lake was designated as a **Ramsar Site** in 2002, highlighting its importance in terms of wetland conservation.
- The lake is primarily fed by the Beas River and several perennial tributaries including Gaj, Neogal, Binwa, Uhl, Bangana, and Baner.
- The sanctuary area is characterized by tropical and subtropical forests, housing diverse flora.
- The region features a variety of vegetation, including Acacia, Jamun, Shisham, Mango, Mul-berry, Ficus Kachnar, Amla, and Prunus.
- Rich in biodiversity, the sanctuary is home to animals such as Sambhar, Barking Deer, Wild Bear, Nilgai, Clawless Otter, and Leopards.
- The lake hosts a variety of avian species, with the **Bar Headed Geese** being the flagship species. Other notable species include Eurasian Coot, Northern Pintail, Common Teal, Great Cormorant, GreyLag Goose, among others.
- A unique initiative in Pong involves a **Vulture Café** where cattle carcasses are dumped, providing a crucial feeding spot for vultures, contributing to vulture conservation efforts.
- Successful **reintroduction of cheetahs** through the translocation project from South Africa and Namibia to Kuno National Park, Madhya Pradesh. Progress is underway at Gandhi Sagar Wildlife Sanctuary for establishing a second home for cheetah meta-population.
- Tiger Reserves undergo **Management Effectiveness Evaluation (MEE)** every four years by NTCA following the IUCN framework, enhancing management and landscape connectivity.
- Declaration of the new **'Rani Durgavati'** Tiger Reserve in Madhya Pradesh, bringing the total number of tiger reserves in India to **54**, covering over 2.30% of the country's geographical area.
- Twenty-three tiger reserves in India received **Conservation Assured Tiger Standards (CA|TS)** accreditation, ensuring they meet international standards for successful conservation.
- **Pench Tiger Reserves** in Madhya Pradesh and Maharashtra, along with Satpura Tiger Reserve in Madhya Pradesh, jointly received the **Tx2 award** in 2022-23. This international recognition is conferred by a consortium of organizations including Global Environment Facility (GEF), United Nations Development Program (UNDP), International Union for Conservation of Nature (IUCN), World Wide Fund for Nature (WWF), and Global Tiger Forum (GTF).

9. Achievements of the National Tiger Conservation Authority

Why is it in the news?

- The National Tiger Conservation Authority (NTCA) in 2023 achieved significant milestones showcasing its commitment to tiger conservation and biodiversity.

More about the news

- The **Centrally Sponsored Scheme - Project Tiger**, aimed at the recovery of endangered wild tigers in India, celebrated its 50th successful year of implementation.
- India's wild tiger population surpasses 70% of the global total, with a minimum of **3,167 tigers**, as per the 5th cycle of the All India Tiger Estimation 2022 summary report.
- The **International Big Cat Alliance (IBCA)** was inaugurated by the Prime Minister to foster collaborative efforts among range countries for the conservation of seven major big cat species: Tiger, Lion, Leopard, Snow Leopard, Cheetah, Jaguar, and Puma.

About NTCA

- The National Tiger Conservation Authority is a statutory body established under the Wildlife (Protection) Act, 1972.

10. National Transit Pass System (NTPS)

Why is it in the news?

- Union Minister launches **National Transit Pass System (NTPS)- One Nation-One Pass**.

More about the news

- Launched by the **Ministry of Environment, Forest and Climate Change**.
- Facilitates seamless transit of timber, bamboo, and **Minor Forest Produce (MFP)** across India.
- Replaces state-specific transit rules for timber and forest produce.

Key Features of NTPS

- Manages records for both inter-state and intra-state transportation of timber, bamboo, and MFP.

- Exempts some species grown on private land; No Objection Certificate required for transport.
- Contributes to ease of doing business with a unified online mode for transit permits.
- Benefits includes: Boosts the agroforestry sector; saves transportation costs and time; and enables seamless movement across state borders.
- Under Forests Rights Act 2006, MFP includes non-timber forest produce like bamboo, brush-wood, stumps, etc.
- Forest dwellers have legal ownership and governance rights over MFP through the Panchayat Extension to Scheduled Areas Act, 1996, and FRA, 2006.

Other Initiatives Promoting Forest Produce and MFP

- **Pradhan Mantri Van Dhan Yojana:** Focuses on developing value chains for forest-based products. Aims to enhance the income of tribal communities.
- **Indian Forest and Wood Certification Scheme:** Voluntary thirdparty certification for promoting sustainable forest management and agroforestry.
- **Mechanism for Marketing of MFP through MSP & Value Chain Development:** Es-tablishes a mechanism for marketing Minor Forest Produce through Minimum Support Price (MSP). Aims to develop value chains for sustainable utilization of forest resources.

11. Eurasian Otter Spotted in Chinnar Wildlife Sanctuary, Kerala

Why is it in the news?

- Recently, the **Eurasian Otter (*Lutra lutra*)** was spotted for the first time in the state of Kerala, at the **Chinnar Wildlife Sanctuary in Idukki**.

About Eurasian Otter

- A semi-aquatic carnivorous mammal.
- Displays shy and nocturnal behaviour, often active during nighttime.
- Flourishes in a range of aquatic environments, encompassing highland and lowland lakes, rivers, streams, marshes, swamp forests, and coastal areas.
- Classified as "**Near Threatened**" on the IUCN list, signalling a species at risk of becoming endangered.
- Holds legal protection in India as it is listed under **Schedule I** of the Indian Wildlife (Protection) Act of 1972.

- Recognized internationally under **Appendix I** of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).
- **Kerala** is home to three distinct otter species, with the Eurasian Otter being one of them. The other two are the **Smooth-coated Otter** and the **Small-clawed Otter**.

About Chinnar Wildlife Sanctuary

- Situated in the Idukki District of Kerala.
- Occupies a significant portion of the protected forests in the Annamalai hills, sharing borders with Tamil Nadu.
- Diverse landscape characterized by rocky terrains, hillocks, and valleys.
- Shares boundaries with the Kodaikanal Wildlife Sanctuary to the East and the Indira Gandhi Wildlife Sanctuary to the North.
- Encompasses varied ecosystems, including dry deciduous forests, wet grasslands, high sho-las, dry thorny scrub forests, and riparian forests.
- Major rivers flowing through the sanctuary include Chinnar and Pambar.
- Boasts a rich biodiversity with around 1000 species of flowering plants, including rare and unique species such as *Elaeocarpus recurvatus*, *Arabica*, *Acacia leucophloea*, *Santalum album*, and *Neelakurinji*.
- Provides a habitat for endangered species like the Grizzled Giant Squirrel, Gaur, Rusty-Spotty Cat, Sambar, Nilgiri Tahr, Bonnet Macaques, Tufted Grey Langur, Spotted Deer, and more.
- A diversity of bird species, including Black Eagle, Yellow-throated Bulbuls, Grey Heron, Serpent Eagle, Little Egret, etc.
- Abundance of butterflies, fishes, reptiles, and various insects.
- Notably, the sanctuary serves as the only rehabilitation centre for the Indian Star Tortoise in India.

12. Biodiversity Credit Alliance (BCA)

Why is it in the news?

- BCA advocates for the utilization of biodiversity credits (biocredits) to finance targets outlined in the Kunming-Montreal Global Biodiversity Framework (KMGBF).

- Biocredits serve as a potential mechanism to fund conservation, restoration, and interventions addressing key drivers of biodiversity loss, such as habitat degradation.

About BCA

- BCA is a voluntary international alliance formed to support the Kunming-Montreal Global Bio-diversity Framework (KMGBF).
- Launched at the 15th Conference of Parties (COP15) to the UN Convention on Biological Diversity (CBD) in 2022.
- The primary goal is to facilitate the development and implementation of biodiversity credits as a financial instrument for biodiversity conservation and restoration.
- Focuses on building a framework of high-level, science-based principles to guide the establishment and functioning of a voluntary biocredit market.

13. Wetland City Accreditation (WCA) Scheme

Why is it in the news?

- Indore, Bhopal, and Udaipur have been nominated for the **Wetland City Accreditation (WCA) scheme** under the **Ramsar Convention**.

About Wetland City Accreditation Scheme

- Initiated in 2015 under Resolution XII.10 of the Conference of the Contracting Parties to the Ramsar Convention (COP12).
- Administered by the Ramsar Convention on Wetlands.
- Recognize and honour cities displaying exceptional efforts in protecting and managing their urban wetlands.
- Foster positive relationships between cities and their wetlands.
- Encourage conservation, wise use, and sustainable socio-economic benefits.
- A total of 43 cities worldwide are accredited as wetlands cities under the Ramsar Convention with 18 cities accredited in 2018, and 25 in 2022.
- Indore, Bhopal, and Udaipur are the first Indian cities nominated for the WCA scheme based on proposals from state wetlands authorities in collaboration with municipal corporations.

Wetlands in Nominated Cities

Indore - Sirpur Lake:

- An Important Bird and Biodiversity Area (IBA) declared by the Bombay Natural History Society (BNHS) in 2017.
- Commonly known as Pakshi Vihar (bird sanctuary).
- Shallow, alkaline, nutrient rich lake.

Bhopal - Bhoj Wetland:

- Bhopal, known as the 'city of lakes,' has the Bhoj Wetland declared as a 'Ramsar Site' in 2002.
- Comprises upper and lower lakes, with the Upper Lake being manmade and constructed in the 11th century.

Udaipur:

- Surrounded by five major wetlands - Pichola, Fateh Sagar, Rang Sagar, Swaroop Sagar, and Doodh Talai.
- Integral to the city's culture and identity, maintaining the city's microclimate and acting as a buffer from extreme events.

About the Ramsar Convention

- Signed on February 2, 1971, in Ramsar, Iran.
- Aims to preserve the ecological character of wetlands of international importance.
- Currently, 172 countries are contracting parties.
- **Criteria for Ramsar Sites:** Sites must meet at least one of nine criteria defined by the Ramsar Convention such as supporting vulnerable species, threatened ecological communities, or regularly supporting a large number of waterbirds.

Global Ramsar Sites:

- The United Kingdom (175) and Mexico (142) have the maximum Ramsar sites globally.
- Bolivia spans the largest area with 148,000 sq km under Convention protection.

Ramsar Sites in India:

- India has Ramsar wetlands covering 11,000 sq km across 18 states.
- Tamil Nadu has the highest number of Ramsar sites (14), followed by UP with 10 Ramsar sites.

14. The Role of E-fuels in Decarbonising Transport

Why is it in the news?

- The **International Energy Agency (IEA)** recently released a comprehensive report titled "**The Role of E-fuels in Decarbonising Transport**," exploring the potential and challenges associated with using e-fuels to reduce carbon emissions in the transport sector.

Key Findings of the Report

- Emphasizes the potential for significant reductions in fossil fuel demand through fuel efficiency improvements and the growing adoption of **electric vehicles (EVs)**.
- Highlights the pivotal role of e-fuels, derived from electrolytic hydrogen, in achieving deep decarbonization by 2030.
- Recognizes the limitations of electrification in sectors like aviation and shipping, where e-fuels with a near-zero carbon footprint become essential.
- Acknowledges the current high cost of e-fuels but foresees substantial cost reductions with advancements in technology and economies of scale.
- Points out that e-fuels can be readily used in existing infrastructure and engines, eliminating the need for extensive upgrades required by electrification in certain sectors.
- Stresses the importance of sustainable management of resources such as renewable energy, water, and captured CO₂, which are crucial for large-scale production of e-fuels.
- Urges governments to implement supportive policies, including carbon pricing and research and development funding, to create a conducive environment for the production and adoption of e-fuels.

