drishti

Current Affairs
(Consolidation)

NOVEMBER 2024
(Part – I)

Drishti, 641, First Floor, Dr. Mukharjee Nagar, Delhi-110009
Inquiry (English): 8010440440, Inquiry (Hindi): 8750187501
Email: help@groupdrishti.in

Contents

Polity and Governance 6

Supreme Court Guidelines on "Bulldozer Justice" 6
Inter-State Council 8
Appointment of Chief Justice of India 9
World Immunisation Day 2024 11
SC Orders Re-evaluation of AMU's Minority Status 12
Prior Sanction to Prosecute Public Servants Under PMLA 15
Pradhan Mantri Matsya Kisan Samridhi Sah-Yojana 16
Limit on Private Property Acquisition 17
PM Vishwakarma Yojana 19
SC Upholds UP Madarsa Act 2004 21
Member of Parliament Local Area Development Scheme 22
States Formation Day 25
Comparative Analysis of Indian and US Presidents 26
Ayurveda Day 2024 29

Economic Scenario 31

Sustainability Concerns in India's Agricultural Export Growth 31
National Technical Textiles Mission 33
Agricultural Policy Monitoring and Evaluation 2024 33
RBI's Framework for Reclassification of FPI to FDI 36
Nano Coated Fertilisers 38
Branned Millets for Health Benefits 40
State of Food and Agriculture 2024 41
Upgrading Wind Energy Generation 43
Development Economics 45
First Advance Estimates for Kharif Crop Production 48
Paradox of Stagnant Rural Wages 50
India Joins ARIN-AP Steering Committee 52
50th Foundation Day of Coal India Limited 53
RBI's Repatriation of Gold 55
Major Employment Generation Schemes 58

Note:

drishti

International Relations 59

India-Russia Aim for USD 100 Billion Trade Target 59

World Bank Enhances Lending Capacity 61

Reassessing India's Stance on RCEP 63

India-Algeria Strengthen Defence Ties 65

SAGAR Vision 67

Social Issues 68

Livelihood Promotion Among Tribals 68

SC's Concerns Over Inaction on Sex Trafficking 70

Silent Crisis of Mental Health in India 73

Global Tuberculosis Report 2024 75

Inheritance Norms in Hindu Succession Act, 1956 77

Workplace Culture of India 78

India's Children Lack Dietary Diversity 81

Recognising the Economic Value of Unpaid Work in India 82

Science & Technology 86

NISAR Satellite 86

3rd Indian Space Conclave and India's First Analog Mission 87

RNA Editing 89

Tardigrades Genes for Innovation 90

Biotechnology Experiments for India's Upcoming Space Station 91

Environment and Ecology 93

Dicliptera Polymorpha 93

UNEP's Adaptation Gap Report 2024 95

Sendai Framework and India's Commitment to DRR 97

Conserving Protected Areas in India 100

Climate Change Impact on Small Island Developing States 102

Protected Planet Report 2024 105

3rd Edition of the World Solar Report Series 109

World Cities Report 2024 111

Urbanisation and Industrialisation Depleting Groundwater 112

Geoengineering to Combat Global Warming 114

IUCN's First Global Tree Assessment 116

Note:

Asia-Pacific Climate Report 2024 117
COP-16 of Convention of Biological Diversity 119
WMO's Greenhouse Gas Bulletin 2023 122
Mangroves in Coastal Resilience 125
Tiger Translocation for Genetic Diversity 129

History 131
American Civil War (1861-1865) 131
Janjatiya Gaurav Divas 134
Birth Anniversary of Sardar Vallabhbhai Patel 137

Art and Culture 139
Konark Wheels at Rashtrapati Bhavan 139
1st Asian Buddhist Summit 140

Geography 142
Dinosaurs and UNESCO Global Geoparks Tag 142

Security 145
Adaptive Defence for Emerging Security Challenges 145

Miscellaneous 148
QS World University Rankings: Asia 2025 148

Rapid Fire Current Affairs 150
Partnerships for Accelerated Innovation and Research 150
Booker Prize 2024 151
Indian Military Heritage Festival and Project Shaurya Gatha 151
Sea Ranching Initiative to Boost Marine Fisheries 151
HP Parliamentary Secretaries Act, 2006 152
Lightning Rods and Lightning Strikes 152
Anti-Dumping Duty on Epichlorohydrin Imports 153
Titan Arum Flower 154
Global Nature Conservation Index 2024 154
Gluten 154
AUSTRAHIND 155
Antariksha Abhyas 2024 156
LignoSat 156

Note:

Accessibility for Disabled Persons 157
H5N1 Reassortant Virus 157
Acute Famine Conditions in Rakhine 157
Acharya J. B. Kripalani 158
National Education Day 2024 158
Donald Trump 47th President of the US 159
No Midway Changes in Recruitment Criteria 160
G20 Pandemic Fund 160
Digital Population Clock 162
Namo Drone Didi 162
Brazil Declines Belt and Road Initiative 163
Adoption Awareness Month 165
LMV Licence for Transport Vehicles 165
PM-Vidyalaxmi Scheme 165
3rd Edition of MAHASAGAR 166
DCGI's New Regulations for Imported Cosmetics 166
Differential Rotation of the Sun 167
India Bids to Host the 2036 Olympics 168
Birth Anniversary of Chittaranjan Das 169
Balfour Declaration 169
Mount Lewotobi 171
Elephant Casualties in Bandhavgarh Tiger Reserve 172
Centralised Asset Liquidation Auction Platform 172
Diffraction Limit 172
Civil Registration System (CRS) Mobile Application 173
US Sanctions Indian Firms for Supporting Russia's War Efforts 173
India's First Biomanufacturing Institute 173
Nabhmitra Application 174
Ballon d'Or Award 2024 174
SC: Doctors Not Negligent for Poor Outcomes Alone 174
New Guidelines for Import of Seaweeds 175
Mule Accounts for Money Laundering 175
SC Expands Rights for Disabled in Medical Admissions 176
Mhadei Wildlife Sanctuary 176

Note:

Polity and Governance

Highlights

- *Supreme Court Guidelines on "Bulldozer Justice"*
- *Inter-State Council*
- *Appointment of Chief Justice of India*
- *World Immunisation Day 2024*
- *SC Orders Re-evaluation of AMU's Minority Status*
- *Prior Sanction to Prosecute Public Servants Under PMLA*
- *Pradhan Mantri Matsya Kisan Samridhi Sah-Yojana*
- *Limit on Private Property Acquisition*
- *PM Vishwakarma Yojana*
- *SC Upholds UP Madarsa Act 2004*
- *Member of Parliament Local Area Development Scheme*
- *States Formation Day*
- *Comparative Analysis of Indian and US Presidents*
- *Ayurveda Day 2024*

Supreme Court Guidelines on "Bulldozer Justice"

Why in News?

Recently, the **Supreme Court (SC)** laid down **pan-India guidelines** under **Article 142** of the Constitution to ensure that **due process** is followed for **demolishing the properties of citizens**.

- SC ruled that demolishing the properties of an **accused or convicted** without following **due process** is **"unconstitutional".**
- The case challenged the **"extra-legal" demolition** of homes of individuals accused of crimes, recently seen in **Uttar Pradesh, Madhya Pradesh, and Uttarakhand.**

Note: Bulldozer justice refers to the practice of **demolishing properties**, often belonging to those **accused of crimes**, sometimes **without** following proper **legal procedures.**

What are the Supreme Court Guidelines on Bulldozer Justice?

- **Providing Notice:** A **minimum of 15 days' notice** must be given to the **property owner or occupier** before any demolition can proceed.
  - The notice must clearly **outline the details of the structure** to be demolished and reasons for demolition.
- **Fair Hearing:** A scheduled **date for a personal hearing** to provide an opportunity for the affected party to **contest the demolition** or clarify the situation.
- **Transparency:** Authorities must notify the **local Collector or District Magistrate** via email upon serving the notice, with an **auto-reply acknowledgment** to avoid claims of backdating or tampering.
- **Issuance of Final Order:** The final order must include the **owner's or occupier's arguments,** the authority's justification for demolition as the only option, and whether the **entire or partial structure** is to be demolished.
- **Post-Final Order Period:** If a demolition order is issued, the Supreme Court mandated a **15-day period** before implementation, allowing the owner or occupier to **remove the structure or challenge the order** in court.
- **Documentation of Demolition:** The authority must **record the video of demolition** and prepare an **"inspection report"** beforehand, along with a **"demolition report" l**isting the personnel involved.
- **Test for Dual Violations:** The SC laid down a **separate test** for cases where a demolished property houses an **accused but also violates municipal laws** as an illegal construction.
  - The SC stated that if only **one structure is demolished** while **similar ones are untouched**, it may suggest the **motive is to penalise** the accused, not remove an illegal construction.
- **Exception:** SC clarified that its directions will **not be applicable** if there is any **unauthorised structure** in any public place such as **roads, streets, or footpaths, abutting railway lines or any river or water body** and also to cases where there is an order for demolition made by a **court of law**.

Note:

Article 142

- **Article 142** of the Constitution empowers the **Supreme Court** to pass **decrees and orders** necessary for **complete justice** in any case.
- **Article 142(1)** allows the Court to issue **binding orders** across India, **enforceable as prescribed by law** or the **President**.
- **Article 142(2)** grants the Court powers to **secure attendance, discovery of documents, or punish contempt.**
- Over time, this provision has been used to ensure **"complete justice"** and address perceived **legislative gaps.**

What is the Significance of the Supreme Court Guidelines?

- **Separation of Powers:** The verdict emphasises that the **judiciary** holds the power to **decide guilt** and determine if any state organs have **overstepped their limits.**
  - The **executive** **cannot replace the** **judiciary** in performing its core functions.
- **Rule of Law:** The Court stated that it is **impermissible** for the executive to impose **demolition as punishment** without a proper trial. This upholds the **rule of law** by ensuring that state actions **do not overstep constitutional boundaries**.
  - Demolitions that disproportionately affect **certain communities (like slum dwellers)** can be challenged as discriminatory under **Article 14**.
- **Accountability of Officials:** By requiring that demolition actions be **publicly scrutinised** and accompanied by **detailed records (such as video recordings and inspection reports),** the guidelines aim to prevent **abuses of power** and foster greater accountability.
- **Right to Shelter:** Demolition affecting the entire property, including those who are not accused, would be **unconstitutional** as it infringes on the fundamental right to shelter.
  - **Right to life with dignity** under **Article 21** of the Indian Constitution includes the **right to shelter**.
  - **Article 300A** guarantees that no person shall be deprived of their **property except by law**. This provision emphasises that property can only be taken away following due process and under valid laws.
- **Protection of Individual Rights**: The Court's insistence on **due process** and the separation of powers protects individuals from **arbitrary state actions** and ensures that rights are not violated under the **guise of law enforcement.**
- **Geneva Convention 1949: Article 87(3)** of the **Geneva Convention 1949** prohibits collective punishments.
  - Such demolitions also violate **Article 51** of Indian Constitution which mandates that India must respect **international treaties and laws**.

Why is Bulldozer Justice a Concern?

- **Rising Punitive Demolitions:** A **2024** estimate by the **Housing and Land Rights Network (HLRN)** found that authorities demolished **153,820 homes in 2022 and 2023**, **displacing over 738,438 people** across rural and urban areas.
- **International Covenant on Civil and Political Rights (ICCPR): Article 17** of the ICCPR states that **everyone has the right to own property** individually or with others, and **no one shall be arbitrarily deprived** of their property.
- **Collective Punishment:** SC acknowledged that demolition drives not only target the **alleged perpetrators** of an offence but also impose a form of **"collective punishment"** on their **families** by destroying their place of dwelling.
- **Instant Justice:** Demolitions have been justified as actions against encroachment or unauthorised construction. Such state-sanctioned acts of punitive violence have been hailed as a form of **"instant justice."**

Other Judicial Pronouncements Related to Property Demolitions

- **Maneka Gandhi Case, 1978:** The SC expanded the scope of **"procedure established by law"** by ruling that it must be **just, fair and reasonable**, thereby introducing the principle of **"due process of law."**
  - Therefore, demolitions based on **suspicion or unfounded allegations** contradict the principles of justice, fairness, and non-arbitrariness.
- **Olga Tellis Case, 1985:** The Supreme Court affirmed that **Article 21**, guaranteeing the right to life, also includes the right to livelihood and shelter.
  - It means demolishing homes without due process violates constitutional rights.

Note:

- **KT Plantation (P) Ltd Case, 2011:** SC ruled that the legislation providing for deprivation of property under **Article 300-A** must be just, fair, and reasonable.

What are Challenges in Implementation of SC Guidelines?

- **Reliance on Political Will**: The political pressures to use demolition as a form of **retribution or deterrence could persist**, especially in politically charged environments.
- **Culture of Impunity**: While the guidelines impose accountability on officials, historical examples, such as the court's previous attempts to address issues like hate speech **or** mob lynching**,** suggest that similar efforts have not always led to substantial outcomes or accountability.
- **Lack of Oversight**: There remains a risk that local authorities or officials may find ways to **circumvent these rules,** especially in regions where judicial oversight is weaker.
- **Long-Term Cultural Change:** The guidelines alone may not be sufficient to change the broader **cultural and institutional practices** that allow for such actions in the first place.

Inter-State Council

Why in News?

The Indian government has recently reconstituted the Inter-State Council (ISC) after two years, with the **last reconstitution in 2022,** appointing the **Prime Minister(PM) as chairman** and underscoring a renewed commitment to Centre-State relations and cooperative federalism.

What is the Inter-State Council?

- **Establishment:** The ISC was constituted to **facilitate Centre-State and Inter-State cooperation** in India.
  - It was established under Article 263 of the Constitution, which empowers the **President of India to establish an ISC** for better coordination between States.
  - The Sarkaria Commission (1988) recommended making the ISC a permanent body, leading to its formal establishment in **1990 through a Presidential Order**.
- **Functions of the ISC:** It discusses subjects of common interest to states and the Union and makes recommendations for the coordination of policies and actions.
  - The ISC also **investigates issues affecting Centre-State and Inter-State relations** to ensure seamless governance.
- **Composition of the Council:** The **PM serves as the Chairperson**. Members include **Chief Ministers(CMs) of all States, CMs of Union Territories** having a Legislative Assembly and Administrators of UTs not having a Legislative Assembly, and **6 Union Ministers of Cabinet rank, nominated by the Prime Minister,** are also part of the ISC.
  - The Presidential Order of 1990 has been amended twice, first in 1990 and then in 1996, to allow the Governor **of a State under President's rule** to attend the meeting of the ISC and for the **Chairman to nominate permanent invitees** from amongst the other Union Ministers, respectively.
  - In the second meeting of the ISC held in 1996, the Council decided to set up a **Standing Committee for continuous consultation** and processing of matters for consideration of the Council.
    - Accordingly, a Standing Committee was set up under the **Chairmanship of the Home Minister** and has been reconstituted from time to time with the approval of the Chairman of the Council.
- **Secretariat:** The **Inter-State Council Secretariat(ISCS)** in New Delhi was established in 1991 and is headed by a **Secretary to the Government of India**.
  - The secretarial functions of the Zonal Councils have been transferred to the ISCS since 2011.
- **Benefits:** Policies developed through ISC deliberation would hold **greater social legitimacy,** enhancing acceptance among states and reducing friction.
  - The ISC maintains the **balance of power between the Union and states,** preventing dominance by either side. It ensures that Union decisions align with the **constitutional framework and federal principles,** especially during reforms like Goods and Services Tax (GST) **or** demonetization that may strain Union-state relations.

Note:

Other Key Inter-State and Centre-State Bodies

- **Zonal Councils:** These are statutory bodies established under the **States Reorganisation Act of 1956.**
  - There are **five Zonal Councils** (Northern, Central, Eastern, Western, and Southern). They aim to promote interstate cooperation and coordination, each Zonal Council is headed by the **Union Home Minister,** with CMs from the constituent states serving as **Vice-Chairpersons on a rotating basis.**
  - The **North Eastern region** has a separate council, the **North Eastern Council,** created in 1972, set up under the **North Eastern Council Act, 1972.**
- **River Water Dispute Tribunals:** These tribunals are constituted under the **Inter-State River Water Disputes Act, 1956,** to adjudicate disputes between states over the sharing of river waters.
  - **Article 262** provides that **Parliament** may by law provide for the adjudication of any dispute or complaint with respect to the use, distribution or control of the waters of, or in, any inter-State river or river valley.
- **The Goods and Services Tax (GST) Council:** It was established under **Article 279A of the Constitution,** is a constitutional body responsible for deciding key issues related to GST implementation in India.
  - It comprises the Union Finance Minister, the Union Revenue Minister, and State Finance Ministers, with decisions made through a consensus-based approach.
  - Since its inception in 2016, the Council has made significant decisions on tax rates, and exemptions, **promoting cooperative federalism** and streamlining business operations in India.

What are the Challenges Regarding the Inter-State Council?

- **Infrequent Meetings:** Despite its purpose, the ISC has been criticised for irregular meetings, having met only **11 times since its establishment in 1990**.
  - The procedure mandates that it **should meet at least three times a year,** but the last meeting was held in **July 2016**.
- **Non-Binding Recommendations:** The ISC faces key challenges due to its **advisory and non-binding nature,** which limits its impact on resolving disputes and hinders effective Union-State coordination.
  - Its **broad mandate lacks enforcement authority,** making it more a discussion forum than a decision-making body.
  - Additionally, there is often a **lack of robust follow-up mechanisms** to ensure that recommendations are **tracked and implemented,** necessitating a more structured approach for meaningful outcomes.
- **Political Dynamics:** The political landscape can influence the functioning of the ISC. **Differences in political ideologies between the central and state governments** can affect the council's ability to reach consensus on various issues.

What Reforms are Needed for ISC to Function Effectively?

- **Amendment of Article 263:** The **Punchhi Commission (2010)** emphasised making the ISC a specialised body to address intergovernmental relations and federal challenges.
  - Amending **Article 263 to strengthen the ISC's mandate** for addressing both inter-state and Union-state issues could enhance its role as a consultative and decision-making forum.
- **Regular and Timely Meetings:** Reviving the mandate for regular meetings could foster continuity in discussions and provide states with a regular platform for policy input.
- **Clear Agenda and Priorities:** Establish a clear agenda and set of priorities for each meeting, focusing on pressing inter-state issues such as **water disputes, infrastructure development, and economic cooperation.**
- **Technology Integration:** Utilise digital tools and platforms to facilitate communication, data sharing, and decision-making processes within the ISC, making it more efficient and responsive.

Appointment of Chief Justice of India

Why in News?

Recently, the **President of India** administered the oath of office to **Justice Sanjiv Khanna** as the **Chief Justice of India (CJI)**.

Note:

- He succeeded Justice D.Y. Chandrachud, becoming the **51st CJI.**

Justice Sanjiv Khanna Key Judicial Rulings

- He was part of several **Constitution Bench rulings,** including the one upholding the abrogation of **Article 370** of the Constitution and striking down the **2018 electoral bonds scheme**, among others.
- He was also part of the recent majority ruling in the **Aligarh Muslim University (AMU) minority status** determination case.
- He supported the use of **Electronic Voting Machines (EVMs)** in elections, rejecting calls to revert to paper ballots.

What are Key Provisions Related to CJI?

- **Appointment:** A Supreme Court judge is appointed by the **President** under **Article 124 (2)** of the Constitution. As per the convention , the **senior-most judge** of the Supreme Court is designated as the CJI.
  - The seniority is measured by the **length of service** on the Supreme Court.
- **Qualification:** A person to be appointed as a Supreme Court judge, should have the following qualifications:
  - He should be a **citizen of India**.
  - He should have been a judge of a **High Court (or high courts in succession) for five years**; or
    - He should have been an **advocate of a High Court (or High Courts in succession) for ten years**; or
    - He should be a **distinguished jurist** in the opinion of the president.

Note:

- **Role of CJI:** As the **"Master of the Roster,"** the CJI holds the authority to assign specific cases to particular benches and determine the schedule for their hearings in the Supreme Court.
  - **CJI (along with collegium of four senior most judges of SC)** is consulted by the **President** for the appointment of judges in the **SC and the High Court**.
  - CJI appoints **ad-hoc SC judges** under **Article 127** of the Constitution.
  - With the **approval of the President**, the CJI can **change the seat of the SC** from Delhi to **any other place**.
- **Removal:** The CJI can **be removed by the President only after Parliament presents an address, supported by a special majority in both Houses** (a majority of total members and **at least two-thirds of those present and voting**).

Appointment of CJI in Other Democratic Countries

- **United States**: The Chief Justice has a **life tenure** i.e., Chief Justice can serve until he/she is **impeached.**
- **United Kingdom**: The **Judicial Appointments Commission** appoints the **Lord Chief Justice** through a **special panel** from the Appeal Court Judges or from the Supreme Court.
  - The **tenure** for the Lord Chief Justice is **life**, with a **mandatory retirement age of 75.**

World Immunisation Day 2024

Why in News?

Recently, **World Immunisation Day** was observed on **10th November** to raise awareness about the **vital role vaccines** play in preventing **infectious diseases** and protecting public health.

- Immunisation is making a person r**esistant to an infectious disease** by administering a vaccine to stimulate the **immune system.**

What are the Key Facts About Immunisation in India?

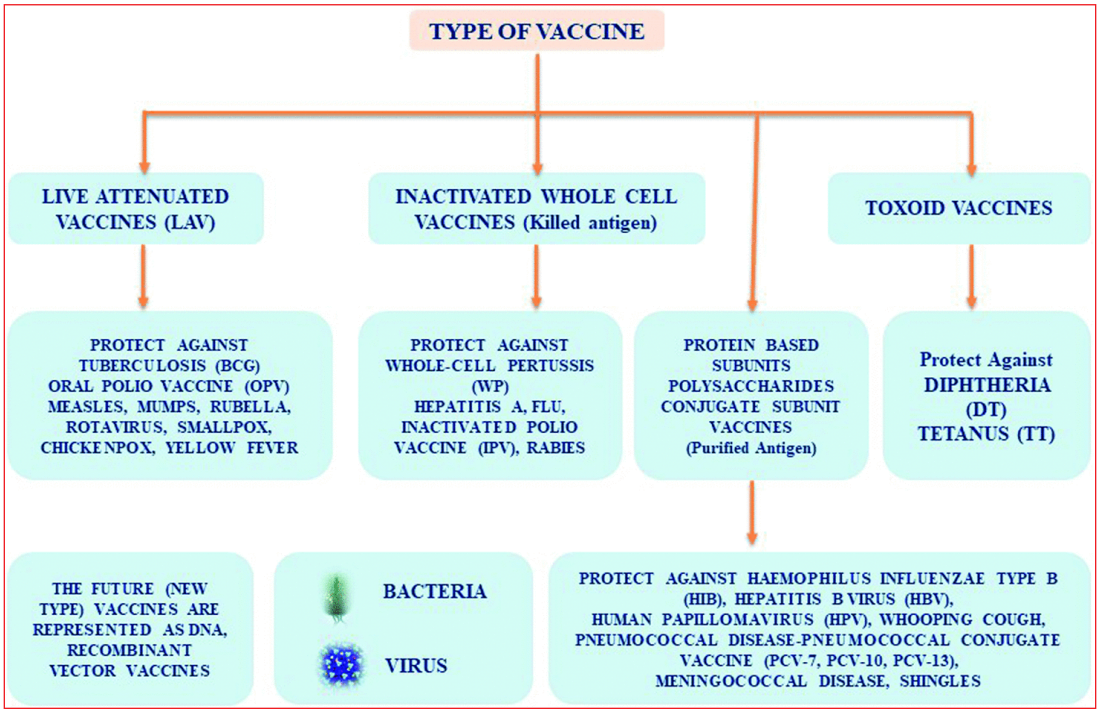
- **Key Immunisation Programs in India:**
  - **Universal Immunization Programme (UIP)**: Initially launched as the **Expanded Programme on Immunization in 1978**, it was rebranded as the **UIP in 1985** when coverage expanded from **urban to rural areas.**
    - In **1992**, the UIP was incorporated into the **Child Survival and Safe Motherhood Programme** and later, in **1997**, into the **National Reproductive and Child Health Programme.**
    - Since **2005,** under the **National Rural Health Mission**, the UIP has focused on ensuring **vaccine access for every child**, even in remote areas.
    - India's **full Immunisation coverage** for FY 2023-24 stands at **93.23% nationally.**
  - **Mission Indradhanush (MI)**: **MI** was launched in **December 2014** with a goal of achieving **90% full immunisation coverage**.
    - It focuses on areas with **low immunisation rates**, including hard-to-reach regions and communities with **unvaccinated or partially vaccinated children.**
  - **U-WIN Portal**: It is a digital platform designed to **streamline vaccine delivery** and record-keeping, enabling easy access and management of immunisation records.
    - It allows for **'Anytime Access'** and **'Anywhere'** vaccination, offering flexible scheduling options for recipients.
    - It also generates a universal **QR-based eVaccination Certificate** and provides the option to create an **Ayushman Bharat Health Account (ABHA) ID.**
- **Public Health Milestones:**
  - **COVID-19 Vaccination:** Between **16th January 2021 and 6th January 2023**, India had administered **over 220 crore doses**, covering **97%** of eligible citizens with at least one dose and **90% with both doses.**
  - **Polio Eradication:** India was officially certified as **polio-free** in **March, 2014.**
  - **Maternal and Neonatal Tetanus (MNTE):** India eliminated **MNTE in April 2015,** well ahead of the global target of **December 2015.**
  - **Yaws-Free:** India became the **first country** to be officially recognized as yaws-free by the **World Health Organization (WHO).**
    - **Yaws** is a chronic **bacterial infection** affecting **skin, bone and cartilage**.

Note:

- **Smallpox: Smallpox** was eradicated in India in **1977.**
- **Leprosy:** Leprosy was eliminated in **2005.**
- **Kala-azar:** India is close to achieving the **elimination of Kala-azar** as a public health problem.
  - India has achieved **WHO certification criteria** for **two consecutive years** and needs to maintain this level for **one more year** to qualify for the certification.

Note:

- Under UIP, immunisation is provided free of cost against **12 vaccine preventable diseases:**
  - **Nationally against 9 diseases:** Diphtheria, Pertussis, Tetanus, **Polio,** Measles, Rubella, severe form of Childhood Tuberculosis, **Hepatitis B** and **Meningitis & Pneumonia** caused by Haemophilus Influenzae type B.
  - **Sub-nationally against 3 diseases**: Rotavirus diarrhoea, **Pneumococcal Pneumonia and Japanese Encephalitis.**
- UIP has helped reduce the **under-5 mortality rate** from 45 per 1000 live births in 2014 to **32 per 1000 live births**.



SC Orders Re-evaluation of AMU's Minority Status

Why in News?

Recently, a 7-judge bench of the **Supreme Court** (by 4:3 majority) in the case relating to the minority status of **Aligarh Muslim University (AMU),** overruled the **1967 judgment in *S. Azeez Basha vs. Union Of India*** which held that an institution **incorporated by a statute** cannot claim to be a **minority institution.**

- The issue of whether AMU is a minority institution as per **Article 30** of the Constitution is now **left to be decided by a regular bench** based on this view of the majority.

What are the Major Highlights of the Supreme Court Judgement?

- **Main Aspects of the Case Considered by the Court:**
  - Whether a University, established and governed by a statute (AMU Act 1920), can claim minority status.
  - The correctness of the 1967 judgment of the Supreme Court in ***S. Azeez Basha vs. Union Of India*** which rejected the minority status of AMU.
  - The nature and correctness of the 1981 amendment to the **AMU Act, 1920** which **accorded minority**

Note:

status to the University after the decision in ***S. Azeez Basha vs. Union Of India Case.***

- Whether reliance placed on the ***S. Azeez Basha vs. Union Of India*** decision by Allahabad High Court in ***AMU v. Malay Shukla in 2006*** was correct in concluding that AMU being a non-minority institution could not reserve 50% seats for Muslim candidates in Medical PG Courses.

➢ **Key Highlights of the Recent Ruling:**

- **The Overruling of Azeez Basha Judgment:** The SC overturned the 1967 ruling in ***S Azeez Basha vs Union of India.***
  - In the ***Azeez Basha case,*** the SC Constitution bench had held that **AMU is not a minority institution** and to enjoy the status, it should have been **both established and administered** by the minority.
- **Question of Minority Status Referred to Regular Bench:** The court did not directly decide **whether AMU is a minority institution** leaving the determination to a regular bench to investigate AMU's historical establishment.
- **New Test for Determining Minority Status:**
  - **Establishment:** The first aspect of the test deals with the genesis or origin of the minority institution, the **purpose of its establishment, and how the "idea" for the institution** was finally implemented.
  - **Implementation:** Who contributed the funds for the institution? How was the land obtained or donated? Who obtained the necessary permissions, and handled the construction and infrastructure?
  - **Administration:** The courts can look at the administrative set-up to see if it "affirms" the minority character of an institution.
    - If the administration does not seem to "protect and promote the interests of the minority", it could be "reasonably in ferred that the purpose was not to establish aneducational institution for the benefit of the minority community.
- **Minority Character of an Institution:** The court held that an institution's minority status shouldn't be dismissed solely because it was **created by law,** and courts **shouldn't rely strictly on legislative language** to determine its establishment. This would make **Article 30(1)**, a **fundamental right subservient to a statutory enactment.**
  - The court held that the word "established" as used in article 30(1) **cannot and should not be understood in a narrow** and legalistic sense.
  - The words used in clause 1 of article 30 have to be **interpreted in view of the object and purpose** of the article and the guarantee and protection it confers.
  - The right under Article 30(1) is guaranteed to minorities as defined upon the commencement of the Constitution.
  - The court further listed **"core essentials" of minority character** under Article 30(1).
    - While the purpose of establishing a minority institution should be the conservation of language and culture, **it need not be the only purpose;**
    - A minority institution **will not lose its minority character by** admitting students belonging to **non-minorities;**
    - **Secular education can be imparted** as a minority affecting its minority character;
    - If a minority institution has received aid from the government, no student can be forced to participate in religious instruction;
    - if the institution is **fully maintained out of state funds**, it **cannot provide religious instruction.**
      - However these institutions must still be considered minority institutions.
- **Nature of Incorporation vs Establishment:** The judgment clarified that incorporation by legislation **does not negate minority status.** Merely formalising a university through law doesn't alter who originally established it.
  - The court rejected the argument that Muslims were not a minority in 1920 or did not think of themselves as a minority.
  - It said the **group must be a minority on the commencement** of the Constitution and **pre-Constitution institutions are also entitled** to protection under Article 30, even when founding a university.

Note:

- **Article 30** will stand diluted if it is **to apply prospectively only** to the institutions which were established after the commencement of the Constitution.
- The words **'incorporation' and 'establishment' cannot be used interchangeably.** Merely because the AMU was incorporated by imperial legislation would not mean that it was not 'established' by a minority.
- It cannot be argued that the University was established by the **Parliament** merely because the statute says it was passed to establish the University. Such a formalistic reading will defeat the objectives of Article 30.

❍ **Dissenting Opinion:** Three judges dissented from the majority holding differing views on the applicability of Article 30 to institutions established by statute.

What are the Legal Provisions on Minority Educational Institution (MEI)?

➢ **Definition of Minority Educational Institution (MEI)**: Article 30(1) of the Indian Constitution **grants minorities the right to establish** and administer educational institutions.

❍ MEIs are defined under the **National Commission for Minority Educational Institutions Act, 2004.**

- It defines a Minority Educational Institution (MEI) as a college or other institution that is **established or maintained** by a minority or minorities.

➢ **Landmark Cases on MEIs**:

❍ ***Mother Provincial Case,* 1970**: Defined "administer" in Article 30(1) as **managing institutional affairs** but allowed government interference in educational standards.

❍ ***AP Christian Medical Association Case,* 1986**: MEIs must benefit a significant portion of the minority community to qualify.

❍ ***Yogendra Nath Singh Case,* 1999**: Establishment and administration by minorities are both required for an institution to be considered a MEI.

❍ **Unresolved Criteria for MEI Status**: In the ***TMA Pai Case,*** 2022 it was established that minority status is determined at the state level, but criteria for MEI designation were left inconclusive.

❍ ***Azeez Basha Case,* 1967 on AMU**: The Supreme Court ruled that **AMU was not a minority institution** since it was established by the AMU Act, 1920 passed by Parliament, rather than by a minority community.

➢ **Minority Status Exemptions**: **Article 15(5)** exempts minority educational institutions from reserving seats for SC/STs, impacting AMU, which currently had no SC/ST quotas as its minority status was under judicial review.

➢ ***St. Stephen's College Case,* 1992 Reference**: In 1992, the SC upheld St Stephen's College's right to administer independently and reserve 50% of seats for Christians.

What is the Timeline of the AMU Dispute?

➢ **The Muhammadan Anglo-Oriental College Founded, 1875:**

❍ **Sir Syed Ahmad Khan** established the **Muhammadan Anglo-Oriental College** in Aligarh, with the aim of **providing modern education** to Muslims in India, who were perceived to be socially and educationally backward. The institution later becomes the basis for AMU.

➢ **AMU Takes Shape, 1920:**

❍ The Aligarh Muslim University Act was passed by the **Indian Legislative Council,** formally transforming the MOA College into Aligarh Muslim University (AMU).

➢ **S. Azeez Basha vs. Union of India, 1967:**

❍ The Supreme Court ruled that AMU cannot be classified as a minority institution under Article 30.

❍ The ruling emphasizes that **AMU was a central university**, not one "established or administered" solely by the Muslim community, thus it does not qualify as a minority educational institution.

➢ **AMU Act Amended to Grant Minority Status, 1981:**

❍ In response to the 1967 ruling, the Union government amended the AMU Act in 1981, declaring that AMU was indeed **"established by the Muslims of India"** to promote the educational and cultural advancement of Muslims.

- This amendment grants AMU minority status.

Note:

- **AMU Reservation Controversy, 2005:**
  - AMU introduces 50% reservation for Muslim students in postgraduate medical courses.
  - The Allahabad High Court struck down the reservation policy in 2006, **ruling that AMU could not claim minority** status because it was not a minority institution as per the 1967 Supreme Court decision.
  - This is based on the reasoning that AMU was not "established or administered" by the Muslim community, thus it does not meet the criteria under Article 30.
- **Government Withdraws Appeal, 2016:**
  - The **government withdraws its appeal** in the Supreme Court against AMU's minority status, arguing that **AMU does not qualify as a minority** institution, reinstating its position based on the 1967 ruling.
  - The government maintains that **AMU renounced its religious status** when it was established as a central university in 1920.
- **Seven-Judge Bench, 2019:**
  - A three-judge bench **referred the issue to a larger seven-judge** bench to resolve the legal questions surrounding AMU's minority status.
- **The Latest Verdict, 2024:**
  - A seven-judge Supreme Court Bench, by a 4:3 majority, overturned the Allahabad High Court's ruling on minority status criteria in the ***S Azeez Basha vs Union of India*** **case.**
  - This ruling opens the possibility for Aligarh Muslim University (AMU) to obtain recognition as a minority institution.

Prior Sanction to Prosecute Public Servants Under PMLA

Why in News?

The **Supreme Court (SC) of India** recently upheld a decision by the **Telangana High Court,** mandating that public servants must receive **prior government sanction** before being prosecuted under the **Prevention of Money Laundering Act (PMLA), 2002.**

- This decision clarifies that Section 197(1) of the **Code of Criminal Procedure, 1973** (now replaced by the **Section 218 of the Bharatiya Nagarik Suraksha Sanhita, 2023**), which mandates prior government sanction to prosecute public servants, also applies to PMLA cases.

What is Section 197(1) of CrPC?

- It mandates **prior government sanction before prosecuting public servants,** judges, or magistrates for actions performed in their official duties.
  - This aims to prevent malicious prosecutions and protect decision-making in good faith. The sanction must come from the Central Government for Union-affiliated individuals and from the State Government for those in State affairs.
- **Exceptions:** Specific crimes, particularly those involving **gender-based violence and sexual offences** under the **Indian Penal Code, 1860** (**BNS, 2023)** do not require prior sanction for prosecution of public servants.

How Does the PMLA Interact with the CrPC?

- **Section 65 of PMLA**: Provides for CrPC provisions to apply to PMLA cases unless they conflict with the PMLA itself.
- **Section 71 of PMLA**: Asserts that PMLA provisions have overriding authority over other laws in cases of inconsistency.
- **Supreme Court's Ruling**: The appellant **Enforcement Directorate (ED)** had argued that Section 71 of the PMLA, which gives the PMLA overriding authority over other laws, should exclude the prior sanction requirement. However, the SC rejected this claim.
  - The SC pointed out that Section 65 of the PMLA allows CrPC provisions to be used in PMLA cases unless there is a direct conflict.
    - Since no provision of the PMLA conflicts with **Section 197(1) of the CrPC, prior sanction for prosecuting public servants is still necessary.**
  - It further clarified that **Section 71 cannot nullify Section 197(1),** as doing so would render Section 65 of the PMLA redundant.

Note:

- **Implications of SC Ruling:** This sets a benchmark for applying the CrPC to PMLA cases, **clarifying the limits of the PMLA's overriding authority under Section 71.**
  - The judgement limits the ED's ability to prosecute public servants under PMLA without government consent, highlighting the **need for due process.**
  - The SC ruling balances the government's efforts to combat **money laundering** with the rights of public servants to fair legal procedures.

Note: In the ***CBI v. Dr. R.R. Kishore Case, 2023,*** the SC ruled that **Section 6A of the Delhi Special Police Establishment (DSPE) Act, 1946,** requiring prior government sanction for arresting officers of **joint secretary rank and above,** was unconstitutional.

- The SC held that such a law is ***void ab initio*** under **Article 13(2) of the Constitution** and rendering Section 6A invalid from its inception in 2003.
  - Article 13(2) states that any law that takes away or limits the rights conferred by **Part III of the Constitution (**Article 12 to 35 contained in Part III of the Constitution deal with **Fundamental Rights)** shall be void to the extent of such contravention.

Constitutional Protection for Civil Servants

- **Part XIV of the Constitution**: Deals with services under the Union and the States.
- **Article 309**: Empowers **Parliament** and State legislatures to regulate the recruitment and conditions of service for civil servants.
- **Doctrine of Pleasure**: Article 310 states civil servants hold office at the pleasure of the President or Governor, but this power is not absolute.
- **Article 311**: **It lays down two major safeguards for civil servants.**
  - Dismissal or removal can only be done by the appointing authority or a higher rank.
  - Dismissal or reduction in rank requires an inquiry with a reasonable opportunity to defend.

Read more: **SC Limits ED's Arrest Powers in PMLA Cases**

Pradhan Mantri Matsya Kisan Samridhi Sah-Yojana

Why in News?

The **Department of Fisheries** organised a meeting to discuss the recently implemented **Pradhan Mantri Matsya Kisan Samridhi Sah-Yojana (PM-MKSSY)**, a sub-scheme of the Pradhan Mantri Matsya Sampada Yojana (PMMSY).

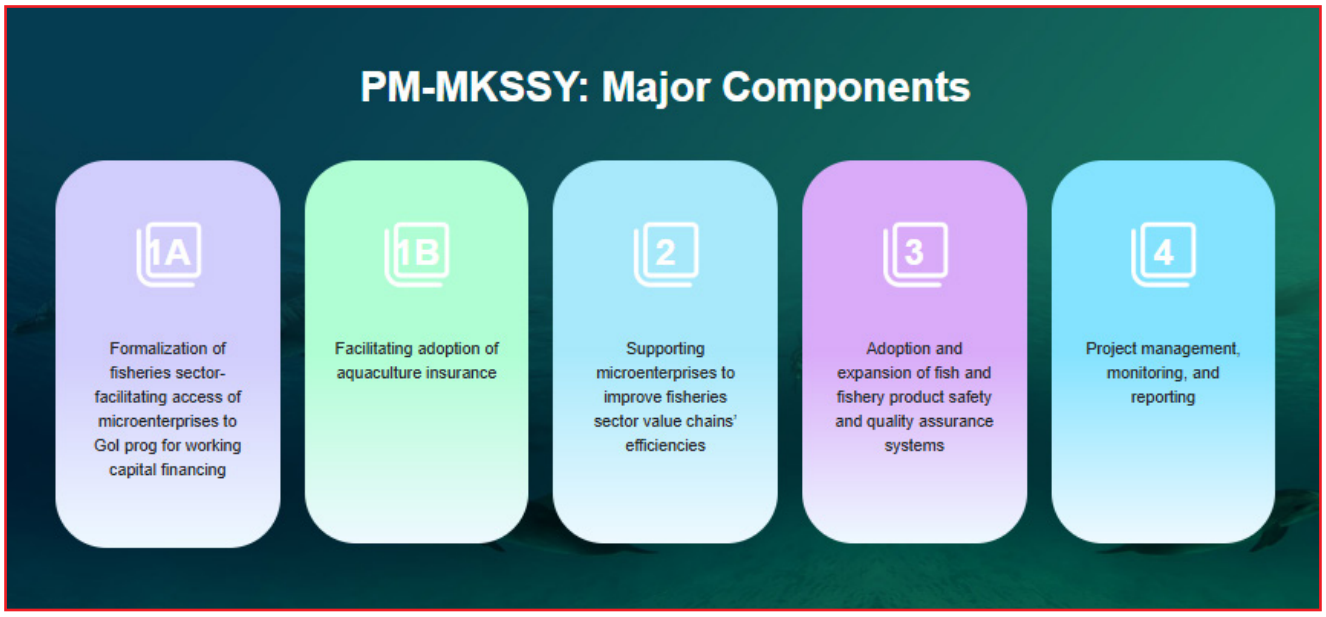
Note:

- The Fisheries and Aquaculture sector, referred to as a **"Sunrise Sector",** plays a vital role in ensuring **food security**, creating livelihoods, and boosting India's economic growth.
  - Several schemes like **Fisheries and Aquaculture Infrastructure Development Fund (FIDF)**, and **Blue Revolution** have been launched to support sector development.
- India is the **3rd largest fish-producing country** in the world and the **4th largest exporter** of fish and fisheries products with a growth in exports of 26.73% for marine products in FY 2022-23.
  - In terms of employment, the **sector supports the livelihood of over 28 Mn people in the country**.

What is Pradhan Mantri Matsya Kisan Samridhi Sah-Yojana (PM-MKSSY)?

- **About:**
  - The Government approved the **Pradhan Mantri Matsya Kisan Samridhi Sah-Yojana (PM-MKSSY)**, a Central Sector Sub-scheme in February 2024 for a period of four years from FY 2023-24 to FY 2026-27.
- **Objectives:**
  - Gradual formalization of the unorganized fisheries sector by creation of work based digital identities under the **National Fisheries Digital Platform (NFDP)** for improved service delivery.
  - Facilitating **greater access to institutional finance** for fish farmers & micro and small enterprises.
  - Facilitates **access to financial resources, empowering fish farmers** with funding and sustainability options.
  - **Promotes insurance adoption for aquaculture**, reducing risks while integrating traceability for quality assurance in supply chains.

Note:



What is Pradhan Mantri Matsya Sampada Yojana (PMMSY)?

- **About:**
  - The Department of Fisheries is implementing the **PMMSY**, a scheme aimed at ushering in a Blue Revolution through the sustainable and responsible development of India's fisheries sector.
    - It **focuses on the comprehensive growth of the sector** while ensuring the welfare of fishers.
  - PMMSY is **being implemented in all the States and Union Territories** for a period of 5 years from FY 2020-21 to FY 2024-25.
- **Objective:**
  - PMMSY **addresses gaps in** fish production, productivity, quality, and post-harvest infrastructure, modernizing the value chain while ensuring fishers' socio-economic welfare.
- **Targets of PMMSY:**
  - **Fish Production and Productivity:**
    - Increasing fish production to **22 million metric tons by 2024-25** from 13.75 million metric tons in 2018-19.
    - Enhancing aquaculture productivity to 5 tons per hectare from the current national average of 3 tons.
    - Augmenting **domestic fish consumption** from 5 kg to 12 kg per capita.
  - **Economic Value Addition:**
    - Increasing contribution of fisheries sector to the Agriculture **Gross Value Added (GVA)** to about 9% by 2024-25 from 7.28% in 2018-19.
    - Doubling export earnings to Rs.1,00,000 crores by 2024-25 from Rs.46,589 crores in 2018-19.
    - Facilitating **private investment** and growth of entrepreneurship in the fisheries sector.
    - Reduction of post-harvest losses from the reported 20-25% to about 10%.
  - **Enhancing Income and Employment Generation:**
    - Generating 55 lakh direct and indirect employment opportunities along the value chain.
    - **Doubling the incomes** of fishers and fish farmers.

Limit on Private Property Acquisition

Why in News?

Recently, the Supreme Court in the ***Property Owners Association v State of Maharashtra Case 2024***, set limits on the government's power to take over **privately owned resources for public distribution.**

- The petitioners argued that private properties cannot be taken over by the state under the garb of constitutional schemes of **Articles 39(b) and 31C** of the Constitution.

Note:

Note:

- **Article 39(b)** provides that the State shall aim to ensure the distribution of material resources to **serve the common good.**
- As per **Article 31C**, **Articles 39(b) and 39(c)** cannot be challenged by invoking the **right to equality (Article 14)** or the rights under **Article 19** (freedom of speech, right to assemble peacefully, etc).

What are the Key Highlights of the Supreme Court Verdict?

- **Acquisition of Private Resources**: Resources that are **scarce or vital to community well-being** should qualify for state acquisition and not all private properties.
  - **"Public trust doctrine"** where the state holds certain resources in trust for the public, **might guide this determination**.
- **Tests for Resource Qualification**: The court laid down **two key tests** i.e., a resource must be both **"material" and "belong to or serve the community.**
  - The **materiality** of a privately owned resource and its community element must be assessed on a **case-by-case basis.**
    - Materiality refers to the impact of assets like **land, minerals, or water** on **economic, social, and environmental dynamics**.
- **Overturning Ranganath Reddy case 1977:** The majority overturned the ***Sanjeev Coke ruling***, ***1982*** which had upheld ***Ranganath Reddy case***, ***1977*** argument in the Ranganath Reddy case that all private property could be deemed "material resources of the community" for redistribution.
  - The **lone dissenter** Justice Sudhanshu Dhulia **argued for broader legislative discretion** in defining "material resources" of the community.
- **Restriction on Article 39(b):** The court cautioning against a wider **interpretation** of **Article 39(b)** that would undermine property rights under **Article 300A.**
  - **Article 300A:** No person shall be deprived of his property save by authority of law.
- **Private to Community Resources:** SC outlined **five ways** of turning private resources into community material resources:
  - Nationalisation, Acquisition, Operation of law, Purchase by the state and Donation by the owner.

What are the Constitutional Provisions Related to Right to Property?

- **Article 31:** The **original Article 31 (a fundamental right)** dealt with the **right to property**, but it was repealed (**44th Amendment Act, 1978**) and replaced by **Article 300A (constitutional right).**
- **1st Amendment Act, 1951:** The 1st Amendment Act, 1951 incorporated **Articles 31A and 31B** into the Constitution, along with the **Ninth Schedule**.
  - **Articles 31A:** It gave the state competence to **acquire property or alter rights in property** without it being challenged on grounds of inconsistency with fundamental rights.
  - **Article 31B:** It ensured that laws included in the **Ninth Schedule** could not be struck down, even if they conflicted with fundamental rights.
  - **Ninth Schedule:** It contains a list of **central and state laws** which cannot be challenged in courts. E.g., **land reform laws.**
- **25th Amendment Act, 1971:** It inserted **Article 31C** to protect state laws aimed at resource distribution under **Article 39(b) and (c)** from constitutional challenges.
  - The Amendment **barred the courts** from reviewing the State's actions, even if they were **arbitrary or irrational**.
- **42nd Amendment Act, 1976:** It **expanded** the scope of **Article 31C** to include **all Directive Principles.**
  - This provision protects qualifying laws from being struck down under **Articles 14 and 19** if they genuinely serve public welfare through resource redistribution.
- **44th Amendment Act, 1978:** **Article 19(1)(f)** and **Article 31**, which protected the right to **acquire, hold, and dispose** of property, were **abrogated** meaning it removed the Right to Property from the list of fundamental rights.
  - Property became a **constitutional right** under **Article 300A** in **Chapter IV of Part XII**.

What is Judicial Interpretation Related to Right to Property?

- ***Sankari Prasad Case, 1951*:** The Supreme Court upheld the **1st Amendment Act, 1951** affirming **Parliament's exclusive authority** to amend the Constitution under **Article 368** and ruling that amendments affecting fundamental rights are not restricted by **Article 13(2).**

Note:

- **Article 13(2)** provides for judicial review which helps invalidate laws conflicting with fundamental rights.

- ***Bella Banerjee Case, 1954:*** The Supreme Court ruled that the government was required to pay **just compensation** in cases of **compulsory property acquisition**.
- ***Kesavananda Bharati case, 1973*:** SC clarified that **constitutional amendments** are not subject to the restrictions of **Article 13(2)** meaning that Parliament could amend the **Constitution**, including altering or removing provisions related to the **right to property**.
- ***Minerva Mills Case, 1980*:** Expansion of the scope of **Article 31C** to include all Directive Principles was **struck down** by the Supreme Court.
  - SC also **struck down provisions** that prevented **judicial scrutiny** of Article 31C, reinforcing the principle of constitutional **checks and balances.**
- ***Waman Rao Case, 1981*:** It was held that constitutional amendments and laws in the **Ninth Schedule** before the Kesavananda Bharati case **remain protected** from judicial challenge.
  - However, amendments **added after** the case are subject to judicial review based on the basic structure doctrine.
- ***Vidya Devi Case, 2020*:** SC held that **forcibly dispossessing** a person of private property without due process **violates both human rights and the constitutional right** under **Article 300A.**

What is the Significance of the SC Judgment?

- **State and Individual Rights:** It preserves the potential for state intervention while acknowledging that the indiscriminate acquisition of private resources is not permissible.
- **Economic Democracy:** The judgement aligns with **Dr. B.R. Ambedkar's vision of "economic democracy,"** ensuring that the Constitution does not dictate a rigid economic structure, thus preserving people's liberty to decide their social and economic organisation.
- **Flexible Interpretation:** It emphasises that **Directive Principles like Article 39(b)** should be implemented in a way that reflects evolving societal and economic realities and not a single rigid economic doctrine.
- **Legislative Framework:** The judgement reinforces the role of elected governments and the democratic process in shaping economic and welfare policies.
- **Welfare:** Future welfare policies will likely focus on scarce, critical resources essential for public welfare. The state may adopt more targeted welfare strategies, such as progressive taxation and public schemes.

What is the Impact of State Control over Property?

- **Positive Impacts:**
  - **Equitable Redistribution**: Promotes **social justice** by redistributing resources to marginalised groups, reducing wealth inequality.
  - **Resource Management**: Ensures resources like **land, water, and minerals** are used sustainably and for public benefit.
  - **Public Welfare Projects**: Facilitates **infrastructure development, healthcare, and education** by acquiring land or property for public purposes.
  - **Protection of Vulnerable Groups**: Provides safeguards for **disadvantaged communities** from exploitation.
- **Negative Impacts:**
  - **Limitations on Private Ownership**: Reduces individual property rights, potentially **discouraging private investment** and entrepreneurship.
  - **Reduced Incentives**: Private owners may **lack motivation** to improve or invest in properties due to state restrictions.
  - **Economic Stagnation**: Overregulation or excessive control can stifle market-driven growth and innovation.

PM Vishwakarma Yojana

Why in News?

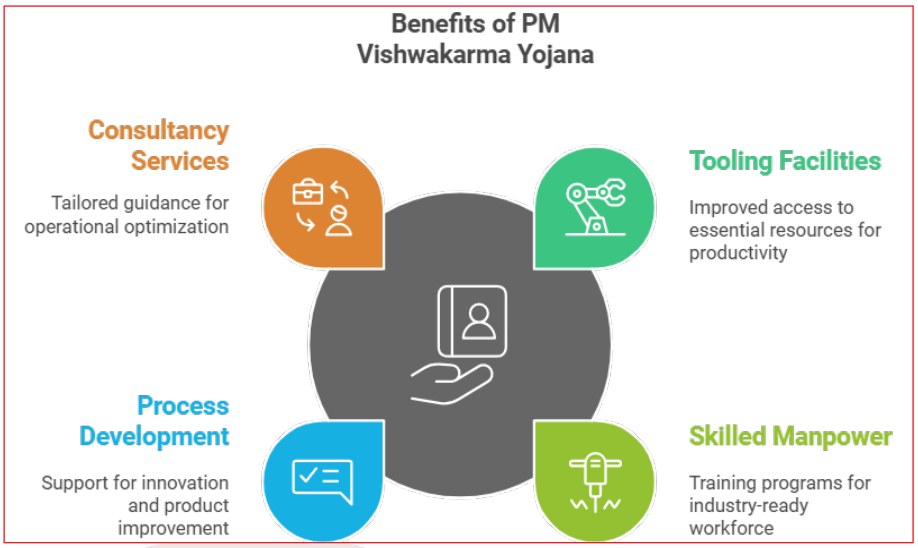
Since the launch of the PM Vishwakarma Yojana in 2023, it has made significant strides in supporting traditional craftspeople and artisans across the country. - a substantial number of applications, with a large portion successfully completing the multi-step registration process.

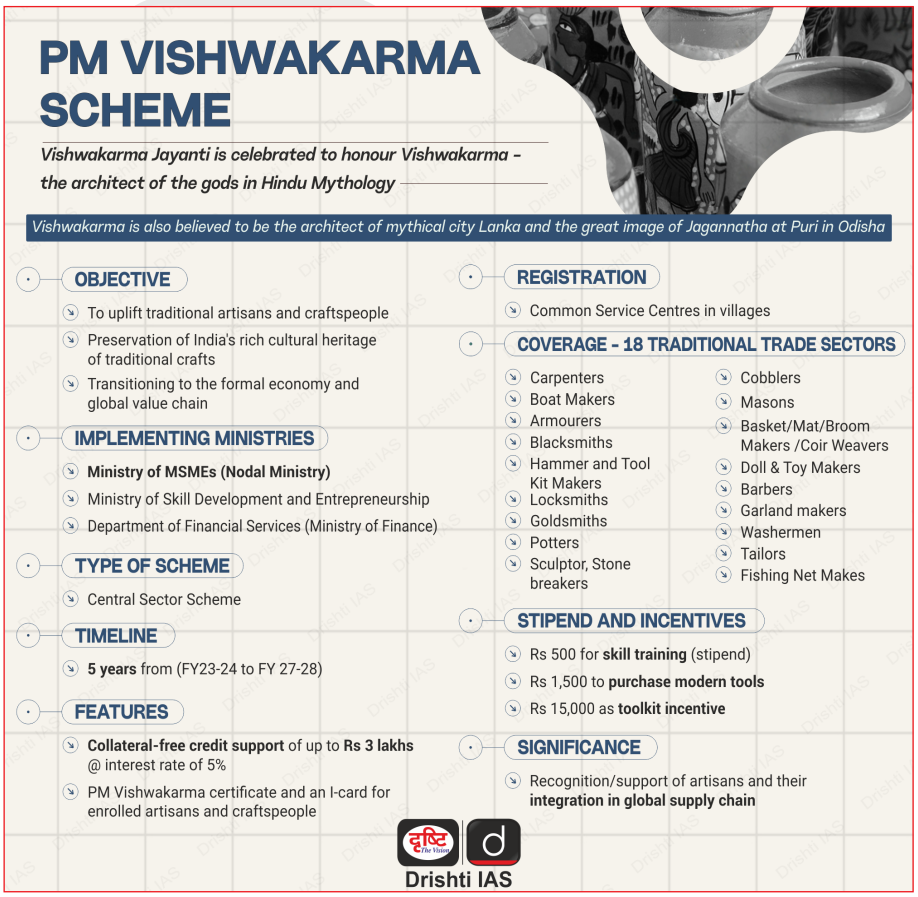
- Additionally, many registered beneficiaries have availed toolkit incentives to purchase modern tools suitable for their occupation.

Note:

What is the PM Vishwakarma Yojana?

- **Objective:** Uplift traditional artisans and craftspeople by enhancing the quality and market accessibility of their products and integrate them in both domestic and global value chains.
- **Features:**
  - Budgetary allocation for scheme – Rs 13,000 crore for 5 financial years (2023-24 to 2027-28).
  - Provides recognition to beneficiaries through a PM Vishwakarma Certificate and an ID Card.
  - Stipend of Rs 500 for skill training per day and Rs 15,000 grant for the purchase of modern tools.
- **Category:** Central Sector Scheme
- **Nodal Ministry:** Ministry of Micro, Small and Medium Enterprises (MoMSME)
- **Lending Institutions:**
  - **Scheduled Commercial Banks**
  - Regional Rural Banks
  - Small Finance Banks
  - Cooperative Banks
  - NBFCs and Micro Finance Institutions
- **Lending Mechanism:**
  - Beneficiaries are eligible for collateral-free credit support of up to **Rs 1 lakh (first tranche) and Rs 2 lakh (second tranche) at a low interest rate.**
- **Eligibility Beneficiaries:**
  - **Industrial Units:** Targeted specifically for the MSME sector.
  - **Training Program Eligibility:** Open to individuals from school dropouts to those holding an M.Tech degree.





Other Government Initiatives for Artisans

- Ambedkar Hastshilp Vikas Yojana
- Mega Cluster Scheme
- National Handicraft Development Programme

Note:

- **Comprehensive Handicrafts Cluster Development Scheme**
- **Export Promotion Council for Handicrafts**
- **One District One Product**
- **Atmanirbhar Hastshilpkar Scheme**

SC Upholds UP Madarsa Act 2004

Why in News?

Recently, the **Supreme Court** partially upheld the constitutional validity of the **Uttar Pradesh Madrasa Education Board Act, 2004**, overturning the **Allahabad High Court ruling (March 2024)** which declared it **unconstitutional.**

- However, the SC declared the Provisions pertaining to **higher education** (Kamil and Fazil) **unconstitutional** as they conflict with the **University Grants Commission Act (UGC Act) 1956** which is governed by **Entry 66 of List 1.**

Why has the Supreme Court Upheld the UP Madrasa Education Board Act, 2004?

- **Constitutional Validity:** The Madrasa Act, 2004 **effectively regulates** the standards of education which aligns with the **state's obligation** to ensure that students achieve a level of competency to participate actively in society.
- **Legislative Competence:** The Supreme Court affirmed that the Madarsa Act falls within the legislative competence of the **State Legislature**, specifically under **Entry 25 of List 3 (Concurrent List)** of the Constitution.
- **Religious Education vs Religious Instruction:** The Court distinguished between **religious education** and **religious instruction**.
  - The Court in ***Ms. Aruna Roy vs Union of India, 2002*** defined **religious education** as promoting **communal harmony is permissible**, while **religious instruction**, like **mandatory worship**, is prohibited in state-recognised institutions under **Article 28.**
- **Immunity to Basic Structure:** The constitutional validity of a statute cannot be challenged for the violation of the **Basic Structure** of the Constitution (***Indira Nehru Gandhi vs Raj Narain Case, 1975***), the statute must **violate the Constitutional provisions** pertaining to secularism to declare it unconstitutional.
  - Allowing courts to strike down legislation for violating **undefined concepts like democracy, federalism, and secularism** introduces **uncertainty** in constitutional adjudication.
- **State Regulation:** The Court stated that the **state government** can make rules under the Act to ensure madrasas teach **secular education** along with **religious instruction**, without violating **secularism.**
- **Minority Rights and Quality Education:** The state should issue **suitable directions** to ensure that students studying in madrasas are **not deprived of the quality of education** that is made available by the State in other institutions.
- **Minority Rights:** By upholding the Act, the court has reinforced the right of religious minorities to **establish educational institutions** under **Article 30** of the Indian Constitution.
- **Focus on Inclusivity:** The court's directive to ensure that madrasa students can access **quality education** supports the **integration of madrasa education within the broader educational framework** of the state.

Indira Nehru Gandhi vs Raj Narain Case, 1975

- The Supreme court had used the **Basic Structure doctrine** for the first time in the ***Raj Narain case, 1975*** to strike down a **Constitutional Amendment**.
- The judges on the Raj Narain Bench had **differentiated** between an **ordinary statute and a Constitutional Amendment.**
  - Constitutional amendments are tested against the basic structure doctrine, **not ordinary legislation.**
- Then Chief Justice, **A.N. Ray** said that applying the Basic Structure doctrine to test the validity of a statute would amount to **"rewriting the Constitution".**
  - Other judges found the Basic Structure concept "**too vague and indefinite** to provide a yardstick to determine the validity of an ordinary law".
- The court had opined that Constitutional Amendments and ordinary laws operate in **different fields** and were subject to **different limitations**.

Note:

Note: The court, while noting that minorities have the fundamental right under **Article 30** of the Constitution to establish and administer **educational institutions** to impart religious or secular education, said the right was **"not absolute".**

What is the UP Madrasa Education Board Act, 2004?

- **About:** It is a legislative framework aimed at **regulating and formalising madrasa** education in the state of Uttar Pradesh.
  - It ensured that madrasas operate within a set of defined **educational standards and norms.**
- **Madarsa Education**: It aimed to integrate **religious education** alongside the **secular curriculum** prescribed by the **National Council of Educational Research and Training (NCERT)**, blending formal education with Islamic teachings.
- **Board of Madarsa Education**: The Act led to the creation of the **Uttar Pradesh Board of Madarsa Education**, which was tasked with **overseeing and regulating** madrasa education in the state.
- **Examination**: It provides for **conducting exams** for madrasa students, with courses ranging from the **'Maulvi' level** (equivalent to Class 10) to the **'Fazil' level**.

Why did Allahabad HC Declare UP Madrasa Education Board Act, 2004 Unconstitutional ?

- **Secularism**: The Allahabad HC found that the **Madarsa Act, 2004** violated secularism by making **Islamic education compulsory** at all levels while offering **modern subjects** as **optional** or **absent**.
  - The government must provide **secular education** and **cannot prioritize religious-based education** over modern education.
- **Violation of Fundamental Rights: Right to Education (Article 21A)**: The Act violated **Article 21A**, which mandates **free and compulsory education** for children between the ages of **6 and 14**. The court rejected the claim that **traditional education** with a nominal fee met constitutional obligations.
  - The Act violates **Article 14** by creating discrimination between madrasa and mainstream school students.
  - The Act violates **Article 15** by establishing a separate, unequal education system for madrasa students.
- **Conflict with Central Law**: The court found that the **Madarsa Act, 2004** conflicted with the **University Grants Commission Act, 1956 (UGC Act)**.
  - Only **universities** or institutions **deemed to be universities** under the UGC Act, 1956 have the authority to **grant degrees**.

Constitutional Provisions Related to Freedom of Religion:

- **Article 25:** It imparts freedom of **conscience and free profession, practice and propagation** of religion.
- **Article 26:** It gives freedom to manage **religious affairs.**
- **Article 27:** It sets freedom as to **payment of taxes** for promotion of any particular religion.
- **Article 28:** It gives freedom as to attendance at **religious instruction or religious worship** in certain educational institutions.

What are Implications of the SC Ruling on UP Madrasa Education Board Act, 2004?

- **Regulation of Education Standards:** Reinforces the state's role in setting education standards to maintain quality.
- **Protection of Minority Rights:** Affirms the rights of religious minorities to establish educational institutions as long as they adhere to educational standards.
- **Quality Education:** Reinforces the state's obligation to ensure all children receive quality education as per **Article 21A** of the Constitution.
- **Inclusivity:** Supports madrasas' integration into the broader educational framework.

Member of Parliament Local Area Development Scheme

Why in News?

The **Member of Parliament Local Area Development Scheme (MPLADS)** remains a debated topic in India, with proponents arguing it empowers representatives to address local needs and critics claiming it undermines constitutional principles, particularly the **separation of powers.**

- Recent reports of **incomplete projects and calls for increased funding** have further fueled the debate on the oversight and accountability of MPLADS.

Note:

What is MPLADS?

- **About:** MPLADS is a **Central Sector Scheme** introduced in 1993 that enables the **Members of Parliaments (MP)** to recommend developmental work in their constituencies with an emphasis on creating durable community assets based on locally felt needs.
- **Implementation:** A state-level nodal department oversees MPLADS, while **district authorities sanction projects**, allocate funds, and ensure implementation.
- **Funding Allocation:** Each **MP is allocated Rs 5 crore per year** since 2011-12. Funds are disbursed by the **Ministry of Statistics and Program Implementation (MoSPI)** to district authorities in two instalments of Rs 2.5 crore each.
  - **Nature of Funds:** Funds are **non-lapsable and carried forward** if not utilised in a given year. MPs must allocate a minimum of 15% and 7.5% of their funds to create assets for **Scheduled Castes (SCs) and Scheduled Tribes (STs), respectively.**
- **Special Provisions:** MPs can allocate up to **Rs 25 lakh annually outside their constituencies or states** for projects promoting national unity. For severe natural calamities, MPs can allocate up to Rs 1 crore for projects anywhere in India.
- **Projects Eligible Under MPLADS:** MPLADS funds can be converged with the **Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)** for durable asset creation and integrated with the **Khelo India program** for sports infrastructure development.
  - Infrastructure support is permitted on lands owned by **registered societies or trusts** engaged in social welfare for at least three years, but **prohibited for societies where the MP or their family members** are office-bearers.

What are the Main Arguments For and Against MPLADS?

- **Criticisms:**
  - **Violation of Constitutional Principles:** Critics argue that MPLADS breaches the **separation of powers** by allowing legislators to perform executive functions.
    - While MPs claim to only recommend projects, there are concerns that **district authorities rarely defy MP recommendations,** raising questions about accountability and the separation of powers in democratic governance.
    - The **2nd Administrative Reforms Commission (ARC) (2005)** recommended the abrogation of the scheme, highlighting the problems of the legislator stepping into the **shoes of the executive** and **infringe on the rights of local governments.**
  - **Lack of Accountability:** Concerns include inadequate monitoring and evaluation mechanisms, leading to **potential misuse of public funds.**
    - It is widely alleged that MPs use these funds to benefit opinion-makers, contractors, or even family members.
    - The MPLADS scheme is not **governed by any statutory law,** which has made it challenging to enforce the rules and regulations associated with it.
  - **Political Misuse:** Reports suggest that investigations into fund utilisation are often politically motivated, especially during election periods.
  - **Issues in MPLADS:** The **Comptroller and Auditor General (CAG)** has reported multiple flaws in the scheme's execution:
    - Funds under MPLADS are often underutilised, with utilisation rates ranging from 49% to 90%.
    - Instead of **funding new asset creation,** a significant portion of the funds was used for the improvement of existing assets.
    - Excess payments and substandard works due to use of lesser materials have been observed.
    - Delay in **issuing work orders and poor record-keeping** have further compounded the issue, raising concerns about transparency and accountability.
- **Supportive Views:**
  - **Local Development Focus:** Supporters, primarily elected representatives, believe MPLADS serves as a tool for **localised development,** enabling MPs to respond directly to the needs of their communities.

Note:

- **Flexibility in Project Selection:** Elected representatives argue that MPLADS supports **faster implementation of projects** that reflect local priorities.
- **Increased Allocation Demand:** Some MPs are advocating for increased **MPLADS funding,** arguing that the current per capita allocation is lower than what state legislators (**Member of the Legislative Assembly**) receive for smaller populations.
  - It is believed that this increase would enable **more equitable development across larger MP constituencies,** aligning resources with those available to MLAs.

Supreme Court Stance on MPLADS

- In 2010, the **Supreme Court** upheld the scheme as constitutional, legitimising MPLADS while emphasising that **MPs only recommend projects, which are executed by district officials.**
  - The SC noted that the scheme has **contributed positively to local communities,** funding essential developmental works like water facilities, **education, health,** and **infrastructure.**
- The SC clarified that the Union government can allocate funds for public welfare schemes through an Appropriation Bill **(Article 282 of the Indian Constitution),** making the MPLAD Scheme legally valid as part of the public purpose under **Directive Principles of State Policy (Article 38).**

How Effective is the Monitoring of MPLADS?

- **Third-Party Evaluations:** The government has attempted to evaluate MPLADS through third-party monitoring. Organisations like **National Bank for Agriculture and Rural Development Consultancy Services (NABCONS)** and the **Agricultural Finance Corporation (AFC)** Limited have highlighted some positive outcomes, such as creating good-quality assets and providing decentralised development.
  - However, the third-party evaluations also revealed irregularities such as **sanction of ineligible works, encroachment of assets, non-existence of some assets,** diversion of use of assets, delay in financial sanction and completion of works, and works awarded to ineligible trusts/societies.
- **Key Problems in Monitoring MPLADS:** Third-party evaluations are often delayed, leaving little room for corrective actions during project execution.
  - Insufficient checks and **lack of follow-up on irregularities** allow misuse of funds.
  - Opaque processes and **limited public access to fund utilisation data** hinder scrutiny.
  - Each MP's office has the exact details of the fund utilisation over the last 10 years, but **this information has not been updated on the portal** as it was supposed to be.

Does MPLADS Require Reform or Abolition?

- **Arguments for Reform:**
  - Reforming the MPLADS could involve giving it **statutory backing and establishing an independent monitoring body.** This would ensure better governance, accountability, and transparency, addressing concerns about misuse and inefficiency.
    - **Open tendering** can be used for contractor selection, with CAG representatives present to ensure compliance.
  - There could be reforms that enable better integration with national schemes like the MGNREGS and **Pradhan Mantri-Janjati Adivasi Nyaya Maha Abhiyan (PM-JANMAN) Scheme** to maximise the impact of funds.
  - The current scheme allows MPs to fund various projects, but reforms could **focus on targeting welfare initiatives** for marginalised communities to enhance local development.
- **Arguments for Abolition:**
  - Abolishing MPLADS could **redirect funds directly to local governments (Panchayats, Municipalities),** which are better positioned to understand and address the specific needs of the community.
  - Many argue that existing government schemes already address local development needs, and abolishing MPLADS could lead to better utilisation of resources and **prevent duplication of efforts.**
  - The weak regulations have led to misuse and uneven distribution of funds, leaving it vulnerable to **corruption** and inefficiency.

Note:

States Formation Day

Why in News?

Recently, the Prime Minister extended his best wishes to the states of **Chhattisgarh, Madhya Pradesh, Haryana, Karnataka, and Kerala** on their **foundation day (**1st November**).**

- He highlighted the contributions of each state to the country in various fields including **cultural heritage, development, preservation, and natural resources**.

REORGANISATION OF STATES IN INDIA

The States Reorganisation Commission set up in 1956 suggested the formation of 14 States and 6 UTs. At present, India comprises 28 states and 8 UTs.

1950

States classified into **4 categories - Part A, B, C and D** (1st Schedule)

- **Part A -** Ruled by **Governor** with **elected State Legislature**
  - **Andhra Pradesh** (first state on linguistic lines) - 1953
- **Part B -** Former **Princely States**
- **Part C -** Former **Chief Commissioners' Provinces**, some **Princely states**
- **Part D -** Andaman and Nicobar Islands

7th Constitutional Amendment (1956) -

- Distinction between Part-A and Part-B states done away
- Part-C states were abolished
- Made total no. of (erstwhile) states - 14 and UTs - 6

Reorganisation/Creation of States/UTs after 1956

States Carved Out of Other States

- **Gujarat** and **Maharashtra** from Bombay (Bombay Reorganisation Act, 1960)
- **Nagaland** from Assam (State of Nagaland Act, 1962)
- **Haryana** from Punjab (Punjab Reorganisation Act, 1966)
- **Meghalaya** from Assam (North-Eastern Areas (Reorganisation) Act, 1971)
- **Chhattisgarh** from MP (Madhya Pradesh Reorganisation Act, 2000)
- **Uttarakhand** from UP (Uttar Pradesh Reorganisation Act, 2000)
- **Jharkhand** from Bihar (Bihar Reorganisation Act, 2000)
- **Telangana** from Andhra Pradesh (Andhra Pradesh Reorganisation Act, 2014)

States Formed by Granting Statehood

- **Himachal Pradesh** (State of Himachal Pradesh Act, 1970)
- **Manipur** and **Tripura** (North-Eastern Areas (Reorganisation) Act, 1971)
- **Sikkim** (36th Constitutional Amendment (1975))
- **Mizoram** (State of Mizoram Act, 1986)
- **Arunachal Pradesh** (State of Arunachal Pradesh Act, 1986)
- **Goa** (Goa, Daman, and Diu Reorganisation Act, 1987)

Formation of UTs

- Andaman and Nicobar Islands, Delhi, Lakshadweep - 1956
- Puducherry - 1962
- Chandigarh - 1966
- J&K and Ladakh - 2019
- Dadra & Nagar Haveli and Daman & Diu - 2020

Drishti IAS

Note:

Name of State	Year of Formation	Carved Out of States	Regions Merged to form the State
Madhya Pradesh	1956	–	Parts of former Madhya Bharat, Vindhya Pradesh, Bhopal State, Central Provinces and Berar, United Provinces, and Bombay State
Karnataka	1956	–	Kannada-speaking regions of Southern India (Formerly known as Mysuru)
Kerala	1956	–	Travancore-Cochin united with Malabar and Kasaragod taluk of South Canara
Haryana	1966	Punjab	–
Chhattisgarh	2000	Madhya Pradesh (with 16 Chhattisgarhi- speaking districts)	–

What are the Constitutional Provisions Related to Formation of State?

- **Article 2: It empowers the Parliament to 'admit into the Union of India, or establish, new states** on such terms and conditions as it thinks fit'.
- **Article 3:** It **relates to the changes in the existing states of the Union of India.** It deals with the internal re-adjustment between the territories of the constituent states. It authorizes the Parliament to -
  - form a new state by separation of territory from any state or by uniting two or more states; **E.g., Formation of Telangana from A.P. and Jharkhand from Bihar).**
  - Increase, diminish, alter the area of any state and boundaries or name of any state. **E.g., Alteration of area and name of U.P., M.P. and Karnataka.**
- However, **there are two conditions in this regard:**
  - A bill, for this, can be introduced in the Parliament only **with the prior recommendation of the President;**
  - The President has to refer the same to the state legislature for expressing its views within a specified period (though the President or Parliament is not bound by the views of the state legislature).
    - In the case of a union territory, no reference need be made.

Comparative Analysis of Indian and US Presidents

Why in News?

The **United States** is all set to elect the country's next President in its **2024 general election**, with voting through the **Electoral College** scheduled for **5th November, 2024.**

- This election drew attention to the **similarities and differences** in the **powers and roles** of the Presidents of the US and India..

What is the Electoral College System in the US?

- **About:** It is the system used in US presidential elections to **formally elect the president and vice president.**
  - The citizens cast their votes not directly for the president, but for a **group of electors** chosen by each candidate's political party in each state.

Note:

- These electors then **convene to formally cast their votes for president and vice president** in a process known as the Electoral College.

- **Emergence:** It was a **settlement** in the US Constitution, balancing between a **direct popular vote and selection by Congress** for electing the president.
  - It served as a safeguard to prevent the president from appealing directly to the masses and to check executive power through an **intermediary body.**
- **Composition:** It has **538 electors** in total. A candidate needs a majority of **270 electoral votes** to win the presidency.
- **Impact of Electoral College:** A candidate who **wins the national popular vote may still lose the presidency** if electors vote against the citizens' choice in the Electoral College.
  - This has occurred five times in US history, including in the **2000 and 2016** elections, where the winner of the popular vote lost the Electoral College.

How is the Indian Presidential Election Different from the US Presidential Election?

- **Electoral College Composition:** The President is elected through an **electoral college system** made up of:
  - **Elected Members of Parliament (MPs)**: This includes all elected members from both Houses of Parliament, namely the **Lok Sabha** (House of the People) and the **Rajya Sabha** (Council of States).
  - **Elected Members of Legislative Assemblies (MLAs)**: This includes elected members from the **Legislative Assemblies** of all States and Union Territories of **Delhi and Puducherry.**
- **Nomination Process:** A candidate must file a nomination along with a signed list of **50 proposers** and **50 seconders**.
  - These proposers and seconders must be drawn from the electoral college members.
- **Voting Process:** In the presidential election Voters from the electoral college **do not vote for a party candidate** but instead write the names of candidates on the ballot paper in **order of preference**.
  - This system allows voters to **express their preferences** rather than a single choice.
- **Vote Value Calculation:** The voting system assigns different values to votes cast by MPs and MLAs:
  - **Value of an MP's vote**: Each MP, whether from the Lok Sabha or the Rajya Sabha, has a **fixed vote value of 700**.
  - **Value of an MLA's vote**: The value of each MLAs vote is determined by **dividing the population of the State by the number of MLAs** in its legislative Assembly, and the quotient achieved is **further divided by 1000**. E.g., Uttar Pradesh has the highest vote value for each MLA at 208 while **Arunachal Pradesh** has the lowest at **8.**
- **Winning Quota:** The candidate needs to secure **50% of the total votes cast + 1** to win. This differs from general elections where a simple majority is sufficient.

Note: Vote value **reduced from 708 to 700** due to the absence of a legislative assembly in Jammu and Kashmir.

Related Constitutional Provisions for India's President
Article 54: Election of President
Article 55: Manner of election of President.
Article 56: Term of office of President
Article 57: Eligibility for re-election.
Article 58: Qualifications for election as President

How Indian and US Presidents are Similar in Functioning?

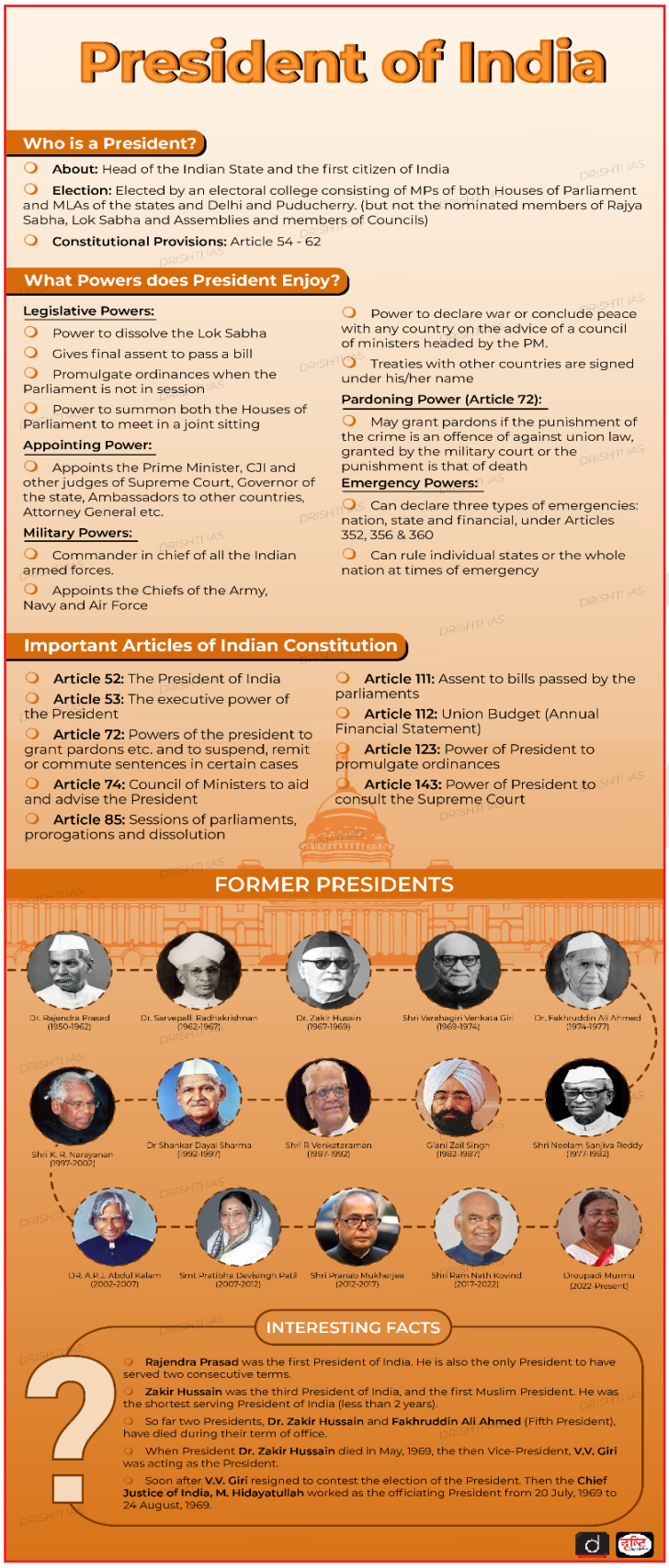
- **Head of State**: Both serve as the **ceremonial head** of state, representing the nation at official functions and diplomatic events.

Note:

- **Election Process**: Both are **elected** to serve in their respective roles, though the methods of election differ **(indirect in India, direct in the US)**.
- **Veto Power**: Both have the authority to **veto legislation** passed by their respective legislative bodies.
- **Emergency Powers**: Both can declare a **state of emergency** and assume special powers, although the nature and extent of these powers vary.
- **Diplomatic Role**: Both presidents have the power to **negotiate treaties** and represent their countries in **international relations**.
- **Ceremonial Duties**: Both perform various **ceremonial duties**, including the inauguration of new laws, the granting of honours, and the h**osting of foreign dignitaries**.