About E-fuels

- E-fuels, also known as **electrofuels or synthetic fuels**, are low-emission liquid or gaseous fuels produced from renewable energy sources like solar or wind power, water, and captured carbon dioxide.
- Examples include eGasoline, eDiesel, eHeating oil, eKerosene, e-methane, e-kerosene, and e-methanol.
- Offer near-zero greenhouse gas emissions compared to fossil fuels.

- Versatile and can replace conventional fuels in existing engines and infrastructure.
- Particularly beneficial for sectors like aviation and shipping where battery technology has limitations.

E-fuel Production

- **Hydrogen Extraction:** Involves an electrolysis process breaking down water into hydrogen and oxygen. Hydrogen is then combined with CO₂ through processes like **Fischer-Tropsch synthesis** to produce e-fuels.

Benefits:

- eFuels can replace conventional fuels after processing in refineries;
- Drop-in capability allows blending with conventional fuels in any ratio.

Challenges:

- E-fuels are currently more expensive to produce than fossil fuels.
- Expectations of significant cost reduction by 2030 as production scales up and technology advances.
- Limited by the availability of renewable energy and infrastructure for water and CO₂ capture.
- Increased reliance on e-fuels may shift dependence from oil-producing countries to those with abundant renewable resources.

Measures to Unleash Potential

- Policy support through carbon pricing mechanisms, tax breaks, and subsidies.
- Emphasis on technological advancements and economies of scale.
- Expansion of renewable energy capacity for clean electricity needed in e-fuel production.
- Sustainable water management and infrastructure for capturing and utilizing CO₂.
- Public procurement mandates, corporate commitments, and ambitious targets can drive market demand.
- E-fuels need to meet internationally agreed standards for measuring life-cycle greenhouse gas emissions.

15. EU's Carbon Border Adjustment Mechanism

Why is it in the news?

- The European Union's **Carbon Border Adjustment Mechanism (CBAM)** raises concerns for India, necessitating the formulation of indigenous carbon taxation measures.

What is Carbon Border Adjustment Mechanism (CBAM)

- EU's tool to price carbon emitted during the production of carbon-intensive goods entering the EU.
- Targets goods at risk of carbon leakage, such as cement, iron and steel, aluminium, fertilizers, electricity, and hydrogen.
- CBAM imposes a 20-35% tax on select imports into the EU, effective from January 1, 2026.
- Aligns with the EU's target of a 55% reduction in Greenhouse Gas (GHG) emissions by 2030 under the European Green Deal.

Significance:

- Serves as a carbon pricing mechanism, discouraging emissions in the production process.
- A trade-related measure that affects production and exports, equalizing the price of carbon between domestic and imported products.

Issues (According to UNCTAD)

- Russia, China, and Turkey identified as most exposed to CBAM.
- India, Brazil, and South Africa deemed most affected among developing countries.
- Mozambique highlighted as the most exposed least-developing country.

Challenges for India with CBAM

- India's exports of carbon-intensive products (mainly aluminium and iron-and-steel) face burdensome green reporting rules, acting as a trade barrier.
- 26.6% of India's exports (iron ore pellets, iron, steel, and aluminium products) worth \$7.4 bil-lion in 2023 to the EU are affected.
- Steel and aluminium exports, contributing nearly 14% to India's export mix, face substantial uncompetitiveness.
- CBAM and international climate policies may have a significant impact on India's trading relationships and Balance of Payments.

Options Available to India

- **The Carbon Credit and Trading Scheme (CCTS):** It was notified by the Union Government under the Energy Conservation Act, 2001, to develop the country's first-ever domestic carbon market. It was set up as the regulatory framework for the Indian Carbon Market (ICM), with BEE as the administrator.
- It envisioned the formation of a **National Steering Committee for Indian Carbon Market**

(NSCICM) for the governance and direct oversight of the Indian Carbon Market (ICM). The committee will be chaired by the Secretary (Ministry of Power); and co-chaired by the Secretary (Ministry of Environment, Forests and Climate Change).

- BEE will be the administrator for the ICM and will be responsible for the development of the GHG emissions trajectory and the targets for the entities to be obligated under the notification.
- The Central Electricity Regulatory Commission (CERC) will be the regulator for the trading of carbon credit certificates.

Types of Carbon Markets

- **Compliance Markets:** These are created as a result of any national, regional and/or international policy or regulatory requirement.
- **Voluntary Carbon Markets (National and International):** These refer to the issuance, buying and selling of carbon credits, on a voluntary basis.

- It will have to be generated and bought by domestic and overseas markets and will not be applicable to the voluntary carbon market. Under the Paris Agreement of 2015, India has pledged to reduce the emissions intensity of its GDP by 45% by 2030, from the 2005 level.

Way Forward :

- Implementing a carbon tax provides a source of revenue for the government, contributing to national finances.
- A well-structured carbon tax creates a financial incentive for industries to adopt cleaner and more sustainable technologies, reducing carbon emissions.
- By aligning with global environmental standards through a carbon tax, India can enhance its international competitiveness and attract environmentally conscious investments.
- India's commitment to reduce the carbon intensity of its GDP by 33-35% by 2030 sets clear targets for environmental sustainability.

16. IISc Study on Montane Birds

Why is it in the news?

- The **Indian Institute of Science (IISc) in Bengaluru** conducted a study focusing on understanding the consequences of logging and climate change on montane birds.

About the Study

- The study was carried out in the **Eaglenest Wildlife Sanctuary in Arunachal Pradesh**, known for its diverse bird species and rich biodiversity.
- Researchers collected data over a period of 10 years from the Eaglenest Wildlife Sanctuary, utilizing mist netting and bird ringing techniques.
- The study examined the effects of both forest logging and climate change on bird communities, with a specific focus on the understory bird community, which comprises birds beneath the main canopy of a forest.

Key Findings of the Study

- Identified forest loss and climate change as major threats to the tropical montane forest eco-system, particularly in mountainous regions.
- Observed shifts in elevational distribution of many bird species, attributed to rising temperatures.
- Logging was found to result in the loss of large-bodied, old, growth-dependent bird species, leading to an overall decrease in biodiversity.
- Significantly detrimental effects on understory insectivores, a group of birds confined to specific niches within the ecosystem.
- Logged forests experienced reduced densities of foliage-dwelling insects, which are a crucial food source for birds. This reduction in available resources negatively impacted bird communities.
- Noted a phenomenon where many bird species shifted to higher elevations in response to climate change, seeking more favourable conditions.
- Emphasized the critical importance of preserving primary (undisturbed) forests to mitigate the adverse impacts of climate change on bird communities.

Eagle Nest Wildlife Sanctuary

- Situated in Arunachal Pradesh.
- Part of the Eastern Himalayas biodiversity hotspot.
- Adjacent to Sessa Orchid Sanctuary and Pakhui Tiger Reserve.

- Recognized as a top global birding destination.
- Characterized by dense bamboo strands and patches of broadleaved evergreen forest, covering a large altitudinal range.
- Home to diverse amphibians, snakes, lizards, and mammal species, including endangered species like the Bugun Liocichla bird.
- Records over 160 species of butterflies.
- The sanctuary is inhabited by two tribes, **Bugun and Sherdukpen**, adding to its cultural significance.

17. Tricolime Development

Why is it in the news?

- ICAR-Indian Institute of Spices Research (IISR), Kozhikode, has introduced a new granular lime-based Trichoderma formulation known as Tricolime.
- Trichoderma is a naturally occurring fungal biocontrol agent found in all soils, belonging to the genus of fungi.
- Tricolime integrates Trichoderma with lime into a single product, simplifying the application process for farmers.

Significance of Tricolime

- Tricolime serves as both a bio-pesticide and a bio-fertilizer in crop production.
- It promotes plant growth and protects crops from soil-borne pathogens, offering a comprehensive solution in a single application.
- Tricolime enhances the physical condition of the soil, improves secondary nutrient availability, and stimulates soil microbial activity.
- The integration of Trichoderma and lime into one product makes Tricolime user-friendly and convenient for farmers.

Overall Impact on Agriculture

- Tricolime's dual functionality contributes to healthier plant growth, shields crops, improves soil conditions, and enhances overall soil health.
- The development of Tricolime represents an innovative approach, streamlining pest control and fertilization in a single application.
- Tricolime aligns with sustainable agriculture practices by providing a comprehensive solution that reduces the need for multiple applications.

- Farmers benefit from the ease of application, reduced complexity, and improved efficiency in managing both pest control and soil fertility in their crops.

18. Denmark's Green Fuels Alliance India (GFAI) Initiative

Why is it in the news?

- Denmark has announced the **Green Fuels Alliance India (GFAI)** initiative, building upon the **Green Strategic Partnership (GSP)** established in 2020 between India and Denmark.

About GFAI

- The GFAI represents a significant collaborative effort aimed at fostering sustainable energy growth in India through partnerships among businesses, government entities, research institutions, and other stakeholders from both nations.
- The GFAI draws inspiration from successful initiatives like the **India-Denmark Energy Partnership**. It also reflects joint research and development efforts on Green Fuels, emphasizing the commitment of both nations towards advancing sustainable energy solutions.

The goals of the GFAI are multifaceted:

- Facilitating collaboration in sustainable energy solutions by bringing together diverse stakeholders.
- Contributing towards shared goals of achieving carbon neutrality, aligning with global efforts to combat climate change.
- Enabling renewable energy production in India, supporting the country's ambition to become a global leader in the green energy value chain.
- Playing a role in accelerating the achievement of net-zero emissions by 2070, in line with global sustainability targets.
- Creating an ecosystem that fosters innovation, collaboration, and partnerships among businesses, government bodies, and research institutions.

Similar Partnership Initiatives by India:

- **U.S.-India Strategic Clean Energy Partnership:** A strategic partnership with the United States focusing on clean energy solutions.
- **Green/Clean Hydrogen Initiatives with Saudi Arabia:** Collaborative efforts with Saudi Arabia towards green and clean hydrogen production.
- **India-Australia Green Hydrogen Taskforce:**

Joint task force between India and Australia dedicated to green hydrogen development.

- **Global Biofuels Alliance:** Formed by Brazil, India, and the United States to promote the use and development of biofuels globally.
- **Quad's Climate Working Group:** A collaborative effort within the Quad framework for clean energy and sustainability.

About Green Fuels

- Green fuels, alternatively known as **green hydrocarbons or biofuels**, are a category of fuel produced from biomass sources.
- These fuels undergo various biological and thermochemical processes for their production, emphasizing their eco-friendly and sustainable nature.

19. WEF Report on Green Hydrogen

Why is it in the news?

- The **World Economic Forum (WEF)** has issued a comprehensive report titled '**Green Hydrogen: Enabling Measures Roadmap for Adoption in India.**'

About Green Hydrogen

- Green Hydrogen is hydrogen produced using renewable energy sources such as **electrolysis or the conversion of biomasses**.
- India's current hydrogen production stands at **6.5 million metric tonnes per annum (MMTPA)**. This hydrogen is primarily utilized in crude-oil refineries and fertilizer production.

Need for Adoption of Green Hydrogen:

- The adoption of Green Hydrogen is imperative to decarbonize critical sectors like transportation, shipping, and steel, aiming to achieve net-zero emissions by 2070.
- Additionally, with an estimated 35% growth in energy demand by 2030, there is a pressing need for sustainable energy solutions.

Concerns with Green Hydrogen:

- The cost of producing green hydrogen is currently around \$4-5 per kilogram, posing economic challenges.

- Irregular availability of renewable energy and a lack of economical battery storage infrastructure create obstacles.
- Trade barriers with countries like Europe, Korea, and Japan, which are expected to emerge as crucial markets for green hydrogen, present additional challenges.

Key Goals to Accelerate Green Hydrogen Ecosystem in India

On the Supply Side:

- Reduce the cost of producing green hydrogen to less than \$2 per kilogram.
- Eliminate costs associated with green hydrogen conversion, storage, and transportation.

On the Demand Side:

- Capitalize on India's export potential for green hydrogen derivatives by developing conversion and storage facilities at ports.
- Introduce penalties on the use of carbonintensive alternatives such as natural gas to incentivize the adoption of green hydrogen.

National Green Hydrogen Mission

- The National Green Hydrogen Mission is designed to position India as a Global Hub for producing, utilizing, and exporting Green Hydrogen.
- It comprises two sub-missions:
 - 1) **Strategic Interventions for Green Hydrogen Transition (SIGHT):** Focused on strategic measures to facilitate the transition to green hydrogen.
 - 2) **Strategic Hydrogen Innovation Partnership (SHIP):** Aimed at fostering innovation in the hydrogen sector through strategic partnerships.

20. National Clean Air Programme (NCAP)

Why is it in the news?

- National Cleaner Air Programme complete five years.

About NCAP

- Launched by the Ministry of Environment, Forest and Climate Change (MoEFCC) in 2019 in response to the escalating air pollution levels in India.

- Aim is to improve the air quality in 131 cities, comprising **non-attainment cities (NAC)** and Million Plus Cities, across 24 states. Non-attainment cities are those exceeding the **National Ambient Air Quality Standards (NAAQS)** for five consecutive years.
- Set the target to achieve reductions of up to 40% in **Particulate Matter (PM10 and PM2.5)** concentrations by the year 2025-26, with the base year being 2017.
- **Central Pollution Control Board (CPCB)** oversees the national-level implementation.
- **City Action Plans (CAPs)** are developed and implemented by state governments and their respective agencies at the state and city levels, including municipal bodies.
- **PRANA (Portal for Regulation of Air-pollution in NAC)** was launched to monitor and ensure the effective implementation of NCAP.

Progress of NCAP in the Last 5 Years (Studies evaluating the program's progress indicate a mixed scenario)

- Improvements in PM2.5 levels were recorded in 27 out of 49 cities.
- Similarly, improvements in PM10 levels were observed in 24 out of 46 cities.
- Cities like Varanasi, Agra, and Jodhpur showcased significant reductions in both PM2.5 and PM10 levels.

Other Initiatives for Reducing Air Pollution

- **National Ambient Air Quality Programme (NAMP):** Complementary program focusing on monitoring and enhancing ambient air quality across the country.
- **Graded Response Action Plan (GRAP):** A set of anti-pollution measures to be implemented by government authorities based on the air quality index to combat worsening air quality.
- **Switch to Bharat Stage VI (BS-VI) Emission Standards:** Implementation of more stringent emission norms for vehicles to reduce air pollutants emitted by the transportation sector.
- **Faster Adoption and Manufacturing of (Hybrid) Electric Vehicles (FAME) Scheme:** A scheme aimed at promoting the adoption of electric and hybrid vehicles to encourage a cleaner and sustainable transportation system.

21. National Mission for Clean Ganga (NMCG)

Why is it in the news?

- The National Mission for Clean Ganga (NMCG) has been granted enhanced powers for effective pollution abatement in the Ganga River and its tributaries.

More about the news

- NMCG issued a notification amending the River Ganga (Rejuvenation, Protection, and Management) Authorities Order, 2016.
- New powers granted to NMCG, allowing it to permit the discharge of treated sewage conforming to norms under the Environment (Protection) Act, 1986.
- Emphasis on exploring direct reuse options for treated sewage, such as agricultural and industrial use, before allowing discharge.
- The move is designed to ensure more water enters rivers. For example, treated sewage water from Delhi's Okhla Sewage Treatment plant may be released into Yamuna, increasing the river's flow.

About National Mission for Clean Ganga (NMCG)

- Registered as a society on August 12, 2011, under the Societies Registration Act 1860.
- Initially acted as the implementation arm of the National Ganga River Basin Authority (NGRBA).
- NGRBA was dissolved in 2016, leading to the constitution of the **National Ganga Council**.
- Under the Ministry of Jal Shakti.
- Focus on effective abatement of pollution and the rejuvenation of the river Ganga, adopting a river basin approach. Aim is to maintain minimum ecological flows in the river Ganga to ensure water quality and environmentally sustainable development.

Five-Tier Structure

- National Ganga Council (Chaired by the Prime Minister).
- Empowered Task Force (ETF) on river Ganga (Chaired by the Union Minister of Jal Shakti).
- National Mission for Clean Ganga (NMCG).
- State Ganga Committees.
- District Ganga Committees.

Management Structure

- Two-tier structure consisting of a Governing Council and an Executive Committee, both headed by the Director General of NMCG.

Challenges Facing NMCG

- Inadequate allocation of funds despite being a ₹20,000 crore mission. States often depend on central funds, causing delays and uncertainties in project implementation.
- Outdated sewage treatment plants that require upgrades, leading to untreated sewage flowing into the river.
- Limited monitoring and data collection with insufficient coverage of realtime water quality monitoring systems.
- Cultural practices, such as idol immersion and washing clothes in the river, contribute to pollution.
- Untreated industrial effluents from factories continue to pollute the river.
- Unsustainable riverbed sand mining practices that can damage the riverbed and disrupt ecological balance.
- A fragmented institutional framework with multiple agencies at central, state, and local levels involved, leading to coordination and accountability issues.

Measures to be taken :

- Streamlining land acquisition for Sewage Treatment Plants (STPs) to address delays in commissioning.
- Revision of Detailed Project Reports to clarify the roles of various stakeholders and responsibilities.
- Development of a water quality index for effective communication about river-water quality.

Way Forward

- Continuous efforts needed to address challenges, innovative solutions, and increased public participation are crucial for the mission's long-term success.
- The NMCG has made progress in setting up wastewater treatment plans, increasing public awareness, and promoting riverfront development.

6

INTERNAL SECURITY

1. Centre Fortifies Against Cyberthreats with Secure Email Network for Critical Departments

Why is it in the news?

- In response to the increasing threat of cyber-attacks, the Centre has taken significant steps to bolster cybersecurity by implementing a secure email system for 10,000 users across critical ministries and departments.

More about the news

- The email system is designed by the National Informatics Centre (NIC), which operates under the Ministry of Electronics and Information Technology (MeitY).
- It is based on the **Zero Trust Authentication (ZTA)** approach, treating all systems, networks, and users as untrusted, necessitating ongoing authentication.
- Zero Trust Authentication (ZTA) is a security approach that requires continuous authentication for devices, users, and applications. This strategy enhances security by not assuming trust based on location or user credentials.
- The system incorporates a **two-factor authentication** mechanism. In addition to passwords, it requires facial recognition or biometrics, adding an extra layer of security.
- The system records login and logout times, contributing to enhanced security measures. This feature aids in monitoring user activity and identifying any unusual login patterns.

Other Cyber Security Measures by the Government

1) Digital India Corporation (DIC)

- DIC, a not-for-profit company under MeitY, invited bids from private players for cloud service providers.

- The scope of the bid includes operating, managing, and migrating existing and future projects.
- Projects managed by DIC include Digilocker, Poshan Tracker, MyScheme, Umang, APISetu, NCW, Kisan Sarathi, Academic Bank of Credits, among others.

DIC's Objectives:

- Capacity building for e-Governance projects.
- Promotion of best practices in the domain.
- Encouragement of Public-Private Partnerships (PPP).
- Nurturing innovation and technology.

2) Email Services Migration

- The bid also involves migrating government employees' email services to a private player.
- Currently, these services are managed by the NIC.

About National Informatics Centre (NIC)

- NIC operates under the Ministry of Electronics and Information Technology (MeitY).
- Established in 1976.
- NIC serves as the technology partner for the Government of India.
- The primary objective is to deliver technology-driven solutions to both Central and State Governments.

2. Salwa Judum

Why is it in the news?

- National Human Rights Commission (NHRC) has directed the Ministry of Home Affairs and six states to provide information on victims of Salwa Judum.

About Salwa Judum

- Translates to "**Purification Hunt**" in the local Gondi language.
- It's a Militia deployed as part of anti-Maoist operations in Chhattisgarh.

- It was active between 2005 and 2011.
- Banned by the Supreme Court in the case of **Nandini Sundar vs State of Chhattisgarh**.
- Criticisms include a range of human rights abuses during its operational period.
- Criticized for being involved in forced displacement of local populations.
- Accused of arbitrary arrests and detention of individuals.

3. Ransomware Attacks

Why is it in the news?

- HCL Technologies, an IT services provider, recently reported a ransomware incident, highlighting the persistent threat faced by organizations in the cybersecurity.

Ransomware :

- It's an extortion software designed to lock or encrypt data, demanding a ransom for release.
- Attackers gain access to devices or cloud data, locking or encrypting them.

Recent Ransomware Attacks in India

- **AIIMS (2022):** Patient data encrypted, demanded \$1 million.
- **Solar Industries Limited (2023):** Ransomware attack claimed 2 terabytes of data theft.
- **Fullerton India (2023):** NBFC targeted by Lockbit 3.0 ransomware group.

Concerns

- **Sophos study (2023):** 73% of organizations faced ransomware attacks, up from 57%.
- 77% reported successful data encryption, with 44% paying the ransom.
- Businesses paying ransom doubled recovery costs compared to those relying on backups.

Challenges in Combating Ransomware

- Constant adaptation by ransomware actors.
- Opportunistic attacks exploiting vulnerabilities.
- Swift encryption making recovery difficult.
- Urgency to minimize downtime and financial losses.
- Social engineering exploiting human vulnerabilities.
- Originating from countries with weak cyber laws.
- Skilled personnel and advanced tools are essential.

Preventive Measures

- Regularly update OS, applications, and firmware.
- Use reputable software with real-time protection.

- Regularly backup data to a secure offsite location.
- Be cautious with email attachments and links.
- Educate employees about ransomware threats and phishing scams.
- Regularly identify and address system weaknesses.
- Develop a plan for containment, notification, recovery, and reporting.
- Consider investing in cyber insurance.

Conclusion :

- Addressing challenges requires a multi-layered approach, including technical solutions, employee training, international cooperation, and continuous vulnerability assessments.
- Diligent implementation of preventive measures improves defence against ransomware.

4. Pegasus Spyware

Why is it in the news?

- The Washington Post and Amnesty International report revealed the targeting of journalists in India by Pegasus spyware.
- The spyware utilized a 'zero-click exploit,' enabling installation without the device owner's consent or action.

Decoding Pegasus

Pegasus is a spyware, developed and licensed by an Israeli company, NSO Group. It can be used to infiltrate smartphones that run on both iOS and Android operating systems, and turn them into surveillance devices. A low down:

- Pegasus's method of attack is called zero-click attacks, which do not require any action by the user. The spyware can hack a device simply by giving a **missed WhatsApp call**
- It will **alter call logs** so that the user has no knowledge of what happened
- It can also be **installed manually** on a device or over a wireless transceiver
- If it fails to connect with its command-and-control server for more than 60 days, it **self-destructs and removes all traces**
- If it detects that it was installed on the wrong device or SIM card, it will **self-destruct**
- Amnesty International noted that despite issuing security updates, Android and iOS devices were **breached**
- To stay safe, users need to ensure that software in devices is updated and all apps are installed directly through the official stores. **No suspicious email or text should be clicked**

■ Once the spyware enters the device, it installs a module to track call logs, read messages, emails, calendars, internet history, and gather location data to send the information to the attacker

What is Pegasus Spyware?