How Indian and US Presidents Differ in Functioning?		
Aspect	Indian President	US President
Powers	**Limited executive powers**, primarily serving a **ceremonial role** with **real power in the Prime Minister.**	Significant executive authority, serving as **both head of state and government**, leading the executive branch.
Functioning	Acts on the **advice of the Council of Ministers**; decisions made collectively with the Prime Minister.	**Autonomy to make executive decisions**, appoint officials, and issue executive orders independently.
Election Process	Elected by an **Electoral College** of members from **Parliament and State Legislative Assemblies**.	Elected through a direct election system where **citizens vote for electors** who then vote for the president.
Term Duration	Serves a term of **five years**, eligible for **reelection** any number of times**.**	Serves a **four-year term**, may be re-elected for **one additional term** (totaling eight years).
Impeachment	Can be impeached for **violating the Constitution**, requiring a two-thirds majority in both Houses of Parliament	The President can be **impeached** for **conviction of treason, bribery, or other high crimes or misdemeanour.**" Impeachment is initiated by the House of Representatives, followed by a Senate trial.
Executive Authority	Exercises powers mainly on the **advice of the Prime Minister and cabinet**, with limited independent authority.	Has the authority to **act independently**, appoint federal officials, and direct the executive branch without Congress approval.
Privileges	Has certain **privileges regarding immunity from legal proceedings** for actions in official capacity.	Enjoys broader privileges, including executive privilege to **withhold information** from Congress and courts.
Immunity	Immune from **legal proceedings for official actions** but can be sued for personal actions.	**Immune from civil suits** for actions taken while in office but can face **criminal charges for illegal activities.**
Political Affiliation	Typically affiliated with a **political party** but expected to **act impartially in office**.	Elected based on **party affiliation**, representing a **specific political party**, and engages in partisan politics.

Note:



Ayurveda Day 2024

Why in News ?

The Ministry of Ayush celebrated 9th Ayurveda Day on 29th October, 2024 centered around the theme **"Ayurveda Innovations for Global Health."**

- The PM launched several health projects, highlighting **India's commitment to accessible Ayurveda**.

What is Ayurveda?

- **About:** Ayurveda focuses on achieving balance in the body, mind and spirit to promote holistic wellbeing.
  - The term Ayurveda is derived from two **Sanskrit words: "ayu", meaning life, and "veda", meaning knowledge.**
- **Historical Context:** Ayurveda, with origins dating back to the Vedas (5000–1000 BCE), is **among the oldest healthcare systems**.
  - Ancient texts like the Ramayana and Mahabharata reference plant-based treatments and surgery.
    - Around 1000 BCE, the Caraka and Susruta Samhitas established Ayurveda's principles, later expanded by Vagbhata's Astanga Sangraha and Astanga Hridaya (Ayurvedic texts).
  - By the 19th-20th centuries, **India formalised Ayurveda education**, creating structured programs and a thriving industry that supports public and private healthcare.
- **Ayurveda Day:** Since 2016, the Government of India has been observing Ayurveda Day every year on **Dhanawantari Jayanti (Dhanteras)** to raise awareness about Ayurvedic principles, medicinal herbs, and lifestyle practices.
  - The **knowledge of Ayurveda is attributed to Dhanawantari**, the divine physician who received this knowledge from the Lord Brahma.
- **International Reach:** Ayurveda spread globally through trade and cultural exchanges, influencing traditional medicine practices in Tibet, China, and beyond.

Note:

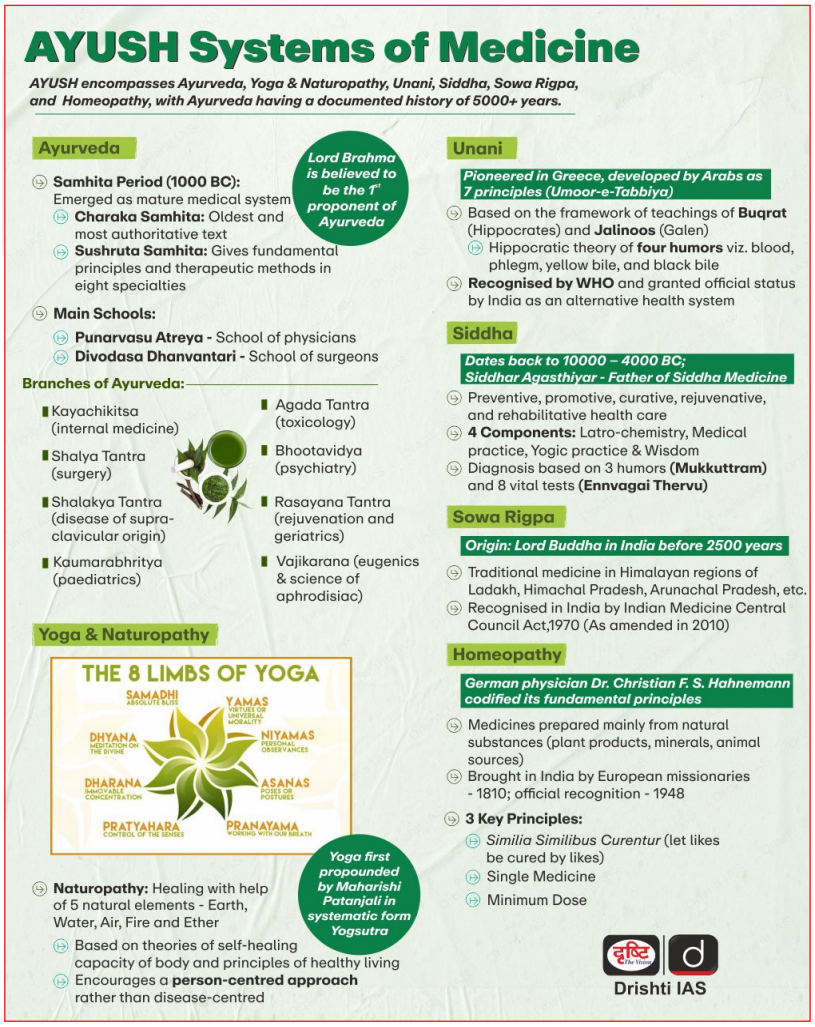
- Ayurveda is now **recognised as a traditional medicine system in 24 countries**, with over 100 countries importing Ayurvedic products.
- This international acknowledgment is furthered by collaborative platforms like the **Shanghai Cooperation Organisation (SCO)** Expert Working Group, **BIMSTEC** Taskforce, and **BRICS** High-Level Forum on Traditional Medicine, which foster policy alignment and global healthcare integration.
- The **World Health Organisation (WHO) included Ayurveda in the ICD-11 TM Module 2**, allowing accurate documentation of Ayurvedic health interventions.
  - WHO **also set benchmarks for Ayurveda practice and training**, raising global quality standards.

What is the Significance of the Theme?

- The theme focuses on fostering Ayurvedic innovation to address global health issues.
  - **Key Objectives Include:**
    - Combating **non-communicable diseases (NCDs)** and antimicrobial resistance.
    - Addressing challenges related to climate change, geriatric and mental health, and nutritional disorders.
    - Emphasizing preventive health and holistic wellness.
    - Supporting the **United Nations Sustainable Development Goals (SDGs)** and **Universal Health Coverage (UHC) vision**.
  - **Key Focus Areas:**
    - **Women's Health:** Utilising Ayurveda's holistic methods to address women-specific health issues.
    - **Workplace Wellness:** Applying Ayurvedic principles to support physical and mental health in work settings.
    - **School Wellness Programs:** Promoting Ayurvedic wellness among children through practices that enhance immunity.
    - **Food Innovation:** Advancing Ayurvedic dietary concepts and innovations by merging traditional approaches with modern culinary methods.
  - By promoting preventive health and wellness, Ayurveda supports **Sustainable Development Goal (SDG) 3** and **Universal Health Coverage (UHC)**.

Initiatives Taken for the Development of Ayurveda

- **National Ayush Mission**
- **New Portals on Ayush Sector**
- **ACCR Portal and Ayush Sanjivani App**



■■■

Note:

Economic Scenario

Highlights

- *Sustainability Concerns in India's Agricultural Export Growth*
- *National Technical Textiles Mission*
- *Agricultural Policy Monitoring and Evaluation 2024*
- *RBI's Framework for Reclassification of FPI to FDI*
- *Nano Coated Fertilisers*
- *Branned Millets for Health Benefits*
- *State of Food and Agriculture 2024*
- *Upgrading Wind Energy Generation*
- *Development Economics*
- *First Advance Estimates for Kharif Crop Production*
- *Paradox of Stagnant Rural Wages*
- *India Joins ARIN-AP Steering Committee*
- *50th Foundation Day of Coal India Limited*
- *RBI's Repatriation of Gold*
- *Major Employment Generation Schemes*

Sustainability Concerns in India's Agricultural Export Growth

Why in News?

India's surge in agricultural exports, particularly **tea** and **sugar**, has significantly contributed to its **economic growth**. However, this rapid increase **raises critical sustainability concerns regarding environmental impact,** resource management, and labour conditions.

Note: India is **one of the world's largest agricultural product exporters**, with exports valued at USD 53.1 billion in 2022-2023, up from **USD 8.7 billion in 2004-2005,** a six-fold increase in less than two decades.

- Exports play a significant role in strengthening India's economy, but the rapid surge poses challenges to the sustainability of the production, processing, and distribution systems.
- **Tea:**
  - **Export Growth**: India is the **world's fourth-largest tea exporter**, with exports valued at **USD 793.78 million** in 2022-2023, primarily to destinations like the United Arab Emirates, Russia, Iran, United States, and United Kingdom.
- **Export Growth**: India, the **world's second-largest sugar producer,** accounts for about **20% of global production.**
  - Sugar exports grew from USD 1,177 million in FY 2013-14 to USD 4,600 million in FY 2021-22, marking a **64.90% increase. It exports to 121 countries.**
  - **Economic Impact:** Employs about **50 million farmers and an additional 500,000 workers in sugar factories**. The industry has an annual turnover of approximately Rs 1 lakh crore, according to **NITI Aayog (National Institution for Transforming India).**

What does Sustainability in Agriculture Mean?

- **Economic Sustainability**: While exports are economically beneficial, sustainability goes beyond profitability. It involves maintaining **long-term productivity without depleting resources.**
- **Ecological Sustainability**: Protecting **natural ecosystems, minimising chemical use,** and **managing water resources** effectively are crucial to ensuring that agricultural systems do not harm the environment.
- **Social Sustainability**: Addressing issues such as **labour rights**, **fair wages**, and safe working conditions is essential for creating equitable and sustainable agricultural systems.

Note:

- **The Lifecycle Approach**: Sustainability must be considered throughout the entire lifecycle of a commodity, from pre-sowing to **post-harvest stages**, not just during production.

How do the Tea and Sugar Industries Impact Sustainability?

- **Sustainability Concerns in Tea Production**:
  - **Human-Wildlife Conflicts**: **70% of tea plantations are near forests,** resulting in frequent **conflicts with wildlife,** such as **elephants,** causing damage to crops and plantations.
  - **Chemical Use**: The widespread use of synthetic pesticides in tea cultivation, including harmful chemicals like **Dichlorodiphenyltrichloroethane (DDT)** and **Endosulfan**, poses **health risks and increases chemical residue** in the final product.
  - **Labour Issues**: With women constituting over half of tea plantation workers, **low wages, hazardous working conditions,** and inadequate enforcement of labour laws remain significant challenges.
    - The **Plantations Labour Act, 1951,** mandates worker safety, but its provisions are rarely fully enforced.
- **Sustainability Concerns in Sugar Industry:**
  - **Water Management**: Sugarcane, requiring 1,500 to 2,000 litres of water per kg of sugar, **strains India's water resources.** Despite covering 25% of the cropped area, sugarcane and **paddy** consume 60% of irrigation water, limiting availability for other crops.
  - **Impact on Biodiversity:** Expansive sugarcane cultivation in Karnataka and Maharashtra has **replaced grasslands and savannahs, causing biodiversity loss** and disrupting wildlife habitats.
  - **Labour and Working Conditions**: Sugar industry workers, often trapped in **debt cycles**, face long working hours in harsh conditions. Rising temperatures further exacerbate their physical and mental well-being.

What Needs to Be Done to Address Sustainability Challenges?

- **Sustainability in Tea Industry:** Use **climate-resilient tea varieties** and implement agroforestry practices to mitigate climate risks.
  - Ensure farmers receive a **fair share of profits through direct market access and premiums** for certified products.
  - Improved practices **to manage human-wildlife interactions** around plantations. And stricter monitoring of maximum residue limits for safer tea production is needed.
  - Integrate sustainable farming techniques such as precision agriculture, **agroforestry,** and **integrated pest management (IPM)** to improve yield and minimise environmental harm.
- **Sustainability in Sugar Industry:** Transitioning to sustainable irrigation methods like **drip irrigation to conserve water.**
  - Adopting drip irrigation can **reduce water usage by 40–50%, making cultivation more resource-efficient.**
  - Using **sugarcane by-products like bagasse (for bioenergy), vinasse (as fertilizer),** and **cane trash (for biomass or animal feed)** reduces waste and improves resource efficiency, thereby promoting a **circular economy.**
  - Sugar mills can transition to **biorefineries,** where waste products are used for **energy generation,** making the industry more self-sufficient and reducing reliance on **non-renewable energy sources.**
  - Ensuring better working conditions, fair wages, access to healthcare, education, and social safety nets for farm labourers and mill workers.

What can be Done to Achieve Sustainable Agricultural Economic Growth?

- **Encourage Sustainable Crop Selection:** Promote resilient crops like **millets**, a sustainable choice for boosting domestic use and exports, thriving in harsh conditions, enhancing soil health, and ensuring nutritional security with minimal inputs.
  - India's millet exports grew from **USD 26.97 million in 2020-21 to USD 75.45 million in 2022-23,** underscoring their value as an eco-friendly crop that supports economic growth.
- **Dual Demand Base Management:** India's agricultural sector supports a large domestic market and a growing export market, driving economic growth. Balance exports with domestic **needs to avoid stressing natural resources or over-reliance on specific commodities.**

Note:

- **Strengthen Supply Chain Dependencies:** Address supply chain dependencies impacting sustainability. Foster collaboration and transparency to integrate sustainability goals across the chain.
- **Environmental Safeguards:** Emphasise environmental conservation to maintain sustainable production levels without exhausting natural resources.
  - Implement eco-friendly practices such as **reduced water usage, organic farming methods, and soil health preservation.**

National Technical Textiles Mission

Why in News?

Recently, the **Ministry of Textiles** has approved **12 research projects** under the **National Technical Textiles Mission (NTTM)** increasing the total number of approved research projects to **168**.

- The research projects were approved across key strategic areas of **geotextiles, sustainable and smart textiles** etc.

What are Key Points About NTTM?

- **About:** NTTM is an initiative of the **Ministry of Textiles** to promote the growth and development of the **technical textiles sector** in the country.
  - It aims to position India as a **global leader** in technical textiles by **2024.**
- **Implementation Period:** NTTM was approved with a **four-year** implementation period from **FY 2020-21 to 2023-24.**
- **Components:** The Mission has **four** components.
  - **Research, Innovation and Development:** Fundamental research is conducted in **Council of Scientific and Industrial Research (CSIR) labs, IITs**, and other reputable scientific, industrial, and academic institutions.
  - **Promotion and Market Development:** It focuses on **market growth, international collaborations, investment promotions**, and **'Make in India'** initiatives.
  - **Export Promotion:** An **Export Promotion Council for Technical Textiles** has been established to enhance coordination and promotional activities in this sector.
  - **Education, Training, and Skill Development:** It promotes higher-level **technical education and skill development** in technical textiles, covering engineering, medical, agriculture, and related sectors.

Technical Textiles

- **About:** Textile materials that are manufactured for their **technical performances and functional properties** rather than aesthetic and decorative features are called technical textiles.
- **Categories:** These products are broadly classified into **12 different categories** based on their usage in **civil engineering, construction, defence**, healthcare and automobile among other industries.
- **Applications:** They can be used for various **applications** ranging from **agriculture,** roads, railway tracks, sportswear, health, **bullet proof jackets, fireproof jackets, high altitude combat gear** and space applications.
- **Examples:** Umbrella cloth, **mosquito nets, cigarette filter nods**, contact lenses, **sanitary napkins,** seat belts, tufted carpet, **helmets, tea bag filter papers** etc.

Initiatives Related to Technical Textile

- **Production Linked Incentive (PLI) Scheme for Textiles Sector**
- **Technotex India**
- **Amended Technology Upgradation Fund Scheme**

Agricultural Policy Monitoring and Evaluation 2024

Why in News?

Recently, the **Organisation for Economic Co-operation and Development (OECD)** in its ***Agricultural Policy Monitoring and Evaluation 2024 report*** highlighted that India implicitly taxed its farmers **USD 120 billion in 2023,** the highest among 54 countries.

Note:

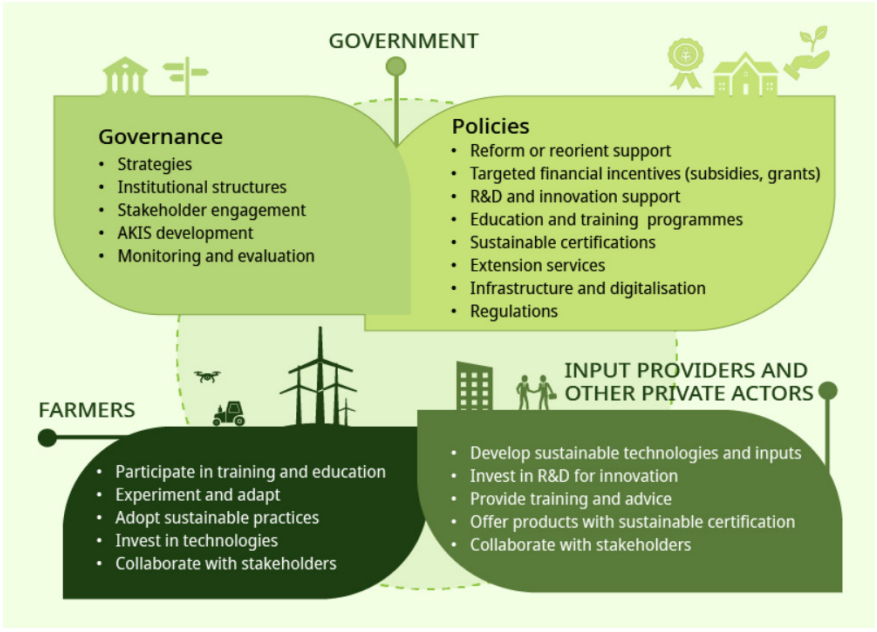
- This is a result of government policies like export bans and duties, which aim to keep **food prices low for consumers** but impose significant costs on the **agricultural sector.**

What are the Key Highlights of the OECD's Report?

- **Financial Support to Agriculture:** Total support for the agricultural sector across 54 countries averaged **USD 842 billion per year from 2021 to 2023.** Although it dropped in 2022 and 2023 compared to the 2021 peak, it still remained much higher than levels before the **Covid-19 pandemic.**
  - **Market Price Support (MPS)** fell by USD 28 billion between 2021-23 but still remained a major part of total support.
    - MPS is a policy measure that aims to keep the **price of a specific agricultural product on the domestic market** at a certain minimum (government set) level, which **helps to raise domestic prices above world prices.**
- **Agricultural Support in India:** In 2023, India's **export restrictions** on **rice**, sugar, onions, and **de-oiled rice bran** led to a negative MPS, causing a USD 110 billion loss.
  - As a result, farmers **received less for their produce than they would have without these policies,** leading to a significant reduction in their income.
  - India's overall market price support in **2023 was negative,** amounting to a **USD 110 billion loss,** meaning **farmers received less for their produce than they would have without these policies.**
    - India had the highest negative price support, followed by Vietnam and Argentina. **India accounted for 62.5% of all global negative price support in 2023.** This share has grown significantly from 61% in 2000-02 to 75% in 2021-23, highlighting the increasing burden on Indian farmers.
    - Despite positive support through **subsidies and Minimum Support Price(MSP)** totaling USD 10 billion, the price-depressing policies overwhelmed these measures.
- **Global Agricultural Challenges:** Ongoing conflicts, such as **Russia's war against Ukraine** and **unrest in the Middle East,** have disrupted agricultural markets, particularly affecting trade and global supply chains.
  - The increasing frequency and severity of **extreme weather events** continue to challenge agricultural production and productivity.
    - Some countries have implemented **export restrictions,** further distorting international trade in agricultural commodities
  - Increasing **farmer's protests across nations** underscore the economic and social struggles faced by farmers, reflecting deep-seated issues in agricultural systems.
  - Global agricultural productivity growth has slowed, threatening the **ability to meet growing global food demands while maintaining sustainability.**
    - Governments are linking payments to farming practices that support land health, **biodiversity**, and **sustainability**, but Environmental Public Goods Payments(EPGP) make up only 0.3% of total producer support.
      - EPGP is a way to fund the provision of public goods that benefit the environment, such as **climate protection.**
- **Recommendations:** Governments need to establish measurable goals for sustainable productivity, investing in monitoring systems like **total factor productivity (TFP)** and **agri-environmental indicators (AEIs).**
  - TFP measures the efficiency of agricultural inputs in producing outputs. TFP growth shows that farmers can produce more with the same or fewer resources, making it a key metric for sustainable agriculture.
  - AEIs measure key environmental **impacts and risks from agriculture and assess producers' management practices.** They help explain agriculture's performance and its underlying causes.
  - The report highlights the need for **innovation to boost productivity** and calls for a **larger share of producer support** to be tied to **sustainable farming practices.**

Note:

What governments, farmers and others are doing for sustainable productivity growth



Source: OECD (2024), OECD Agricultural Policy Monitoring and Evaluation: Innovation for Sustainable Productivity Growth

Organisation for Economic Co-operation and Development

- The **OECD**, founded in 1961, is an international organisation of 38 democratic countries committed to the market economy, headquartered in **Paris, France**.
  - It aims to promote **prosperity, equality, opportunity, and well-being** through the publication of **economic reports, data, analyses, and forecasts**, and by working to eliminate **bribery and financial crime** globally.
- The OECD collaborates with its Member countries and a range of partners on key global issues.
  - **India** has been an OECD **Key Partner** since 2007, alongside countries like **Brazil, China, Indonesia**, and **South Africa**, though it is **not a member.**
  - The OECD also maintains a **"blacklist"** of **uncooperative tax havens** and has working relationships with non-member economies such as India.
- **Reports and Indices by OECD:** Government at a Glance, and **OECD Better Life Index.**

How do Indian Agricultural Policies Negatively Impact Farmers?

- **Negative Market Price Support:** India's policies have resulted in a **negative market price support for farmers.** From 2014 to 2016, the producer support estimate (PSE) was around -6.2%, driven by negative market price support (-13.1%).
  - PSE is a metric that measures the annual value of transfers from consumers and the government **to agricultural producers.**
- **Export Restrictions and Bans:** Imposing export bans and quotas on essential commodities like rice and sugar limits market access, driving down domestic prices.
- **Regulatory Constraints**: The Essential Commodities Act, 1955 and Agricultural Produce Market Committee (APMC) Act in 2003 impose **stringent regulations on the pricing, stocking, and trading of agricultural commodities.**
  - These Acts, while aimed at ensuring food security, often **result in lower farm gate prices due to price controls** and low procurement prices set by the government, which are sometimes **below international market prices, leading to a price-depressing effect for producers.**
- **Low Minimum Support Prices (MSP)**: The MSP is intended to protect farmers, but it **has been set lower than international prices during certain periods**, leading to farmers receiving less than they would have in an open market environment.
- **Inefficiencies in Marketing**: Lack of modern infrastructure and high transaction costs reduce the prices farmers receive for their produce, adding to price suppression.
- **Inefficient Resource Allocation:** subsidies for fertilisers, irrigation, and electricity provide short-term relief but fail to address long-term issues like climate change, market access, and **declining agricultural research,** which ultimately hinder sustainable growth and profitability for farmers.

Note:

India's Initiatives Related to Agriculture
➢ National Mission on Sustainable Agriculture
➢ Paramparagat Krishi Vikas Yojana (PKVY)
➢ Sub-mission on AgroForestry (SMAF)
➢ Rashtriya Krishi Vikas Yojana
➢ AgriStack
➢ Digital Agriculture Mission
➢ Unified Farmer Service Platform (UFSP)
➢ Mission Organic Value Chain Development for North Eastern Region (MOVCDNER)

RBI's Framework for Reclassification of FPI to FDI

Why in News?

Recently, the Reserve Bank of India (RBI) introduced a framework to allow **foreign portfolio investors** to convert their investments to foreign direct investment (FDI).

What are the Key Highlights of the Framework?

- **Threshold Crossing**: Any **foreign portfolio investor** investing above 10% of the total paid-up equity has the option of **divesting their holdings or reclassifying** such holdings as **FDI.**
  - FDI is the investment through **capital instruments** by a person resident outside India.
    - In an **unlisted Indian company** or
    - In **10% or more of the paid-up equity** capital of a **listed** Indian company (Below 10% is considered Foreign portfolio investment (FPI)).
- **Timely Conversion**: The reclassification must be completed within **five trading days** from the transaction that results in **breaching the 10% limit.**
- **Compliance Requirements**: FPIs must adhere to reporting obligations under the **Foreign Exchange Management (Mode of Payment and Reporting of Non-Debt Instruments) Regulations, 2019** (FEM (NDI) Rules, 2019).
  - FEM (NDI) Rules, 2019 mandates that investments by non-residents in India must follow **entry routes, sectoral caps, or investment limits** unless specified otherwise.
- **Sector Restrictions**: Reclassification is not permitted in sectors where **FDI is restricted** E.g., Gambling and betting, **Real Estate Business**, Nidhi company (Mutual Benefit Funds Company) etc.
- **Complementary Measures**: It complements a similar update from the Securities and Exchange Board of India (SEBI) which mandates that once an **FPI exceeds the 10%** equity threshold, it may opt to convert the holdings to FDI.

Note: In order to curb **opportunistic takeovers/ acquisitions** of Indian companies due to the Covid-19 **pandemic**, Government amended the **FDI policy 2017 vide Press Note 3 (2020)**.

- It required **entities** from countries sharing a **land border with India**, or whose **beneficial owner** is from such countries, can **only invest** in India through the **Government route.**
- For the purpose of **Press Note 3,** India recognises **Pakistan, Afghanistan, Nepal, Bhutan, China (including Hong Kong), Bangladesh and Myanmar** as countries sharing land border with India (Bordering Countries).

What is the Difference Between FDI and FPI?

Parameter	FDI (Foreign Direct Investment)	FPI (Foreign Portfolio Investment)
Nature of Investment	**Direct investment** and **business ownership** in India by a foreigner.	**Indirect** investment in financial assets like **stocks and bonds.**
Investor Role	Active role	Passive role
Control and Influence	**High degree of control** over management and business operations.	**No significant control** over day-to-day operations of the company.
Asset Type	**Physical assets** of the foreign company.	Financial assets like **stocks, bonds, and** Exchange-Traded Fund (ETF).

Note:

Investment Approach & Time Frame	**Long-term** approach. It can take years to progress from planning to implementation.	**Shorter term** than FDIs. It is focused on market-linked gains.
Motive	Securing **market access or strategic interests** in a foreign country for long-term gains.	Short-term returns and **market-linked gains**.
Risk Factor	Generally **more stable**, but affected by the host country's policies, political environment, and regulations.	Generally **more volatile** due to fluctuations in asset prices.
Entry and Exit	Entry and exit are **difficult.**	Entry and exit are **easy** due to **liquidity** and wide trading of assets.

FDI and FPI

Foreign Direct Investment (FDI)

- ***About:***
  - Investment made by foreign entities/individuals in businesses and assets located in a different country
- ***FDI Routes:***
  - Automatic Route:
    - No prior government approval required
    - Up to 100% allowed in non-critical sectors
  - Government Approval:
    - Necessary in certain sectors or for investments above specific thresholds
    - Administered by Department for Promotion of Industry and Internal Trade (DPIIT) and RBI
- ***Examples of Approval via Auto and Govt Route:***
  - Banking (Private sector): up to 49% (auto) + above 49% and up to 74% (Govt)
  - Defence: up to 74% (auto) + above 74% (Govt)
  - Healthcare (Brownfield): up to 74% (auto) + above 74% (Govt)
  - Telecom Services: up to 49% (auto) + above 49% (Govt)
- ***Foreign Investment Promotion Board (FIPB):***
  - Comes under Ministry of Finance
  - Responsible for processing FDI proposals - facilitated by Foreign Investment Facilitation Portal (FIFP)
  - Making recommendations for Government approval

Govt's prior approval is mandatory for FDIs from countries sharing land border with India (China, Bangladesh, Pakistan, Bhutan, Nepal, Myanmar and Afghanistan)

- ***India's Top 5 FDI Sources (FY 2022-23):***
  - Mauritius
  - Singapore
  - USA
  - Netherland
  - Japan
- ***India's Top Sectors Attracting FDI (FY 2022-23):***
  - Services Sector
  - Computer Software & Hardware
  - Trading
  - Telecommunications
  - Automobile Industry

Foreign Portfolio Investment (FPI)

- ***About:***
  - Investments made by foreign individuals, institutions, or funds in financial assets
  - Known as Fly by Night or Hot Money
- ***Imp Features:***
  - Purchase of financial assets occur without gaining ownership
  - Passive investment approach
  - Investors earn returns through dividends, interest, and capital appreciation
- Example:
  - Stocks, Bonds etc.
- Regulatory Body:
  - Securities and Exchange Board of India (SEBI)

Difference between FDI and FPI

Features	*FDI*	*FPI*
Nature of Investment	Long-term	Short-term
Objective	Long-term presence in a foreign country	Earning quick returns on investments
Control	Significant (over the invested entity)	No or limited control
Investments in	Tangible assets (e.g., factories, buildings)	Financial assets (e.g., stocks, bonds)
Returns	Profits, Dividends, and Capital appreciation	Dividends, Interest, and Capital appreciation
Policy Regulations	Govt policies and sector -specific regulations	Flexible regulations and easier entry/exit
Impact on Economy	Job creation, technology transfer, and economic growth	Short-term liquidity and impact on stock market performance

Drishti IAS

Note:

Nano Coated Fertilisers

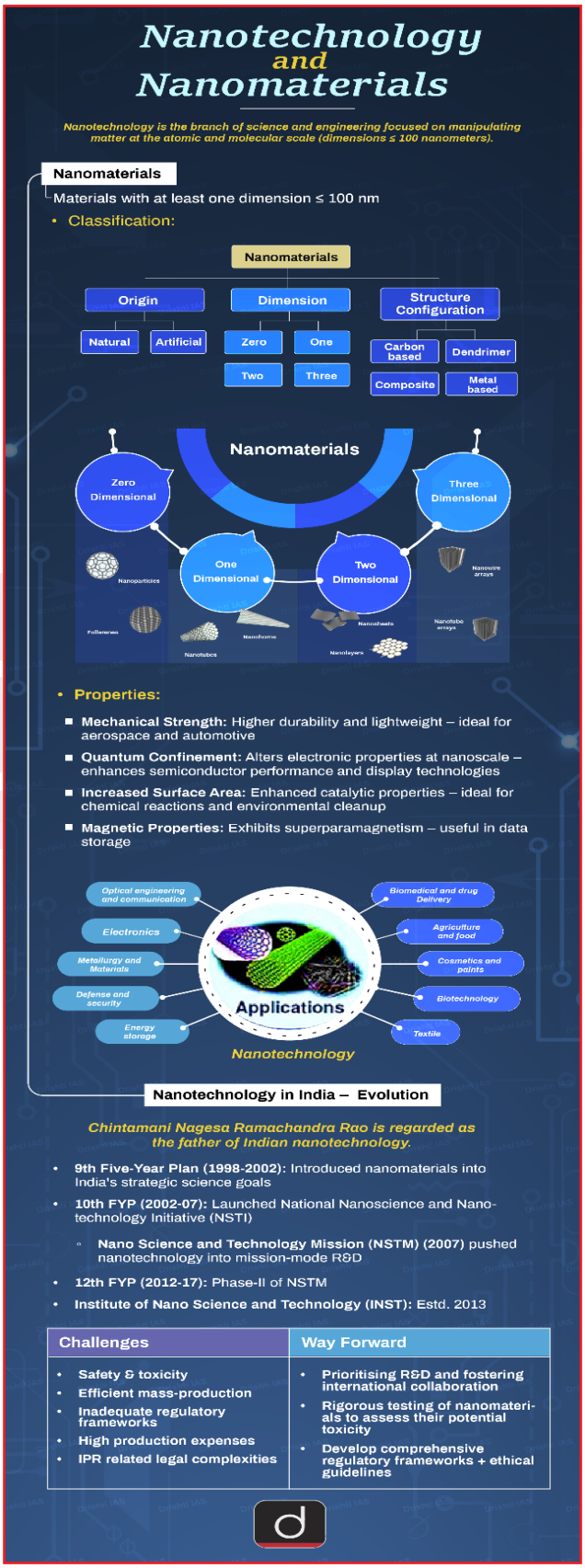
Why in News?

Recently, Indian scientists have developed **nano coated muriate of potash** (**nano fertilisers**) which can enhance the **nutrient use efficiency (NUE)** of fertilisers.

- The coating made of **nanoclay-reinforced binary carbohydrates** can reduce the recommended **fertiliser dose** and maintain **enhanced crop production**.
- It is **mechanically stable, biodegradable and hydrophobic** which can **enhance NUE** by their **slow release in soil.**
- NUE is the **efficiency of a plant** in using **applied or fixed nitrogen** for biomass production.

What are Key Facts About Nano Fertilisers?

- **About Nanofertilisers:** Fertilisers coated with **nanomaterials** (particles in the nanoscale range of 1-100 nanometer) are called **Nanofertilisers.**
  - These nanomaterials enable **controlled release** of nutrients into the soil, optimising **nutrient availability** to plants over a longer period.
- **Nanomaterial Components:**
  - **Inorganic Materials:** Common inorganic nanomaterials used for nanofertilizers include:
    - **Metal Oxides: Zinc oxide (ZnO), titanium dioxide (TiO_2)**, magnesium oxide (MgO), and silver oxide (AgO).
    - **Silica Nanoparticles:** These provide **high surface area**, **biocompatibility, and non-toxicity,** enhancing crop quality and supporting sustainable agriculture, especially under stress like **salinity**.
    - **Hydroxyapatite Nanohybrids:** They help in delivering **calcium and phosphorus** to plants.
  - **Organic Materials:** Common organic nanomaterials used for nanofertilizers include:
    - **Chitosan:** It is a **biodegradable**, natural material which helps in delivering nutrients efficiently.
    - **Carbon-based Nanomaterials:** Organic nanomaterials such as **carbon nanotubes (CNTs), fullerenes, and fullerols** increase the rate of **germination, the chlorophyll content, and the protein** content.



Note:

- **Types of Nanofertilizers:** Nanofertilisers can be classified based on the method of preparation.
  - **Nanoscale Coating Fertilisers:** These fertilisers have **nutrients coated** in nanoparticles for slow and controlled release.
  - **Nanoscale Additive Fertilisers:** Nutrients are added to **nano-sized adsorbents**, keeping them stable and gradually available to plants.
  - **Nanoporous Materials:** Fertilisers in **nanoporous** materials release nutrients slowly, ensuring plants **absorb them fully.**
- **Applications in Agriculture:**
  - **Precision Agriculture:** Nanotechnology is used in **precision agriculture** to optimise **water and fertiliser use**, reducing waste and energy consumption.
    - In Precision agriculture, inputs are utilised in **precise amounts** to get **increased average yields**, compared to traditional cultivation techniques.
  - **Soil and Plant Health:** Nanofertilisers boost **seed germination, nitrogen metabolism, photosynthesis**, protein and carbohydrate production, and stress tolerance, leading to healthier crops.
  - **Long-Term Soil Fertility:** Nanofertilisers release slowly, helping maintain or improve soil fertility for sustainable crop production.

What are the Advantages of Nanofertilisers?

- **Enhanced Nutrient Efficiency:** Nanofertilisers can **minimise nutrient loss** due to **leaching and runoff**, and reduce their **fast degradation and volatility**. This improves **soil fertility** and ensures that plants receive nutrients more efficiently.
- **Improved Crop Productivity:** The slow and controlled release of nutrients can lead to **increased crop yield** over time, as plants can access nutrients when needed, resulting in better growth and development.
- **High Surface Area and Penetration Ability:** Nanofertilizers possess a high **surface area-to-volume ratio**, allowing for better nutrient uptake by plant roots. This property also facilitates the **penetration of nutrients** deeper into the soil.
- **Biofortification:** Nanofertilisers can be used to enhance the **nutritional content** of crops by supplying **essential micronutrients**, such as **iron, zinc, and iodine**, through **nano-based biofortification**.
- **Environmental Benefits:** Nanofertilisers can reduce **environmental hazards** caused by traditional fertilisers, such as **runoff and soil contamination**, promoting eco-friendly farming practices.
- **Cost Efficiency:** Nanofertilisers can minimise costs in the long run by **reducing** the need for **frequent applications**. E.g., While **conventional urea** has an efficiency of **about 25%,** the efficiency of **liquid nano urea** can be as high as **85-90%.**
  - Recent advances in manufacturing processes have made them affordable for **small-scale farmers** and **plant breeders**.
- **Compatibility with Biofertilizers:** Nanofertilisers can complement **biofertilisers** by supporting the activities of beneficial **microorganisms** in the soil. For example, enhanced **nitrogen fixation** by **Rhizobium** and **Azotobacter**.
  - **Nano-composite fertilisers** boost **rhizosphere bacteria**, encouraging **secondary metabolites** that enhance plant growth by promoting **root surface colonisation.**

What Challenges are Involved in Use of Nanofertilisers?

- **Impact on Environmental:** Nanofertilisers may have potential **ecotoxicity** risks to the **soil, water, and non-target organisms**.
  - Ecotoxicity studies how **chemicals, physical agents, or biological stressors harm organisms** and the environment.
- **Toxicity to Humans:** Nanoparticles can **penetrate biological systems** more easily than larger particles, which raises potential risks to both **human health and the environment.**
- **Impact on Soil Microorganisms:** Metal or metal oxide nanoparticles may **disrupt soil ecosystems**, potentially harming beneficial microbes essential for nutrient cycling and soil fertility.
- **Lack of Legislation and Regulation:** Currently, there is **no adequate legislation** or risk management system in place to regulate the use of nanofertilizers which raises concerns about the **safety and effectiveness** of nanofertilizers.

Note:

- The use of nanomaterials in agriculture raises concerns regarding **regulations** and **safety standards** for both human health and environmental protection.

- **Bioaccumulation:** The long-term **persistence** of nanofertilizers in plant systems may lead to **build-up** of nanoparticles in the food chain.
- **Decline in Yield:** A study has found that there was a **21.6% decrease in wheat yield and a 13% decrease in rice yields** with the use of nano urea in India.

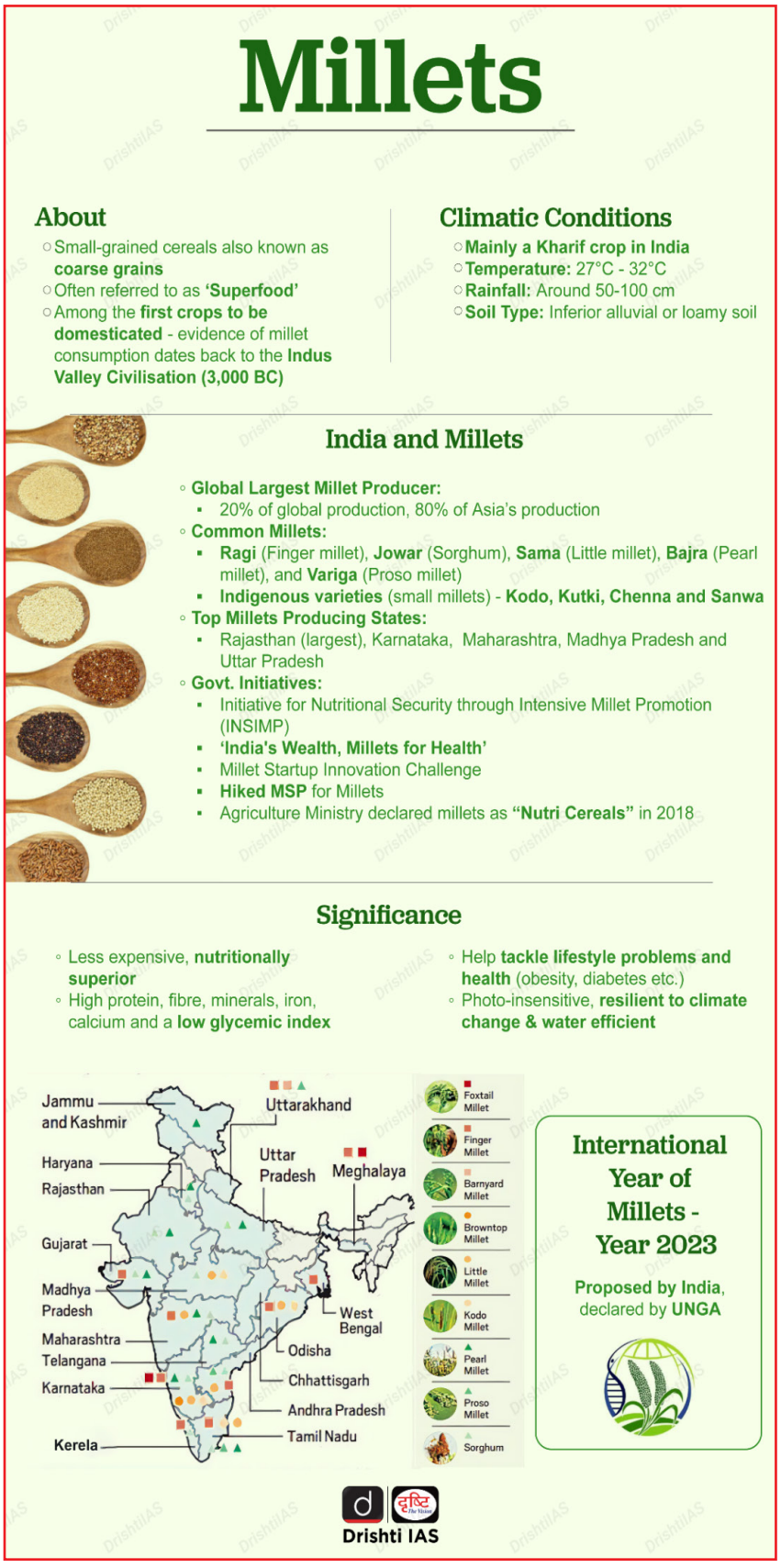
Branned Millets for Health Benefits

Why in News?