- Developed, marketed, and licensed by the Israeli company NSO Group.
- Marketed as a tool for targeted spying, not mass surveillance.
- Capable of infecting billions of phones running iOS or Android.
- Operates in countries with human rights abuses, including Egypt, Saudi Arabia, Madagascar, and Oman.

Indian Scenario :

- Despite no public acknowledgment, Pegasus found on phones of journalists, academics, and opposition leaders, leading to a political crisis.
- Capable of turning phones into surveillance devices, intercepting encrypted messages from platforms like WhatsApp and Signal.
- Recently, the activists filed petitions alleging government mass surveillance through Pegasus. Further, the Supreme Court asked the Centre for a detailed affidavit, but the Centre refused, citing national security concerns.

Relevant Indian Laws

- **Indian Telegraph Act, 1885:** Section 5(2) allows interception in the interests of sovereignty, integrity, security, friendly relations, or public order.
- Rule 419A (added in 2007) outlines operational procedures for interception, following the PUCL vs Union of India case.
- **K.S. Puttuswamy vs Union of India (2017):** Stressed the need for oversight, legality, proportionality, and procedures in surveillance.
- **Information Technology Act, 2000:** Section 69 allows electronic surveillance in the interest of sovereignty, integrity, defence, security, friendly relations, public order, or crime prevention.

Suggested Measures

- Emphasize the need for transparency and openness in government actions.
- Advocates reforms for professionalizing intelligence gathering, parliamentary oversight of intelligence agencies, non-partisanship, and protection of civil liberties and the rule of law.

5. National Investigation Agency (NIA)

Why is it in the news?

- In 2023, the **National Investigation Agency (NIA)** achieved an impressive **94.70%** conviction rate.

National Investigating Agency

About

- Enacted after the 26/11 Mumbai terror attack in November 2008.
- Presently functioning as the Central Counter Terrorism Law Enforcement Agency in India.

Objectives

- Thoroughly professional investigative agency aligned with international standards.
- Set excellence in counter-terrorism and national security investigations.
- Develop a highly trained, partnership-oriented workforce.
- Ensure effective and speedy trials.
- Create deterrence for existing and potential terrorist groups/individuals.
- Develop as a storehouse of all terrorist-related information.

Jurisdiction :

- Operates throughout India.
- Applies to Indian citizens outside the country.
- Covers persons in government service globally.
- Encompasses persons on Indian-registered ships and aircraft.
- Pertains to individuals committing scheduled offenses beyond India affecting Indian citizens or the interest of India.

NIA (Amendment) Act 2019

- Empowers the NIA to probe terror attacks targeting Indians and Indian interests abroad.
- Allows investigation into offenses like human trafficking, fake currency, prohibited arms, and cyber-terrorism.
- Includes **Section 66-F** of the Information Technology Act in the schedule, addressing cyber terrorism with punishment extending to life imprisonment.

NIA Special Courts

- Various Special Courts notified by the Government of India for the trial of cases arising from offenses committed in various states of the Union.
- Appeals from Special Court judgments, sentences, or orders go to the High Court, on facts and law.
- Every appeal heard by a bench of two Judges of the High Court.
- Aims for disposal within three months from the date of admission of the appeal.
- State Government may constitute one or more Special Courts for the trial of offenses specified in the Schedule.

6. Tehreek-e-Hurriyat, Jammu and Kashmir (TeH)

Why is it in the news?

- The Government has declared 'Tehreek-e-Hurriyat, Jammu and Kashmir (TeH)' as an 'Unlawful Association' for five years under Section 3(1) of the Unlawful Activities (Prevention) Act (UAPA) 1967.

More about the news :

- Separatist political party in Jammu and Kashmir, founded by Syed Ali Shah Geelani.
- Accused by the government of being involved in anti-national, secessionist activities, supporting terrorism, and inciting people to establish Islamic rule in J&K.

About UAPA Act

- Enacted in 1967, empowers the government to probe and prosecute individuals and organizations for acts of terrorism.
- Provides the authority to designate an organization as an "unlawful association" or a "terrorist organization," and an individual as a "terrorist."
- Scope includes declaring an association or group "unlawful" if involved in activities supporting the cession or secession of a part of India's territory, or questioning the country's sovereignty and territorial integrity.
- Under Section 3 of the UAPA Act, the government has the power to declare an association "unlawful."

Amendments to UAPA Act (August 2019)

- Introduced the provision to designate an individual as a terrorist.
- Prior to this amendment, only organizations could be designated as terrorist organizations.

7. Chameleon Trojan Malware

Why is it in the news?

- Cybersecurity researchers have identified a powerful variant of the 'Chameleon Trojan' malware, posing a significant threat to Android device users.

About Chameleon Trojan Malware

- Capable of infiltrating devices with minimal detection, particularly targeting biometric authentication features like fingerprint security and face unlock.
- The malware has the ability to elude detection by common malware scanning applications.

- Attaches itself to legitimate Android apps such as Google Chrome to remain undetected, operating in the background.
- Chameleon Trojan bundles operate stealthily at runtime, bypassing Google Protect alerts and security software on the device.



- Adapts tactics based on the Android version targeted, exploiting the Accessibility service in older versions and using deceptive HTML pages in recent versions.
- Steals on-screen content, gains additional permissions, and captures PINs and passwords entered by users to unlock their devices.
- Uses stolen PINs to unlock devices in the background, facilitating the theft of sensitive information like credit card passwords and login credentials.
- Collects information on users' app usage habits to launch attacks when the device is least likely to be in use.

Measure to be taken

- Crucial to refrain from installing Android apps from unofficial sources.
- Users should exercise caution and avoid enabling the 'Accessibility service' for unknown or untrusted apps.
- Install and regularly use trusted anti-virus software to conduct security scans and identify potential threats.

7

SOCIETY AND SOCIAL JUSTICE

1. Noma Added to WHO's Neglected Tropical Disease List

Why is it in the news?

- WHO recently included 'Noma' in its official list of Neglected Tropical Diseases (NTDs).

About the Noma

- Also known as cancrum oris or gangrenous stomatitis.
- It's a severe gangrenous disease affecting the mouth and face.
- Caused by the bacteria spirochete *Borrelia vincenti*, commonly found in the mouth.
- Begins with inflammation of gums but rapidly progresses, leading to extensive tissue destruction.
- May result in the exposure of facial bones.
- Noma has a high mortality rate, estimated to be around 90%.
- Primarily affects children aged 2 to 6 years old; Common in children who are malnourished, infected with other diseases, living in extreme poverty with poor oral health, or having weakened immune systems.
- **Treatment:** Immediate action with antibiotics; Rehydration; correction of electrolyte imbalances; and nutritional supplements to halt disease progression.
- **Preventive Measures:** Enhancing living conditions and healthcare access for vulnerable populations; Ensuring proper nutrition; Implementing immunization practices; Promoting oral hygiene and improving sanitation practices.

2. Human Trafficking

Why is it in the news?

- Nicaragua-bound plane with Indian passengers held in France over suspected **human trafficking**. The plane subsequently returned to India.
- The incident prompts an investigation into potential **organized crime** activities associated with an alleged human trafficking scam.
- Involvement of organized criminal groups in human trafficking poses challenges due to their transnational nature.

About Human Trafficking

- Act of recruitment, transport, harbouring, or receipt of a person through coercion, abduction, fraud, or deception.
- Various forms include exploitation in sex, entertainment, hospitality, domestic work, and forced marriages.



- 2022 Global Report on Trafficking in Persons reveals about 50,000 human trafficking victims detected and reported by 141 countries.

3. MedTech Mitra

Role of Transnational Organized Crime Groups:

- Extensive global networks facilitate human trafficking by these groups.
- They bring logistical expertise to trafficking operations.
- Corruption and bribery of officials, including law enforcement, immigration, and border control, to ensure smooth movement of trafficked individuals.
- Money laundering of profits generated from human trafficking through legitimate businesses.

Measures to Combat Human Trafficking

Global Level:

- UN Convention against Transnational Organized Crime (UNTOC) supplemented by Protocol against the Smuggling of Migrants by Land, Sea, and Air (ratified by India).

India:

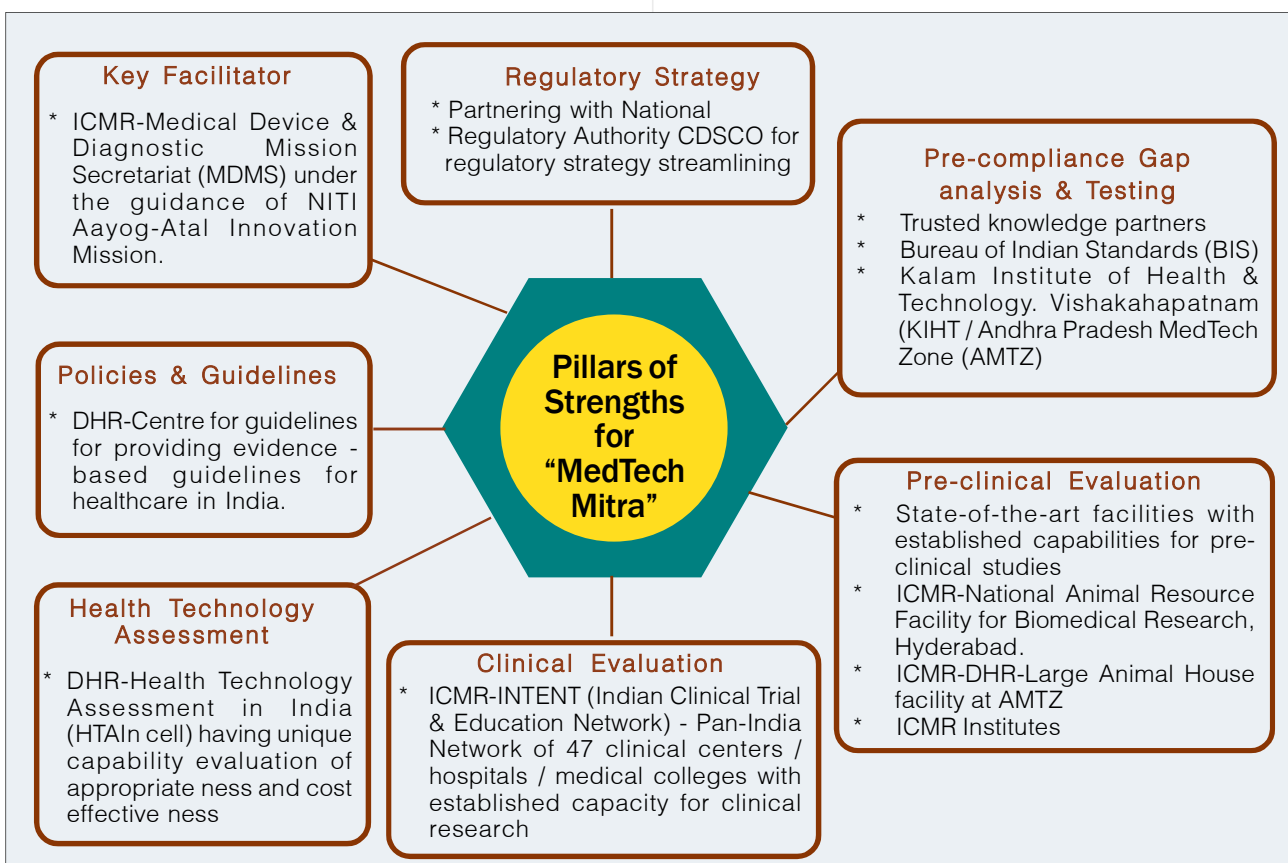
- SAARC Convention on Preventing and Combating Trafficking in Women and Children for Prostitution.
- Article 23 of the Constitution prohibits trafficking in human beings.
- Immoral Traffic Prevention Act, 1956, addresses trafficking in India.