Recently, a study titled **'Impact of debranning** (the process of removing the outer bran layers from a cereal grain) **on the nutritional, cooking,** microstructural characteristics of five Indian small millets' was published.

What are the Key Highlights of the Study?

- **Nutritional Impact of De-branning:** Removing the bran from millets **reduces protein, dietary fibre, fat, mineral, and phytate** content while **increasing carbohydrates and amylose** content.
  - This diminishes their health benefits and increases their glycemic load.
- **Reasons for De-branning Millets:** De-branning and polishing millets **extends their shelf life** and **reduces cooking time** by making them softer.
  - However, **vacuum-sealing** can extend the **shelf life** of whole-grain millets without removing the bran.



Note:

- **Millets' Health Benefits**: Millets contain minerals like **iron, zinc, and calcium** and have **bioactive flavonoids** that support health.
  - They help **prevent diabetes, manage hyperlipidemia, reduce weight, and lower blood pressure**, with positive effects on cardiovascular disease (CVD).
  - They are **gluten-free** and have a **low glycemic index**, beneficial for people with **celiac disease or diabetes**.

What are the Key Facts About Millet?

- **About:** It is a collective term referring to a number of **small-seeded grasses** that are cultivated as **grain crops**, primarily on marginal lands in dry areas in **temperate, subtropical and tropical regions.**
  - Some of the common **millets** available in India are **Ragi** (Finger millet), **Jowar** (Sorghum), **Sama** (Little millet), **Bajra** (Pearl millet), and **Variga** (Proso millet).
- **Global and Indian Production**: India is the **largest producer and exporter** of millets, followed by **Niger and China.**
  - Global millet production stood at **28 million metric tons in 2020**, with major consumption in **Africa and Asia.**
- **Millet Promotion:** 2023 was recognized as the **International Year of Millets** by the **Food and Agriculture Organization (FAO).**
  - The Indian government promotes millet production under the **National Food Security Mission.**
- **Ecological and Economic Advantages**: Millets are **drought-tolerant,** thrive in arid and semi-arid regions, and require minimal water, fertilisers, and pesticides.
  - It serves dual purposes, used as both **food and fodder,** increasing farming efficiency.

State of Food and Agriculture 2024

Why in News?

The ***State of Food and Agriculture 2024*** report by the **Food and Agriculture Organization (FAO) of the United Nations** has revealed staggering global **agrifood hidden costs** of approximately **USD 12 trillion annually,** primarily driven by **unhealthy dietary patterns** and **environmental degradation.**

- This report examines the often-overlooked factors that contribute to these costs, urging a transformation of the global agrifood systems.

Note: Hidden costs refer to the **economic burdens that are not reflected in the market price of food products.** These include health costs, environmental degradation, and social inequities that arise from the current agrifood system.

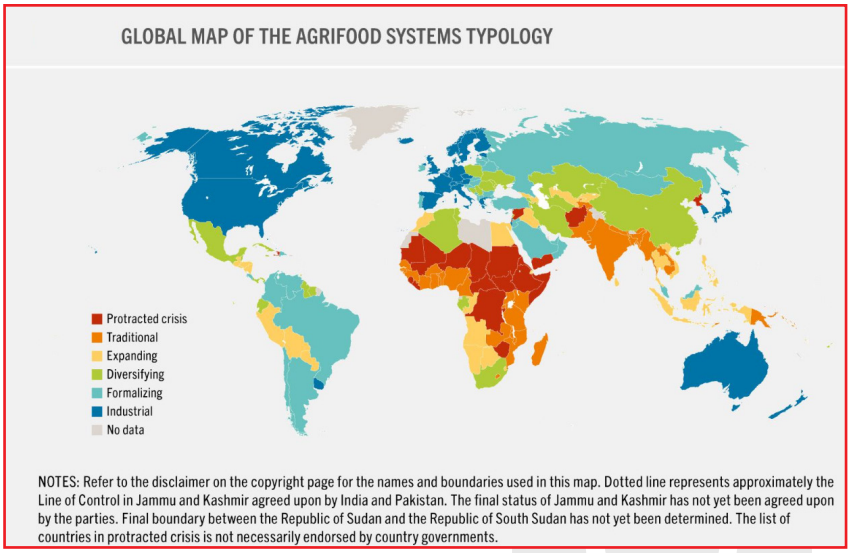
What are the Key Highlights of the State of Food and Agriculture 2024?

- **Global Hidden Costs**: Hidden costs of agrifood systems amount to approximately USD 12 trillion annually.
  - 70% of these costs (USD 8.1 trillion) are linked to unhealthy dietary patterns and associated **non-communicable diseases (NCDs)** like heart disease, stroke, and **diabetes.**
- **Insights on India:** India's hidden costs, totalling **USD 1.3 trillion,** are the **third largest globally,** following China (USD 1.8 trillion) and the United States (USD 1.4 trillion).
  - These costs reflect significant health, social, and environmental challenges tied to its agrifood system.
  - Over **73% of these costs stem from dietary risks,** such as high consumption of **processed foods** and **low intake of plant-based foods**.
  - The overconsumption of **processed foods and additives** costs India USD 128 billion annually, primarily due to diseases like heart disease, stroke, and diabetes.
  - India's insufficient consumption of plant-based foods and beneficial fatty acids adds **USD 846 billion in hidden costs,** further burdening healthcare systems.
  - Low wages and low productivity among agrifood workers, exacerbated by distributional failures in the agrifood system, lead to poverty in India.
- **Hidden Costs by Agrifood System Types:** The report categorises agrifood systems into **six types,** they are protracted crisis, traditional, expanding, diversifying, formalising, and industrial each with distinct hidden cost profiles.
- In most systems, **low intake of whole grains, fruits, and vegetables is the primary dietary risk.** However,

Note:

in systems like protracted crises and traditional systems, low fruit and vegetable consumption is a major concern.

- High sodium intake increases from traditional to formalising systems, peaking in formalising systems and decreasing in industrial systems.
- The consumption of processed and red meats rises steadily in more industrialised systems.



- **Environmental and Social Costs:** Significant environmental costs arise from **unsustainable agricultural practices,** particularly in diversifying agrifood systems, with costs such as **greenhouse gas emissions** and **nitrogen runoff** reaching USD 720 billion.
  - Countries facing prolonged crises bear significant relative environmental costs, reaching up to **20% of** the **Gross Domestic Product (GDP).**
  - Traditional and protracted crisis systems suffer the highest social costs, including **poverty** and **undernourishment,** which represent a significant portion of GDP in these regions (8% to 18%).
- **Recommendations for Transformative Change**:
  - **True Cost Accounting**: Implementing true cost accounting to better capture hidden costs and inform decision-making.
  - **Healthier Diets**: Policies to make nutritious food **more affordable** and accessible, reducing health-related hidden costs.
  - **Sustainability Incentives**: Providing financial and regulatory incentives for adopting sustainable practices and reducing emissions.
  - **Consumer Empowerment**: Clear, accessible information on the environmental, social, and health impacts of food choices to guide consumer behaviour.
  - **Importance of Collective Action**: A call for cooperation among agribusinesses, governments, financial institutions, international organisations, and consumers to drive systemic change.
  - **Focus on SDGs**: The transformation of global agrifood systems is essential for achieving the **Sustainable Development Goals (SDGs)** and ensuring **food security, nutrition, and sustainable development.**

Agrifood Systems

- The FAO defines agrifood systems as **encompassing all activities from agricultural production to food consumption**, including processing, distribution, and waste management.
  - These systems are influenced by economic, social, and environmental factors, affecting how food is produced, distributed, and consumed.
- With **rapid urbanisation** and changing dietary preferences, agrifood systems now face pressures that challenge their sustainability and ability to provide nutritious food.

How is India Working Towards Sustainable Food Systems?

- According to FAO, a sustainable food system (SFS) **balances economic profitability, social equity, and environmental protection** to ensure food security for future generations.
- The **National Food Security Act (NFSA) of 2013**, provides food entitlements to over 800 million citizens, demonstrating India's commitment to ensuring food security.
- **India's Initiatives for SFS:**
  - National Mission for Sustainable Agriculture (NMSA)

Note:

- Fortified Rice Distribution (2024-2028).
- Rashtriya Krishi Vikas Yojana (RKVY)
- Eat Right Initiative
- Digital Agriculture Mission (DAM)

What are India's Challenges in SFS?

- **Climate Change:** In recent years, India has been experiencing changing weather patterns, erratic rainfall, and **extreme events** (**droughts**, **floods**, **and heatwaves**) affect crop yields and food security.
- **Environmental Degradation**: Excessive use of chemical fertilisers and pesticides can lead to soil degradation, water pollution, and harm to biodiversity.
  - Key concerns related to natural resources include **declining yields, soil fertility, soil organic carbon (SOC) levels, and water scarcity.**
- **Inconsistent Ingredient Limits:** There is an inconsistency in the limits for ingredients like sugar and salt in processed foods between Indian standards and those set by the **World Health Organization (WHO).**
  - This discrepancy complicates efforts to regulate and ensure the nutritional quality of processed foods, potentially undermining public health initiatives aimed at reducing **diet-related diseases.**
- **Sanitary and Phytosanitary Standards**: India's agri-exports are sometimes rejected in key markets due to quality issues, highlighting the need for improved standards.
- **Low Productivity and Income:** A large proportion of Indian farmers **own small landholdings,** which limits their productivity and income.
  - Many farmers rely on outdated methods, leading to low yields and inefficient resource use.
- **Limited Trade Collaboration**: India's trade agreements lack substantial discussions on SFS, reducing opportunities for growth through mutual agreements on standards.
- **Absence of Export Strategy and Data**: There is a lack of product-specific export strategies and comprehensive data to support SFS-aligned trade planning.

What is Needed for a Sustainable and Inclusive SFS in India?

- **Sustainable Practices**: Adoption of sustainable water usage, **soil health restoration,** and environmentally friendly farming methods.
- **Support for Smallholder Farmers**: Enhancing access to financial services, technology, and markets for marginalised farmers.
- **Implement Farm-to-Fork Traceability**: Product traceability is critical for ensuring quality, safety, and sustainability across the food supply chain.
- **Collaboration with International Agencies**: The FAO, **International Fund for Agricultural Development**, **World Food Programme (WFP)**, and the Indian government promote agricultural reforms and support smallholder farmers through education, technology, and financial resources.
- **Enhance Quality Testing and Certification**: Strengthening quality control through testing and certification processes will help Indian agri-products meet international standards.
- **Strengthening Social Safety Nets**: To support non-agricultural families, food distribution systems need to be efficient, ensuring affordability and accessibility.

Upgrading Wind Energy Generation

Why in News?

In August 2024, the Tamil Nadu government introduced the **"Repowering, Refurbishment, and Life Extension Policy"** to replace **old turbines** and **optimise wind energy use.**

- However, wind energy generators have opposed the policy, approached the **Madras High Court** and got a stay.

What is Tamil Nadu Repowering, Refurbishment & Life Extension Policy for Wind Power Projects, 2024?

- **Context**: Wind energy generators in **Tamil Nadu** with windmills older than **20 years** needed upgradation for energy efficiency.
- **Policy Focus**: The policy includes **three major aspects:**
  - **Life Extension**: Extending the operational life of windmills **over 20 years old**.
  - **Repowering**: Replacing **old windmills** with new machines.

Note:

- **Refurbishment**: Upgrading or **repairing** old windmills.

- **Capacity Overview**: Approximately **300 MW** of the 9,000 MW wind energy capacity in Tamil Nadu is **over 20 years old.**
- **Reason for Opposition**: For life extension, wind energy generators are expected to pay **Rs 30 lakhs per MW every five years**.
  - For repowering, a one-time payment of **Rs 30 lakhs per MW** is required to replace old machines with new ones.

Note:

- The **Ministry of New & Renewable Energy (MNRE)** came out with the **National Repowering & Life Extension Policy for Wind Power Projects, 2023.**
- The following Wind turbines are **eligible for repowering/refurbishment** under the policy:
  - All Wind turbines which are **not in compliance** with the **quality control order** issued by this Ministry; or
  - have **completed their design life** as certified under the **Type Test Certificate** in accordance with the applicable relevant standards; or
  - The Wind turbines of rated capacity **below 2 MW;**
  - Based on commercial/voluntary consideration **after 15 years of installation**.
- Wind turbines which are to be replaced within the period of its design life due to **malfunctioning, issues in workmanship, safety etc**., shall also require to be repowered or refurbished.

What are the Key Facts About Wind Energy in India?

- **Wind Energy Potential:** India has a wind power potential of **1,163.86 GW at 150 metres** above ground level while at a **120-metre** turbine height, it is **695.51 GW**.
- **Wind Energy Utilisation:** Only about **6.5%** of India's wind **potential** is **used** at the national level and **nearly 15% in Tamil Nadu.**
- **Wind Power Generation**: India has been **ranked 4th in wind power capacity** and **fourth in renewable energy installed** capacity, as of **2024**.
- **Cost Competitive:** Power generation from wind projects is likely to be **cost-competitive** relative to thermal power generation in India in **2025-30**.
  - **Wind Turbine Maintenance**:
    - **Repowering:** Replacing wind turbines older than **15 years or under 2 MW capacity** with new ones.
    - **Refurbishing:** Upgrading turbines by **increasing height, changing blades, or installing higher-capacity gearboxes** to boost energy output.
    - **Life Extension:** Implementing **safety measures** to extend the lifespan of older turbines.
- **Windy States:** Major wind energy states are **Gujarat, Tamil Nadu, Karnataka,** Maharashtra, Rajasthan, and Andhra Pradesh, which together contribute **93.37%** of the country's installed wind energy capacity.
  - **Tamil Nadu** has the **second largest** installed wind energy capacity with 10,603.5 MW **after Gujarat.**

What are the Challenges in Repowering and Refurbishing Wind Turbines?

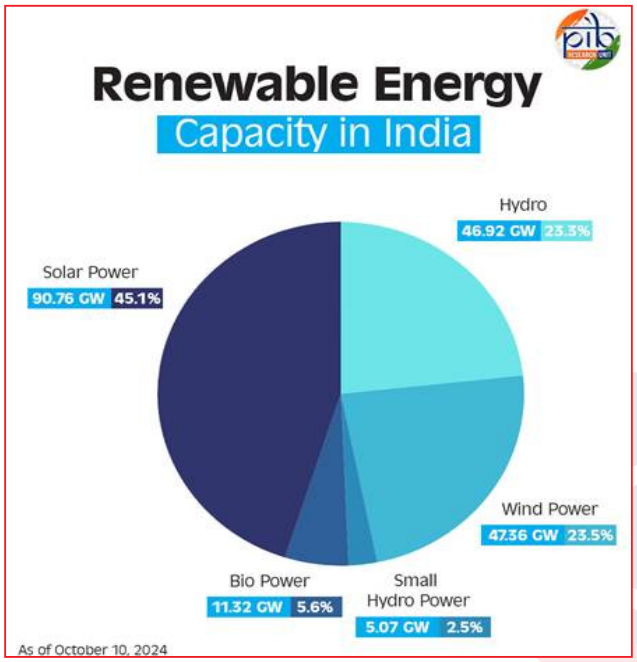
- **Land Requirements**: New turbines, especially those with higher capacities (2 MW and 2.5 MW), **require more land (3.5 to 5 acres)** compared to older, smaller turbines.
- **Displacement:** Since the 1980s when turbines were installed, habitats have come up between wind sites which pose **new challenges of displacement and rehabilitation** of population.
- **Technology Evolution**: Upgrading turbines, blades, and gearboxes to keep pace with advances requires significant **investment, time, and expertise.**
- **Banking Issue**: Wind turbines installed after **2018** in Tamil Nadu **do not have banking facilities,** meaning that repowered turbines are treated as new installations, and generators cannot bank the energy generated, affecting financial viability.

India's Renewable Energy Target

- India has presented the following **five nectar elements (Panchamrit)** of India's climate action at **COP-26** to the **United Nations Framework Convention on Climate Change (UNFCCC)** held in **Glasgow, United Kingdom:**
  - It aims to reach **500 GW Non-fossil** energy capacity by **2030.**
  - **50%** of its energy requirements from renewable energy by **2030**.

Note:

- Reduction of total projected **carbon emissions** by **one billion tonnes** from now to **2030.**
- Reduction of the **carbon intensity** of the economy by **45% by 2030**, over **2005 levels.**
- Achieving the target of **net zero emissions by 2070.**



What are the Major Government Initiatives Related to Renewable Energy Transition?

- **Pradhan Mantri Sahaj Bijli Har Ghar Yojana (SAUBHAGYA)**
- **Green Energy Corridor (GEC)**
- **National Smart Grid Mission (NSGM) and Smart Meter National Programme**
- **Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME)**
- **Production Linked Incentive (PLI) Scheme**
- **Surya Ghar Muft Bijli Yojana**

Development Economics

Why in News?

The recent October 2024 edition of **IMF World Economic Outlook** has sparked discussions on the need for **development economics** to align political and economic realities.

- The report emphasises an **integrated approach** to address global economic challenges, highlighting the importance of understanding the interplay between **economic policies** and **political implications** for effective governance.

World Economic Outlook Report

- **About:** WEO is a key report produced by the International Monetary Fund and published biannually, in April and October.
  - **Focus:** Provides analysis and projections for the global economy and individual countries.
  - **Purpose:** Aims to assess economic developments, identify trends, and offer policy recommendations.
- **Components:**
  - **Economic Growth Projections:** Forecasts for global and regional economic performance.
  - **Inflation Trends:** Insights into inflation rates and their implications.
  - **Financial Stability Assessment:** Evaluates risks to financial systems and markets.
- **Importance:**
  - Serves as a critical tool for policymakers, researchers, and investors to understand and navigate the economic landscape.

What is Development Economics?

- **About:**
  - Development economics is a branch of economics that focuses on the study of how countries can achieve **sustained economic growth, reduce poverty,** and **improve the standard of living** of their populations.
  - It examines the **processes of economic development,** the **factors** that contribute to it, and the **challenges faced** by developing countries in achieving these goals.
  - It emerged in the post-**World War II** era, particularly in response to the challenges faced by newly independent nations.
- **Key Focus Areas:**
  - **Economic Growth:** It focuses on how economies grow and diversify, looking at factors like **investment, technology, human capital, infrastructure**, and institutions to drive long-term development.

Note:

- **Reducing Poverty:** It aims to reduce **poverty** through strategies like wealth redistribution, **social welfare programs,** and inclusive economic policies to improve living standards.
- **Addressing Inequality:** It examines income and wealth disparities within and between nations, exploring how **inequality** affects social cohesion and economic stability, and ways to address it through policy.
- **Achieving Sustainable Development:** It integrates sustainability, ensuring that economic growth doesn't harm the environment, while addressing challenges like climate change and resource depletion.
- **Promoting Globalisation and Trade**: It analyses the impact of **international trade, foreign direct investment (FDI),** and global financial markets on developing countries, focusing on issues like trade imbalances and market access.
- **Institutional Development:** It stresses the importance of **strong institutions** (legal systems, democratic governance, public administration) for **economic development**, examining how governance affects outcomes and how to improve institutions.

➢ **Theoretical Approaches:** Development economics includes several schools of thought, each offering different perspectives on how to achieve economic development.

Neoclassical Theory	It focuses on **free markets, private property rights,** and **competition as drivers** of economic growth, advocating minimal government intervention.
Structuralist Theory	It emphasises the need to **address structural issues** like poor infrastructure, over-reliance on primary sectors, and weak industrialisation, advocating for state-led development.
Capability Approach	It was introduced by Amartya Sen. This approach shifts focus from **GDP** to human well-being, highlighting the importance of expanding individuals' freedoms and choices in development.
Institutional Economics	It stresses the role of institutions (both formal and informal) in shaping economic outcomes, arguing that development is influenced by the quality of governance and societal norms.

Why is there Need to Reevaluate the Current Approach to Development Economics?

➢ **Macro-Level Challenges**: Current development economics often focuses on **micro-level interventions**, overlooking large-scale macroeconomic challenges like n**ational competitiveness, fiscal constraints**, and **global trade imbalances**.
- A more comprehensive approach is needed to address these broader economic issues.

➢ **Political Realities:** In democratic nations like India, political realities, such as **populist policies**, often undermine long-term structural reforms.
- Development economics **must align with political feasibility**, ensuring that proposed solutions are practically implementable within existing political frameworks.

➢ **Global Dynamics and Technological Shifts:** With rapid technological advancements and global market disruptions, development economics must adapt to changing global dynamics. This includes focusing on competitiveness, innovation, and the implications of new technologies on national growth.
- The **IMF's World Economic Outlook (WEO)** report highlights China's rise in electric vehicle production, driven by labour productivity, which has disrupted global markets, demonstrating the need for development economics to adapt to global shifts.

➢ **Sustainable and Inclusive Growth:** A reevaluation is essential to ensure that development economics fosters inclusive growth, **poverty** reduction, and **sustainable development,** addressing **inequality** and the environmental challenges posed by rapid industrialisation and urbanisation.

➢ **Interdisciplinary Approach:** Development economics needs to integrate insights from other fields like political science, sociology, and environmental science, creating a more holistic framework that considers the complex interdependencies between economic policies, political stability, and social well-being.

Note:

How does India's Economic Performance Align with Global Development Economics?

- **High Growth Rate:** India's GDP growth consistently outpaces the global average, with a forecasted growth rate of **7%** in 2024-25 (**IMF**). This positions India as one of the standout emerging market economies.
  - Despite global slowdowns, India's **growth remains resilient,** reflecting its economic potential on the global stage.
- **Domestic Demand as Growth Driver:** A significant portion of India's economic growth is driven by robust domestic demand, with consumer spending accounting for about 60% of GDP (**World Bank**, 2023).
  - Government investment, particularly in infrastructure and social welfare programs, also plays a vital role in **mitigating external shocks** like global **economic recessions.**
- **Demographic Dividend:** India's population is predominantly young, with a **median age of 28.4 years** in 2024 (**UN Population Division**), offering a substantial workforce and potential for long-term **economic growth.**
  - By 2030, India is projected to have the **world's largest workforce,** which, if harnessed effectively, can provide a significant boost to productivity.
- **Service Sector Dominance:** The services sector, particularly **Information Technology (IT)** and **Business Process Outsourcing (BPO)**, is central to India's economic performance. India's IT exports stood at approximately USD 194 billion in FY 2023 (**NASSCOM**), making it a global leader in this domain.
  - The sector not only contributes significantly to exports but also generates employment and attracts **foreign direct investment (FDI).**
- **Infrastructure Development:** India has ramped up public investment in infrastructure, with the government allocating **USD 1.5 trillion (National Infrastructure Pipeline, 2020-2025**) for infrastructure development.
  - Key initiatives like the **Bharatmala project** (road infrastructure) and **UDAN (regional air connectivity)** are expected to create new economic opportunities and enhance competitiveness.
- **Digital Transformation and Financial Inclusion:** India has made significant strides in digital transformation, particularly with the introduction of digital payment systems like **UPI**. The value of UPI transactions increased by 40% year-on-year to **Rs. 20.07 trillion in June 2024,** up from **Rs.12.98 trillion** in January 2023.
  - There were 16.58 billion **Unified Payments Interface (UPI)** transactions worth Rs 23.5 trillion in October 2024, the highest numbers for the digital system since its inception in April 2016.
  - Digital initiatives such as **Jan Dhan accounts** and **Aadhar-based identity systems** have improved financial inclusion, benefiting millions of previously underserved individuals.

What are the Challenges in Development Economics for India?

- **Political Economy Constraints:** India's development is impacted by political dynamics, where electoral cycles often prioritise populist policies, like **cash transfers** and **subsidies**, over long-term reforms in **labor, tax,** and **industry.**
  - This short-term focus **limits essential reforms** that would support **sustainable economic growth**.
- **Labour Market Rigidities:** India faces **skill gaps, low productivity,** and rigid **labour laws** that restrict hiring flexibility.
  - Without reforms to improve **skill development** and allow greater labour flexibility, India struggles to align its workforce with high-growth sectors and global standards.
- **Social Unrest and Protests:** Labour-business tensions, particularly in **manufacturing sectors**, highlight the social challenges in balancing worker protections with business needs.
  - If not managed, these tensions can deter investment and weaken **manufacturing** competitiveness.
- **Geopolitical Uncertainties:** Trade tensions, especially between the US and China, present both opportunities and risks for India.
  - While India can attract **investment** diversifying from China, it must reduce dependence on traditional markets and build diverse trade partnerships to remain resilient in a shifting **global economy**.

Note:

First Advance Estimates for Kharif Crop Production

Why in News?

The **Ministry of Agriculture and Farmers' Welfare** has recently announced the **First Advance Estimates for Kharif crop production for the year 2024-25,** revealing a record-breaking output in foodgrains and **oilseeds.**

- The report reflects the **government's growing use of technology and stakeholder input** in agricultural planning and underscores a significant rise in production, especially in staple crops such as **rice** and **maize**.

What are the Key Highlights of the First Advance Estimates for Kharif Crop Production?

- **Digital Crop Survey (DCS):** For the first time, the **DCS** under the **Digital Agriculture Mission (DAM)** was used to estimate crop areas, replacing the manual **Girdawari method** in four states (Uttar Pradesh, Madhya Pradesh, Gujarat, and Odisha).
- **Record Foodgrain Production:** The total **Kharif food grain** production for 2024-25 is projected at **1647.05 Lakh Metric Tonnes (LMT),** which is higher by 89.37 LMT as compared to 2023-24 and 124.59 LMT higher than average kharif foodgrain production, due to good production of Rice, Jowar and Maize.
- **Crop-Wise Estimates:**

ESTIMATED PRODUCTION (in million tonne)

	2023-24	2024-25	Increase
Rice	113.26	119.93	5.89%
Maize	22.24	24.54	10.34%
Pulses	6.97	6.95	-0.29%
Total foodgrains	155.77	164.7	5.73%
Total oilseeds	24.16	25.74	6.54%
Sugarcane	453.16	439.3	-3.06%
Cotton	32.52	29.92	-8%

Source: First Advance Estimate of Production of Food Grains released by the Union Ministry of Agriculture and Farmers' Welfare Tuesday.

- **Implications:**
  - **Food Security:** The robust production across essential crops strengthens India's food security by **ensuring a steady supply for domestic consumption** and potential exports.
  - **Economic Impact:** Higher yields can benefit the economy by **supporting rural income, stabilising prices,** and boosting agricultural **Gross Domestic Product (GDP)** contributions.
  - **Policy Planning:** The data-backed estimates assist policymakers in designing effective support programs and supply chain strategies.

Note:

- **Girdawari is a crop harvest inspection,** conducted by the **Patwari** to assess crop yield, quality, and changes in land conditions. Held twice yearly for Rabi and Kharif crops more than twice for areas under fruits and vegetables and is called **Zaid Rabi and Zaid Kharif.**
- It records changes in land rights, crop conditions, soil type, and updates needed in **Khasra Girdawari** (village maps).

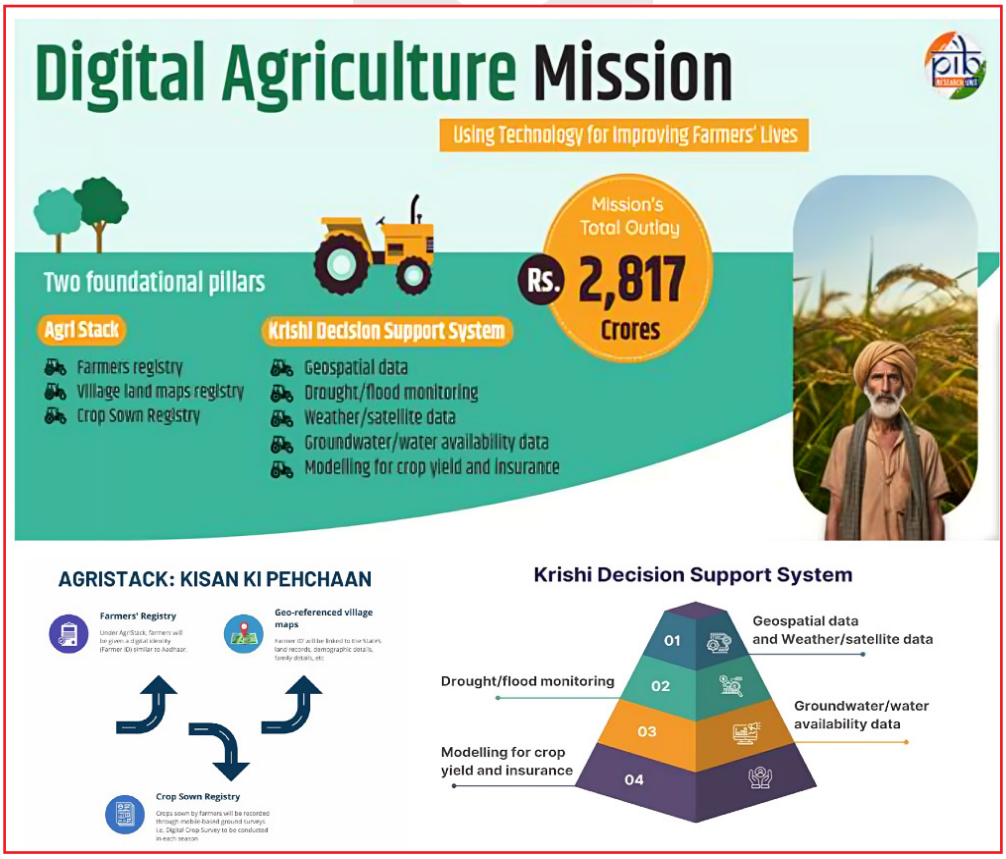
Cropping Seasons

S. No	Cropping Season	Time Period	Crops	States
1.	Rabi	Sown: October-December Harvested: April-June	Wheat, barley, peas, gram, mustard etc.	Punjab, Haryana, Himachal Pradesh, Jammu and Kashmir, Uttarakhand and Uttar Pradesh
2.	Kharif	Sown: June-July Harvested: September-October	Rice, maize, jowar, bajra, tur, moong, urad, cotton, jute, groundnut, soybean etc.	Assam, West Bengal, coastal regions of Odisha, Andhra Pradesh, Telangana, Tamil Nadu, Kerala and Maharashtra
3.	Zaid	Sown and harvested: March-July (between Rabi and Kharif)	Seasonal fruits, vegetables, fodder crops etc.	Most of the northern and northwestern states

Note:

What is the Digital Agriculture Mission?

- **About:** The DAM is aimed at transforming the agricultural sector through digital innovation and technology-driven solutions. This mission has a budget allocation of **Rs. 2,817 crore** and is structured to modernise agriculture by integrating data, digital tools, and technology to make farming more efficient, transparent, and accessible.
- **Components of the DAM:**
  - **AgriStack:** A comprehensive **Digital Public Infrastructure (DPI)** focused on farmers.
    - **AgriStack includes: Farmers' Registry** (includes farmers' IDs, similar to **Aadhaar**), and **Geo-referenced Village Maps** (accurate mapping of agricultural lands), and **Crop Sown Registry** (database recording which crops are planted and their locations).
      - AgriStack aims to streamline government services, reduce paperwork, and simplify the process for farmers to access benefits.
      - Pilot projects have been conducted in six states to test the creation of Farmer IDs and the DCS.
        - The six states include Uttar Pradesh, Gujarat, Maharashtra, Haryana, Punjab, and Tamil Nadu.
      - **Key Targets Include:** Creating **digital identities for 11 crore farmers** over three years (6 crore in FY 2024-25, 3 crore in FY 2025-26, and 2 crore in FY 2026-27)
      - Launching the DCS nationwide within two years, covering 400 districts in FY 2024-25 and all districts in FY 2025-26
  - **Krishi Decision Support System (DSS):** A **geospatial system** that combines remote sensing data on soil, weather, water, and crops. The system offers real-time, data-driven insights to aid farmers in making informed decisions.
  - **Soil Profile Mapping:** High-resolution soil maps will be created for agricultural land to improve soil health understanding and support sustainable farming.
  - **Digital General Crop Estimation Survey (DGCES):** Utilises technology to enhance the accuracy of crop yield estimates, supporting productivity and policy planning.



Note:

- **Benefits:**
  - **Enhanced Transparency:** Accurate data enables more efficient and transparent processing for crop insurance, loans, and government schemes.
  - **Disaster Response:** Improved crop maps will help in faster response during natural disasters, aiding disaster relief and insurance claims.
  - **Targeted Support:** With digital infrastructure, farmers can receive real-time advisories, pest management guidance, and irrigation advice tailored to their needs.
  - **Employment Opportunities:** The mission is expected to create direct and indirect jobs in agriculture, supporting around **2,50,000 trained local youth.**

Paradox of Stagnant Rural Wages

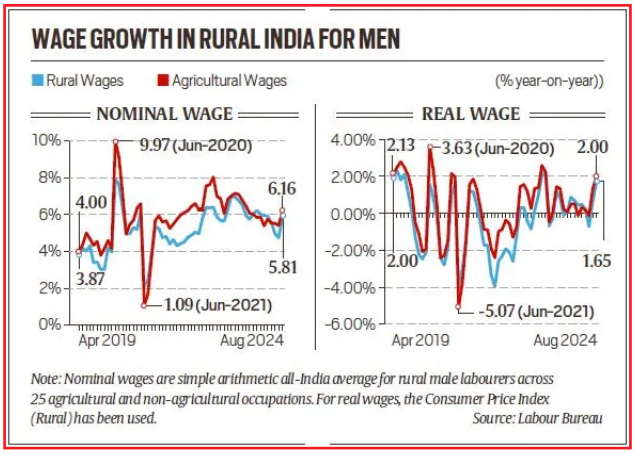
Why in News?

Recently, the **Indian economy** and farm sector have grown at an average annual rate of **4.6% and 4.2% respectively** from **2019-20 to 2023-24** but it has not led to an increase in rural wages.

- This highlights the paradox of rural wages, where, despite Gross Domestic Product (GDP) growth, wages for workers in both agricultural and non-agricultural sectors have either stagnated or declined.

What is the Current State of Rural Wages?

- **Nominal Wages**: From April 2019 to August 2024, **rural wages** grew at an average annual rate of **5.2% nominally** (actual amount **without adjusting for inflation**).
  - For **agricultural wages** specifically, nominal growth was slightly higher at **5.8%**, reflecting **stronger demand or labour dynamic**s in agriculture.
- **Real Wages:** From April 2019 to August 2024, **real wage growth (wage adjusted for inflation)** for rural workers overall was **negative at -0.4%**, while **agricultural wages** posted a modest **0.2% increase.**
  - This indicates that while wages **rose in absolute terms**, inflation outpaced these gains, eroding real purchasing power for rural workers.
- **Current Fiscal Trends**: In the first five months of the **2023-24 fiscal year (April-August)**, nominal and real growth rates of agricultural wages were at **5.7% and 0.7%, respectively**.



Note:

- **Data Source**: The Labour Bureau compiles daily wage rate data for **25 agricultural and non-agricultural occupations**.
- **Coverage**: The data is gathered from **600 villages across 20 states.**
- **Occupations Tracked**: 25 different occupations including horticulture, animal husbandry, watering/ irrigation, and plant protection operations.
- **Methodology**: Wages are measured both **nominally** (current values) and in **real terms** (**adjusted for inflation** based on the consumer price index for rural India).

What are the Reasons for Stagnation in Rural Wages?

- **Higher Female LFPR**: The Female Labour Force Participation Rate (LFPR) has seen a substantial increase from **26.4% in 2018-19 to 47.6% in 2023-24**.
  - The rise in **rural female labour force** implies **more people are willing to work at the same or even lower wage rates**, exerting downward pressure on wages.
- **Low Agricultural Productivity**: Agriculture, especially in rural areas, generally has **low marginal productivity**. The influx of additional labour does not translate into **proportional increases** in productivity.

Note:

- **Capital-Intensive Technology**: Technological advancements in various industries are **displacing manual labour**, reducing the demand for **rural non-agricultural jobs**. E.g., use of **threshing machines and harvesters** instead of manual labourers.
  - This shift results in higher profits for capital owners but **limits wage growth and job creation.**
- **Decline in Non-Agricultural Labour Demand**: Labor-intensive industries, like **Fast-Moving Consumer Goods (FMCG) and home appliances**, face slower sales and profitability, reinforcing low rural wage growth.
  - Sectors that typically absorb rural labour, such as manufacturing and services, have **not expanded proportionally with GDP growth.**
- **Limited Non-Farm Opportunities: Small-scale industries, cottage industries**, and rural enterprises, which could generate **non-farm jobs**, are underdeveloped or lack necessary support and financing.
- **Weaker Wage Guarantee Programs:** Issues like delayed payments, budget constraints, and corruption in implementation of **MGNREGA** limit the effectiveness of such programs.
- **Inflation:** Rising inflation **erodes real wages,** as nominal wages remain stagnant or grow slowly. Essential commodities, fuel, and other goods have experienced price increases, **outpacing wage growth**.
- **Climate Change:** Frequent climate issues like **droughts and floods** reduce agricultural income, limiting landowners' ability to pay higher wages and creating **wage instability** in the rural labour market.

What are the Implications of Stagnant Rural Wages?

- **Poor Domestic Demand**: With the bulk of India's population residing in rural areas, their **limited spending power** can **reduce demand** for goods, especially from **small and medium enterprises**, impacting their viability and slowing the economic growth cycle.
- **Financial Vulnerability and Debt**: High inflation and stagnant wages push rural households into **debt**, trapping families in **debt cycle**, reducing **disposable income**, and increasing reliance on **informal lenders.**
- **Underemployment**: As non-farm job opportunities decline and wages stagnate, many rural workers are **forced back into agriculture**, even when it is not lucrative.
- **Gender Wage Disparity**: Rural wage stagnation impacts both men and women, but with women typically earning less than men for the same jobs, the impact of stagnant wages is especially **pronounced for rural women**.
- **Forced Migration:** Low wages and limited job opportunities push rural workers to **migrate to cities** in search of better-paying jobs that lead to **overcrowding** in urban areas, straining **urban infrastructure**, housing, and public services.
- **Limited Human Capital:** Low wages limit access to **quality healthcare, education, and nutrition,** especially for children, leading to long-term consequences for rural development.

How to Address Rural Wage Stagnation Problem?

- **Strengthen Income Transfer Schemes:** Expanding and increasing payments in schemes like **PM-KISAN** and **free-grain distribution** can ease financial pressures on low-income families.
- **Implement Periodic Wage Adjustments**: Regularly **revising rural minimum wages** based on inflation can ensure that wage growth keeps up with living costs.
  - Using data from surveys and wage rate studies, such as those by the **Labour Bureau**, can help policymakers make informed decisions that address rural wage challenges effectively.
- **Address Gender Pay Gap:** Targeting women and low-income families, like Maharashtra's **Ladki Bahin Yojana** (Rs 1,500/month for families earning under Rs 2.5 lakh), supports those hit by wage stagnation.
- **Rural Non-Farm Employment**: Policies should incentivise labour-intensive industries like **textiles, food processing, and tourism**, while programs like **MGNREGA** can provide stable employment during economic slowdowns or **seasonal unemployment.**
- **Agricultural Modernization**: Enhancing agricultural productivity through better access to **technology, irrigation, and high-quality seeds** can improve wages by raising output and income per worker in farming.

Note:

India Joins ARIN-AP Steering Committee

Why in News?

Recently, India, represented by the **Directorate of Enforcement (ED)**, has been included in the **Steering Committee of the Asset Recovery Interagency Network-Asia Pacific (ARIN-AP)**.