Why is it in the news?

- MedTech Mitra was recently launched virtually by the Union Minister of Health and Family Welfare and Chemicals & Fertilizers.

Key Features

- A dedicated web platform aimed at fostering the development of affordable and accessible indigenous medical devices and in-vitro diagnostics.
- Designed to provide strategic handholding support to MedTech innovators, offering assistance in assessing clinical viability, regulatory facilitation, and adopting new products.
- MedTech Mitra will address innovators' queries and provide personalized guidance through consultation with regulatory bodies and other relevant stakeholders.
- Coordinated collaboratively by the Indian Council of Medical Research (ICMR) and the Central Drugs Standard Control Organisation (CDSCO) under the guidance of NITI Aayog's Atal Innovation Mission.



Significance

- Aims to enable the indigenous development of cost-effective and high-quality MedTech devices and diagnostics, thereby reducing the current import dependence in the MedTech sector, which stands at around 80%.
- Facilitates innovation and research and development (R&D) activities, especially for emerging startups in the field of medical technology.
- Aligns with the larger goal of promoting self-reliance and innovation in the healthcare sector, contributing to the country's overall technological and healthcare capabilities.

4. Child Marriage in India

Why is it in the news?

- A Lancet study highlighted the prevalence of child marriage in certain states, emphasizing the need for targeted interventions.
- The states of Bihar, West Bengal, Uttar Pradesh, and Maharashtra collectively account for more than half of the total cases of child marriages among girls.

National Family Health Survey-5 (NFHS-5) 2019-21:

- In the age group of 20-24 years, 14.7% of women in urban areas and a significantly higher 27% in rural areas were married before turning 18.
- Among women aged 15-19 years, 3.8% in urban areas and 7.9% in rural areas were already mothers or pregnant at the time of the survey.
- **West Bengal** experienced the largest absolute increase in the headcount of child marriages.

Child marriage has multifaceted impacts on individuals and society:

- Child brides often face complications during pregnancy and childbirth due to their immature bodies, leading to increased risks of maternal and infant mortality.
- Once married, girls are less likely to continue their formal education, limiting their opportunities for personal and economic development.
- Rooted in gender inequality, child marriage reinforces traditional gender roles and norms.
- Lack of legal protection and social support may leave child brides trapped in abusive situations without recourse.



- Child brides may have limited control over their reproductive rights, including family planning and the number and spacing of their children.
- Child marriage is often linked to poverty, creating a cycle where poverty leads to child marriage, and child marriage perpetuates poverty by limiting education and economic opportunities.

The Government of India has implemented various measures to address and eliminate child marriage:

- The **Prohibition of Child Marriage Act, 2006**, serves as a dedicated legal framework aimed at preventing and prohibiting child marriages. It sets the legal age of marriage as 18 years for girls and 21 years for boys.
- **National Commission for Protection of Child Rights (NCPCR):** Undertakes various activities and programs with stakeholders such as Child Welfare Committees, Police, and Women and Child Development Department to address child marriages.
- **CHILDLINE 1098:** Introduced as a 24x7 telephone emergency outreach service, it responds to calls for any form of assistance required by children, including prevention of child marriages.
- **Beti Bachao Beti Padhao (BBBP) Scheme:** Launched in 2015, this national initiative focuses on improving the status of girls and addressing issues such as female foeticide, child marriage, and gender-based discrimination. It emphasizes the importance of education and encourages the protection and empowerment of girls.
- **Integrated Child Development Services (ICDS):** The ICDS program aims to improve the nutritional and health status of children, including those at risk of child marriage, by providing health check-ups, immunization, and nutrition support.

- **National Plan of Action for Children 2016:** Outlines the government's commitment to child welfare and includes strategies to prevent child marriages.
- **Sarva Shiksha Abhiyan (SSA):** An ongoing program aimed at providing universal access to quality elementary education, addressing the root cause of child marriage by promoting education for all children, including girls.
- **Rajiv Gandhi Scheme for Empowerment of Adolescent Girls (SABLA):** Targets adolescent girls (11-18 years) and aims to empower them through education, life skills training, and nutrition support, thereby preventing early marriage.
- **Awareness Campaigns:** The government, in collaboration with non-governmental organizations, conducts awareness campaigns to educate communities about the harmful effects of child marriage.

Conclusion

- While there has been a national decline in child marriage, the prevalence remains a concern, especially in certain regions.
- Notably, there has been a substantial decline in prevalence, with girl child marriage decreasing from 49% in 1993 to 22% in 2021, and boy child marriage reducing from 7% in 2006 to 2% in 2021. However, Continuous efforts and a holistic approach are essential for sustained progress.

5. PRASADAM

Why is it in the news?

- Union Minister for Health & Family Welfare inaugurated India's first Healthy & Hygienic Food Street, 'PRASADAM,' at Neelkanth Van, Mahakal Lok, Ujjain, Madhya Pradesh.

About the initiative

- Prasadam aims to connect people across the country with pure and safe local and traditional food.
- In line with the vision of 'Viksit Bharat@2047,' striving to make India a developed nation by its 100th year of independence in 2047.
- The food street offers various facilities, including a kids' play area, drinking water facility, CCTV surveillance, parking, public conveniences, and seating spaces.

- It aims to enhance Ujjain's tourism allure, safeguard its culinary heritage, and contribute to fostering economic development.
 - The initiative receives financial support extended to states and Union Territories (UTs) under the National Health Mission, with funding distribution ratios of either 60:40 or 90:10.
 - Standard branding of these food streets will be done in accordance with FSSAI guidelines.
- Note:** The food street at Neelkanth Van, Mahakal Lok in Ujjain is the first among 100 food streets planned across the country.

6. ILO's World Employment and Social Outlook Report

Why is it in the news?

- The International Labour Organisation (ILO) has released the World Employment and Social Outlook: Trends 2024 report.

About ILO

- The International Labour Organisation (ILO) is a United Nations Agency established in 1919.
- It became the first specialized agency of the UN in 1946.
- It has 187 Member states and operates as the only tripartite U.N. agency, bringing together governments, employers, and workers.
- The ILO sets labour standards, develops policies, and promotes decent work for all women and men.
- It produces major reports such as World Employment and Social Outlook (WESO), Global Wage Report, World Social Protection Report, World Employment and Social Outlook for Youth, and World of Work Report.

Major Takeaways from the Report :

- The ILO's World Employment and Social Outlook: Trends 2024 report highlights a macro-economic deterioration in 2023.
- According to the report, geopolitical tensions and widespread inflation triggered aggressive moves by central banks globally.
- The fastest increase in interest rates since the 1980s was implemented by monetary authorities in advanced and emerging economies.

- China, Türkiye, and Brazil experienced significant economic slowdowns, impacting global industrial activity, investment, and trade.

Labor Market Statistics (2023):

- Joblessness and the jobs gap fell below pre-pandemic levels.
- Despite the economic slowdown, global growth in 2023 exceeded expectations, and labour markets demonstrated surprising resilience.
- The global unemployment rate in 2023 was 5.1%, a modest improvement from 2022.
- Labor market participation rates largely recovered from pandemic lows.

Concerns and Challenges:

- **Structural imbalances in the labour market** are a rising concern, potentially being more than cyclical.
- Real wages declined in the majority of G20 countries, failing to keep pace with inflation.

- In 2023, the number of workers living in extreme poverty increased by about **one million globally**, with only a few countries experiencing positive real wage growth.

Suggestions from the Report

- Policymakers in fast-ageing countries should support the participation of groups with weak labour market attachment, including youth, women, and older workers.
- Investment and skills policies are crucial for raising productivity, facilitating technological progress, and enhancing potential growth.
- Motivating workers who left low-paying and difficult sectors may be achieved through improvements in working conditions.
- Ensuring internationally mobile workers are matched to suitable jobs could alleviate shortages.
- Recognizing that structural challenges won't disappear in the short term, governments and social partners should engage in supplemental efforts to address these labour market issues.

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8

GEOGRAPHY AND DISASTER MANAGEMENT

1. Enhancing Railway Safety

Why is it in the news?

- The Ministry of Railways mandated disaster management training for railway officers after the Odisha train tragedy inquiry emphasized the need for an improved disaster response.

More about the news

- Disaster management integrated into railway officers' training, covering both induction courses and mid-career training programs.
- Collaboration between the National Academy of Indian Railways (NAIR) in Vadodara and the Indian Railway Institute of Disaster Management (IRIDM) in Bengaluru for comprehensive training.
- However, confusion arises due to the Railway Board's directive for NAIR to transfer assets, including buildings and infrastructure, to Gati Shakti Vishwavidyalaya (GSV). Training programs now require approval from the university's Vice-Chancellor, and clarity is needed on the venue and schedule.

National Academy of Indian Railways (NAIR)

- Established in 1925 as the Transportation School, it is the top training institute for Indian Railways.
- Located in Pratap Vilas Palace in Vadodara, Gujarat, since January 31, 1952.
- Conducts customized training programs for non-Railway personnel, including executives of Public Sector Undertakings, foreign nationals, and private organizations.

Gati Shakti Vishwavidyalaya (GSV)

- Gati Shakti Vishwavidyalaya (GSV) is a **Central University** established through an Act of Parliament in 2022.

- It subsumes the previously-existing National Rail and Transportation Institute (NRTI).
- The university's mandate is to create best-in-class manpower and talent for the entire transportation and logistics sectors.
- GSV is sponsored by the Ministry of Railways, Government of India.
- The Chancellor of Gati Shakti Vishwavidyalaya is the Union Minister of Railways.
- The university is located in Vadodara, Gujarat.
- GSV is a "first of its kind" university aiming to fulfil the mandate of the National Developmental Plans, including the PM Gati Shakti National Master Plan 2021 and National Logistics Policy 2022. It covers various sectors such as railways, shipping, ports, highways, roads, waterways, and aviation.

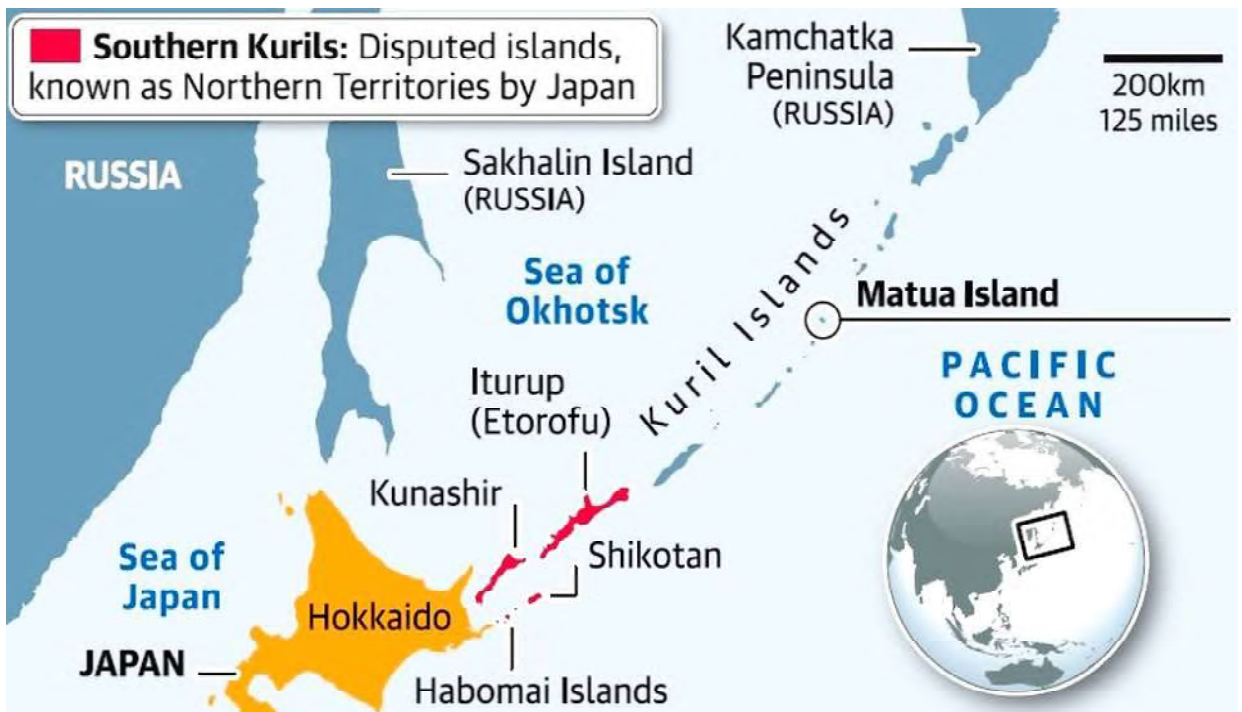
2. Kuril Islands

Why is it in the news?

- A magnitude 6.3 earthquake recently struck Japan's Kuril Islands.

Kuril Islands

- Set of four islands located between the Sea of Okhotsk and the Pacific Ocean, near the north of Japan's northernmost prefecture, Hokkaido.
- Volcanic archipelago part of Sakhalin Oblast in the Russian Far East.
- Consists of 56 islands and numerous minor rocks.
- Form part of the **Ring of Fire**, a zone of tectonic instability encircling the Pacific Ocean.
- Frequent seismic activity, including earthquakes, due to the tectonic nature of the region.
- Strategic and economic importance due to fisheries and mineral deposits; Rich in resources such as pyrite, sulphur, and various polymetallic ores.



- Both Russia and Japan claim sovereignty over the Kuril Islands; Under Russian control since the end of World War II, a source of historical tension between the two countries.

3. Ban on Mining near KRS Dam, Karnataka

Why is it in the news?

- Karnataka High Court imposes a ban within a 20-km radius of the Krishna Raja Sagar (KRS) Dam until a dam safety survey is conducted by the Central Institute of Mining and Fuel Research, Dhanbad.

About KRS Dam

- Located in Mandya district, Karnataka, the KRS Dam is situated on the **Kaveri River**.
- Constructed in 1932 under the leadership of Sir M. Visvesvaraya during the Wodeyar dynasty rule.

Dams in India

- India ranks as the world's third-largest dam-owning nation, following the US and China.
- Over 6000 completed and operational specified dams, with 143 under construction.
- Dam safety regulations are the responsibility of individual states.

Concerns Associated with Dams:

- While dams can mitigate regular floods, there is a risk of severe flooding in the event of dam failure.
- 293 large dams in India are over 100 years old, facing challenges of funds for repair and maintenance.
- Siltation reduces water storage capacity and harms various ecosystems.

Initiatives for Enhancing Dam Safety:

- **Dam Safety Act, 2021:** Focuses on surveillance, inspection, and maintenance of specified dams.
- **National Committee on Dam Safety (NCDS):** Constituted under the Dam Safety Act by the Centre to formulate dam safety policies.
- **Dam Rehabilitation and Improvement Project (DRIP) Phases-II:** Co-financed by the World Bank and Asian Infrastructure and Investment Bank.

1. Pompeii's Ancient Art of Textile Dyeing Revived

Why is it in the news?

- A new project within the **Pompeii archaeological site** is showcasing ancient textile dyeing techniques to reveal another facet of daily life before the city's destruction in A.D. 79.

About Pompeii Archaeological Site

- It is located in Ancient Roman city near Naples, Italy.
- Buried under volcanic ash during the eruption of Mount Vesuvius in A.D. 79.
- Remarkably preserved, providing insights into daily life in the Roman Empire.
- Structures, artifacts, and human remains frozen in time by the volcanic eruption.
- It is a **UNESCO World Heritage Site**, recognized for its significance in ancient Roman history and archaeology.
- Popular destination for tourists and researchers.



About the Project

- Showcase the ancient art of textile dyeing in Pompeii involving the preparation of dyes from plants.
- Use of the Pompeiiian colour palette to dye scarves.

- Scarves feature motifs from the House of Vetti frescoes.
- Profits from the sale of these scarves contribute to the further restoration of Pompeii.

Frescoes

- Frescoes are artistic creations painted on wet plaster, typically found on walls or ceilings.
- Renowned for vibrant colours and lasting durability.

Significance :

- Provides a unique perspective on daily life in Pompeii before its destruction.
- Links ancient textile dyeing techniques with the vibrant frescoes of the House of Vetti.

2. UNESCO Asia-Pacific Awards for Cultural Heritage Conservation 2023

Why is it in the news?

- Three heritage projects from Punjab and Haryana recognized in the UNESCO Asia-Pacific Awards for Cultural Heritage Conservation.

The Award Categories includes

- **Award of Excellence:** Rambagh Gate, Amritsar, Punjab.
- Recognition for outstanding preservation efforts.
- Located at the convergence of Maharaja Ranjit Singh's city wall and Amritsar's new city.
- Transformed into a traditional market, government school, and municipal printing press.
- **Award of Merit:** Church of Epiphany, Gurugram, Haryana. Acknowledged for historical and architectural significance.
- Originally built during the 1860s to serve British civil and military officers in Gurgaon.



- **Special Recognition for Sustainable Development:** Pipal Haveli, Gurdaspur, Punjab:
- Honoured for sustainable development initiatives.
- Represents a contemporary, community centred, multiuse educational building.
- Emphasizes ecological and traditional building methods, using locally sourced materials.
- Supports women's empowerment through the BaRi Collective initiative.

Other Recognitions

Award of Distinction:

- Fanling Golf Course, Hong Kong SAR, China
- Dongguan Garden Residences, Yangzhou, China
- Karnikara Mandapam at Kunnamangalam Bhagawati Temple, Kerala, India



Pipal Haveli, a heritage rural homestay nestled in the Nawan Pind Sardaran village of Gurdaspur district in Punjab, was honoured for its sustainable development.

Award of Merit:

- Yan Nan Yuan at Peking University, Beijing, China
- Pan Family Residence, Suzhou, China
- Church of Epiphany, Haryana, India
- David Sassoon Library and Reading Room, Mumbai, India
- Bikaner House, New Delhi, India

UNESCO Asia-Pacific Awards for Cultural Heritage Conservation

- Established Since 2000
- Recognize private individuals and organizations for restoring, conserving, and transforming heritage structures.
- Encourage community-based conservation projects.
- Introduced the 'Special Recognition for Sustainable Development' in 2020.
- Updated Awards Criteria to align with the UN 2030 Agenda for sustainable development.
- Awarded projects serve as examples of successfully preserving cultural heritage while integrating into local development strategies.

3. Pandit Madan Mohan Malaviya (25 Dec 1861 - 12 Nov 1946)

Why is it in the news?

- On Pandit Madan Mohan Malaviya's birth anniversary, the Prime Minister released the 'Collected Works of Pandit Madan Mohan Malaviya,' highlighting the revered leader's literary and intellectual contributions.



About Malaviya's Contributions

- Initiated publications including Abhyudaya (Hindi weekly, 1907) and Maryada (Hindi monthly magazine, 1910).
- Founded Leader newspaper (English Daily) in 1909.
- Served as the President of the **Indian National Congress** in 1909, 1918, 1932, and 1933.
- Founded the **Hindu Mahasabha** in 1907 and contributed as a member of the Imperial Legislative Council.
- Founded Banaras **Hindu University (BHU)** in **1916**, emphasizing education and cultural values.

- Honoured posthumously with **Bharat Ratna**, India's highest civilian honour.
- Evidenced through his active role in the Indian National Congress and contributions to the freedom movement.
- Demonstrated through diverse engagements, representing various sections of society.

4. Veer Bal Diwas

Why is it in the news?

- Veer Bal Diwas is observed on **December 26** annually.
- It commemorates the martyrdom of Guru Gobind Singh's youngest sons, Sahibzada Baba Zorawar Singh Ji and Sahibzada Baba Fateh Singh Ji.

More about the news

- Sahibzada Baba Zorawar Singh Ji and Sahibzada Baba Fateh Singh Ji were only 7 and 9 years old, respectively, at the time of their deaths.
- The martyrdom occurred during the **Battle of Chamkaur (1704)**, a significant **conflict fought between the Sikhs and the Mughals**.
- During the Battle of Chamkaur, the two young sons of Guru Gobind Singh, Sahibzada Baba Zorawar Singh Ji and Sahibzada Baba Fateh Singh Ji, were captured by the Mughals.
- Faced with the choice to convert or bow to Wazir Khan, the young sons of Guru Gobind Singh steadfastly refused to renounce their faith.
- As a consequence of their refusal to convert, Sahibzada Baba Zorawar Singh Ji and Sahibzada Baba Fateh Singh Ji were sentenced to death.
- The two young sons of Guru Gobind Singh were soon martyred by execution, underlining their unwavering commitment to their principles and faith.
- The tragic events extended beyond the young sons, as Guru Gobind Singh's mother, Mata Gujari, and his two elder sons, Sahibzaada Ajit Singh (18) and Sahibzaada Jujhar Singh (14), were also killed within a week.
- Several years later, Baba Banda Singh Bahadur avenged the execution of Sahibzada Baba Zorawar Singh Ji and Sahibzada Baba Fateh Singh Ji by attacking, capturing Sirhind, and executing Wazir Khan. This act marked a significant chapter in the history of Sikh resistance against tyranny.

5. Tansen Samaroh

Why is it in the news?

- Around 1,300 tabla players performed during Tansen Samaroh and entered the Guinness World Records for achieving the "largest tabla ensemble."

About Tansen Samaroh

- Celebrated annually in December in the Gwalior district of Madhya Pradesh.
- A 4-day musical extravaganza.
- Artists from all over India are invited to deliver vocal and instrumental performances.
- The event pays tribute to the **Great Indian Musical Maestro Tansen**.

Tansen

- Considered one of the great exponents of the **North Indian system of music**.
- One of the nine gems of the court of Mughal emperor Akbar.
- Received patronage under Mohammad Shah Adil of the Suri dynasty and Ramchandra Vaghela of Reevan.
- Credited for introducing famous ragas such as Miyan ki Malhar, Miyan ki Todi, and Darbari.

6. 11th Century Jain Sculptures Discovered

Why is it in the news?

- Recently, three 11th-century Jain sculptures were unearthed in Varuna village, Mysuru district, during drainage work.

More about the news

- Out of the three sculptures, one is severely damaged beyond recognition, while the other two are in relatively good condition.
- One of the sculptures depicts a Jain Tirthankara, but the exact identity is challenging to determine due to the absence of any distinguishing symbols.
- The discovered sculptures have been relocated to the **Archaeological Survey of India (ASI)** museum at the Indira Gandhi Rashtriya Manav Sangrahalay in Madhya Pradesh.