- India will assume the **presidency of ARIN-AP in 2026** and host the network's **Annual General Meeting (AGM)**.
- This aligns with India's priorities under the **G-20 framework**, particularly with respect to the **Nine Point Agenda** on tackling **fugitive economic offenders** and **asset recovery.**

Note: ED is the **premier financial investigation agency** mandated with investigation of offences of **money laundering** and violations of **foreign exchange laws**.

- It functions under the Department of Revenue of the **Ministry of Finance**.

What are Key Facts About ARIN-AP?

- **About:** ARIN-AP is a **multi-agency network** to **exchange information** on individuals, companies, and assets in the **Asia-Pacific region** with the intention of facilitating the **pursuit and recovery** of proceeds of unlawful activities.
  - It is a member of the Global **Camden Asset Recovery Inter-agency Network (CARIN).**
- **Objectives:** Focus on the **proceeds of all crimes**, within the framework of international obligations.
  - Form a solid **international network** with other related organisations such as **United Nations Office on Drugs and Crime (UNODC) and CARIN.**
  - Facilitate and **promote training** in all aspects of tackling the proceeds of crime.
  - To **increase the effectiveness** of members' efforts in **depriving criminals** of their illicit profits by tackling the proceeds of crime
- **Membership:** It includes **28 member jurisdictions** and **nine observers to** facilitate **cross-border collaboration** on asset tracing, freezing, and confiscation.
- **Secretariat:** The Secretariat's role is handled by the **Korean Supreme Prosecutors' Office (SPO).**

Asset Recovery

- Asset Recovery is the process of **tracing, freezing, confiscating and returning funds** that have been obtained through illegal means.
- The adoption of "The **United Nations Convention against Corruption**" (UNCAC) in **2003** enshrined, for the first time, the **recovery and repatriation** of stolen assets as a fundamental principle of international public law.
  - It has firmly established **Asset Recovery on the international policy agenda**.

What are Key Points Related to CARIN?

- **About:** CARIN is an informal network or an inter-agency network represented by law enforcement and judicial experts (e.g., prosecutors or judges) from each member state.
- **Purpose:** It supports the full **asset recovery process**—from **asset tracing to freezing, seizure, management, forfeiture/confiscation**, and **cross-jurisdictional asset sharing**.
- **Secretariat:** The CARIN permanent Secretariat is based at **Europol Headquarters in the Hague.**
- **Membership**: CARIN currently has **61 registered member jurisdictions**, including **27 EU Member States** and **13 international organisations**.
  - It is also linked to the other seven regional asset recovery inter-agency networks (ARINs) across the globe.
- **Finance:** It is funded by the **European Union.**
- **Structure and Communication**: Member representatives are designated as **"national contact points"** and are **English-speaking**, as English is the network's working language.
- **Functioning:** The organisation is governed by a Steering Group of **nine members** and a **rotating annual Presidency.**

Note:

- **A fugitive economic offender** is a person against whom an **arrest warrant** has been issued for committing an **offence** listed in the **Fugitive Economic Offenders Act, 2018** and the value of the offence is **at least Rs. 100 crores**.

Note:

50th Foundation Day of Coal India Limited

Why in News?

Recently, **Coal India Limited (CIL)** marked its **50th Foundation Day, established** as the **apex holding company** of the nationalised coking coal (1971) and non-coking mines (1973).

- CIL functions under the **Ministry of Coal** and is headquartered in **Kolkata**.

What are the Key Facts About Coal India Limited?

- **About:** CIL is a **State-owned coal mining corporation** in India, responsible for producing and managing coal resources in the country.
  - It was founded in **1975** and is the **world's largest coal producer.**
- **Organisational Structure:** CIL is classified as a **'Maharatna' public sector enterprise** and operates through **8 subsidiaries** like Eastern Coalfields Limited (ECL), Bharat Coking Coal Limited (BCCL).
  - **Mahanadi Coalfields Limited (MCL)** is CIL's largest coal-producing subsidiary.
- **Strategic Importance:** Over half of India's **installed power capacity** is coal-based, with **CIL** supplying around **78%** of the country's total coal production.
  - Coal also accounts for **40% of India's primary commercial energy needs**.
- **Mining Capacity:** Across **eight Indian states**, CIL operates in **84 mining areas**, and manages a total of **313 active mines**.
- **Recent Developments:** CIL recently unveiled the **Strategy Report on Coal and Lignite Exploration,** along with the **Mine Closure Portal.**
  - It also announced the development of a **50 MW solar power plant at the Nigahi project (Singrauli, MP)** that outlines a framework for coal and lignite exploration.

Note: A **Public Sector Undertaking (PSU)** is eligible for **"Maharatna" status** if it has **"Navratna" status**, is listed on **Indian stock exchanges**, complies with **minimum shareholding norms**, and has an average **annual turnover exceeding Rs 25,000 crore**, net worth over **Rs 15,000 crore**, and **net profit over Rs 5,000 crore in the last three years**, along with significant **global presence**.

What are the Key Points Related to the Coal Sector in India?

- **Pre- Independence:** Coal mining in India began in **1774** by **M/s Sumner and Heatly** in the **Raniganj Coalfield** along the **river Damodar.**
  - The introduction of steam locomotives in **1853** significantly boosted demand.
- **Post-Independence:** Founded in **1956**, the **National Coal Development Corporation (NCDC)** played a vital role in the systematic and scientific development of the coal industry.
- **Nationalisation of Coal Mines:** The nationalisation process occurred in **two phases**:
  - **Coking coal mines** were nationalised first in **1971-72**.
  - **Non-coking coal mines** followed in **1973**.
- **Current Production:** India achieved coal production of **997.83 million tonnes (MT)** in **2023-24.** CIL's production reached **773.81 MT**, with a growth of **10.04%**.
  - **Small quantities** of coal are also produced by **TISCO, IISCO, DVC** and others.
- **Coal Import:** In the year 2022-23, **total import** of coal was **237.668 MT** compared to 208.627 MT in 2021- 22, thus showcasing an **increase of 13.92%** over 2021-22.
  - Coal was mainly imported from **Indonesia, Australia, Russia, South Africa, US, Singapore and Mozambique.**
  - Sectors such as **Steel, power, cement, and coal traders** import **non-coking coal** to meet their supply needs.

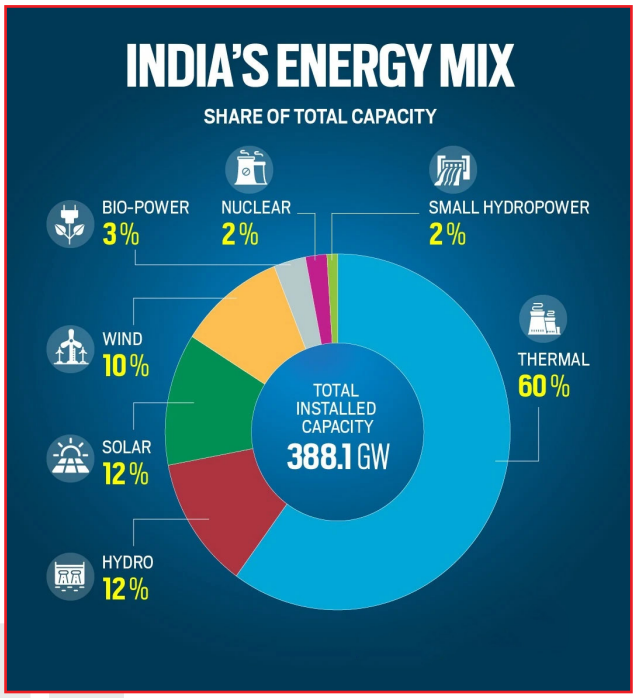
Note:

Classification of Coal

- **Anthracite**: Highest quality coal, **80-95% carbon**, high calorific value, **burns with blue flame**, found in small amounts in **Jammu and Kashmir**.
- **Bituminous**: **60-80% carbon**, high calorific value, low moisture; found in **Jharkhand, West Bengal, Odisha, Chhattisgarh, and Madhya Pradesh**.
- **Lignite**: **40-55% carbon**, brown, high moisture, produces smoke; deposits in Rajasthan, **Assam (Lakhimpur), and Tamil Nadu**.
- **Peat**: Early coal form, **<40% carbon**, low calorific value.

What is the Economic Significance of the Coal Sector?

- **Energy Backbone:** Coal is the **primary energy source** of energy which predominantly fuels **thermal power plants** and fulfils over half of India's primary energy needs.
  - Coal demand is projected to rise to **1,462 million tonnes (MT) by 2030 and 1,755 MT by 2047,** highlighting its ongoing importance for electricity generation.
- **Railway Freight:** Coal is the **single largest contributor** to railway freight in India, accounting for nearly **49%** of total freight income.
- **Revenue Generation:** The coal sector contributes over **Rs. 70,000 Crore** annually to central and state governments through various **taxes, royalties, and GST**.
  - Funds collected from the **District Mineral Fund** and the **National Mineral Exploration Trust** supports socio-economic and infrastructure projects, especially in coal-producing regions.
- **Employment Opportunities:** The coal sector is a significant source of **employment,** providing jobs to over **2 lakh** individuals in Coal India Ltd and its subsidiaries, along with thousands of **contractual workers.**
- **Corporate Social Responsibility (CSR):** Coal sector PSUs, particularly **Coal India Ltd**, invests in **healthcare, education, water supply, and skill development** in coal-producing regions, demonstrating the sector's commitment to community welfare.



What are Challenges in India's Coal Sector?

- **Environmental Challenges:**
  - **Air Pollution:** Burning of coal results in emissions of **Sulphur dioxide, Nitrogen oxides, Particulate Matters** among others, which results in **acid rain, smog, haze, and respiratory illnesses.**
  - **Poor Water Quality:** High levels of **dissolved solids** are detected in nearby water bodies. Excessive pumping of groundwater further exacerbates **water scarcity** issues.
  - **Land Degradation: Open-cast mining** which requires significant land acquisition, leads to **deforestation** and **loss of biodiversity.**
- **High Cost of Production**: Reports indicate that the average cost of production is approximately **Rs 1,500 per ton**, which is **relatively high** compared to other coal-producing countries.
- **Coal Quality**: A significant portion of the coal produced in India is of **inferior quality,** which impacts efficiency.
  - According to CIL, **30-40%** of domestic coal is classified as **non-coking coal,** which is less efficient for power generation.
- **Investment in Renewables**: India aims to increase its **renewable energy capacity** to **500 GW** by 2030. The coal sector's dominance poses a challenge to this goal.

Note:

- Investments in coal **competes** with investment in **growth of renewable technologies.**

- **Monopolistic Market Structure:** The nationalised structure of the coal industry, dominated by CIL, has led to concerns about monopolistic practices, including one-sided supply agreements that disadvantage consumers.

How to Address Challenges in India's Coal Sector?

- **Mitigating Environmental Challenges:** Installation of **scrubbers, Flue Gas Desulfurization** and **Electrostatic Precipitators (ESPs)** can reduce sulphur dioxide, nitrogen oxides, and **particulate matter emissions.**
  - Adopt water recycling, rainwater harvesting, and measures to improve the quality of water bodies affected by mining activities.
- **Promoting Competition:** Allow **private players** to participate in coal mining and distribution more freely to encourage competition and enhance consumer choice.
- **Investment Diversification:** Create a clear roadmap for transitioning from coal to renewable energy sources, ensuring that investments in renewables do not stagnate due to coal sector dominance. **E.g., Greening Initiatives**
- **Cost Management Initiatives:** Explore measures to reduce the cost of coal production through technological advancements, improved mining techniques, and better resource management.

RBI's Repatriation of Gold

Why in News?

Recently, the Reserve Bank of India (RBI) has repatriated **102 tonnes** of gold from the Bank of England (BoE) and the Bank for International Settlements (BIS).

- According to the **RBI's "Half Yearly Report on Management of Foreign Exchange Reserves"** gold held domestically stands at **510.46 metric tonnes** in September 2024.
- India's total **gold reserves** held by the RBI amount to **854.73 metric tonnes.**

Note:

- According to the World Gold Council **(June 2024)**, India ranks **8th** in terms of **sovereign gold holdings** while the **US tops the list.**
- **India's** gold holdings amount to **840.76 metric tonnes** comprising **9.57%** of its forex reserves.
- Other countries ahead of India in terms of gold holdings are **Germany, Italy, France, Russia, China, and Japan.**

Why is India Repatriating Gold?

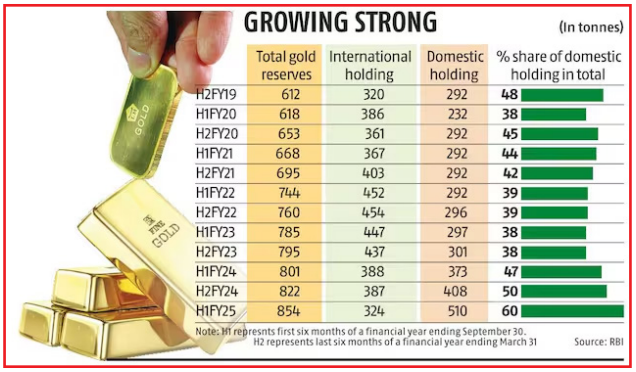
- **Reducing Geopolitical Risks:** Countries prefer holding their gold reserves domestically to protect it from potential **foreign sanctions** or restrictions that could **freeze or restrict access** to assets held abroad**.**
  - E.g., Due to sanctions by the **US and allies** amid the Ukraine war**,** Russia's access to **USD 300 billion** in **gold and** foreign exchange reserves has been frozen.
- **Increasing Market Confidence:** Gold is seen as a **"safe haven" asset**, especially in emerging markets, and having it within national borders can boost **public confidence** in the financial system.
- **Economic Sovereignty:** India's gold reserves now **exceeds 101% of the India's** external debt which enhances India's **debt repaying capacity.**
- **Supporting Domestic Financial Markets:** With gold physically present in India, the RBI has more **flexibility** to support **gold-backed financial products** in domestic markets.
  - India's government has promoted initiatives like Sovereign Gold Bonds (SGBs) to reduce dependence on **physical gold imports**.
- **Global Trend of Gold Repatriation:** There has been a **broader trend** of central banks moving gold back to their home countries, especially over the past decade.
  - E.g., **Venezuela** brought gold back from **US and European vaults in 2011** and **Austria in 2015.**
- **Cost Savings**: RBI typically pays **insurance, transportation fees, custodial fees and vault charges** to institutions such as the **Bank of England or the Federal Reserve** for holding their gold.
  - By repatriating some of this gold, the RBI can **reduce these recurring costs**.

Note:

- **Increasing Import cover:** Import cover is a crucial **trade indicator**, reflecting **reserves adequacy**, which strengthened alongside the increase in foreign-exchange reserves.
  - Current foreign reserves are sufficient to cover **11.8 months of import**.

India's Foreign Exchange Reserves

- Foreign exchange reserves are assets held on reserve by a **central bank in foreign currencies**, which can include **bonds,** treasury bills **and other** government securities.
- India's Forex Reserve includes **Foreign Currency Assets, Gold reserves, Special Drawing Rights and Reserve Tranche position** with the International Monetary Fund (IMF).
- India's foreign exchange reserves position in **October, 2024** was estimated at **USD 688.27 billion.**
  - **It includes:**
    - Foreign Currency Assets (FCA) of **USD 598.24 billion**
    - Gold worth of **USD 67.44 billion**
    - Special Drawing Rights (SDRs) of **USD 18.27 billion**
    - Reserve Tranche Position (RTP) of **USD 4.32 billion.**



GROWING STRONG (In tonnes)

	Total gold reserves	International holding	Domestic holding	% share of domestic holding in total
H2FY19	612	320	292	48
H1FY20	618	386	232	38
H2FY20	653	361	292	45
H1FY21	668	367	292	44
H2FY21	695	403	292	42
H1FY22	744	452	292	39
H2FY22	760	454	296	39
H1FY23	785	447	297	38
H2FY23	795	437	301	38
H1FY24	801	388	373	47
H2FY24	822	387	408	50
H1FY25	854	324	510	60

Note: H1 represents first six months of a financial year ending September 30. H2 represents last six months of a financial year ending March 31 Source: RBI

Background of Foreign Exchange Rate Management

- **Gold Standard (1870-1914):** Currencies were **directly tied to the value of gold**. Each country held **gold reserves to back their currency**. Stable exchange rates made international trade easier and predictable.
- **Bretton Woods System (1944-1971):** It was established after **World War II** and its key features were:
  - **Fixed exchange rates** with the US dollar as the reserve currency.
  - Other currencies were **pegged to the dollar at a fixed rate**.
  - The US dollar was, in turn, convertible to gold at a fixed price of USD 35 per ounce.
- **Current Scenario (Multiple Regimes - Post-1971):** Market forces of **supply and demand** determine exchange rates with a variety of regimes.
  - **Floating Exchange Rate:** A currency's value is determined by supply and demand in the foreign exchange market. **Exchange rates fluctuate** continuously and are not officially pegged or fixed to any other currency or commodity.
  - **Pegged Rates:** A country **ties its currency to a single strong currency** (e.g., USD) or a **basket of currencies.**
  - **Dollarization:** Some countries **completely abandon their own currency** and adopt the US dollar (e.g., **Ecuador**).

Why the RBI Stores Gold Reserves Abroad?

- **Mitigating Geopolitical Risks:** By holding gold in **multiple international locations**, the RBI **minimises the risk** of having its reserves concentrated within India.
  - Storing reserves in key global financial hubs like **London and NewYork** ensures that assets are **accessible and secure** in the event of any domestic or regional disruptions.
- **International Liquidity**: Gold held in financial centres like **London, New York, and Zurich** offers the RBI immediate access to global markets.
  - These cities are primary hubs for **gold trading**, making it easy to convert gold into cash quickly if needed.
- **Economic Resilience:** The availability of **gold reserves** in international markets allows India to use them as

Note:

collateral for loans or other financial instruments, supporting **economic resilience** and bolstering India's ability to meet international financial obligations.

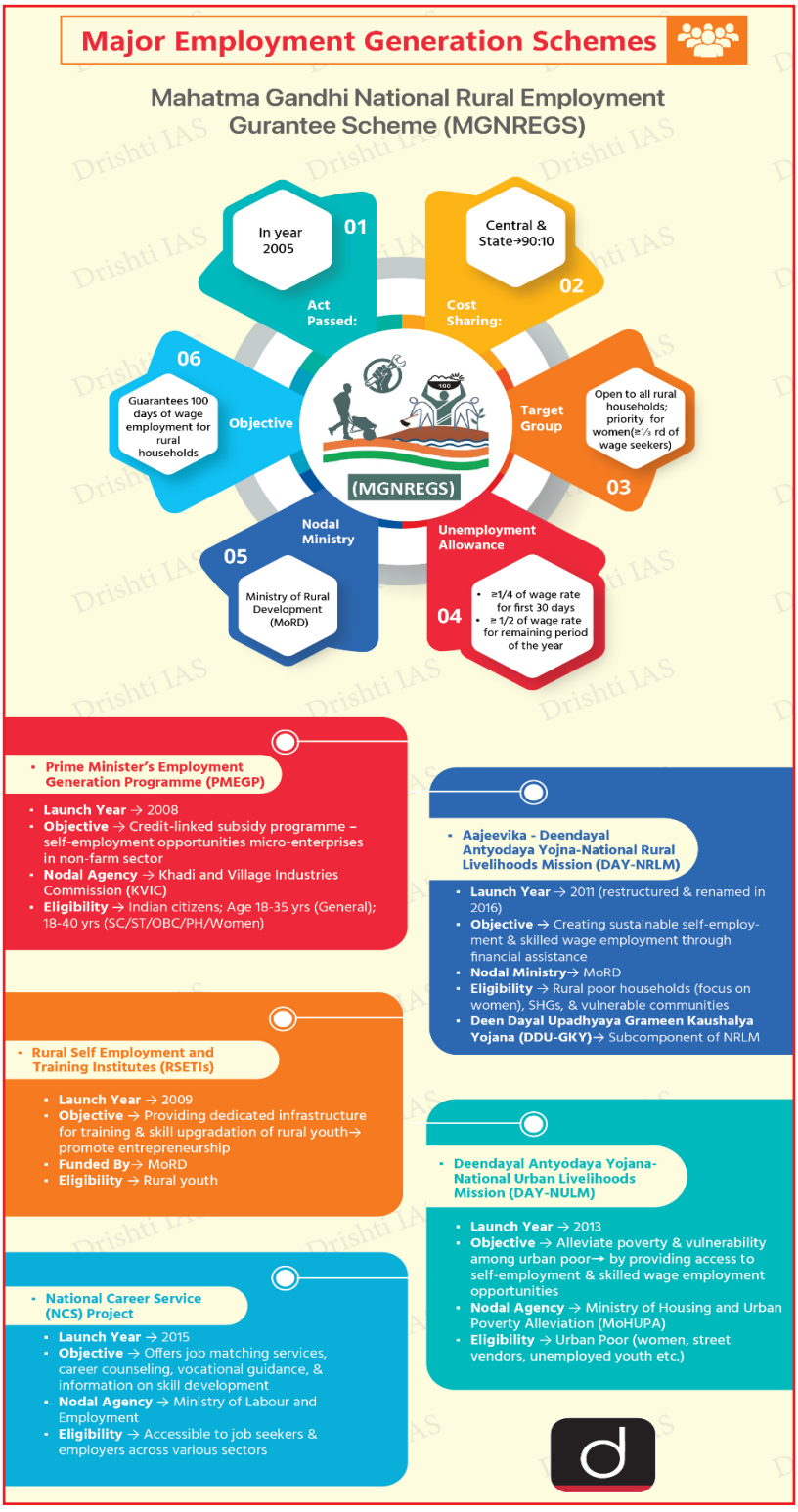
- **Trusted Custodians:** Bank of England is considered a **trusted custodian** known for safeguarding national assets.
  - **Bank for International Settlements (BIS)** offers an established international framework for central banks to manage and store their gold reserves.

What are Security Measures in Major International Gold Vaults?

- **Bank of England, UK**: It offers advanced **surveillance systems**, **reinforced vault doors**, and stringent access controls.
- **BIS, Switzerland**: The vaults feature **state-of-the-art security measures**, including reinforced structures, biometric access controls, and continuous monitoring.
- **Federal Reserve Bank of New York, USA**: Located **80 feet below street level**, the vault is encased in a **90-tonne steel cylinder** that makes it exceptionally **secure and resistant** to potential security breaches.

Note:

Major Employment Generation Schemes



Note:

International Relations

Highlights

- *India-Russia Aim for USD 100 Billion Trade Target*
- *World Bank Enhances Lending Capacity*
- *Reassessing India's Stance on RCEP*
- *India-Algeria Strengthen Defence Ties*
- *SAGAR Vision*

India-Russia Aim for USD 100 Billion Trade Target

Why in News?

Recently, **External Affairs Minister of India** and Russian First Deputy Prime Minister co-chaired the **25th session of the India-Russia Intergovernmental Commission on Trade, Economic, Scientific, Technological, and Cultural Cooperation (IRIGC-TEC)** in New Delhi.

- The discussions highlighted significant progress in trade relations between the two nations and strategic cooperation in various sectors.

Note: The IGC is a mechanism for regularly monitoring bilateral progress across the sectors of trade and economic cooperation between the two countries which was set up by an **Agreement on inter-governmental Commission on Trade, Economic, Scientific and Technological Cooperation** signed in 1992.

- It comprises 14 Working Groups and 6 Sub-Groups in diverse areas.

What are the Key Highlights of the 25th Session of IRIGC-TEC?

- **Achieving USD 100 Billion Trade Target:** India and Russia are optimistic about achieving a **USD 100 billion trade volume well ahead of the 2030 target.**
  - Both sides recognize the need for a **more balanced trade relationship** and efforts to address current constraints.
- **Progress in Trade and Diversification:** India and Russia have made significant strides in **overcoming payment and logistics challenges,** with nearly **90% of India-Russia trade now being conducted in local or alternative currencies,** with the remaining transactions still happening in **freely convertible ones**(widely used for international transactions).
  - Both nations are focusing on **diversifying trade beyond crude oil** to include agriculture, pharmaceuticals, industrial equipment, and technology.
- **Focus on Trade Diversification:** Both nations are focused on **diversifying the trade basket** to reduce the current imbalance, which is largely driven by **India's large crude oil imports from Russia.**
  - Emphasis on expanding trade in **agriculture, pharmaceuticals, industrial equipment, and technology**.
- **Enhancing Connectivity and Talent Mobility:** Significant importance is placed on enhancing connectivity, particularly through the International **North-South Transport Corridor (INSTC),** the **Chennai-Vladivostok Corridor,** and the **Northern Sea Route** to improve trade and logistics.
  - The meeting emphasized fostering talent mobility and skills development, tailored to Russia's needs, with a focus on education and workforce collaboration to strengthen bilateral ties.
- **Future Steps for Economic Cooperation: Working groups and sub-groups** were tasked with accelerating the finalisation of the **economic cooperation program** for the period leading up to 2030.
  - The agenda includes enhancing **market access** and advancing discussions on **services, investments, and technology exchange**.

What are the Key Highlights of India- Russia Trade?

- **Trade Targets:** Initially, India and Russia set targets to elevate bilateral investment to **USD 50 billion and bilateral trade to USD 30 billion by 2025.**

Note:

- However, bilateral trade for **FY 2023-24, reached an unprecedented high of USD 65.70 billion**, with India's exports valued at USD 4.26 billion and imports from Russia at USD 61.44 billion.
- India aims to hit USD 100 billion trade target with Russia before 2030

- **Imports and Exports: Imports from Russia** include oil and petroleum products, fertilisers, minerals, precious stones and metals, and vegetable oils; **exports to Russia** include pharmaceuticals, organic chemicals, electrical machinery, mechanical appliances, and iron & steel.
- **Major Russian Investments in India:** Oil and Gas, Petrochemicals, Banking, Railways, and Steel.
- **Major Indian Investments in Russia**: Oil and Gas, and Pharmaceuticals.

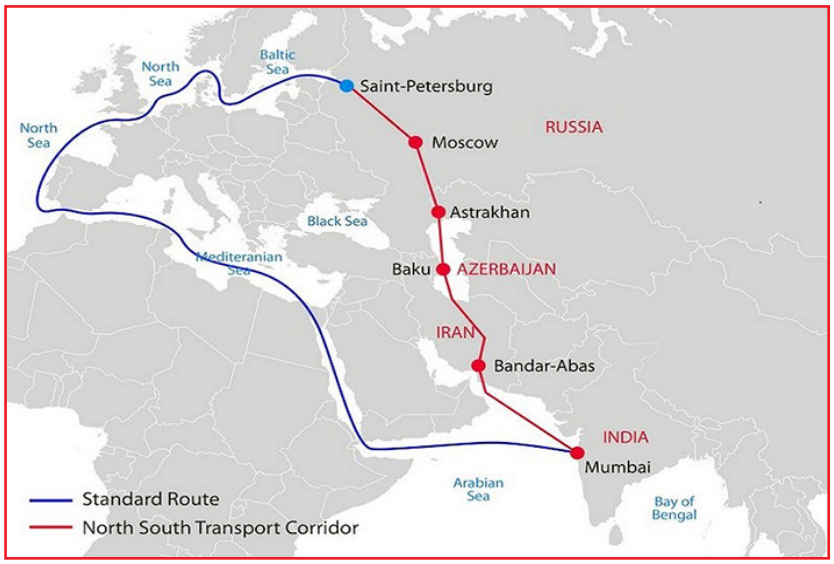
What are the Key Challenges in India- Russia Trade?

- **Trade Imbalance**: India faces a trade deficit of nearly **USD 57 billion** with Russia, primarily due to imports of **Russian crude oil,** with the **trade imbalance skewed in Russia's favour** as India's exports to Russia remain comparatively lower.
- **Geopolitical Reasons:** India's growing ties with the US and the Quad, especially in the context of the Ukraine war, can **limit deeper strategic cooperation with Russia.**
  - **Russia's stronger ties with China** further reduce its **ability to balance the interests of India and China,** diminishing India's leverage in multilateral forums.
- **Sanctions and Compliance Issues:** Sanctions by the **European Union(EU)** and **Western powers on Russia** have complicated trade relations with India, with some **Indian companies now targeted.**
  - This puts India in a difficult position, balancing its defence and energy ties with Russia while adhering to international sanctions.
- **Diverse Trade Basket**: While energy trade, **particularly discounted crude oil, has surged,** efforts to diversify into sectors like **automotive parts, electronics, and renewables have been slow.**
  - Russia's declining international standing **limits its capacity to engage India in new economic areas.**
  - Additionally, India's growing economic ties with the **United States, the EU,** and other advanced economies are restricting opportunities for new strategic collaborations with Russia, particularly in technology and manufacturing.
- **Challenges in Connectivity Projects:** Projects like the **INSTC** and the Chennai-Vladivostok Corridor are central to India-Russia trade ambitions.
  - However, India's growing enthusiasm for other connectivity routes, such as the **India-Middle East-Europe Corridor**, could undermine the INSTC's strategic importance, leading to potential underperformance of these initiatives that require Russia's active cooperation.

International North-South Transport Corridor

- **About:** The **INSTC** is a 7,200 km multimodal transit route linking the **Indian Ocean and Persian Gulf to the Caspian Sea,** extending to northern Europe via St. Petersburg, Russia.
  - It was **launched in 2000** through a **trilateral agreement by Iran, Russia, and India.**
  - It connects ship, rail, and road routes between India, Iran, Azerbaijan, Russia, Central Asia, and Europe.
  - INSTC can boost India's connectivity with Central Asia and the Eurasian region, leveraging the geo-strategic and economic significance of the involved countries.
- **Membership**: **India,** Iran, Russia, Azerbaijan, Armenia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkey, Ukraine, Belarus, Oman and Syria. **Bulgaria has joined as an Observer State.**

Note:



How are India and Russia Addressing Trade Challenges?

- **Special Rupee-Vostro Account Facility:** India introduced the Special Rupee-Vostro Account to overcome the challenges posed by international sanctions and facilitate payments in local currencies between Indian and Russian businesses.
- **Free Trade Agreement (FTA) and Investment**: Both sides are working toward an FTA between India and the Eurasian Economic Union (EEU), which could further streamline trade and reduce barriers.
  - The launch of the **first bilateral Investment Forum in Moscow in April 2024,** and the ongoing negotiations on a Bilateral Investment Treaty, are expected to foster greater economic engagement.
- **Facilitating Business Ventures**: Russia has shown increasing interest in India's Make in India program, which could lead to joint ventures and new avenues for economic collaboration.
- **Bilateral Agreements**: The signing of a bilateral agreement on Authorised Economic Operators(AEO) between the two countries is a significant step toward simplifying trade processes and enhancing business exchanges.
  - The Central Board of Indirect Taxes and **Customs and the Federal Customs Service, Russia,** have signed the AEO agreement to provide mutual benefits to **trusted exporters of both signatories** during goods clearance by the customs authorities of the importing country.
- **Energy Sector Cooperation**: Special focus has been placed on **large-scale energy initiatives,** including developments in the nuclear sector, solar and wind energy **production** technology improvements.
- **Russian Business Centre:** The **Russian Business Centre in New Delhi** aims to strengthen India-Russia economic ties by facilitating business interactions, regional missions, forums, and offering analytical support.

World Bank Enhances Lending Capacity

Why in News?

Recently, the World Bank has increased its **lending capacity** by **50%** through balance sheet **optimisation**, aiming to provide **USD 150 billion** over the next decade.

- This expansion has a strong focus on **green projects**, supporting **climate action** and the Sustainable Development Goals (SDGs).
- **With current annual lending** of **USD 5 billion**, India is one of the **World Bank's largest clients**, and will receive a major share of the increased **funding**, focusing on climate resilience, rural development, **energy**, **healthcare**, and digital education.

What are Recent Financial Reforms in the World Bank?

- **Reduced Borrowing Costs for Middle-Income Countries**: The **World Bank** has waived **commitment fees** on loan balances for middle-income countries (like India) for four years, reducing borrowing costs by approximately 1% over this period.
  - **Commitment fees** are charged by the **World Bank** on **undisbursed loan amounts** to ensure borrowers use the funds within a set period.
    - Reducing commitment fees make financing more affordable for these countries.

Note:

- **Internal Reforms and Efficiency Gains**: Recent **World Bank meetings** focused on **internal reforms** to improve **efficiency**, **collaboration**, and increase **private sector financing**.
  - These reforms are guided by recommendations from the **G20-backed International Expert Group (IEG)**.
- **IEG Report and MDB Funding Goals**: The **IEG report** recommended that **Multilateral Development Banks (MDBs)**, including the World Bank, should increase annual funding by **USD 3 trillion** by **2030** to effectively support **climate action** and other **SDGs**.
  - In September 2024, MDBs reported that their global climate finance reached a record high of **USD 125 billion** in 2023.
- **New Lending Strategies:** To expand its **lending** capacity, the World Bank is **lowering its equity-to-loan ratio** and using **hybrid capital models**. These strategies will allow the Bank to increase its **loans** without requiring additional capital.

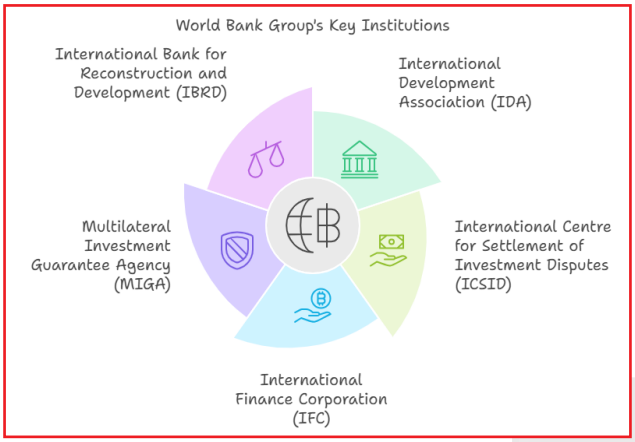
What is the Role and Structure of the World Bank?

- **About the World Bank:**
  - The World Bank is a global development cooperative comprising **189 member** countries.
  - These countries, or shareholders, are governed by a **Board of Governors**, typically made up of finance or development ministers.
  - The Board meets annually to set policy and oversee the institution's work in global development.
- **Mission and Functions:**
  - The World Bank aims to **reduce poverty** and promote **shared prosperity**.
  - It provides **financial products, technical assistance**, and **policy advice** to help countries address complex development challenges.
  - The **World Bank** collaborates with multilateral institutions, civil society, private sector players, and foundations to maximise impact.
  - The **World Bank** has funded over 15,000 projects in areas such as **education, health, infrastructure, and environmental sustainability**.
    - Some of the Projects funded by the Word Bank in India are **India Energy Efficiency Scale-up Program**, **SANKALP**, **Raising and Accelerating MSME Performance (RAMP)**, **Eastern Dedicated Freight Corridor**, and Mumbai Urban Transport Projects etc.
- **Key Institutions within the World Bank Group:**
  - **International Bank for Reconstruction and Development (IBRD)**: **IBRD** offers **loans, guarantees, and policy advice** to middle-income and creditworthy low-income countries with focus on poverty reduction, sustainable growth, and infrastructure development.
    - **Middle-income countries (MICs)** account for over **60%** of IBRD's portfolio, serving as key drivers of global growth while housing the majority of the world's poor.
  - **International Development Association (IDA)**: **IDA** provides concessional loans and grants to the world's poorest countries, with terms that carry little or no interest.
    - IDA supports projects in **rural development, education, health, and post-conflict recovery**.
    - IDA's financial products are allocated based on a **country's income level** and its success in managing past projects.
    - IDA financing is highly concessional, offering **zero-to-low interest loans** or grants to the poorest countries.
  - **International Finance Corporation (IFC)**: IFC promotes **private sector investment** in developing countries by providing financing, advisory services, and risk mitigation.
  - **Multilateral Investment Guarantee Agency (MIGA)**: **MIGA** provides **political risk insurance** and guarantees to encourage foreign investment in developing economies, reducing the risk of loss from political instability.
    - **Political risk insurance** is a tool for businesses to mitigate and manage risks arising from the adverse actions, or inactions, of governments.
  - **International Centre for Settlement of Investment Disputes (ICSID)**: ICSID helps resolve **investment disputes** between investors and states, providing a legal framework for the peaceful settlement of conflicts.

Note:

Note:

- **India** is a member of **four of the five institutions in the World Bank Group** but is not a member of the **International Centre for Settlement of Investment Disputes (ICSID)**, an international arbitration institution.



Reassessing India's Stance on RCEP

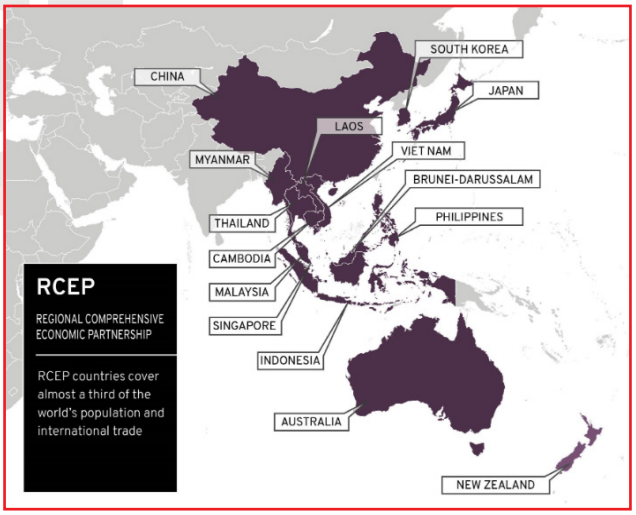
Why in News

B. V. R. Subrahmanyam, the CEO of **NITI Aayog** has recently voiced support for India's inclusion in the **Regional Comprehensive Economic Partnership (RCEP)** and **Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP)**.

- His remarks reflect a shift from India's current stance on RCEP, aligning with recommendations from the **Economic Survey 2024**, which advocates India's integration into the regional supply chain networks.

What is RCEP?

- **About:**
  - The **Regional Comprehensive Economic Partnership (RCEP)** is a major economic agreement formed between the **Association of Southeast Asian Nations (ASEAN)** and their **Free Trade Agreement (FTA)** partners.
  - RCEP is the **world's largest trading bloc**.
  - It is designed to **promote economic integration, trade liberalization**, and **cooperation** among member nations.
  - Its negotiations began in 2012 and it was officially signed in November 2020, marking a major milestone in regional trade. It was entered into force on 1st January 2022.
- **Objectives:**
  - To facilitate trade and investment across member countries.
  - To reduce or eliminate tariffs and non-tariff barriers to promote seamless trade.
  - To strengthen economic cooperation and bolster regional supply chains.
- **Member Countries:**
  - 15 countries signed RCEP in 2020: 10 **ASEAN** member countries (**Brunei, Cambodia, Indonesia, Malaysia, Myanmar, Singapore, Thailand, the Philippines, Laos, and Vietnam**) and their 5 **free trade agreement (FTA)** partners - **China, Japan, South Korea, Australia**, and **New Zealand.**



- **Coverage Areas:**
  - The RCEP agreement covers several key areas, including: Trade in goods and services,Investment and economic cooperation, Technical cooperation, Intellectual property rights,Competition policies, Dispute resolution mechanisms, E-commerce and Support for **small and medium enterprises(SMEs)**.
- **Trade Volume:**
  - RCEP member countries collectively represent **over 30%** of the global **Gross Domestic Product (GDP)** in 2019 and cover about **one-third of the world's population**.

Note:

- **India and RCEP:**
  - India was initially a part of the RCEP negotiations but decided to **withdraw in 2019.**

Why did India Withdraw from RCEP?

- **"China Plus One" Strategy:**
  - India's decision aligns with the global trend of the **"China Plus One" strategy**, which aims to reduce over-reliance on China by diversifying supply chains and trade relationships.
- **Growing Trade Deficits:**
  - Since the implementation of **RCEP**, trade deficits have risen significantly for several member nations.
  - RCEP would have exacerbated India's trade deficit, as seen in other countries. For example, ASEAN's trade deficit with China increased from USD 81.7 billion in 2020 to USD 135.6 billion in 2023.
- **Dumping of Chinese Goods:**
  - India was concerned of an **influx of cheap Chinese products,** which could harm domestic industries. The country's **trade deficit** with China had already surged to USD 85 billion in 2023-24.
- **Protection of Domestic Industry And Rules of Origin Norm:**
  - India's withdrawal from RCEP was partly due to concerns over **protection of domestic industries**, particularly in sectors like **dairy** and steel, where tariff reductions from 35% to zero would expose them to competition from Australia and New Zealand.
  - Additionally, India was wary of the **rules of origin** provisions, fearing that products could bypass Indian tariffs by being routed through other countries, weakening safeguards for domestic industries.

What is CPTPP?