Jain Tirthankaras

- In Jainism, a Tirthankara serves as a **spiritual teacher** and a guide on the righteous path (dharma).
- Tirthankaras are regarded as **supreme preachers of dharma**, having successfully conquered the cycle of death and rebirth (samsara) themselves, leading the way for others to follow.
- Upon attaining **kevala jnana (omniscience)** by realizing the true nature of the self or soul, a Tirthankara achieves spiritual enlightenment.
- The Jain tradition recognizes a total of 24 Tirthankaras who significantly contributed to the development of the Jain religion.
- The first Tirthankara is **Rishabhanatha**, while the 24th and final Tirthankara is **Lord Mahavira**.

7. Savitri Bai Phule and Rani Velu Nachiyar

Why is it in the news?

- The Prime Minister of India honored the Jayanti of social reformer **Savitri Bai Phule and Rani Velu Nachiyar**, paying tributes to their contributions.

Savitribai Phule (3 January 1831 - 10 March 1897)

- Mali Community Woman, Social Reformer, and Writer.
- Married Jyotirao Phule at an early age.
- Established the first girls' school in Pune in 1848, challenging societal norms.
- Opened schools for girls, Shudras, and Ati-Shudras, causing discontent among nationalists like Bal Gangadhar Tilak.
- Co-founded Balhatya Pratibandhak Griha (Home for the Prevention of Infanticide) with Jyotirao.
- Advocated for inter-caste marriages, widow remarriage, and the elimination of child marriage, sati, and dowry.
- Established Satyashodhak Samaj in 1873, promoting social equity regardless of caste, religion, or class.
- Initiated Satyashodhak Marriage to reject Brahmanical rituals and promote education and equality.
- Engaged in relief work during the 1896 Maharashtra famine and the 1897 Bubonic plague.
- Published poetry collections like "Kavya Phule" (1854) and "Bavan Kashi Subodh Ratnakar" (1892).

Rani Velu Nachiyar (3 January 1730 - 25 December 1796)

- First queen to resist British colonial power in India, known as Veeramangai in Tamil.
- Princess of Ramanathapuram, the only child of Raja Chellamuthu Vijayaragunatha Sethupathy and Rani Sakandhimuthal.
- Trained in warfare, martial arts (Valari, Silambam), horse riding, and archery.
- Proficient in languages such as French, English, and Urdu.
- Married the king of Sivagangai.
- Succeeded her husband in 1780 and delegated powers to the Marudu brothers for administration.

8. Warli Tribe

Why is it in the news?

- The **Warli tribe**, one of the largest tribes in the Maharashtra region, has established a unique example of peaceful coexistence with leopards.
- Their settlements are located on the outskirts of Mumbai, particularly in the North Sahyadri region.
- The Warli tribe holds a distinctive cultural practice of worshipping leopards, referring to them as **"Waghoba,"** treating the big cats as deities.
- This cultural belief system forms the basis for the tribe's harmonious relationship with the leopard population near the **Sanjay Gandhi National Park in Maharashtra**.

More about Warli Tribes

- Renowned for their **Warli wall paintings**, the tribe showcases their artistic prowess in this traditional form of expression.
- These paintings, rooted in the tribe's cultural heritage, date back to the 10th century AD.
- Warli wall paintings draw inspiration from the tribe's daily life routines and their immediate surroundings.
- They often depict scenes from tribal life, nature, rituals, and cultural practices, preserving the essence of Warli heritage.
- Using natural materials and colours, the artists employ bamboo brushes to create intricate and culturally rich artworks.

9. Discovery of Kadamba Inscription in Goa

Why is it in the news?

- The 10th-century Kadamba inscription was recently discovered in the Mahadeva temple at Cacoda in southern Goa.

More about the news

- The inscription is written in both **Kannada and Nagari** characters.
- It sheds light on the Kadamba period in Goa, beginning with the auspicious word 'Swasthi Shri' (Be it well).
- The stone inscription was found between the temples of Mahadev and Sateri-Betal at Cacoda.
- The inscription records that Talara Nevayya's son, Gundayya, fulfilled his father's desire by capturing a gopura of the port of Goa, fighting and dying in the process.
- Gundayya's heroic act is commemorated with the inscription erected by his father in the Mahadev temple at Cacoda.
- The epigraph is in the literary style of the Talangre inscription of Jayasimha I from the same period.

Historical Narrative

- The Kadambas of Goa were subordinates of the Chalukyas of Kalyana.
- Kadamba Shasthadeva, appointed as Mahamandaleshwara by Chalukyan emperor Tailapa II, played a crucial role in overthrowing the Rashtrakutas.
- In 960 A.D., Shasthadeva conquered Chandavara city and the port of Gopakapattana (present-day Goa).
- Gundayya, Talara Nevayya's son, participated in the battle for Goa's port and won it at the cost of his life.

Socio-cultural Importance

- Cacora village, where the inscription was found, is connected to navigable waterways leading to the Upper Ghat region through the ancient Diggi ghat route.
- Cacoda, now a census town in Goa, hosts the Mahadev temple and other deities, reflecting its cultural significance.
- The inscription highlights the historical and socio-cultural importance of the Kadamba period in Goa.

About Kadambas Dynasty

Aspect	Details
Establishment	* The Kadambas, an ancient Karnataka royal dynasty, were founded around 345 A D by Mayurasharma.
Territorial Control	* They controlled northern Karnataka and the Konkan region, coexisting with the Western Ganga Dynasty.
Historical Sources	* Major historical sources include inscriptions like Talagunda, Gundanur, Chandravalli, Halasi, and Halmidi in Sanskrit and Kannada.
Architecture	* Exhibited unique features inspired by Chalukyan and Pallava styles. * Contributed to the later Chalukya-Hoysala style. * The distinctive Kadamba Shikara adopted in Hoysala temples at Doddagaddavalli and Mahakuta in Hampi.
Religion	* Erected the Madhukeshwara (Lord Shiva) temple at Banavasi. * Adhered to Vedic Hinduism.
Language	* Mayurasharma, the founder, was a Brahmin, but heirs changed their surname to Varma to signify Kshatriya rank. * Horse sacrifice (Ashwamedha) performed by several Kadamba monarchs.
Administration	* Played a crucial role in developing Kannada as a language of inscriptions. * Main sources of Kadamba history: Inscriptions in Sanskrit and Kannada. * Referred to themselves as Dharma Maharajas. * Various administrative roles: Prime Minister, Council Secretary, Scholarly Elders, Physician, etc. * Provinces (Mandalas) and districts (Vishayas) used for kingdom partition.

Economy	* Kingdom divided into nine Vishayas, with Mahagramas (Taluk) and Dashagramas (Hobli) under a Vishaya.
	* Imposed various taxes: land tax, sales tax, professional charges on traders.
Society	* Adhered to the caste system, with Brahmins and Kshatriyas at the top.
	* Erected memorial stones (hero stones) to honour deceased heroes, a unique feature of medieval Indian society.

10. Seven Products from Odisha gets GI Tags

Why is it in the news?

- Seven products from Odisha have been granted Geographical Indication (GI) tags, highlighting their unique cultural and economic significance.

The following are the list of Products

Kapdaganda Shawl :

- Woven and embroidered by Dongria Kondh tribe women.
- Off-white coarse cloth with red, yellow, and green threads.
- Motifs include lines and triangles reflecting the importance of mountains for the community.



Lanjia Saura Painting (Idital) :

- Belongs to the Lanjia Saura community.
- White paintings on a crimson-maroon background.
- Subjects include tribal humans, trees, animals, birds, the Sun, and the Moon.

Koraput Kala Jeera Rice :

- Known as the 'Prince of Rice' for aroma, taste, texture, and nutritional value.
- Helps increase haemoglobin levels and improves metabolism.

Similipal Kai Chutney :

- Made with red weaver ants found in Similipal forests.
- Rich in medicinal and nutritional value, a good source of protein, calcium, zinc, vitamin B-12, iron, magnesium, potassium, etc.

Nayagarh Kanteimundi Brinjal :

- Known for prickly thorns on stems and plants.
- Green, round fruits with more seeds.
- Resistant to major insects, minimal pesticide required.



Khajuri Guda

- Dark brown jaggery from date palm trees in Gajapati district.
- Traditionally prepared in trapezoidal form called 'Patali Gur'.
- Organic by nature.

Dhenkanal Magji

- Sweet made from cheese from buffalo milk.
- Moisture drained, fried, and formed into balls.
- Centre of origin believed to be Mandar-Sadangi area of Gondia block.

About Geographical Indication (GI)

- A sign used on products with a specific geographical origin and unique qualities or reputation due to that origin.
- Used for agricultural products, foodstuffs, wine, spirit drinks, handicrafts, and industrial products.
- Covered under the Paris Convention for the Protection of Industrial Property and TRIPS Agreement.
- Defined in the Geneva Act of the Lisbon Agreement on Appellations of Origin and Geographical Indications.

GI Tags and India:

- Geographical Indications of Goods (Registration and Protection) Act, 1999 in India.
- Administered by the Controller General of Patents, Designs, and Trade Marks.
- Registration valid for 10 years.

1. Successful Test of Indigenous High-Speed Flying-Wing UAV

Why is it in the news?

- DRDO successfully tests Autonomous Flying Wing Technology Demonstrator, an indigenous highspeed flying-wing Unmanned Aerial Vehicle (UAV).



More about the news :

- Tailless fixed-wing aircraft with payload and fuel housed in its main wings.
- Scaled-down version of a futuristic unmanned combat aerial vehicle.
- Designed and developed by DRDO's Aeronautical Development Establishment.
- Allows takeoff and landing from any runway with surveyed coordinates using GPS Aided GEO Augmented Navigation (GAGAN).
- Positions India in the elite club mastering flying wing technology.
- Potential use as a covert stealth combat drone.

Applications of Drones in Defence

- Used to identify enemy positions, assess terrain, and track movements.
- Equipped with precision-guided munitions for targeting enemy positions.

- Locates and rescues personnel in hazardous or inaccessible areas.
- Faster and easier deployment, providing operational flexibility.

Challenges to India's Drone Potential

- Existing communication gaps between lawmakers and drone makers.
- Dependence on imported key components and materials required for drones.
- Insufficient research and development in drone technology.
- Supply-side issues related to standardization of components and mass production.

Government Initiatives to Promote Drones

- **Drone Shakti Scheme:** A scheme to institutionalize and create a framework for multiple stakeholders to collaborate.
- **PLI Scheme:** Production Linked Incentive scheme for drones and drone components.
- **Drone Rules 2021:** New rules to facilitate startups and small and medium-sized enterprises in the drone sector.

2. Central Industrial Security Force (CISF)

Why is it in the news?

- Nina Singh becomes the first woman to be appointed as the Director General of the Central Industrial Security Force (CISF).

About Central Industrial Security Force (CISF)

- One of the seven central armed police forces (CAPFs) under the Ministry of Home Affairs (MHA).
- Established in 1969.
- Premier multiskilled organization with a current strength of 1,73,355 personnel.

- Provides integrated security cover to sensitive public sector undertakings.
- Currently, secures 358 establishments nationwide, including critical infrastructure like nuclear installations, airports, and power plants.
- CISF extends security to vital infrastructure such as nuclear facilities, space establishments, airports, seaports, and power plants.
- Also safeguards government buildings, iconic monuments like the Taj Mahal, and the Delhi Metro.

Additional Roles:

- Operates a Fire Wing servicing 112 establishments.
- Specialized VIP Security vertical offering round-the-clock security to important dignitaries.