- **About:**
  - The **Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP)** is a **free trade agreement (FTA)** among **11 countries: Australia, Brunei Darussalam, Canada, Chile, Japan, Malaysia, Mexico, Peru, New Zealand, Singapore,** and **Vietnam.**
  - The CPTPP was officially signed on 8th March 2018, in Santiago, Chile, marking a significant step in regional trade cooperation.
- **Significance:**
  - The CPTPP **eliminates 99% of tariffs** on goods and services, promoting economic integration. It includes **strict environmental provisions** to curb **wildlife trafficking**, protect vulnerable species, and regulate unsustainable logging and fishing, with penalties for non-compliance.
  - All members are part of **APEC**, which fosters economic growth in the Asia-Pacific region.
- **India's stand**:
  - **India did not join the CPTPP** due to concerns over stricter **labor and environmental standards**, narrowly defined **investment protection** clauses, and detailed **transparency requirements** that could limit India's regulatory autonomy.

What are the Major Benefits for India in Joining RCEP and CPTPP?

- **Access to Expansive Markets:**
  - Joining **RCEP** and **CPTPP** would grant India access to larger markets, particularly in the Asia-Pacific region, boosting exports, especially from **MSMEs** that contribute **40% of India's exports**.
  - Reduced tariffs and trade barriers would enhance MSME competitiveness, while easier access to technology and resources would support scaling up production under initiatives like **"Make in India."**
  - It would boost I**ndia's supply chain integration, reduce logistics costs,** and **improve manufacturing efficiency.**
- **Utilizing the "China Plus One" Strategy:**
  - India, with its skilled workforce and growing industrial base, is well-placed to attract foreign investment as part of the **"China Plus One"** strategy. Countries like Vietnam, Indonesia, and Malaysia have benefited significantly from this shift.
  - By joining **RCEP,** India can capitalize on the shift of multinational companies seeking alternatives to Chinese manufacturing, positioning itself as a key manufacturing hub in the region.
- **Improved Trade Competitiveness and FDI:**
  - Joining RCEP would enhance India's global trade competitiveness by reducing **tariffs and non-tariff barriers**, making its products more price-

Note:

competitive, particularly in markets like Japan, South Korea, and Australia.

- It would also attract **FDI** by providing better market access and clearer trade terms, boosting investments in infrastructure, manufacturing, and technology, thereby driving economic growth and job creation.

- **Strengthening Trade Negotiating Power:**
  - It would **enhance India's trade negotiating power,** enabling it to influence trade rules and negotiate favorable terms in sectors like agriculture, technology, and services, while protecting domestic interests and **boosting exports**.
- **Innovation and Knowledge Exchange:**
  - RCEP promotes **intellectual property rights** and **technology exchange,** offering India access to advanced technologies and fostering collaboration with countries like Japan and South Korea which would enhance innovation, boost competitiveness, and strengthen India's technological capabilities

Impact of India's Current Tariff Structure on its Global Trade Competitiveness

- **Average Applied Tariffs:**
  - India's average applied tariff stands at around **13.8%,** which is significantly higher than **China's 9.8%** and the **United States' 3.4%**.
  - Although it is lower than some other economies when considering trade-weighted averages, India's tariffs remain a constraint on its trade relations.
- **High Bound Tariffs:**
  - India's bound tariff rates, particularly on agricultural products, are among the highest globally, ranging from 100% to 300%.
  - These high tariff rates create substantial **barriers for foreign exporters,** making Indian markets **less attractive and limiting India's integration** into global supply chains.

India-Algeria Strengthen Defence Ties

Why in News?

Recently, the Chief of Defence Staff of India visited Algeria, leading to the conclusion of a significant **Memorandum of Understanding (MoU)** on defence cooperation between India and Algeria.

- This agreement is aimed at strengthening strategic interests and military ties between the two nations.

What are the Recent Development in the India-Algeria Relation?

- **Significant Visit:** The recent visit coincided with Algeria's **70th** anniversary of its revolution on 1st November, marked by military parades and ceremonies, highlighting Algeria's historical and political heritage.
- **Strategic Cooperation:** India re-established its **defence wing in Algeria** and encouraged Algeria's reciprocal establishment in India.
  - Emphasizing India's role as a **"Vishwa Bandhu," or global partner,** CDS highlighted India's readiness to share defence experiences and expertise.
- **Integrated Defence Statement:** The Integrated Defence Staff commented that the MoU would strengthen mutual understanding, laying a foundation for long-term collaboration in various sectors.
  - The discussions included India's advancements in defence manufacturing under **'Make in India'** and **'Make for the World,'** offering Algeria potential avenues for collaboration.
  - CDS reiterated India's support for peaceful conflict resolution globally, mentioning that India has reinstated its defence wing in Algeria and expressed support for Algeria's defence wing in India.

What are the Significant Areas of India-Algeria Relationship?

- **Diplomatic Relations:**
  - India and Algeria established diplomatic ties in **July 1962,** the year Algeria gained independence from French colonial rule.

Note:

- India also supported Algeria's liberation movement. Both countries joined the **Non-Aligned Movement** post-independence, maintaining solidarity on international issues.

➢ **Bilateral Trade:**

- Bilateral trade between India and Algeria **peaked at USD 2.9 billion in 2018**, later dropping to **USD 1.5 billion in 2021** due to **COVID-19** and Algeria's import restrictions.
- Trade rebounded in 2022, **growing 24% to USD 2.1 billion**, with India's exports reaching **USD 848.16 million** and **imports USD 885.54 million in 2023-24.**
- Major exports include **rice**, **pharmaceuticals**, and granite, while imports focus on **petroleum oils, LNG**, and calcium phosphates.

➢ **Bilateral Agreements:**

- India and Algeria have signed several agreements to foster cooperation:
  - A Memorandum of Understanding (MoU) between **All India Radio (AIR)** and **Algerian National Radio was signed in 2015.**
  - A **Space Cooperation Agreement** was signed in **2018**, facilitating the use of satellite technology for applications such as crop forecasting and **disaster management.**
  - A **Visa Waiver Agreement** for holders of diplomatic and official passports took effect in **October 2021.**

➢ **Cultural Engagement:**

- The **10th International Day of Yoga (IDY)** was celebrated on **21st June, 2024,** in Algeria at the well-known **Jardin d'Essai du Hamma garden**. The event attracted over 300 yoga enthusiasts of diverse ages and backgrounds.

➢ **Space Cooperation:**

- The **India-Algeria Space Cooperation Agreement**, signed in 2018, covers joint efforts in space science, technology, and applications.
- Algeria's space agency discussed satellite applications, such as crop forecasting and disaster management, with **ISRO**, and India launched four **Algerian satellites in 2016.**
- A **Joint Committee** Meeting in 2022 furthered cooperation, with Algeria requesting support for satellite capacity building.

➢ **Indian Community:**

- Approximately **3,800 Indians** are currently residing in Algeria, working in various sectors.
- Many are technically skilled and employed on projects in remote areas, while others work in semi-skilled roles such as masons, carpenters, painters, and welders.
- The community also includes 13 **Overseas Citizenship of India (OCI)** cardholders, 10 **Persons of Indian Origin (PIOs)**, and 15 Indian students.

Algerian Revolution

➢ The Algerian War, also known as the War of Independence or the Algerian Revolution, occurred from **1954 to 1962 between France and the Algerian National Liberation Front (FLN).**

➢ The conflict was marked by **guerrilla warfare,** maquis fighting, and extensive use of torture, making it a significant decolonization struggle.

➢ It escalated into a **civil war among different communities within Algeria and had lasting repercussions in metropolitan France**, ultimately leading to Algeria's independence.

Non-Aligned Movement

➢ The **Non-Aligned Movement (NAM)** emerged during the Cold War to maintain independence from the **U.S. and Soviet Union.**

➢ The concept originated at the **1955 Bandung Conference in Indonesia.**

➢ The first NAM Summit was held in Belgrade, Yugoslavia, in September 1961.

➢ As of April 2018, NAM has 120 members: 53 from Africa, 39 from Asia, 26 from Latin America and the Caribbean, and 2 from Europe (Belarus and Azerbaijan).

➢ Founding leaders include **Josip Broz Tito, Gamal Abdel Nasser, Jawaharlal Nehru, Kwame Nkrumah, and Sukarno.**

Why Does Algeria Matter to India?

➢ **Strategic Partnership**: Algeria's strategic location in the **Maghreb** and its historical alignment with India in the **Non-Aligned Movement** provide a solid foundation for a multifaceted partnership, allowing both nations to collaborate on international issues of mutual interest.

Note:

- **Energy Security**: With Algeria possessing vast hydrocarbon reserves, India can diversify its energy sources and reduce reliance on a single region, thereby enhancing its energy security and stabilizing its energy imports.
- **Economic Collaboration**: The recent economic reforms in Algeria, including the **withdrawal of restrictive investment rules, present significant opportunities for India to engage in trade,** invest in infrastructure projects, and promote capacity development that benefits both economies.
- **Healthcare Cooperation**: India's advanced **pharmaceutical industry** can play a pivotal role in supporting Algeria's healthcare system, fostering medical tourism, and implementing telemedicine programs that enhance the capabilities of Algerian healthcare workers.
- **Security Cooperation**: Given the regional instability and security threats, India and Algeria can strengthen their defense ties through joint counter-terrorism initiatives, enhancing bilateral relations and contributing to regional stability and security.

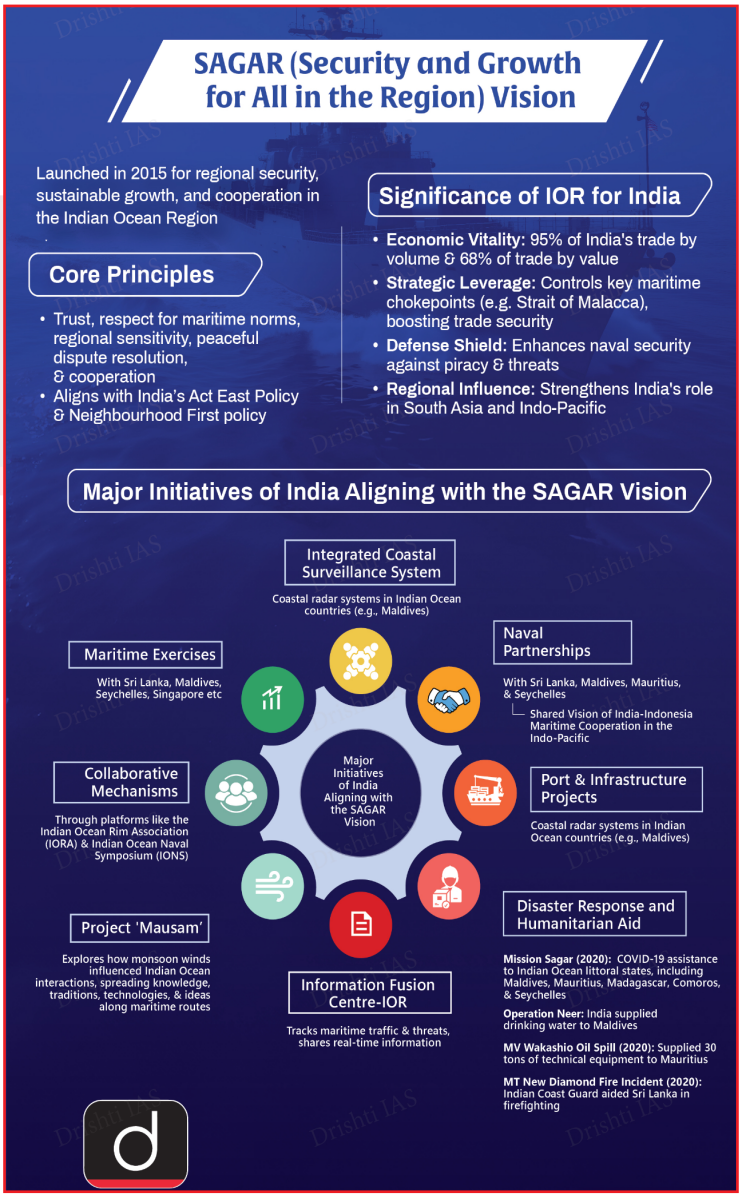
What are the Major Challenges in India-Algeria Relations?

- **Political and Socio Economic Issues**: Algeria's internal political instability and socioeconomic challenges can hinder consistent diplomatic engagement and mutual initiatives.
- **Limited Regional Cooperation**: The inactive state of the Arab Maghreb Union limits regional collaboration opportunities, affecting India's engagement strategy in the region.
- **Knowledge Deficit**: A lack of awareness about each other's cultures and political contexts can hinder deeper bilateral relations and cooperative efforts.

Arab Maghreb Union (AMU)

- **Establishment**: Founded in 1989 in Marrakech, after a treaty signed by five Maghreb states.
- **Member States**: Algeria, Libya, Mauritania, Morocco, and Tunisia.
- **Goals**:
  - Strengthen the independence of member states.
  - Safeguard the assets of member states.
  - Cooperate with other regional institutions.
  - Engage in international dialogue.
- **Economic Importance**: The region possesses significant reserves of oil, gas, and phosphate, serving as a transit center to southern Europe.

SAGAR Vision



■■■

Note:

Social Issues

Highlights

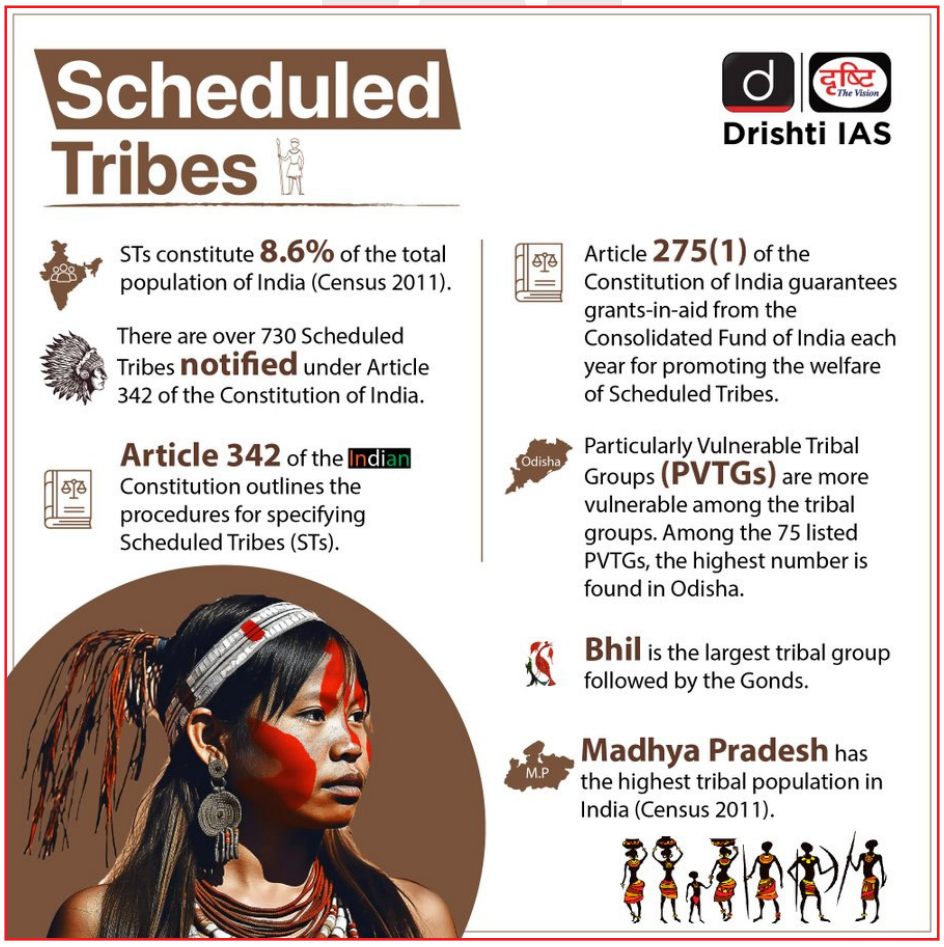
- *Livelihood Promotion Among Tribals*
- *SC's Concerns Over Inaction on Sex Trafficking*
- *Silent Crisis of Mental Health in India*
- *Global Tuberculosis Report 2024*
- *Inheritance Norms in Hindu Succession Act, 1956*
- *Workplace Culture of India*
- *India's Children Lack Dietary Diversity*
- *Recognising the Economic Value of Unpaid Work in India*

Livelihood Promotion Among Tribals

Why in News?

The recent **Mango kernel consumption deaths** in Odisha's Kandhamal district highlight a **severe livelihood crisis** among tribal communities.

- **Mango kernels**, the **seeds** left after juice extraction, contain **cyanogenic glycosides like amygdalin**, which release **toxic hydrogen cyanide** when consumed.



Note:

Why Tribals Rely on Unsafe Consumption for Livelihood?

- **Severe Poverty:** Tribal communities depend on wild and foraged foods mainly because **of widespread and long-standing poverty.**
  - According to the **global** Multidimensional Poverty Index (MPI), **65 million** of the **129 million** tribals are living in **multidimensional poverty.**
- **Food Insecurity:** The geographical **isolation, inadequate infrastructure, and logistical challenges** have made it difficult for tribal communities to access regular, nutritious food supplies under National Food Security Act, 2013 (NFSA).
- **Malnutrition:** Many tribal families do not have enough access to food staples like **grains, pulses, oils, or fortified items.**
  - As per the National Family Health Survey (NFHS-5) 2019-21 report, the prevalence of stunting, wasting and underweight among tribal children stands at **40.9%, 23.2% and 39.5%** respectively.
- **Lack of Forest Rights:** Tribals have historically relied on **forests** for their livelihoods, gathering wild foods, and subsistence farming.
  - However, **displacement,** deforestation, **loss of** forest rights**, and restricted access** to land pushed them into extreme poverty.
- **Economic Exploitation:** Some tribals are forced to resort to **mortgaging their welfare cards (e.g.,** ration cards**)** to local moneylenders in exchange for **short-term debt relief**.
  - These exploitative practices often **deprive** the rightful recipients of government benefits, forcing them **further into debt.**
- **Survival in Extreme Conditions:** During periods of extreme poverty, food scarcity**, and seasonal droughts**, tribal families are forced to rely on **unsafe food sources** to survive amidst worsening **socio-economic conditions.**
- **Insufficient Institutional Support:** The impact of International Fund for Agricultural Development-supported Odisha Tribal Development Project (OTDP), UNICEF's **Household Food Security Project** in vulnerable blocks, and the World Food Programme's community-based anti-hunger projects in remote tribal areas has been limited.

What are Government Initiatives for Tribals?

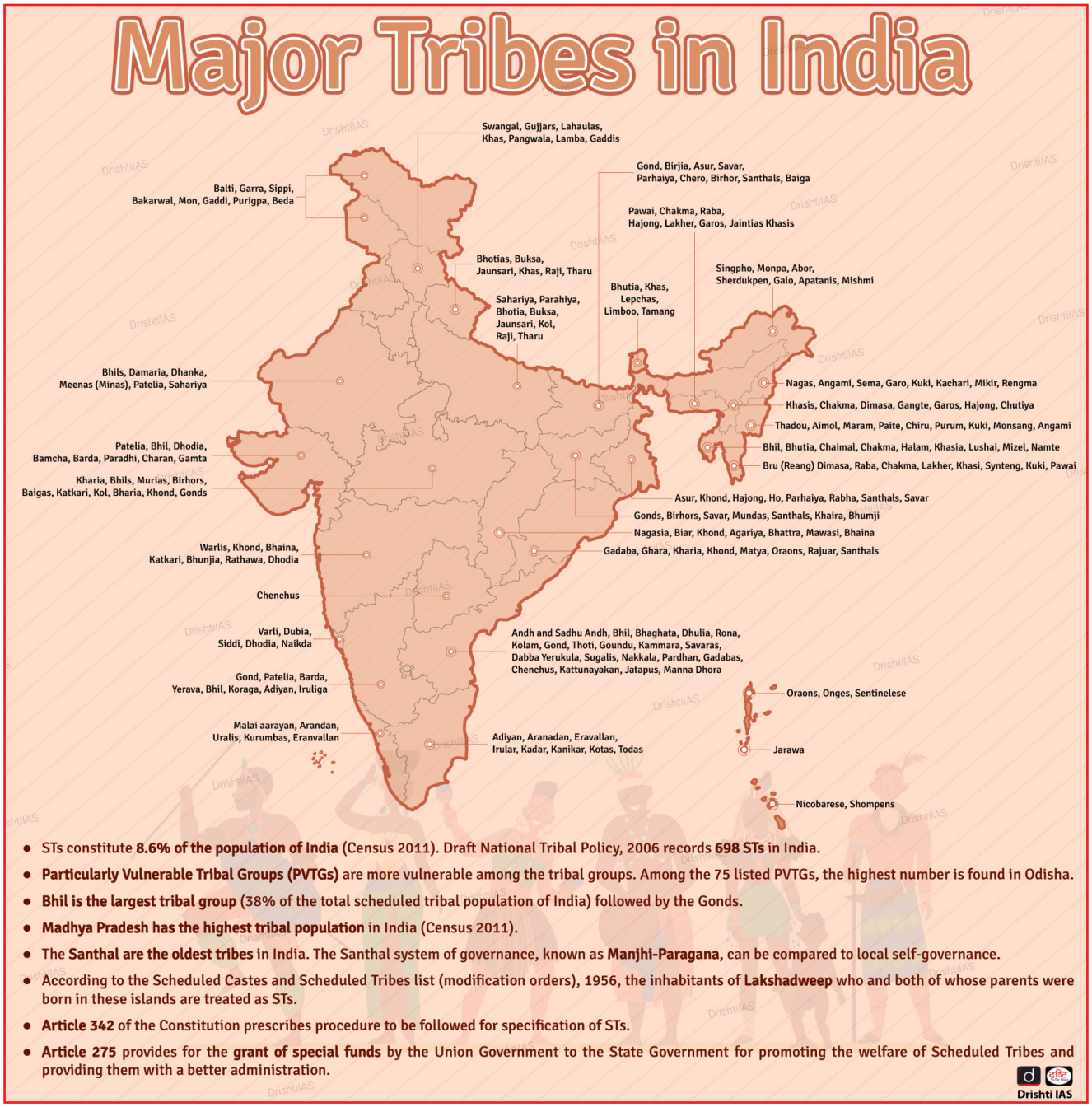
- Pradhan Mantri Janjati Adivasi Nyay Maha Abhiyaan (PM-JANMAN)
- Janjatiya Gaurav Divas
- Viksit Bharat Sankalp Yatra
- PM PVTG Mission
- Dharti Aaba Janjatiya Gram Utkarsh Abhiyan
- Eklavya Model Residential Schools (EMRS)

How can Livelihood of Tribals be Improved?

- **PDS Innovations:** Expanding the system to include essential **nutritious staples (e.g., pulses, oils)** can help bridge the nutrition gap in marginalised tribal communities.
  - **Door-to-door delivery of** PDS rations ensures that remote communities have consistent access to vital food supplies.
- **Enhanced Access to CFR:** Enhanced Access to Community Forest Rights (CFR) allows tribes to exercise control over forest resources, promoting **sustainable harvesting** of minor forest produce (MFP).
- **Fair Market Prices:** Ensuring that tribal communities receive fair prices for MFPs, like **honey, tamarind, wild mushrooms, and mango kernels**, is crucial for economic self-reliance.
  - Government initiatives, particularly those supported by organisations like the Tribal Cooperative Marketing Development Federation of India (TRIFED), can facilitate market access by connecting tribal producers to larger markets, ensuring fair compensation.
- **Financial Protection:** Regulating microfinance **practices** to prevent predatory lending can protect tribal communities from exploitative loans and debt cycles.
- **Leveraging Past Lessons:** Reflecting on the successes and shortcomings of past initiatives (e.g., OTDP, PDS innovations) is essential to **refine future approaches** and build on effective strategies.
- **Strategic Partnerships:** Collaborative efforts between **district administrations,** local governance bodies**, non-profits, and** civil society organisations are vital for building community resilience.

Note:

➢ **Value Addition:** Promoting the processing of MFPs, such as converting mango kernels into valuable products for **confectionery, cosmetics, and pharmaceuticals,** can provide tribal communities with diverse income streams.



SC's Concerns Over Inaction on Sex Trafficking

Why in News?

Recently, the **Supreme Court (SC) of India** criticised the Union government for not establishing the promised **new Organised Crime Investigative Agency (OCIA)** or enacting comprehensive **anti-trafficking** legislation since its 2015 commitment.

Note:

- This failure has raised significant concerns about the effectiveness of the existing frameworks to tackle the growing menace of **sex trafficking.**

Why is the Supreme Court Concerned About Establishing OCIA?

- **Inaction Despite Court Directives:** The SC in the case of ***Prajwala v. Union of India, 2015,*** directed the Ministry of Home Affairs (MHA) to establish the **OCIA** to address sex trafficking.
  - However, despite the deadline of 30th September 2016, and a planned operational date of 1st December 2016, the **agency remains unformed, delaying effective action against sex trafficking.**
- **Importance of Addressing Trafficking:**
  - **High Volume of Cases**: According to data from the MHA, over 10,659 trafficking cases were recorded between 2018 and 2022, highlighting that trafficking remains a systemic issue.
    - An average of around 2,000 cases annually demonstrates the need for strengthened policies, law enforcement, and community awareness.
  - **Low Conviction Rates Despite High Arrests**: Although thousands of people were arrested over the past few years, convictions remain extremely low.
    - This gap between arrests and convictions indicates issues such as **inadequate investigation and weak case presentation in court.**
  - **Vulnerability of Victims**: Many victims of trafficking come from **economically disadvantaged backgrounds**, often lacking adequate support.
    - The challenges in **disbursing victim compensation funds further aggravate their vulnerabilities,** sometimes leading them to turn hostile in court due to financial hardship and lack of resources.
  - **Victim Support**: Despite upgrades in anti-trafficking units and intelligence, low conviction rates highlight the need for improved **law enforcement training, stronger victim support,** and quicker compensation for more effective case handling.
- **Government Response to SC Concerns:**
  - **Pending Legislative Efforts**: The government had previously drafted the **Trafficking of Persons (Prevention, Protection, and Rehabilitation) Bill, 2018,** which passed in the **Lok Sabha** but lapsed in 2019 without introduction in the **Rajya Sabha.**
    - This legislative lapse has contributed to delays in fulfilling the commitment to comprehensive anti-trafficking legislation.
  - **NIA Assigned Role in Sex Trafficking Cases**: The Union government, represented by the **Additional Solicitor General (ASG),** informed the SC that the government had decided to assign the **National Investigation Agency (NIA)** the additional task of handling **sex trafficking cases instead of establishing OCIA.**
    - The SC bench questioned the efficacy of this approach, emphasising that NIA may lack resources and mandate to offer adequate protection and **rehabilitation services to trafficking victims.**
  - **Reference to Bharatiya Nyaya Sanhita, 2023**: ASG informed SC that recent provisions within the **Bharatiya Nyaya Sanhita, 2023 (section 111 and 112),** include measures addressing **organised crime,** suggesting a partial framework for addressing sex trafficking.

How has Sex Trafficking Been Perpetuated in India?

- **Exploitation Through Migration:** Women and girls, particularly from impoverished regions, are lured by traffickers **offering jobs in cities.**
  - Once they migrate, they are **forced into domestic work, spas, and beauty parlours,** where they often face **sexual or labour trafficking.**
  - The exploitation is **rampant in major cities, like Delhi and Mumbai**, where traffickers take advantage of the promise of better economic opportunities.
- **Trafficking in Commercial Sex:** The majority of trafficking victims in India are women and girls from marginalised communities, including **Scheduled Castes** and **Tribes**.
  - Traffickers have shifted sex trafficking operations from traditional **red-light areas** to more discreet locations like dance bars and private residences, **making enforcement harder.**
  - Many individuals in commercial sex work, some of them minors, are trapped in **debt bondage,** unable to escape due to accumulated debts imposed by traffickers.

Note:

- Traffickers are increasingly exploiting **digital platforms** to arrange illicit meetings with buyers, leading to the **decentralisation of sex trafficking beyond traditional brothels** into smaller establishments and private residences.

➢ **Cultural Exploitation:** In some regions, Dalit women and girls are exploited in systems such as **"devadasi"** or **"Jogini"**, where they are ceremonially married to deities but are coerced into **sexual exploitation** by local communities.

- **Religious and tourist centres** also become breeding grounds for sex trafficking, with traffickers using these settings to exploit vulnerable women and children.
- However, in some tribal communities like the **Banchhada in Madhya Pradesh, prostitution is seen as a survival mechanism,** with the birth of a girl child celebrated as an opportunity to earn through prostitution.
  - This **normalisation of prostitution contributes to sex trafficking,** as young girls are groomed for exploitation and become targets for trafficking networks.

➢ **Cross-Border Trafficking:** Limited collaboration among states and with neighbouring countries like **Nepal and Bangladesh** hinders effective action against cross-border trafficking.

- Agreements to combat trafficking and expedite victim repatriation remain incomplete.
- Traffickers also **target women and girls from Central Asia, Eastern Europe, Africa,** and **Rohingya refugees,** exploiting them for sex and labour in India, often **under false pretences of employment.**
- Traffickers exploit **Indian nationals in Gulf countries, Southeast Asia, and Europe,** often through fraudulent recruitment.

What are the Measures Taken by India to Combat Human Trafficking?

➢ **Constitutional and Legislative Provisions:**

- **Article 23 (1) of the Constitution of India**: Prohibits **human trafficking** and **forced labour.**
- **Immoral Traffic (Prevention) Act, 1956 (ITPA)**: Focuses on preventing trafficking for **commercial sexual exploitation.**
- **Criminal Law (Amendment) Act, 2013**: Addresses human trafficking for physical and sexual exploitation, **slavery,** and organ removal.
- **Protection of Children from Sexual Offences (POCSO) Act, 2012**: **Protects children from sexual abuse and exploitation.**

➢ **Initiatives Taken:**

- **Anti-Trafficking Cell (ATC)**: Established by the MHA to coordinate and follow up on anti-trafficking actions.
- **Anti-Human Trafficking Units (AHTUs)**: The MHA has established **AHTUs** to deal with law enforcement response on Trafficking in human beings, excluding legislative, welfare and promotional aspects, which are subject matters of the **Department of Women & Child Development.**
- **Mission Vatsalya Program:** It supports **child victims of crime**, including trafficking.
- **Capacity Building and Awareness**: Training of law enforcement agencies and prosecutors through workshops, and judicial colloquiums to sensitise judicial officers on human trafficking.

➢ **International Conventions on Trafficking:**

- **UN Convention:** The **United Nations Convention on Transnational Organised Crime (UNCTOC)** includes a protocol for the prevention, suppression, and punishment of trafficking in persons, especially women and children.
  - India ratified the convention and implemented the **Criminal Law Amendment Act, 2013** in line with the protocol on trafficking in persons.
  - However, UNCTOC defines an **"organised criminal group"** but does not provide a definition for **"organized crime."** This lack of a clear definition can hinder efforts to effectively combat organised crimes like sex trafficking.
- **SAARC Convention:** India has ratified the **South Asian Association for Regional Cooperation (SAARC)** Convention on Preventing and Combating Trafficking in Women and Children for Prostitution.

How an Agency like OCIA Can Help Combat Sex Trafficking in India?

➢ **Specialised Investigative Units**: OCIA can create units to target sex trafficking along with other organised

Note:

crimes in high-risk areas like urban centres and borders, deploying trained operatives for intelligence gathering and rescues.

- Rapid response teams can be deployed for **quick rescues, and collaborations with NGOs providing rehabilitation services** to help **victims reintegrate into society**.

- **Data Collection and Intelligence Sharing**: A centralised database can track **trafficking cases and offenders,** using **predictive analytics** for proactive interventions and better information sharing.
- **Collaboration with Law Enforcement**: OCIA can train police and border forces on trafficking cases and **coordinate joint operations** for efficient rescues and raids.
- **Cross-Border Operations**: OCIA can work with neighbouring countries for joint operations, intelligence sharing, and legal assistance for cross-border trafficking cases.
- **Public Awareness Campaigns**: OCIA can **run campaigns to educate vulnerable populations** and set up helplines for **safe reporting of trafficking activities.**
- **Policy Advocacy**: OCIA can recommend stronger **anti-trafficking laws and monitor their implementation,** ensuring better victim protection and harsher penalties for traffickers.
- **Judicial Support**: OCIA can provide courts with evidence and legal support for victims, ensuring their participation in the prosecution of traffickers.

Silent Crisis of Mental Health in India

Why in News?

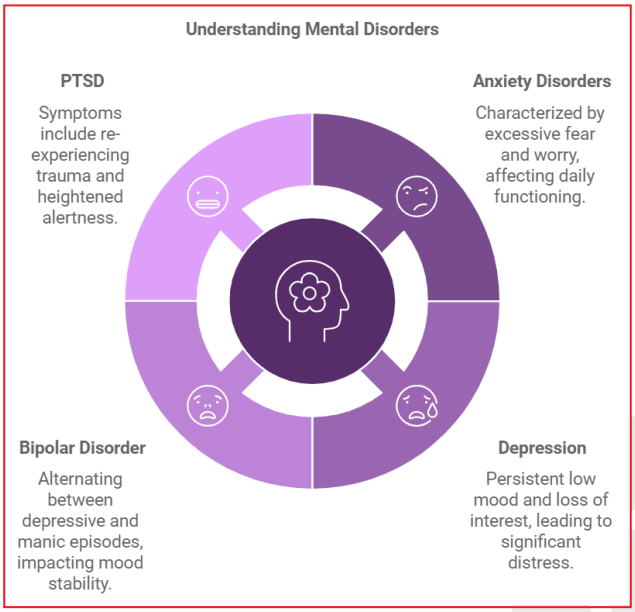
The Accidental Deaths & Suicides in India 2021, report highlighted a growing concern regarding **mental health in India,** an issue that remains significantly underexplored despite its critical implications for public health.

What Contributes to the Crisis of Mental Health in India?

- **Alarming Statistics:**
  - **Suicide Rates:** According to this report by the National Crime Records Bureau, **men account for 72.5% of suicide victims in India**, indicating a profound mental health crisis.
    - In 2021, over 73,900 more men than women died by suicide, despite research indicating women have higher rates of anxiety and depression.
  - **Disparity Across Age Groups:** A significant increase in suicides is observed among men aged 18-59, with a 170.7% rise in suicides among daily wage earners from 2014 to 2021.
- **Impact of Societal Norms:**
  - **Cultural Expectations:** Deep-rooted cultural **norms often prevent men from addressing emotional struggles**, as stoicism and resilience are valued.
    - This, combined with the stigma around mental illness, creates significant barriers to seeking help, worsening the mental health crisis among Indian men.
  - **Coping Mechanisms: Men tend to externalize mental health issues** through aggression or substance abuse rather than **seeking emotional support,** which is more **common among women.**
    - Women typically seek emotional support from loved ones, while men often use problem-focused strategies, distancing from their emotions.
  - **Contrast in Mental Disorders:** While men exhibit higher suicide rates, **women report more mental disorders like anxiety and depression**, highlighting men's lesser ability to cope.
- **Physiological and Psychological Factors:**
  - **Stress Responses:** Research indicates that men typically respond to stress with a **"fight or flight" reaction**, releasing stress **hormones like norepinephrine and cortisol**.

Note:

- **Differences in Coping Strategies:** Women's **"tend and befriend"** response, influenced by **oxytocin release**, often leads them to seek social support, contrasting with men's tendencies to distance themselves from their emotions.



What is the Status of Mental Healthcare in India?

- As per **WHO** estimates, the burden of mental health problems in India is **2443 disability-adjusted life years (DALYs) per 100 00 population**; the age-adjusted suicide rate per 100,000 population is 21.1.
- In India, according to the **National Institute of Mental Health and Neuro-Sciences** data, more than 80% of people do not have access to mental healthcare services.
- As per the **National Mental Health Survey (NMHS) 2015-16**, 10.6% of adults in India suffered from mental disorders while the treatment gap for mental disorders ranged between 70% and 92% for different disorders.

Note:

- **Disability-adjusted life Years (DALYs)** is the sum of the number of years of **life lost due to premature death** and a weighted measure of the years lived with disability due to a disease or injury. The use of DALYs to track disease burden is recommended by **India's National Health Policy of 2017.**
  - The **Mental Healthcare Act, 2017** provides the legal framework for providing services to protect, promote and fulfil the rights of people with mental illnesses. These are in line with the **United Nations Convention on the Rights of People with Disabilities (UNCRPD)**.

What are the Steps taken by the Government to Address the Mental Health in India?

- **National Mental Health Program (NMHP):** To address the huge burden of mental disorders and the **shortage of qualified professionals in the field of mental health**, the government has been implementing the NMHP since 1982.
  - The Program was **re-strategised in 2003** to include two schemes, viz. **Modernisation of State Mental Hospitals** and **Up-gradation of Psychiatric Wings of Medical Colleges/General Hospitals.**
- **Mental Health Care Act 2017:** It guarantees every affected person access to mental healthcare and **treatment from services run or funded by the government.**
  - It has significantly **reduced the scope for the use of Section 224 of the BNS** and made the attempt to commit suicide punishable only as an exception**.**
    - The **Section** mandates that **attempting suicide to compel or restrain a public servant from their duties** is punishable by up to one year of simple imprisonment, a fine, both, or community service.
- **Kiran Helpline:** In 2020, the Ministry of Social Justice and Empowerment launched a **24/7 toll-free helpline 'Kiran' to provide support to people facing anxiety, stress,** depression, suicidal thoughts and other mental health concerns.
- **MANAS Mobile App:** To promote **mental wellbeing across age groups,** the Government of India **launched MANAS (Mental Health and Normalcy Augmentation System) in 2021.**

What are the Technological Innovations in Mental Health?

- **AI in Mental Health Support:** Artificial Intelligence (AI) presents new opportunities to address men's mental health challenges, particularly for those reluctant to seek traditional help.

Note:

- **AI-driven Tools:** Platforms like **Fortis Healthcare's Adayu Mindfulness app** and **Manodayam** are already using AI to provide personalised mental health insights and blended treatment options.
- **Innovative Algorithms:** The method helps identify subtle language and behavior patterns that may signal early signs of mental health issues like depression or anxiety.
- **Tailored Treatment Strategies:** AI can analyse personal therapy responses to suggest the best treatment options, improving results.

➢ **Brain Stimulation:**

- **Transcranial Direct Current Stimulation (tDCS):** It is a non-invasive treatment **using magnetic pulses to target** specific brain areas, showing promise for severe depression that doesn't respond to standard medications.
- **Closed-Loop Neurostimulation:** It uses sensors to monitor brain activity and automatically adjusts stimulation settings based on the detected brainwaves in real-time.

What are the Recommendations for Addressing the Crisis?

➢ **Increasing Mental Health Literacy:** There is a critical need to **enhance awareness and understanding** of mental health issues among men to reduce stigma.

➢ **Innovative Approaches:** Leveraging AI and other technological solutions can facilitate access to mental health resources.

- **AI-driven chatbots and virtual assistants**, utilising natural language processing and machine learning, can provide accessible and personalised mental health support in real-time.

➢ **Creating Supportive Environments:** Breaking down societal barriers and fostering open conversations around mental health can **encourage people to seek help and support**.

➢ **Vision for the Future:** Envision a future where mental health is prioritised, and men feel empowered to seek help without stigma.

➢ **Ensure Proper Workforce:** There are just **0.3 psychiatrists, 0.07 psychologists and 0.07 social workers per 100,000 people in India**.

- As compared to psychiatrists in developed countries it is 6.6 per 100,000 and the average number of mental hospitals globally is 0.04 per 100,000 while it's only 0.004 in India.

Global Tuberculosis Report 2024

Why in News?

According to **WHO Global Tuberculosis Report 2024**, India has achieved a notable **17.7%** decline in **tuberculosis (TB)** incidence from **2015 to 2023.**

➢ This decline, exceeding the **global average of 8.3%,** underscores India's unwavering commitment to eliminating TB by 2025, under the **National Tuberculosis Elimination Programme (NTEP).**

What are the Key Findings of the Global Tuberculosis Report 2024?

➢ **Global TB Incidence Trends: 8.2 million new TB** cases were reported in 2023, up from 7.5 million in 2022, marking the highest figure recorded by WHO since 1995.

- An estimated 1.25 million TB deaths were recorded in 2023, slightly lower than 1.32 million in 2022.

➢ **Demographics of TB Cases:** 30 **low- and middle-income countries (LMICs)** account for 87% of the global TB burden.

- Five countries alone—**India (26%), Indonesia (10%), China (6.8%), the Philippines (6.8%), and Pakistan (6.3%)** contribute 56% of the global TB burden.
- 55% of TB cases occurred in men, 33% in women, and 12% in children and young adolescents.

➢ **India's TB Scenario:** India recorded an estimated **27 lakh TB cases in 2023,** of which **25.1 lakh individuals** were diagnosed and began treatment.

- TB incidence in India dropped from **237 cases per lakh population** in 2015 to **195 per lakh in 2023**, reflecting a **17.7% decline** over the period.
- Treatment coverage increased to **89% in 2023**, up from **72% in 2015,** significantly reducing the gap of undiagnosed or untreated cases.

➢ **End TB Strategy Goals (Post-2015): WHO Global TB Report 2024** indicates, India is unlikely to eliminate

Note:

TB by 2025 as it is falling short of the **WHO's End TB Strategy milestones,** which require reducing TB deaths by 75% and incidence by 50% from 2015 levels.

- Progress so far suggests India will not achieve the target of reducing **TB deaths to 7 per 1,00,000** and incidence to **118.5 per 1,00,000 by 2025**.

Tuberculosis (TB)

- TB is caused by **bacteria (Mycobacterium tuberculosis)** that most often affect the lungs.
- **Transmission:** TB is spread from person to person through the air. When people with lung TB cough, sneeze or spit, they propel the TB germs into the air.
- **Symptoms:** Cough with sputum and blood at times, chest pains, weakness, weight loss, fever and night sweats.
- **Treatment:** TB is a **treatable and curable disease.**
  - It is treated with a standard 6 month course of 4 antimicrobial drugs that are provided with information, supervision and support to the patient by a health worker or trained volunteer.
  - Anti-TB medicines have been used for decades and strains that are resistant to 1 or more of the medicines have been documented in every country surveyed.
    - **Multidrug-resistant tuberculosis (MDR-TB)** is a form of TB caused by bacteria that do not respond to isoniazid and rifampicin, the 2 most powerful, first-line anti-TB drugs. MDR-TB is treatable and curable by using second-line drugs. India holds 27% of the global burden of multi-drug resistant TB (MDR-TB)
    - **Extensively drug-resistant TB (XDR-TB)** is a more serious form of MDR-TB caused by bacteria that do not respond to the most effective second-line anti-TB drugs, often leaving patients without any further treatment options.

India's Commitment to Eliminate TB

- **SDG Target 3.3:** As part of the Sustainable Development Goals (SDGs), India is committed to **eliminating TB by 2025**, five years ahead of the global deadline of 2030.
- **Goals:**
  - 80% reduction in TB incidence from 2015 levels.
  - 90% reduction in TB mortality from 2015 levels.
  - Elimination of catastrophic health costs for TB-affected households.
- **High-Level Initiatives:** The commitment was reiterated at events like the **"End TB Summit" (2018)** and the "One World TB Summit" (2023) and through India's signing of the **Gandhinagar Declaration** (adopted at the end of the two-day meeting held in Gandhinagar, Gujarat, to follow up on the progress made to end TB by the countries of **South-East Asia Region)**

What are the Challenges Encountered in Eradicating TB?

- **Insufficient Global Funding:** In 2023, the total funding available in **low- and middle-income countries (LMICs)** was **USD 5.7 billion**, equivalent to only 26% of the target of reaching USD 22 billion by 2027.
- **Catastrophic TB Costs:** Nearly 20% of Indian households with TB face catastrophic health expenses, well above the WHO target of zero.
- **Limited Donor Support in LMICs:** International donor funding in LMICs remains stagnant at around **USD 1.1–1.2 billion** annually.
  - Although the U.S. and the Global Fund are major contributors, their support is insufficient to meet essential TB service needs.
- **Underfunded TB Research:** With only **one-fifth of the USD 5 billion** research target met in 2022, critical advancements in TB diagnostics, drugs, and vaccines are hindered.
- **Complex and Interlinked Epidemic Drivers:** The epidemic is driven by multiple risk factors, **including undernutrition, HIV, alcohol use, smoking, and diabetes.**

India's Initiatives to Eliminate TB

- National Tuberculosis Elimination Programme (NTEP)
- Pradhan Mantri TB Mukt Bharat Abhiyan
- National Strategic Plan (NSP) for Tuberculosis Elimination (2017-2025)
- TB Harega Desh Jeetega Campaign
- Nikshay Poshan Yojana

Note:

Inheritance Norms in Hindu Succession Act, 1956

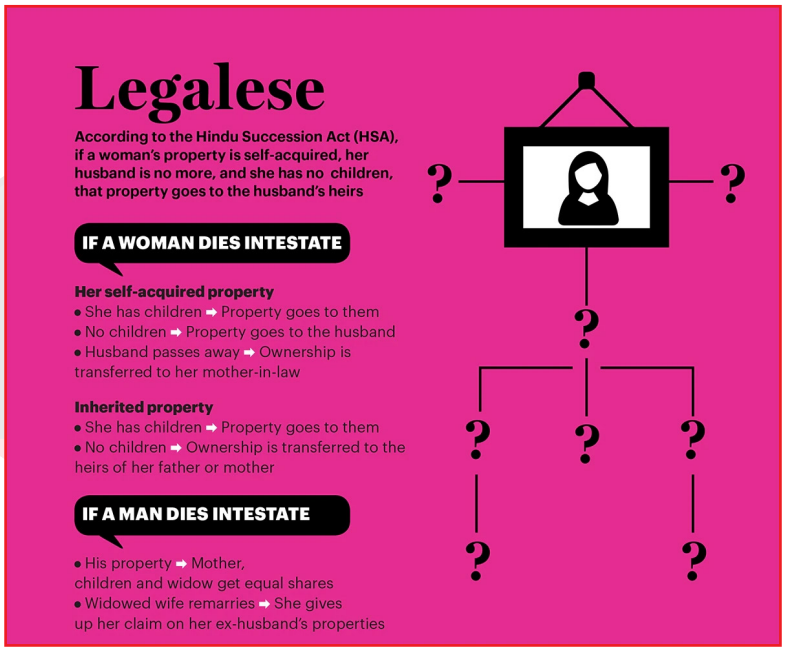
Why in News?

Recently, the **Supreme Court** upheld the **inheritance provisions** under the **Hindu Succession Act, 1956 (HSA)** emphasising on **cultural norms and legislative consistency** rather than viewing inheritance as a matter of **gender inequality.**

- Several petitions challenged the validity of the provisions, arguing for **equitable treatment** of men and women in inheritance matters.

What are the Supreme Court's Observations on Inheritance?

- **Not About Gender Justice:** The SC judgment highlighted that after marriage, a **woman** becomes part of her **husband's family,** with corresponding rights to inheritance in that family.
  - The court clarified that the **inheritance laws** should not be framed solely as a gender equality issue.
- **Cultural Context:** The court stressed that Hindu **inheritance practices** reflect deeply rooted **cultural values**.
  - Traditional sentiments often do not permit a married woman's parents to interfere in her **inherited properties.**
- **Scientific and Logical Lineage:** The court upheld the Act's **"scientific and logical" framework,** wherein property acquired by the woman from her **parents or in-laws** is returned to the source family in the absence of **direct heirs,** maintaining an ancestral lineage-based approach.
- **Need for Legislative Change:** The court reiterated modifications to inheritance laws should be **initiated and enacted by Parliament**, the legislative body, rather than through judicial decisions.
  - This is because **inheritance laws affect the entire society, and any changes must reflect a broad societal agreement** and collective values, rather than being influenced by the concerns of a few individuals or specific disputes.
- **Role of Wills:** The court underscored that a woman is **free to distribute her property** as she wishes through a **will**, emphasising individual autonomy within existing legal norms.
- **Previous Recommendations:** While certain bodies, including the **174th Law Commission (2000)** and the **National Commission for Women**, have recommended equal inheritance rights for men and women, these reforms **depend on the views of the states and Union Territories**.



What are Key Provisions for Intestate (Without a Will) Succession Under HSA, 1956?

- **For Hindu Women:** If a Hindu woman dies without a will, her **properties, including self-acquired assets** are inherited first by her **children and husband.**
  - If **no husband or children** exist, the property devolves upon the **husband's heirs**. Only in cases where there are **no heirs of the husband** does the property pass to the **woman's parents or their heirs**.
  - When property is inherited from a **source (e.g., parents, in-laws)**, it returns to that **source family** if she dies intestate without **direct heirs.**
- **For Hindu Men:** When a Hindu man dies intestate, his property is **divided equally among his wife, children, and mother**. If none of these successors exist, the property devolves to the **father**.

Note:

What is the Hindu Succession Act, 1956?

- **About:** It lays down a **legal framework** for the distribution of property when a Hindu individual dies **intestate**.
  - The Act establishes rules for determining **heirs, their rights, and the division of property** based on their relationships with the deceased.
- **Applicability of Act:**
  - **Hindus** by religion, including **Virashaivas, Lingayats, Brahmos, Prarthna Samajists, and Arya Samaj** followers.
  - **Buddhists, Sikhs, and Jains** by religion.
  - Persons who are **not Muslim, Christian, Parsi, or Jewish** unless it is proved that Hindu law or custom does not govern them.
  - The Act extends across **India** but does **not** automatically apply to **Scheduled Tribes** as per **Article 366** of the Constitution unless notified by the Central Government.
- **Schools of Hindu Law:** It makes a **uniform system of inheritance** and devolution of property that is equally applicable to areas of **Mitakshara and Dayabhaga school**.
  - The **Mitakshara Law** applies to the **whole of India except West Bengal and Assam** while **Dayabhaga Law** applies to **West Bengal and Assam**.
    - Under **Dayabhaga law**, inheritance rights arise **only after the forefathers' death**, while **Mitakshara** grants **property rights from birth.**
  - In the **Dayabhaga system**, both **male and female** family members can be coparceners, while the **Mitakshara system** restricts coparcenary rights to **male members only.**
    - A **coparcener** is a person who can **claim a right** over ancestral property by birth.
- **Distribution of Property:**
  - **Class I Heirs:** A widow is entitled to **one share** of the property.
    - Sons, daughters, and mothers each receive an **equal share.**
  - **Class II Heirs:** The property is **divided equally** if no Class I heirs exist.
  - **Agnates and Cognates:** If no Class I or II heirs, property passes to **paternal relatives (agnates)** and **other relatives (cognates).**
- **Hindu Succession (Amendment) Act, 2005:** The **2005 amendment** to **Section 6** of the Act grants daughters coparcenary rights by **birth, equal to sons**, in property partitions arising from 2005.

Note:

- Heirs in Class I include **son, daughter, widow, mother, son of predeceased son**, and daughter of a predeceased son among others.
- Heirs in Class II include **father, son's daughter's son, son's daughter's daughter, brother and sister** among others.

Inheritance Laws in Other Communities

- **Muslim:** It is governed by **Muslim Personal Law (Shariat) Application Act, 1973.**
- **Christian, Parsi and Jews:** In case of Christians, Parsis and Jews, the **Indian Succession Act, 1925** is applicable.

Workplace Culture of India

Why in News?

The tragic case of Anna Sebastian, **a chartered accountant who is reported to have died due to work-related stress**, underscores the urgent need to address the **toxic workplace culture in India**, highlighting the **continued exploitation of workers**.

Note:

- According to the **recent study of International Labour Organisation**, India ranks among the **most overworked countries globally**, with workers averaging 46.7 hours per week.
  - Additionally, 51% of India's workforce clocks 49 or more hours weekly, **placing the country second in terms of extended working hours** worldwide.

What are the Key Issues in India's Workplace Culture?

- **Toxic Work Environment:**
  - **Long working hours and stress** have become normalised in many corporations, driven by a relentless focus on profit margins and bottom lines.

Note:

- The practice of **overworking employees while cutting costs** often leads to burnout, as companies justify exploitation with terms like **"organisational stretch" and "variable pay."**

- **Responses to Work Culture Issues:**
  - Corporate initiatives like **codes of conduct** and work-life balance policies often lack depth, failing to address the root causes of workplace toxicity effectively.
- **Abusive Leadership and Lack of Accountability:**
  - The absence of legal recourse for employees facing **workplace harassment** or abusive language creates an environment where such behaviors can persist unchallenged.
  - The **performance evaluation systems** in many companies are perceived as biased, leading to feelings of unfair treatment among employees, which breeds resentment and a toxic atmosphere.
- **Public Sector vs. Private Sector Dynamics:**
  - **Public sector organisations** typically offer stronger job security and a more supportive work environment, aided by unions that help address employee grievances.
    - This difference **raises questions about the need for improved practices** within the private sector to foster a healthier work culture.
- **Fatalities Linked to Long Working Hours:**
  - In 2016, **WHO** and **ILO** estimated that long working hours contributed to 745,000 deaths due to stroke and ischemic heart disease—a 29% increase since 2000.
    - Workers aged 60-79 who **consistently worked more than 55 hours** per week between ages 45 and 74 exhibited higher **mortality rates**.
- **Link Between GDP and Working Hours:**
  - ILO reveals that countries with shorter working hours often enjoy higher per capita **GDP**. Nations like Norway (33.7 hours) and the Netherlands (31.6 hours) maintain shorter working weeks while **prioritising worker well-being**, which in turn boosts overall economic prosperity.
    - In contrast, countries like India and Bhutan have longer working hours **but lower per capita income**, suggesting that long working hours don't necessarily equate to economic success.

Country	Share of employed working 49 or more hours per week
Bhutan	61 per cent
India	51 per cent
Bangladesh	47 per cent
Mauritania	46 per cent
Congo	45 per cent
Burkina Faso	41 per cent
Pakistan	40 per cent
United Arab Emirates	39 per cent
Lebanon	38 per cent
Myanmar	38 per cent

Workplace Culture in Other Countries

- **United States:**
  - Demanding work culture with long hours, but **increasing flexibility** (remote work, flexible hours, etc.).
  - Focus on performance with bonuses and stock options, but **leads to competition and income inequality**.
  - Stronger legal protections, though labor laws vary by state and unions are weaker in some sectors.
- **Europe:**
  - Strong **emphasis on work-life balance** with strict labor laws (e.g., 35-hour workweek in France).
  - Respectful and collaborative corporate culture with **greater employee protections**.
  - More equitable compensation and generous benefits; **robust labor protections and strong unions**.

What is the Regulatory Framework Regarding Labours in India?

- **Constitutional Framework:** Under the **Constitution**, Labour as a subject is in the **Concurrent List** and,

Note:

therefore, both the Central and the State governments are competent to enact legislations subject to certain matters being reserved for the Centre.

- **Judicial Interpretation:** In the case of **Randhir Singh vs Union of India,1982**, the Supreme Court stated that "Even though the principle of 'Equal pay for Equal work' is not defined in the Constitution, it is a goal which is to be achieved through Articles 14, 16 and 39 (c).
  - **Article 14:** It provides for equality before the law or equal protection of the laws within the territory of India.
  - **Article 16:** It talks about the right of equal opportunity in the matters of public employment.
  - **Article 39(c):** It specifies that the economic system should not result in the concentration of wealth and means of production to the detriment of the entire society.
- **Legislative Framework:** There have been several legislative and administrative initiatives taken by the government to improve working conditions and simplify labour laws. Most recent is the consolidated sets of 4 labour codes which are yet to be implemented.
  - **Labour Codes:**
    - Code of Wages, 2019
    - Industrial Relations Code, 2020
    - Social Security Code, 2020
    - Occupational Safety, Health and Working Conditions Code, 2020
  - **The Factories Act, 1948:**
    - Daily hours under the Factories Act cannot exceed nine hours in any day, according to **Section 54**.
      - Every worker is entitled to an interval break of at least half an hour and not more than 5 hours of work should pass before such interval.
    - No worker under the Act shall be required to work for more than 48 hours in any week, according to **Section 51**.
  - **The Minimum Wages Act, 1948:**
    - Wages paid for overtime must be double the actual rate for any hour, or part of an hour, of actual work undertaken in excess of the prescribed 9 hours or 48 hours per week.

What can be Done to Improve Work Culture in India?

- **Regulatory Framework:**
  - To effectively address toxic workplace culture, a regulatory framework is necessary. This could involve mandating corporate boards to be accountable for workplace conditions and employee welfare.
  - **Establishing clear guidelines** for employee treatment and performance evaluations can help mitigate abusive practices.
- **Cultural Shift in Corporations:**
  - Companies should actively promote a culture of respect and fairness, where employee contributions are acknowledged and rewarded appropriately.

Note:

- **Initiatives focused on improving work-life balance**, alongside genuine engagement with employees, could help foster a healthier workplace environment.

- **Awareness and Advocacy:**
  - Increased awareness and discourse on workplace culture issues can empower employees to voice their concerns and advocate for their rights.
  - **Learning from international standards** where employees have the right to sue for mental stress could prompt similar protections in India.
- **Corporate Social Responsibility (CSR):**
  - Corporations must integrate a commitment to improving workplace culture into their CSR strategies, recognizing that employee well-being is integral to long-term success.

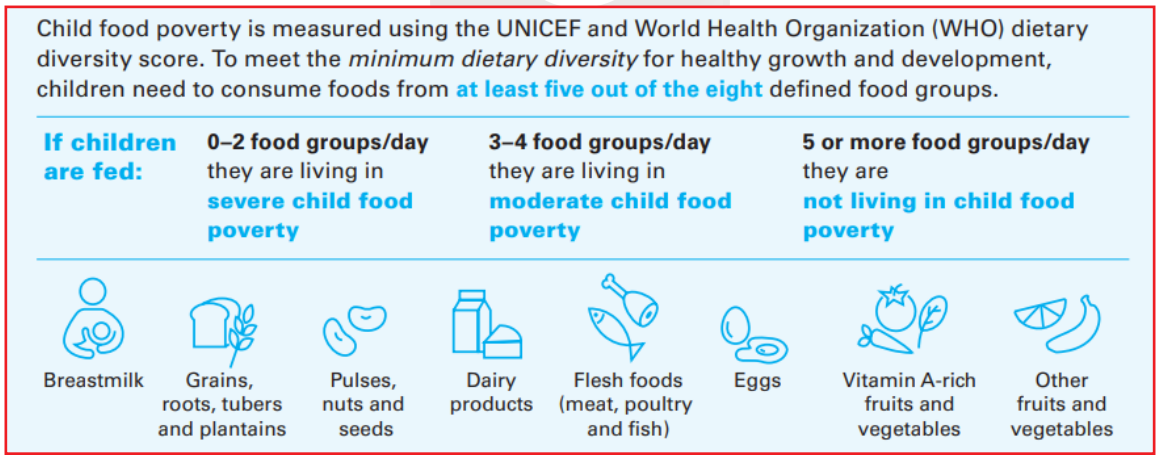
India's Children Lack Dietary Diversity

Why in News?

According to a recent study, **77% of children in India aged 6-23 months do not meet the dietary diversity standards** recommended by the World Health Organisation (WHO), with the country's central region having the highest rates of minimum dietary diversity failure.

Minimum Dietary Diversity (MDD)

- It refers to a recommended standard set by the **WHO** for children aged 6-23 months.
- It suggests that **within 24 hours, children should consume foods and beverages** from at least five of the eight defined food groups.
  - Breast milk, **grains, legumes, dairy products**, flesh foods, eggs, and fruits and vegetables.
  - A child's diet is considered to have failed MDD if they consume food from fewer than five of these food groups.
- MDD is part of the Infant and Young Child Feeding (IYCF) practices, which are assessed by a suite of indicators developed by the WHO and UNICEF. The MDD is also a component of the **Minimum Acceptable Diet (MAD)** indicator.



What are the Key Highlights of the Study?

- **Historical Comparison:** Utilising data from the National Family Health Survey (NFHS-5) conducted between 2019 and 2021, researchers noted a decline in the overall **failure rate of MDD** from **87.4% in NFHS-3 (2005-06)**.
  - Despite **some improvement, over 75% of children still lack diverse diets**, highlighting an alarmingly high prevalence and ongoing challenges in ensuring adequate nutrition.
- **State Variance:** The study found that states like **Uttar Pradesh, Rajasthan, Gujarat, Maharashtra, and Madhya Pradesh exhibited over 80%** inadequacy in dietary diversity, reflecting significant regional disparities.
  - In contrast, **Sikkim and Meghalaya reported levels below 50%**, highlighting successful local nutritional strategies that could be models for other regions.
- **Status of WHO Dietary Diversity Standards:** According to the study, about **35% of the global child deaths**

Note:

and 11% of the total disease burden are due to inadequate nutrition.

- While **in India, 1 in 3 children are underweight** and stunted, and 1 in 5 children are wasted.

- **Dietary Trends by Food Groups:** Certain dietary trends have shown marked improvement.
  - Despite these gains, **breast milk and dairy consumption declined**, with breastmilk dropping from 87% in NFHS-3 to 85% in NFHS-5 and dairy from 54% to 52%.
- **Undernutrition and Anaemia:** The study emphasises that **undernutrition and anaemia** are still major health issues. It found that children from rural areas, with **illiterate mothers, or mothers with limited access to media and healthcare** (such as **Anganwadi services**) are more likely to **have diets lacking diversity.**
- **Related Recommendations:**
  - This study **underscores the necessity for robust government initiatives** to improve child nutrition, such as enhancing the **Integrated Child Development Services (ICDS)** and **Public Distribution Systems**.
  - The findings suggest that **targeted interventions could further reduce the prevalence** of dietary deficiencies.

Types of Undernutrition

- **Wasting:** Low weight-for-height is known as wasting. It occurs when a person has not had enough food to eat and/or they have had an infectious disease.
- **Stunting:** Low height-for-age is known as stunting. It often occurs due to insufficient calorie intake, leading to a low weight for a given height.
- **Underweight:** Children with low weight-for-age are known as underweight. A child who is underweight may be stunted, wasted, or both.

What are the Major Challenges in Achieving Dietary Diversity in India?

- **Economic and Regional Disparities:** High **poverty** rates and regional inequalities limit access to diverse foods, particularly in central and western states.
- **Limited Nutrition Education:** A **lack of awareness among caregivers**, especially in rural areas, reduces understanding of balanced diets, contributing to undernutrition.
- **Public Distribution Gaps:** The **PDS** often focuses on staple grains, **offering limited variety** and missing nutrient-rich foods like legumes, fruits, and vegetables.
- **Healthcare Access and Counseling Deficit:** Poor access to healthcare facilities and nutrition counseling **lacks essential information**, affecting children's dietary choices.
- **Social and Cultural Factors:** In some communities, dietary choices are influenced by cultural norms that **may deprioritize certain food groups**, limiting children's exposure to varied diets.

Related Government Initiatives

- **Mission Poshan 2.0**
- **Pradhan Mantri Matru Vandana Yojana (PMMVY)**
- **Mid-Day Meal Scheme**
- **Scheme for Adolescent Girls (SAG)**
- **Mother's Absolute Affection (MAA)**
- **Poshan Vatikas**

Recognising the Economic Value of Unpaid Work in India

Why in News?

Recently, a research paper has **spotlighted the economic value of unpaid work, particularly by women**, highlighting the need for recognition in productivity measures.

What is Unpaid Work?

- **About:** Unpaid work refers to activities that individuals, particularly women, engage in without receiving monetary compensation.
  - Women's unpaid labour, encompassing **care work,** parenting, and domestic responsibilities, remains largely invisible and unrecognised in economic discussions.
- **Types of Activities:**
  - **Domestic Tasks:** Cleaning, cooking, and childcare.
  - **Care Work:** Looking after family members, including the elderly and sick.
  - **Community Services:** Volunteering in community activities without pay.

Note:

- **Subsistence Production:** Engaging in farming or crafts for personal use rather than for sale.

➢ **Economic Contribution:** Unpaid work contributes significantly to the economy, often accounting for a substantial percentage of **Gross Domestic Product (GDP),** especially in developing countries.

- It supports the labour force by providing essential services that enable others to participate in paid work.

➢ **Gender Disparities and Limited Opportunities:** Women disproportionately bear the burden of unpaid work due to societal norms, limiting their access to education, skill development, and paid employment, which reinforces cycles of inequality and hinders economic independence.

➢ **Importance of Recognising Unpaid Work:** Valuing unpaid work can help address **gender inequalities** and promote fair distribution of labour responsibilities.

- Incorporating unpaid work into national accounts aligns with goals for **sustainable development,** particularly in achieving gender equality (as highlighted in the **United Nations (UN) Sustainable Development Goals (SDGs).**

SDG 5:

➢ The **UN's SDG 5 focuses on gender equality** and empowering women, with Target 5.4 aiming to recognize and value unpaid care and domestic work, promoting supportive policies and shared household responsibilities**, especially in low and middle-income countries, by 2030**.

What are the Key Highlights of the Research on Unpaid Work?

➢ **Quantifying Unpaid Work:** The authors utilised data from the **Consumer Pyramids Household Survey (CPHS) by the Centre for Monitoring Indian Economy (CMIE),** covering individuals aged 15 and above from September 2019 to March 2023 to measure the economic value of unpaid household work.

- Findings indicate that **women not in the labour force spend over 7 hours daily on unpaid domestic tasks,** while employed women spend about 5.8 hours.
  - In contrast, men contribute significantly less, averaging **under 4 hours daily for unemployed men** and 2.7 hours for employed men.
  - This stark contrast underscores the significant burden of unpaid labour borne by women.

➢ **Valuation Methods:** The paper employs two input-based valuation methods:

- **Opportunity Cost (GOC):** This method calculates the value of unpaid labor based on the wages that individuals forgo by engaging in unpaid tasks.
- **Replacement Cost (RCM):** This method estimates the monetary value by assuming that these household tasks could be performed by hired market workers, thus assigning a value based on prevailing market wages for similar roles.
- **Findings from the Valuation:** The estimated value of unpaid household work was Rs 49.5 lakh crore using the GOC method and Rs 65.1 lakh crore with the RCM method for 2019-20, translating to 24.6% and 32.4% of nominal GDP, respectively.

➢ **Policy Recommendations:** The authors advocate for policies that recognise and value unpaid work to encourage gender equity in the workforce.

- While the **System of National Accounts** has included household production in **GDP calculations since 1993**, it has notably **excluded unpaid care work.**
- According to a 2023 State Bank of India report, Unpaid work is estimated to contribute approximately Rs 22.7 lakh crore (about 7.5% of GDP) to the Indian economy.
  - The authors highlight that **enhancing women's labour force participation** could potentially increase India's GDP by 27%.
- They also emphasise the need for future research to refine methodologies for **valuing unpaid work and promoting equitable redistribution** of caregiving responsibilities.

Note: The System of National Accounts (SNA) 2008 is a comprehensive, consistent and flexible set of macroeconomic accounts developed jointly by the **International Monetary Fund,** the **European Union,** the **Organisation for Economic Co-operation and Development,** the **United Nations,** and the **World Bank.**

➢ NSA **helps to meet the needs of government and private-sector analysts**, policy-makers, and decisions-takers.

Note:

What are the Key Statistics on Unpaid Work in India?

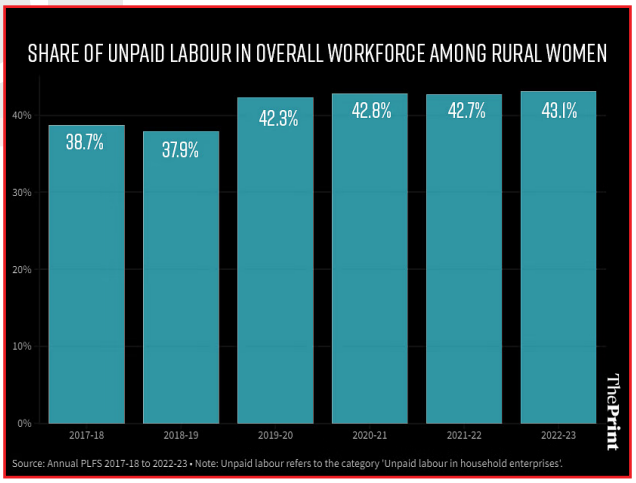
- **Periodic Labour Force Survey (PLFS) 2023-24:** According to the **PLFS Report 2023-24,** 36.7% of females and 19.4% of the workforce engage in unpaid work within household enterprises.
  - The 2022-23 data showed similar trends with 37.5% of females and 18.3% of the total workforce engaged in unpaid work.
- **Time Use Survey 2019 (National Statistical Office (NSO)):** 81% of females aged 6+ spend over five hours daily on unpaid domestic work. This figure climbs to 85.1% for the 15-29 age group and 92% for those aged 15-59.
  - In contrast, only 24.5% of men (aged 6+) spend over an hour daily on unpaid domestic work.
- **Unpaid Caregiving Services:** 26.2% of women aged 6+ spend over two hours daily on caregiving compared to 12.4% of men.
  - The 15-29 age group shows 38.4% of women and just 10.2% of men involved in unpaid caregiving.

Global Economic Impact of Unpaid Work

- A **2022 Asia-Pacific Economic Cooperation (APEC)** study estimates unpaid work to contribute 9% of GDP across **APEC economies**, totaling USD 11 trillion.
- Unpaid work constitutes 10-60% of GDP in various nations. For instance, Australia's unpaid work represents up to 41.3% of its GDP, while Thailand's is around 5.5%.

Why are Women More Involved in Unpaid Work?

- **Cultural Norms and Gender Roles:** Societal norms view caregiving and household duties as women's natural roles, making this work unpaid and unrecognised.
  - 53% of women in India remain outside the labour force due to care responsibilities. In comparison, only 1.1% of men are outside the labour force for similar reasons.
- **Economic Constraints:** For many households, unpaid work done by women is viewed as a **cost-saving measure,** with families relying on women to manage home duties and caregiving, especially in low-income households where hiring help is financially challenging.
  - The lack of affordable care services often forces women into unpaid caregiving roles due to inadequate public investments in care infrastructure.
- **Limited Employment Opportunities:** Women, particularly those with lower levels of education or living in rural areas, may face limited job opportunities. As a result, unpaid work at home becomes the primary form of contribution to their families.
- **Policy Gaps:** Insufficient family-friendly policies, such as **parental leave for both genders and flexible working arrangements,** often result in women bearing the primary caregiving burden.
  - This lack of institutional support reinforces the norm of women handling unpaid work.
- **Limited Recognition of Unpaid Work:** Unpaid domestic and care work is undervalued and often invisible in official economic metrics, perpetuating the belief that it is **not "real work"** and does not require formal compensation or acknowledgment.



What Policies are Needed to Address Inequity in Unpaid Work?

- **Investment in Early Childhood Care and Education (ECCE):** Increase government expenditure on **ECCE** to create accessible and affordable childcare services, enabling more women to enter the workforce.
  - Provide **financial assistance for childcare** and develop community centres offering childcare and education, especially in rural and underserved areas, to **reduce the unpaid care burden on women.**

Note:

- Countries like **Iran, Egypt, Jordan, and Mali** also have high percentages of women outside the labour force due to caregiving. Conversely, nations like Belarus, Bulgaria, and Sweden see less than 10% of women in this situation, **because of the substantial investments in ECCE.**

- **Flexible Work Policies:** Encourage companies to implement flexible work arrangements, allowing parents and caregivers to balance work and home responsibilities.
  - Extend paid family leave policies to include caregiving for older adults and family members with special needs.
- **Legal Frameworks and Labour Rights:** Implement laws that formally recognise unpaid care work as a legitimate contribution to the economy.
  - Strengthen and enforce laws that promote gender equality in the workplace, such as **anti-discrimination measures** and equal pay regulations.
- **Promoting Shared Responsibility:** Launch national awareness campaigns that challenge traditional gender roles and encourage shared domestic responsibilities between men and women.

Conclusion

Recognising and valuing unpaid work, especially by women, is crucial for gender equality and economic productivity. Incorporating unpaid work into metrics and implementing supportive policies can **address disparities and empower women's workforce participation,** leading to a more equitable society and sustainable economic growth.

Note:

Science & Technology

Highlights

- *NISAR Satellite*
- *3rd Indian Space Conclave and India's First Analog Mission*
- *RNA Editing*
- *Tardigrades Genes for Innovation*
- *Biotechnology Experiments for India's Upcoming Space Station*

NISAR Satellite

Why in News?

The **NASA-ISRO Synthetic Aperture Radar (NISAR) satellite**, a collaborative effort between **National Aeronautics and Space Administration (NASA)** and **Indian Space Research Organisation (ISRO)**, is scheduled to launch in **early 2025.**

- It integrates two advanced radar systems—**NASA's L-band radar** and **ISRO's S-band radar**—marking it as the first satellite to carry both.

What is NISAR?

- **About:**
  - It was built in collaboration with the US and India under a **partnership agreement signed in 2014,** and is set to launch from Satish Dhawan Space Centre in Andhra Pradesh, India.
  - The satellite will be launched into **low Earth orbit** using **ISRO's Geosynchronous Satellite Launch Vehicle Mark II.**
- **Objective:** It will map the entire globe **every 12 days**, offering consistent data on ecosystems, ice mass, vegetation, sea level rise, groundwater, and natural hazards like earthquakes, tsunamis, volcanoes, and landslides.

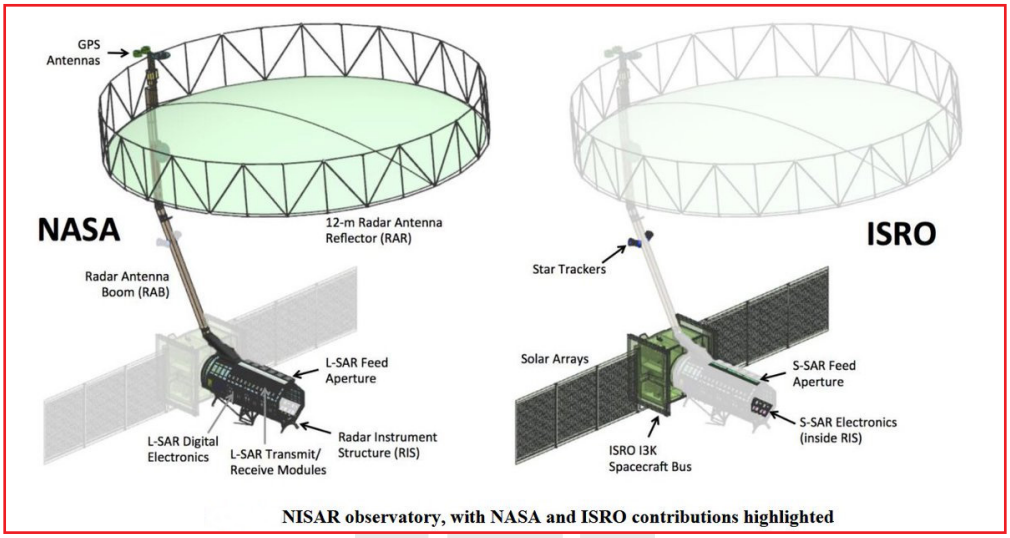
Feature	Details
Thermal Blanketing	**Gold-coloured** thermal blankets regulate the satellite's temperature during operation.
Key Components	**Radar Payload:** Core instrument for surface observation. **Spacecraft Bus:** Provides power, communications, navigation, and pointing control for satellite operations. **Antenna and Reflector:** 12 metre diameter drum-shaped wire-mesh reflector, the largest in space, enhances radar signal focus and observation capabilities.
Technological Advancements	**Dual Radar Systems:** Combines NASA's L-band radar and ISRO's S-band radar: **L-band Radar:** Penetrates dense vegetation to measure ground motion, ideal for volcanic and seismic zones. **S-band Radar:** Improves surface monitoring precision; operates on 8-15 cm wavelength and 2-4 GHz frequency.

Applications of NISAR

- **Comprehensive Monitoring:** NISAR captures **Earth's surface movements (horizontal & vertical)** with high clarity, functioning day and night through clouds.
- **Disaster Mitigation:** Tracks seismic activities, landslides, volcanic events, and ice sheet shifts for disaster impact reduction.

Note:

- **Environmental Tracking:** Monitors forests, **wetlands, farmlands, and deforestation t**o support sustainable resource management.
- **Infrastructure Stability:** Assesses infrastructure, **monitors urbanisation, and detects oil spills for better management.**
- **Data-Driven Decision-Making:** Supports understanding tectonic movements and promotes informed, sustainable, and economic use of resources.



NISAR observatory, with NASA and ISRO contributions highlighted

3rd Indian Space Conclave and India's First Analog Mission

Why in News?

The **3rd Indian Space Conclave in New Delhi** spotlighted India's expanding space capabilities, with a focus on **Satellite Communication (Satcom)** and **Indo-European Union Space partnerships**. Key discussions explored Satcom's role in advancing Digital India and India's ambitious space goals.

- In another development, **India's first Mars and Moon analog mission was inaugurated** in Leh, Ladakh, led by **Indian Space Research Organisation (ISRO),** the mission simulates **extraterrestrial conditions** for space habitat testing.

What are the Key Highlights of the 3rd Indian Space Conclave?

- **Satellite Communication (Satcom):** The Minister of State for Communications and Rural Development, highlighted **Satcom's transformative role in Digital India.**
  - Satcom applications support various sectors such as telecommunications, **disaster management**, agriculture, healthcare, and education, reaching underserved regions.
  - The **SatCom Reform 2022 policy** promotes innovation and public-private partnerships in space technology.
- **India's Rise as a Global Space Leader:** India's achievements, including **Chandrayaan-3** and the upcoming **Gaganyaan missions,** signify its leading role in space exploration .
  - India now serves as a global partner in space, aiming for a robust network that complements terrestrial infrastructure.
- **Indo-EU Space Collaboration:** **European Union** ambassador commended India as a dynamic space power, highlighting shared goals in space exploration.
  - Proposed joint initiatives include **Earth observation, training, and space security.**
  - The **2025 EU-India Summit** is expected to further strengthen cooperation in space governance and peaceful use of space.
  - India is set to launch the **EU's Proba-3 satellite,** focused on observing the Sun, marking a milestone in Indo-EU collaboration.

Note:

- This is India's third launch for the EU, following previous **Proba-1 and Proba-2 missions,** strengthening ISRO's reputation as a trusted international partner.

- **Space Startups:** The rise of space-focused startups was acknowledged following the **2020 space sector reforms**, with India now having over 300 space-focused startups contributing to economic growth and innovation.
  - This surge in startups has **curbed brain drain,** attracting Indian talent back from global agencies like NASA.
- **Ambitions of India's Space Program:** India's long-term objectives highlight the **Gaganyaan human spaceflight mission,** a **crewed lunar landing by 2040,** and an **Indian space station by 2035.** Plans for **space tourism by 2040** further highlight India's dedication to innovative and inclusive space exploration.

Space Sector Reforms 2020

- In 2020, India announced **Space Sector Reforms,** a major transformation of the Indian Space Sector with enhanced participation of private players in the Indian space programme and playing key roles to boost India's market share in the Global Space Economy.
  - Setting up of **Indian National Space Promotion and Authorisation Centre (IN-SPACe)** and enhancing the **role New Space India Limited (NSIL)** are the two major areas in the reform.
    - **IN-SPACe, an autonomous agency under the Department of Space**, aims to foster industry, academia, and startups, regulate non-governmental space activities, and capture a larger share of the global space economy. Its headquarters are in **Ahmedabad.**
    - **NSIL, headquartered in Bengaluru,** is a wholly owned Government of India company under the **Department of Space (DOS),** is the **commercial arm of ISRO** responsible for enabling Indian industries to undertake high technology space-related activities and promoting commercial exploitation of the Indian space programme.

Satcom Reforms 2022

- It was introduced by the **Department of Telecommunications (DoT),** aimed to streamline the **satellite-based communication network** application process and encourage private sector participation.
  - By reducing the processing time from **6-8 months to 6 weeks,** the reforms make it easier for service providers to establish satellite communication systems.
- Reforms aim to enhance **Ease-of-Doing-Business** by reducing charges at different stages and boost innovation in the space sector.

What is India's First Mars and Moon Analog Mission?

- **About:** Analog missions are **field tests conducted in locations that resemble extreme space environments.** They are crucial for solving problems related to spaceflight research**.**
  - India's first Mars and Moon Analog Mission, led by the ISRO in collaboration with AAKA Space Studio, the University of Ladakh, and supported by the **Ladakh Autonomous Hill Development Council**.
- **Objective:** This mission simulates life in an **interplanetary habitat to tackle challenges of establishing a sustainable base beyond Earth**, supporting India's space ambitions.
  - It focuses on **Mars and Moon habitat conditions,** studying sustainability, life support systems, and psychological well-being in isolation to understand human adaptation to harsh environments.
- **Ladakh, Ideal for Space Testing:** Ladakh was chosen for its unique environmental characteristics that closely mirror those of Mars and the Moon. The region's **high altitude, dry climate, and extreme temperature** fluctuations make it an ideal location for testing space habitat technologies.
  - With temperatures ranging from **15°C to -10°C,** the mission simulates the thermal challenges of extraterrestrial environments.
  - Additionally, the oxygen levels in Ladakh are only **40% of those at sea level,** providing a perfect opportunity to test life support systems designed for low-pressure conditions similar to those on Mars.

Note:

- The region's rocky, sandy soil also resembles **Martian and lunar regolith,** making it ideal for research on rover mobility and in-situ resource utilisation.

➢ **Technological Testing:** Researchers will test advanced technologies to support space habitats, including:
- **Circadian Lighting**: Simulates daylight cycles to maintain sleep patterns and well-being.
- **Hydroponics**: A system for sustainable food growth in space, ensuring astronaut nutrition.
- **Standalone Solar Power System**: Provides renewable energy for habitat independence.

➢ **Significance of Analog Mission:** It helps scientists observe the **physical, mental, and operational conditions** of space while remaining on Earth.
- Analog missions prepare astronauts for near-term and future exploration to asteroids, Mars, and the Moon.

Analog Missions Worldwide

➢ **Desert Research and Technology Studies (Desert RATS):** Led by National Aeronautics and Space Administration (NASA), it is primarily conducted in the deserts of Arizona, USA.
- Desert RATS is a field campaign that tests mission rover and extravehicular activity in challenging environments to simulate conditions on the Moon and Mars.