Other Central Armed Police Forces (CAPFs)

- Central Reserve Police Force (CRPF), Border Security Force (BSF), Indo-Tibetan Border Police (ITBP), Assam Rifles, National Security Guard (NSG), and Sashastra Seema Bal (SSB).

3. INS Imphal

Why is it in the news?

- The INS Imphal is the third in the series of Project 15B stealth guided missile destroyers commissioned into the Indian Navy.
- Part of the Visakhapatnam class, these destroyers are known for their advanced capabilities and cutting-edge technology.

More about the news

- The ship was designed and constructed by the Warship Design Bureau, an inhouse organization of the Indian Navy, showcasing the nation's prowess in naval architecture.
- It incorporates state-of-the-art stealth technology, enhancing its survivability by minimizing its radar cross-section and making it less susceptible to detection by enemy forces.
- A notable aspect of INS Imphal is that it is the first warship named after a city in the Northeastern region, specifically the city of Imphal. This naming tradition adds a regional and cultural significance to the vessel.
- With an **indigenous content of approximately 75 percent**, INS Imphal represents a significant stride in India's efforts toward selfreliance in defence production.



- The armament includes advanced weaponry such as BrahMos surface-to-surface missiles, medium-range surface-to-air missiles, indigenous anti-submarine rocket launchers, and a 76mm super rapid gun mount, showcasing its versatility and firepower.
- The destroyer is designed to operate effectively under Nuclear, Biological, and Chemical (NBC) warfare conditions, highlighting its strategic importance in various combat scenarios.
- High levels of automation contribute to operational efficiency, and the incorporation of stealth features enhances its ability to operate discreetly, avoiding detection by adversaries.
- INS Imphal is capable of attaining speeds exceeding 30 knots (56 km/hour), showcasing its agility and swift response capabilities during naval operations.

Project 15B

- Project 15B represents the next generation of stealth guided-missile destroyers for the Indian Navy.
- These destroyers are being constructed at the Mazagon Dock Shipbuilders Limited (MDL) and are considered follow-on classes to the P15A (Kolkata Class) Destroyers.
- The four ships in the project are named after major cities from all four corners of the country: Visakhapatnam, Mormugao, Imphal, and Surat, symbolizing the diverse representation and strategic importance of these regions in India's naval capabilities.

4. DESERT CYCLONE

Why is it in the news?

- A contingent of 45 members from the UAE Land Forces has arrived in India for the inaugural edition of the joint military exercise known as 'DESERT CYCLONE.'
- It is a joint military exercise, implying collaboration and joint training between the armed forces of India and the UAE.



More about the news

- The primary focus of the exercise is to enhance interoperability in Sub-conventional Operations. This includes specialized training in Fighting in Built Up Area (FIBUA), specifically tailored for desert and semi-desert terrain.
- The exercise is conducted under Chapter VII of the UN Charter on Peacekeeping Operations, indicating its relevance to peacekeeping efforts.
- The exercise seeks to achieve shared security objectives between India and the UAE.
- The joint military exercise 'DESERT CYCLONE' commenced in the year **2024**, marking the first edition of this collaborative effort.
- Represented by a Battalion from the **Mechanised Infantry Regiment**, showcasing the participation of ground forces from India.
- Represented by troops from the **Zayed First Brigade**, indicating the involvement of the UAE Land Forces.

5. Sahitya Akademi Awards 2023

Why is it in the news?

- Sahitya Akademi declares the annual awards for 2023.
- Recognizes exceptional books published between January 2017 and December 31, 2021.

About Sahitya Akademi Awards

- Instituted in 1954.
- Literary honor conferred annually by Sahitya Akademi.
- Recognizes outstanding books of literary merit in 24 major Indian languages.
- Awards given to books first published during the five years immediately preceding the year of the award.
- Aims to recognize and promote excellence in Indian writing while acknowledging emerging literary trends.
- Second-highest literary honor by the Government of India, following the Jnanpith award.

Other Sahitya Akademi Awards

- **Sahitya Akademi Bal Sahitya Puraskar:** Recognizing an author's overall contribution to children's literature.
- **Sahitya Akademi Yuva Puraskar:** Applicable to books published by authors aged 35 and below.

Criteria for Awardee

- Author must be an Indian national.
- The award is conferred to living writers and is not awarded posthumously.
- Eligible works must represent outstanding contributions to their respective language and literature.
- In case of equal merit, criteria such as overall literary contribution and the standing of authors are considered.

Jnanpith Award

- Prestigious Indian literary award presented annually by Bhartiya Jnanpith.
- Recognizes outstanding contributions to literature.
- Instituted in 1961.
- Exclusively awarded to Indian writers in languages listed in the Eighth Schedule to the Constitution of India and English.
- No posthumous awards.

6. Swachh Survekshan (SS) Awards 2023

Why is it in the news?

- Recently, **Swachh Survekshan** awards 2023 were conferred.
- It was conducted by the Union Ministry of Housing and Urban Affairs (MoHUA) under the Swachh Bharat Urban Mission 2.0 since 2016.
- It's the world's largest urban sanitation and cleanliness survey.

More about the Awards (Categories):

- **Indore and Surat** were the joint winners of the Cleanest Cities Award.
- Urban Centres with Less than 1 Lakh Population: Saswad in Maharashtra.
- Best Performing State: Maharashtra, Madhya Pradesh, and Chhattisgarh.
- Best Safaimitra Surakshit Sheher: Chandigarh.
- Cleanest Ganga Towns: Varanasi and Prayagraj (UP).

About Swachh Survekshan 2023 :

- Theme: Waste to Wealth.
- Emphasis on ranking wards within cities.
- Additional weightage given to indicators like source segregation of waste, enhancement of waste processing capacity, etc.
- New indicators introduced, including phased reduction of plastic and plastic waste processing.

About Swachh Bharat Urban Mission 2.0 (SBM 2.0)

- Launched in 2021 with the goal of making all cities garbage-free (GFCs) by 2026.
- Centrally sponsored scheme.
- Encompasses all statutory towns.

Other Initiatives :

- **Special Swacchta Campaign 3.0:** Aimed at reducing pendency in the government.
- **Swachhata Pakhwada:** Various ministries participate in cleanliness campaigns.

7. Nritya Kalanidhi Award

Why is it in the news?

- Classical dancer and choreographer Vasanthalakshmi Narasimhachari received the prestigious 'Nritya Kalanidhi' award at the 17th Dance Festival of The Music Academy.
- Vasanthalakshmi Narasimhachari is known for her expertise in both Bharatanatyam and Kuchipudi, showcasing a remarkable versatility in classical dance forms.

About Nritya Kalanidhi Award

- The 'Nritya Kalanidhi' award is an **annual recognition** in the field of dance presented by the renowned Madras Music Academy.
- The Music Academy, Madras, holds a distinguished position as a landmark institution in the history of fine arts.
- It emerged as an outcome of the All-India Congress Session held in Madras in December 1927.
- The institution was conceived with the ambitious goal of setting and upholding high standards for Carnatic music.



- A significant event organized by the Music Academy is its annual music and dance festival, attracting artists and art enthusiasts from around the country.
- The Music Academy plays a pivotal role in recognizing and honouring excellence in the field of music and dance.
- Apart from Nritya Kalanidhi, various other awards such as Sangita Kalanidhi, Sangita Kala Acharya, TTK, and Musicologist awards are presented during the annual festival.

8. Twin Explosions in Kerman, Iran

Why is it in the news?

- India condemned the twin explosions that occurred in Kerman city, Iran.

Political Features	
Location	Middle East or West Asia
Bordering Nations	Afghanistan, Pakistan, Turkmenistan, Azerbaijan, Armenia, Turkey, Iraq
Bordering Water Bodies	Caspian Sea, Gulf of Oman, Persian Gulf
Geographical Features	
Major Mountain Ranges	Zagros, Elburz, Caucasus
Highest Point	Mount Damavand (Dormant stratovolcano)
Major Deserts	Dasht-e-Kavir, Dasht-e-Lut
Major Lakes	Lake Urmia, Gahar Lake

9. Arsenic and Fluoride Contamination

Why is it in the news?

- The **National Green Tribunal** has directed notices to 24 states and four Union Territories due to concerns over the presence of arsenic and fluoride in groundwater.

Factors Responsible for Contamination:

- Certain **geological formations**, notably the Gangetic plain, are known for naturally occurring elevated levels of arsenic, which leaches into groundwater from rocks and sediments.
- Geological conditions, including the presence of fluoride-rich minerals like fluorite, can lead to groundwater contamination with fluoride.
- Excessive use of groundwater for irrigation contributes to the mobilization of arsenic and fluoride.
- Over-extraction of groundwater can alter geochemical conditions, leading to the release of these contaminants.
- Changes in precipitation can influence the leaching of arsenic and fluoride from geological formations.

- Certain human activities like mining and industrial processes can elevate arsenic levels in groundwater. The use of arsenic-containing pesticides and fertilizers may also contribute.
- Industrial discharges, especially from aluminium, ceramic, and phosphate industries, can contribute to fluoride contamination.

Health Concerns :

- Chronic exposure to arsenic can result in skin, vascular, nervous-system ailments, or cancer.
- Excess fluoride can cause dental mottling, a largely cosmetic issue, and, at higher concentrations, skeletal fluorosis, leading to debilitating stiffening of joints.

Government Steps to Curb Contamination

- The **Central Ground Water Board (CGWB)** plays a crucial role in generating groundwater quality data through monitoring programs and scientific studies.
- CGWB employs cement sealing technology to construct arsenic-free wells in affected areas, tapping contamination-free aquifers.
- The Government of India, in collaboration with states, is implementing the Jal **Jeevan Mission (JJM)** to provide potable tap water supply to every rural household. This initiative addresses water quality concerns.
- In fund allocation, 10% weightage is given to the population residing in habitations affected by chemical contaminants.
- Launched in 2017, National Water Quality Sub-Mission (NWQSM), as part of the National Rural Drinking Water Programme (NRDWP), aims to provide safe drinking water to arsenic/fluoride-affected rural habitations.
- The **Atal Mission for Rejuvenation and Urban Transformation (AMRUT)** focuses on the development of basic urban infrastructure, including water supply and sewerage management, in selected cities and towns.

10. Atal Setu

Why is it in the news?

- Recently inaugurated by Prime Minister Modi, the Mumbai Trans Harbour Link (MTHL), also known as Atal Setu, is a transformative infrastructure project in Maharashtra.

Key Features

- The bridge spans a total length of 21.8 kilometres.
- It comprises a remarkable 16.5 kilometres over the sea and an additional 5.5 kilometres on land.
- Constructed at a cost of approximately Rs.17,840 crore.
- Built with state-of-the-art, corrosion-resistant materials.



- Engineered to withstand a range of challenges, including earthquakes, cyclones, high wind pressures, and tidal forces.
- Equipped with cutting edge technology to ensure a smooth commuting experience.
- Features an Intelligent Traffic Management System for efficient traffic flow.
- Incorporates a Video Incident Detection System for realtime monitoring and incident detection.
- Implements a Speed Enforcement System to maintain safe speeds on the bridge.
- Emergency Call Boxes are strategically placed for immediate communication during emergencies.

Significance

- Atal Setu holds the distinction of being the longest bridge in the country.
- It also claims the title of the longest sea bridge in India.
- The bridge has a profound impact on connectivity, reducing the travel time between Mumbai and Navi Mumbai from 2 hours to just 20 minutes.

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గ్రూప్ - 1

Longterm Batch

తెలుగు మీడియం బ్యాచ్

ఫిబ్రవరి 6 ప్రారంభం

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TSPSC

గ్రూప్ - 2

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ఫిబ్రవరి 5 ప్రారంభం

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