➢ **NASA Extreme Environment Mission Operations (NEEMO):** Astronauts live in Aquarius, the world's only undersea research station.

➢ **Hawai'i Space Exploration Analog and Simulation (HI-SEAS):** It is a Mars and Moon exploration analog research station, currently operated by the International MoonBase Alliance(IMA).
- The IMA is a non-profit organisation that gathers leading scientists, educators, and entrepreneurs to promote lunar exploration.

RNA Editing

Why in News?

Recently, **Wave Life Sciences**, a **biotechnology company** in the US, became the **first company** to treat a **genetic condition** by editing Ribonucleic acid (RNA) at the clinical level.

What are the Key Facts About RNA Editing?

➢ **About: RNA editing** is the process of modifying **Messenger RNA (mRNA) nucleotides**, after Deoxyribonucleic acid (DNA) creates mRNA but before it begins **protein synthesis**.
- mRNA is made up of portions called **exons and introns. Exons** eventually code for a **protein** whereas the **introns** are **non-coding parts** and are **removed** from the RNA before it's used to make a protein.

➢ **Types:** There are three types of RNA modifications i.e., **addition, deletion, and substitution.**
- **Addition** is when a **nucleotide is inserted. Deletion** is when one is removed while **substitution** refers to the replacement of one nucleotide with another.

➢ **Mechanism**: The technique involves a group of enzymes called **adenosine deaminase acting on RNA (ADAR)**.
- Scientists pair **ADAR's effects with a guide RNA (or gRNA)** that guides ADAR to a specific part of the **mRNA**, where the ADAR does the **designated job.**

➢ **Clinical Use**: Wave Life Sciences used RNA editing to treat **α-1 antitrypsin deficiency (AATD)**, an **inherited disorder** through a therapy dubbed as **WVE-006**.
- RNA editing shows **promise** for treating **Huntington's disease, Duchenne muscular dystrophy, obesity, Parkinson's disease,** neurological conditions, heart diseases, and more.

Note:

➢ Challenges persist due to its temporary nature requiring **repeated treatments, current delivery systems**, such as **lipid nanoparticles** and **adeno-associated virus (AAV)** vectors, face limitations in accommodating large molecules.

Note:

Ribonucleic acid (RNA)

- **Definition and Structure**: RNA is a nucleic acid present in **all living cells.**
  - It is **structurally similar to DNA** but typically **single- .**
  - Its backbone consists of alternating **phosphate groups and ribose sugars**, with bases **adenine (A), uracil (U), cytosine (C), and guanine (G).**
- **Types of RNA**:
  - **Messenger RNA (mRNA)**: Carries genetic information from DNA to ribosomes for protein synthesis.
  - **Ribosomal RNA (rRNA)**: Forms the core of the ribosome's structure and catalyses protein synthesis.
  - **Transfer RNA (tRNA)**: Transfers amino acids to ribosomes during protein synthesis.
  - **Regulatory RNAs**: Play roles in gene expression regulation.
- **Functional Significance**: RNA plays essential roles in cellular processes like building cells, immune responses, and transporting amino acids.
- **Role in Viruses**: Certain **viruses** use RNA as their **genetic material.**

How do RNA and DNA Editing Differ?

Aspect	DNA Editing	RNA Editing
Permanence vs. Temporariness	**Permanent:** Alters an individual's **genome permanently**, which may lead to **irreversible errors** if issues occur.	**Temporary:** Makes temporary changes in RNA that **fade over time,** providing **flexibility** to discontinue therapy if problems arise, reducing long-term risks.
Immune Response	Often uses **CRISPR-Cas9** or other tools derived from **bacteria**, which can **trigger immune reactions** due to foreign proteins.	Utilises **ADAR enzymes** naturally present in **human cells**, posing a **lower risk of immune or allergic responses**. Suitable for repeated treatments and those with immune sensitivities.

Tardigrades Genes for Innovation

Why in News?

Recently, researchers are exploring a range of **unique tardigrade features** to inspire advancements in **medicine, biotechnology, and space exploration**.

What are the Key Facts About Tardigrades?

- **About:** Tardigrades (*Tardigrada*), also known as **water bears or moss piglets**, are **microscopic, eight-legged** creatures **without a backbone**.
- **Species and Evolution:** They belong to the **phylum Tardigrada.**
  - The earliest known fossils date from **around 90 million years ago**, in the **Cretaceous Period** (145 - 66 million years ago).
  - Molecular dating suggests they originated at **least 600 million years ago.**
- **Adaptations:** Tardigrades are known for their ability to withstand **extreme radiation**, starvation, lack of oxygen and water, and **subzero temperatures.**
  - They can inhabit extreme ecosystems like the **Arctic, deep-sea floors, deserts**, and even the vacuum of **space**.
- **Cryptobiosis:** Tardigrades can enter **cryptobiosis**, **halting biological activity** to survive extreme conditions like **dehydration, freezing, and radiation damage.**
  - The **DODA1 gene** helps synthesise **betalains**, a type of **antioxidants** that likely **protect cells from radiation damage** and allows them to **recover and resume** normal activities afterward.

Eutardigrade Tardigrade

How Tardigrade Properties Could be Applied for Human Use?

- **Intrinsically Disordered Proteins (IDPs)**: **Secretory-abundant heat-soluble IDPs** synthesised in microbes **improve desiccation (completely drying up) tolerance**, potentially enabling resilient microbes and organisms.

Note:

- **Small Heat Shock Proteins:** When cloned into microbes, these proteins can improve microbial **survival and stability in hot or dry environments**.
- **Protein Stability:** Tardigrades' ability to stabilise their proteins in extreme environments could be used to improve the shelf life and effectiveness of **vaccines, antibodies, and enzymes** used in medicine.
- **Cell Preservation:** Tardigrades' mechanisms to **resist cellular damage** could be used for **cell therapies,** aiding in transport and storage, and ultimately improving treatment delivery.
  - Researchers may develop enhanced protective measures for **humans and materials in outer space.**

Biotechnology Experiments for India's Upcoming Space Station

Why in News?

Recently, the **Indian Space Research Organisation (ISRO)** and the **Department of Biotechnology (DBT)** have signed an agreement to design and conduct experiments that will later be integrated with the **Bharatiya Antariksh Station (BAS)**, slated for development between 2028 and 2035.

Note: The ISRO-DBT collaboration stems from another initiative this year called the **BIOE3 (Biotechnology for Economy, Environment and Employment) policy** by the Department of Biotechnology (DBT) that aims to stimulate 'bio-manufacturing' in India. The bio-economy, officials in the DBT said, would be worth USD 300 billion by 2030.

Why have ISRO and DBT Collaborated for Space Experiments?

- The **key challenges** in space missions are the continuous **availability of nutrients, preservation of food, microgravity and radiation, health hazards such as cancers, cataracts, bone and muscle loss** among others. The MoU will help address these issues using biotechnology.
- **Potential Experiments:**
  - Investigating the **effects of weightlessness on muscle loss** in astronauts.
  - Identifying **algae species that could serve as nutrients or extend food preservation.**
  - Exploring the **processing of specific algae for jet fuel production**.
  - Assessing the **impact of radiation on the health of individuals aboard space stations.**

What is Bharatiya Antariksh Station (BAS)?

- **BAS** is India's **proposed indigenous space station for scientific research.** It will be built in three phases and will have five modules.
  - The first module, known as **BAS-1**, is expected to be launched in 2028, and the station will be **fully operational by 2035.**
- **Key Details about the BAS:**
  - **Orbit:** The BAS will orbit the Earth at a height of around 400–450 kilometres.
  - **Weight:** The station will weigh about **52 tonnes.**
  - **Crew:** Astronauts will be able to stay in **orbit for 15–20 days.**
  - **Modules:** The BAS will have a crew command module, habitat module, propulsion module, and docking ports.
  - **Purpose:** The BAS will be used for scientific research, including **microgravity experiments, earth observation, and fostering innovation.**
  - **Collaboration:** The BAS will promote **international collaboration** with other countries and space agencies.
  - **Program:** The **ISRO** will lead the program, which will also **involve industry, academia, and other national agencies.**

Other Space Stations

- **International Space Station (ISS) Context:**
  - The **ISS** has been **operational since 1998**, with collaboration from multiple countries including the US, Canada, Russia, and Japan.
  - Due to **shifting geopolitical dynamics and cost factors**, the ISS is **projected to be decommissioned by 2030**, prompting countries to consider their own space stations.
- **Tiangong:**
  - **China** has successfully established its **Tiangong space station**, which has been **fully operational since November 2022.**

Note:

Recent Major Developments in the Space Sector in India

- **Recent Major Successful Missions:**
  - **Aditya L1**
  - **Chandrayaan 3**
  - **Mars Orbiter Mission (Mangalyaan)**
  - **Gaganyaan Mission**
- **Advancements in Launch Vehicles:**
  - **GSLV Mark III**
  - **Small Satellite Launch Vehicle (SSLV)**
  - **PSLV**
- **Missions for International Clients:**
  - **TeLEOS-2 (2023): Singaporean Earth observation satellite**
  - **PSLV-C51 (2021): Launched Brazil's Amazonia-1 satellite and 18 smaller satellites.**
- **Other Key Developments:**
  - **NavIC**
  - **Bhuvan**

Note:

Environment and Ecology

Highlights

- *Dicliptera Polymorpha*
- *UNEP's Adaptation Gap Report 2024*
- *Sendai Framework and India's Commitment to DRR*
- *Conserving Protected Areas in India*
- *Climate Change Impact on Small Island Developing States*
- *Protected Planet Report 2024*
- *3rd Edition of the World Solar Report Series*
- *World Cities Report 2024*
- *Urbanisation and Industrialisation Depleting Groundwater*
- *Geoengineering to Combat Global Warming*
- *IUCN's First Global Tree Assessment*
- *Asia-Pacific Climate Report 2024*
- *COP-16 of Convention of Biological Diversity*
- *WMO's Greenhouse Gas Bulletin 2023*
- *Mangroves in Coastal Resilience*
- *Tiger Translocation for Genetic Diversity*

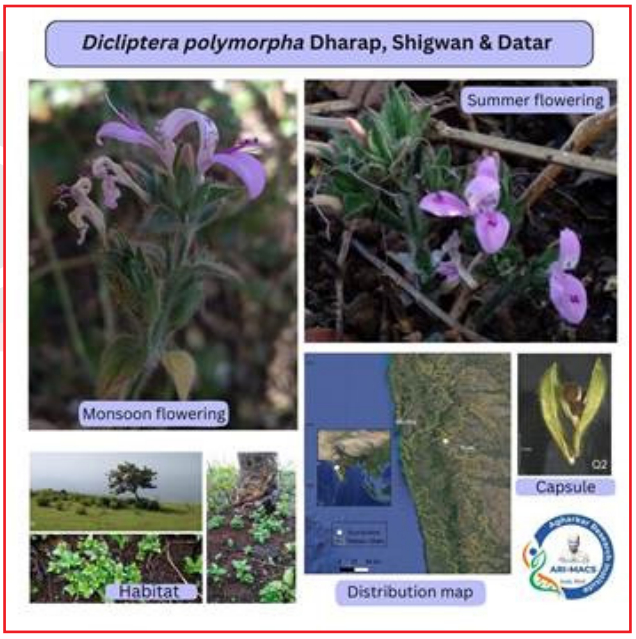
Dicliptera Polymorpha

Why in News?

Recently, Scientists from the **Agharkar Research Institute (ARI),** an autonomous institute under the Department of Science & Technology (DST), have discovered a new species of ***Dicliptera***, named ***Dicliptera Polymorpha*** in the Northern Western Ghats of India.

What are the Key Findings Related to Species?

- **Unique Traits of *Dicliptera Polymorpha*:**
  - **Fire Resilience:** It can survive summer droughts and adapt to grassland fires.
  - **Dual Blooming Pattern:** Blooms post-monsoon (November–April) and again in May–June after fires.
  - **Morphological Distinction:** It has inflorescence flower structures that are uncommon in Indian species but similar to those found in African species.
  - **Adaptations to Harsh Conditions:**
    - Thrives on open grassland slopes in the Western Ghats.
    - Woody rootstocks produce dwarf flowering shoots during the second flowering phase.
- **Threats to Species:**
  - **Human-Induced Fires:** While fires can help the species bloom again, too many or poorly controlled fires could harm its habitat.
  - **Habitat Overuse:** Overgrazing and land-use changes threaten grassland biodiversity.



What are Key Facts About the Western Ghats?

- **About:**
  - The **Western Ghats**, also known as the **Sahyadri Hills**, are well known for their rich and unique assemblage of flora and fauna.
  - The range is called Sahyadri in northern Maharashtra, Nilgiri hills in Karnataka and Tamil Nadu and **Anaimalai hills and Cardamom hills in Kerala.**
  - It is recognized as a **UNESCO World Heritage Site**.
  - Western Ghats is home to India's two biosphere reserves, **13 National parks**, several wildlife sanctuaries and many Reserve Forests.

Note:

- It comprised the evergreen forests of **Nagarahole**, deciduous forests of **Bandipur National Park** and Nugu in Karnataka and adjoining regions of **Wayanad and Mudumalai National Park** in the states of Kerala and Tamil Nadu.

➢ **Global Biodiversity Hotspot:**

❍ One of India's four recognized biodiversity hotspots, it is home to many endemic and yet-to-be-discovered species.

➢ **Conservation Efforts for Western Ghats:**

❍ **Gadgil Committee (2011):**

- It is also known as the **Western Ghats Ecology Expert Panel (WGEEP)**.
- The committee recommended that all of the Western Ghats be declared as the **Ecological Sensitive Areas (ESA)** with only limited development allowed in graded zones.

❍ **Kasturirangan Committee (2013):** It sought to balance the development and environment protection in contrast to the system proposed by the Gadgil report.

- The **Kasturirangan committee** recommended that instead of the total area of Western Ghats, **only 37%** of the total area should be brought under ESA and a complete ban on mining, quarrying and sand mining be imposed in ESA.

Note:

UNEP's Adaptation Gap Report 2024

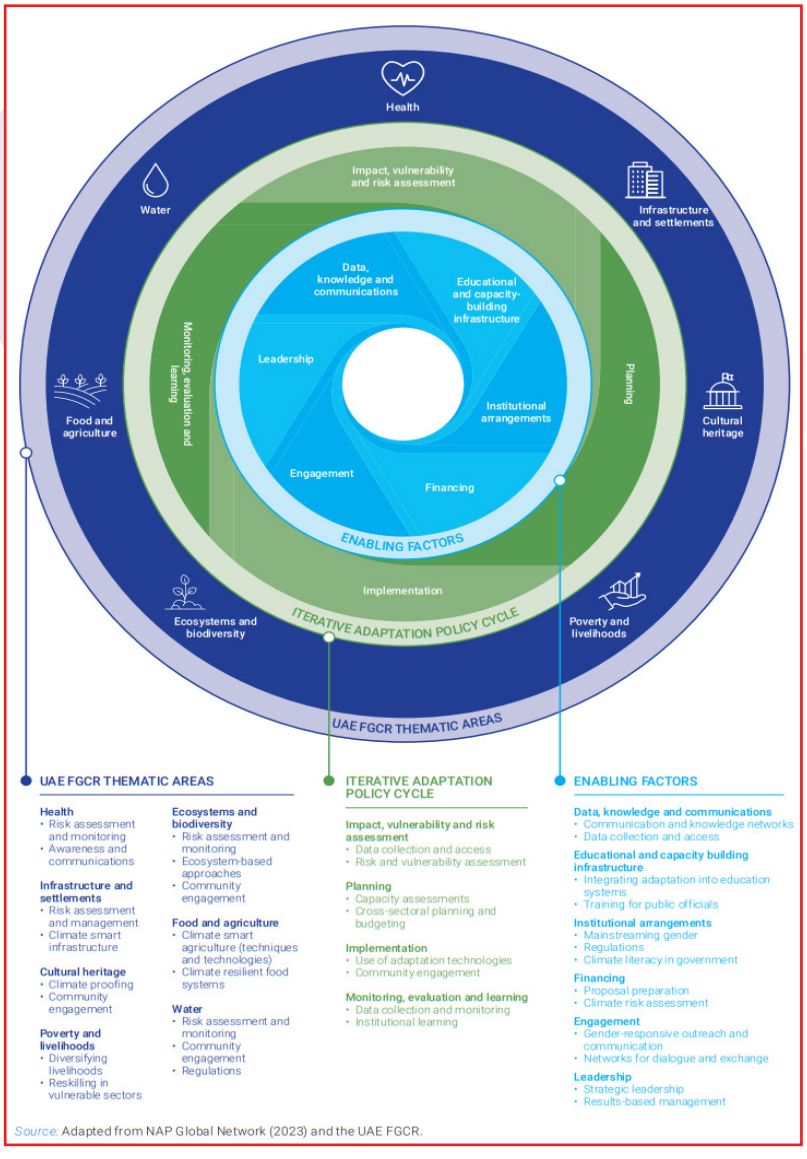
Why in News?

Recently, the **United Nations Environment Programme (UNEP)** released the ***Adaptation Gap Report 2024: Come hell and high water***.

- The report stresses the need for significant increases in climate adaptation efforts, particularly regarding adaptation financing for developing nations.

What are the Key Findings of the Adaptation Gap Report 2024?

- **Adaptation Finance Gap:** The adaptation finance gap, indicating the disparity between financing needs and actual funds, has widened.
  - **Current funding (2022)** is significantly below requirements, with only USD28 billion provided—meeting just 5% of the projected needs under the **Glasgow Climate Pact**.
    - Glasgow Climate Pact aims to reduce methane emissions by **at least 30% below 2020 levels by 2030**.
  - UNEP estimates developing countries need **USD 387 billion annually by 2030** for adaptation.
- **Funding Crunch:** Only about **one-third** of the adaptation finance gap is in sectors typically funded by the **private sector**, leaving significant opportunities for private investment.
- **Impact of Global Warming:** The **Emissions Gap Report, 2024** indicates that global **temperatures** could increase by **2.6°C to 3.1°C above pre-industrial levels by 2100.**
  - **Developing countries suffer the most** from climate-induced weather events despite having minimal contributions to global greenhouse gas emissions.
  - **Recent floods in Nepal, Nigeria, and Chad** underscore the financial and infrastructural vulnerabilities of these nations.
- **Progress on National Adaptation Plans (NAPs):** While 171 countries have at least one adaptation policy, out of 26 countries without an adaptation policy, 10 are uninterested in developing one, indicating slow progress in **NAP** planning and implementation.
  - The **UAE Framework for Global Climate Resilience (UAE-FGCR)**, introduced at **UNFCCC COP28**, sets dimensional and thematic targets (e.g., agriculture, water, health) for adaptation, yet implementation is lagging.
    - It is the **first international declaration** of its kind with climate adaptation as the primary focus.



Source: Adapted from NAP Global Network (2023) and the UAE FGCR.

Note:

- **Transformational Adaptation:** UNEP calls for a shift **from reactive to strategic adaptation**, addressing harder-to-finance areas like ecosystem preservation and cultural heritage.
  - The concept of **"transformational adaptation"** was contentious during COP28 but is considered crucial for addressing the rising risks.
    - **Transformational Adaptation** refers to actions that adapt to climate change by making substantial changes in structure or function, surpassing mere adjustments to current practices.

What are the Challenges in Climate Adaptation Financing for Developing Countries?

- **Limited Financial Capacity:** Adaptation projects like seawall construction, resilient infrastructure, and water security are financially burdensome for developing countries.
- **Shortfall in Developed Countries' Contributions:** Developed nations, despite obligations under climate agreements, have fallen short on promised financial support, notably the **USD100 billion goal set for 2020**.
- **Dependence on High-Interest Loans:** Much of the current funding consists of high-interest loans, exacerbating debt burdens and creating financial strain for recipient countries.
- **Urgency of Financial Commitment at COP29:** The goal to double adaptation finance by 2025 will only partially bridge the gap, highlighting a need for innovative financing models.

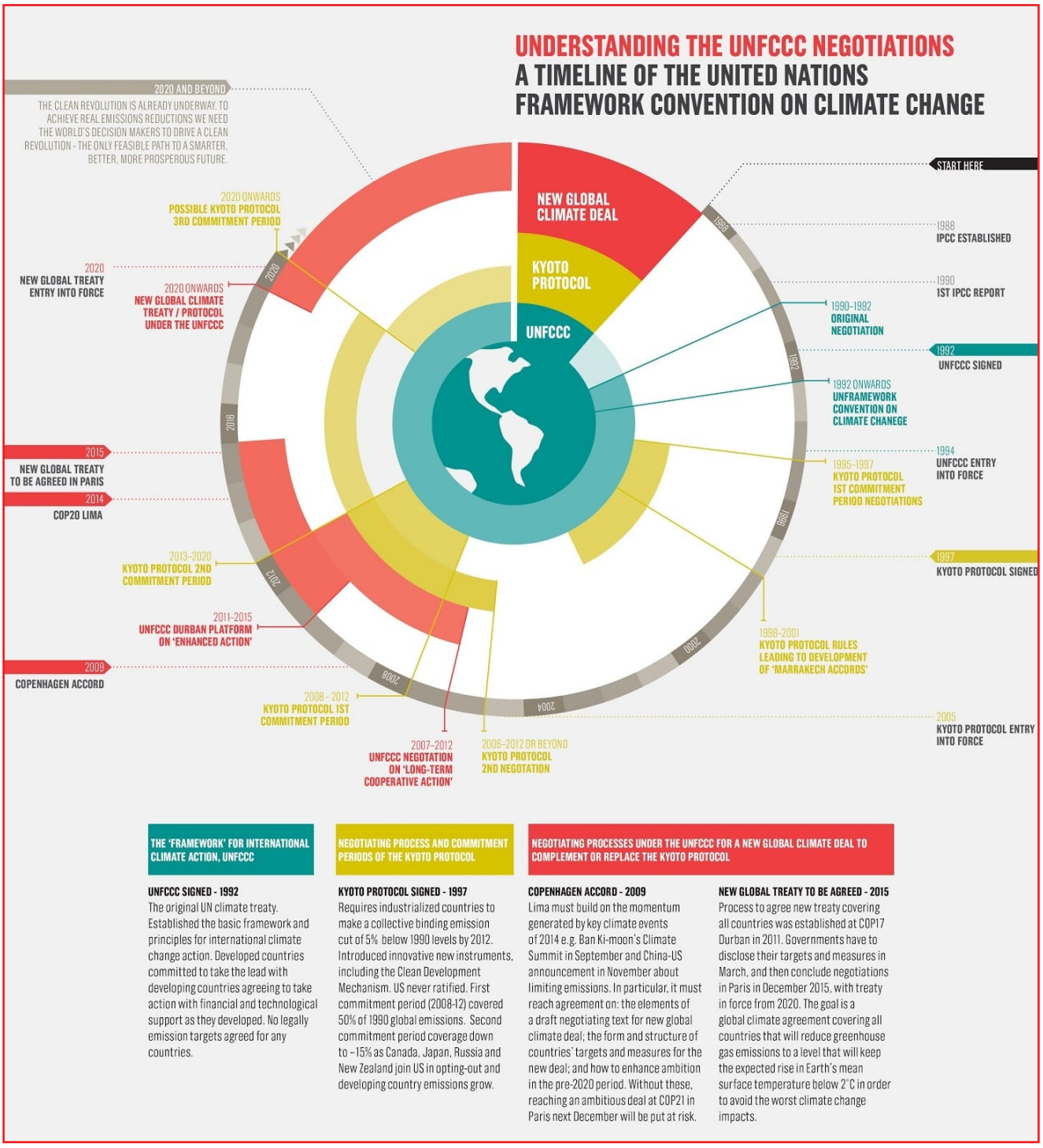
What are the Efforts and Commitments Adopted to Address Climate Change?

- **Global Efforts:**
  - **Glasgow Climate Pact and Doubling Finance Goals:** At **UNFCCC COP26**, developed countries committed to doubling adaptation finance from 2019 levels of **USD 19 billion to USD 38 billion by 2025** and establishing a new climate financing goal for 2030.
  - **ADB Climate Adaptation Investment Planning Programme (Asian Development Bank 2023):** It's a regional program helping ADB's developing member countries create adaptation investment plans from their national adaptation priorities and goals.
  - **UNDP Adaptation Accelerator (UNFCCC 2024):** The **UNDP-Adaptation Fund Climate Innovation Accelerator (AFCIA)** is a program that supports locally-led adaptation practices to help communities become more resilient to climate change.
- **India's Efforts:**
  - India's climate resilience and adaptation spending was **5.6% of GDP in 2021-2022**, as per the Economic Survey 2023-24.
  - International financing has increased from 13% in the financial year 2019 to 17% in the financial year 2020.
  - At the 26th session of the UNFCCC Conference of the Parties (COP26), India presented **five nectar elements (Panchamrit)** as its **Nationally Determined Contributions (NDC)**.

Climate Financing

- It refers to local, national, or transnational financing—drawn from public, private and alternative sources of financing—that seeks to support mitigation and adaptation actions that will address climate change.
  - The UNFCCC, **Kyoto Protocol**, and **Paris Agreement** urge developed countries to provide financial assistance to developing countries, following the principle of **Common But Differentiated Responsibilities (CBDR)**.

Note:



Sendai Framework and India's Commitment to DRR

Why in News?

India's steadfast commitment in **global disaster risk reduction (DRR)** efforts was highlighted during the **G-20 Disaster Risk Reduction (DRR)** Working Group ministerial meeting in Belem, Brazil..

Note:

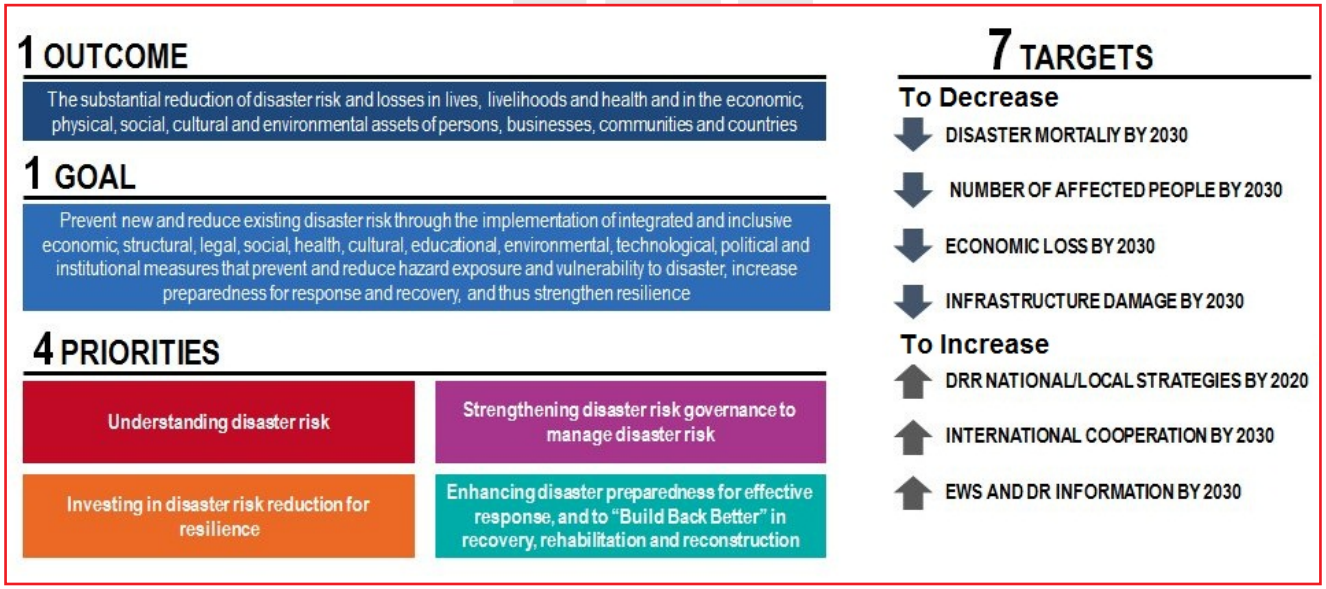
- The meeting emphasized India's commitment to the **2015 Sendai Framework**, aimed at reducing disaster risks and losses.

Note:

- The G-20 Disaster Risk Reduction (DRR) Working Group, formed by G20 countries, aims to integrate risk reduction measures into public and private sector investment decisions and policy making to reduce existing risk, prevent the creation of new risk and, ultimately, build resilient economies, societies, and natural systems.

What is Sendai Framework (2015-2030)?

- **About:** A **UN-backed framework** that focuses on **reducing disaster risks** through measures such as better preparedness, disaster risk financing, and sustainable development.
  - It was adopted at the **Third United Nations World Conference** on Disaster Risk Reduction, held in 2015 in Sendai, Miyagi, Japan.
    - It is the **successor instrument to the Hyogo Framework for Action (HFA) 2005-2015**: Building the Resilience of Nations and Communities to Disasters.
  - The framework recognizes that the State has the primary role to reduce disaster risk but that responsibility should be shared with other stakeholders including local government, the private sector and other stakeholders.
- **Implementing Organisation: United Nations Office for Disaster Risk Reduction (UNDRR)** is tasked to support the implementation, follow-up and review of the Sendai Framework.
- **Role in 2030 Agenda:** The Sendai Framework works hand in hand with the other 2030 Agenda agreements, including **The Paris Agreement (2015)**, **the Addis Ababa Action Agenda on Financing for Development (2015)**, the **New Urban Agenda**, and ultimately the **Sustainable Development Goals**.



Note:

- The **Hyogo Framework for Action (HFA)** was the global blueprint for disaster risk reduction efforts between 2005 and 2015. It was adopted in 2005 at the **second World Conference on Disaster Reduction, held in Kobe, Hyogo, Japan**.
  - In **1994** the **first World Conference on Natural Disaster Reduction** was held in Yokohama, Japan.
- Its goal was to substantially reduce disaster losses by 2015 - in lives, and in the social, economic, and environmental assets of communities and countries.

Note:

What Role has India Played in DRR Initiatives?

- **Global Level:**
  - **Initiative at G-20**: During its G-20 presidency in 2023, India initiated the formation of a **Disaster Risk Reduction Working Group**, marking a milestone in global collaboration for disaster resilience.
    - In its G20 Presidency, India's enunciated its proactive approach on the issue on the basis of the five priorities
      - Early warning systems
      - Disaster-resilient infrastructure
      - Disaster risk reduction financing
      - **Resilient recovery**
      - Nature based solutions
  - **Coalition for Disaster Resilient Infrastructure (CDRI)**: India's led **CDRI** focuses on building disaster-resilient infrastructure and enhancing international cooperation.
    - It now **comprises 40 countries** and **seven international organizations**.
  - **Bilateral and Multilateral Engagements**: India's participation in **troika meetings with Brazil and South Africa**, along with bilateral discussions with countries like Japan, Germany, and South Korea, demonstrates India's growing influence in shaping global disaster risk reduction policies.
  - **Asian Disaster Preparedness Centre (ADPC): ADPC** is an autonomous international organisation focused on disaster risk reduction and climate resilience in Asia and the Pacific region. India took over as Chair of the Asian Disaster Preparedness Centre (ADPC) for 2024-25.
    - It was founded by India and eight neighboring countries: Bangladesh, Cambodia, China, Nepal, Pakistan, Philippines, Sri Lanka, and Thailand.
- **National Level:**
  - **Disaster Management Act of 2005:** The **DM Act** was passed by the government of India in 2005 for the efficient management of disasters and other matters connected to it'.
    - The **NDMA** was formally constituted on 27th September 2006, in accordance with the Disaster Management Act, 2005 with **PM as its Chairperson** and nine other members, and one such member to be designated as **Vice-Chairperson**.
    - **National Disaster Response Force (NDRF)** is the world's largest rapid reaction force dedicated to disaster response. It was formed in 2006 under the **DM Act, 2005** with the purpose of a **specialised response to natural and man-made disasters.**
  - **National Disaster Management Plan (NDMP):** **National Disaster Management Plan (NDMP)** defines the roles and responsibilities of various stakeholders including Central Ministries/ Departments, State Governments, UT Administrations, District Authorities and local self Governments.
    - The NDMP of 2016 was the world's first ever national plan explicitly aligned with the Sendai Framework. The revised NDMP was introduced in 2019.

What are the Major Challenges for India in DRR?

- There are significant **gaps in preparedness on various aspects** of risk management, particularly for catastrophic disasters like major earthquakes and floods. P**oor coordination between various government agencies** and stakeholders can lead to inefficiencies in disaster response and recovery.
- India's capacity to manage disaster risk is challenged by its **size and huge population.** The country is likely to have the greatest exposure of any nation in the world to extreme weather and natural disasters by 2030.
- **Many regions lack the necessary infrastructure to withstand natural disasters**, leading to greater damage and loss. The northeast region is most at risk from earthquakes and lacks seismically secure infrastructure and buildings. It is also vulnerable to landslides, floods and erosion.
- There is often a **lack of awareness and preparedness among the public**, which hampers effective disaster response.
  - **Financial and human resources for disaster management are often insufficient**, affecting the implementation of risk reduction measures.

Note:

What are the Major Committee Recommendations for Disaster Risk Reductions?

- Standing Committee Report on Central Assistance for Disaster Management and Relief 2019:
  - **Scale of Relief:** Expand State Disaster Response Fund (SDRF) and the National Disaster Response Fund (NDRF) norms to cover all major disaster expenses.
  - **Disaster Mitigation Fund:** A separate Disaster Mitigation Fund to be operationalised for undertaking permanent mitigation measures in disaster-prone states.
  - **Funding Mechanism:** Allocate 10% of centrally sponsored funds be especially earmarked for permanent restoration of damaged structures.
- **Reforms Recommended by 2nd ARC:**
  - Suggested District Disaster Management Plan for long term mitigation and Emergency Response.
  - Separate provision in the Constitution for Disaster.
  - Disaster Management should be introduced as a subject in education curriculums.
  - National Policy on Disaster Management to be introduced.
  - State Governments should maintain primary responsibility for disaster/crisis management, with the Union Government providing support.

Conserving Protected Areas in India

Why in News?

The **National Board for Wildlife (NBWL)** delayed a proposal from a company's subsidiary for oil exploration in the **Hollongapar Gibbon Sanctuary** **in Assam**, which is home to the endangered **hoolock gibbons**.

- The sanctuary's importance as the habitat for **India's only ape species**, coupled with growing concerns over encroachment and development, has sparked debates on balancing development and conservation.

What are Protected Areas and Related Regulations in India?

- **About:**
  - **Protected areas (PAs)** are designated regions aimed at conserving biodiversity and protecting wildlife from human interference.
- **Classification and Regulation:**
  - **National Parks:** **National Parks** are the most protected areas in India, offering the highest level of legal protection.
    - These areas are declared under the **Wildlife (Protection) Act** **(WPA) 1972**, and no human activities, except for scientific **research and controlled tourism**, are allowed within their boundaries.
    - Developmental activities such as mining, logging, and grazing are strictly prohibited.
    - The **State Government** is responsible for managing National Parks, but the **National Wildlife Board (NWLB)** and **National Tiger Conservation Authority (NTCA)** may also be involved, especially for specific species like tigers.
  - **Wildlife Sanctuaries:** Wildlife Sanctuaries also fall under the **WPA, 1972** but offer somewhat more flexibility than **National Parks**.
    - They allow certain human activities, such as grazing and the collection of forest products, provided they do not adversely affect wildlife.
    - Management of Sanctuaries falls under the jurisdiction of **State Forest Departments** with support from wildlife organisations and experts.
  - **Conservation Reserves:** Conservation Reserves are areas designated under the **WPA** where wildlife and biodiversity are protected, but human activities, like grazing and firewood collection, are allowed under regulation.
    - These areas are created to buffer critical habitats, protect wildlife corridors, and conserve biodiversity outside heavily protected zones.
    - These areas **allow local communities to participate** in conservation efforts while maintaining sustainable livelihoods.

Note:

- The **State Government** manages these areas with involvement from local stakeholders and conservationists.

❍ **Community Reserves:** Community Reserves are areas designated for conservation that involve direct participation from **local communities** in preserving natural resources and wildlife.

- These reserves **can be set up on private or community-owned land**, with the goal of improving biodiversity conservation and sustainable resource management.
- Activities like **tourism, agriculture, and small-scale forest** product extraction are permissible as long as they align with conservation goals.
- Managed by the **State Government**, but with significant input from local communities and NGOs.

Note:

Regulating Authorities

- **Ministry of Environment, Forest, and Climate Change (MoEFCC):** MoEFCC is the apex body responsible for wildlife conservation and forest management at the national level.
  - It formulates policies, guidelines, and provides funding for the development and maintenance of protected areas.
  - The **Wildlife Division** within **MoEFCC** oversees wildlife sanctuaries and national parks and ensures compliance with the WPA.
- **National Board for Wildlife (NBWL):** NBWL is an advisory body that provides recommendations on conservation issues, including approval for projects in or around protected areas.
  - It is also **responsible for approving new protected areas** and their management plans.
- **State Forest Departments:** Each state has its own **Forest Department** that manages the protected areas within its jurisdiction. The department is responsible for day-to-day operations, enforcement of protection laws, and monitoring wildlife populations.
  - These departments are also responsible for enforcing the Forest (Conservation) Act, 1980, which regulates deforestation and land-use change in forest areas, including those that fall within protected areas.
- **Wildlife Protection Societies and NGOs:** Various wildlife conservation organisations, such as the **Wildlife Protection Society of India (WPSI)** and WWF India, play a critical role in the on-ground protection of protected areas, monitoring illegal activities, and advocating for stronger conservation laws.

What are the Issues and Challenges Related to Protected Areas?

- **Encroachment and Developmental Activities**: There is growing pressure from infrastructure projects, including roads, industrial zones, and mining, which are increasingly encroaching on protected areas.
  - For example, proposals for road construction through Kaziranga National Park and the establishment of industrial zones near Pobitora Wildlife Sanctuary have raised concerns about habitat destruction.
- **Lack of Enforcement and Monitoring**: One of the critical issues in the management of PAs is the lack of effective enforcement of laws.
  - In some cases, protected areas are unable to prevent illegal activities due to **insufficient manpower**, **poor monitoring systems**, and corruption.
- **Conflicts Between Conservation and Development**: The tension between conservation and development interests often leads to policy conflicts.
  - In Assam, for instance, the **Hollongapar Gibbon Sanctuary** and **Pobitora Wildlife Sanctuary** have been subjects of such debates, with industrialists pushing for projects that threaten the ecological integrity of these areas.
- **Political and Institutional Failures**: The failure of local governments and forest departments to take timely and effective action against violations in protected areas has also led to the erosion of conservation efforts.
  - Political pressures sometimes override environmental concerns, as seen in the case of Assam's controversial approval for a road through the **Barak Bhuban Wildlife Sanctuary** or the planned hotel constructions near Kaziranga.
- **Community Resistance and Land Rights**: The imposition of conservation regulations often leads to conflicts with local communities, especially when their traditional livelihoods are disrupted.
- **Climate Change and Habitat Loss**: Many protected areas are facing the compounded threat of climate change, which alters habitats, shifts species' ranges, and increases the frequency of extreme weather events.

Climate Change Impact on Small Island Developing States

Why in News?

At UNFCCC COP27 (2022) in **Sharm El Sheikh**, a new loss and damage fund was created to help climate-vulnerable nations, particularly Small Island Developing States (SIDS).

- Despite the agreement, wealthier nations – the largest carbon emitters, have failed to fulfill their financial commitments, leaving many vulnerable countries without the necessary support.

Note:

Small Island Developing States (SIDS)

- **Small Island Developing States (SIDS)** refer to a group of small island nations and territories that face shared challenges in sustainable development, alongside significant social, economic, and environmental vulnerabilities.
  - Some of SIDS include the Maldives, Seychelles, Marshall Islands, Solomon Islands, Suriname, Mauritius, Papua New Guinea, Vanuatu, Guyana, and Singapore.
- SIDS are primarily located in three major geographical regions: the **Caribbean, the Pacific**, and the **Atlantic, Indian Ocean & South China Sea (AIS)** regions.
- At the **United Nations Conference on Environment and Development 1992**, SIDS were formally recognized as a special case due to their unique environmental and developmental challenges.

How is Climate Change Affecting SIDS?

- **Increased Vulnerability of SIDS:** SIDS suffer 3-5 times more climate-related losses relative to government revenues compared to other countries.
  - Even wealthier SIDS, like **Barbados and the Bahamas**, face four times more loss than other high-income nations.
  - Projected losses from extreme weather will reach USD 75 billion annually by 2050 for SIDS, under a 2°C warming scenario.
- **Direct Impacts:** **Climate change**-induced extreme weather events cause significant damage to homes, infrastructure, and public services, as well as loss of life.
  - For instance, **Cyclone Winston** in 2016 caused extensive flooding in **Fiji**, resulting in the loss of 44 lives and significant economic disruptions.
- **Indirect Impacts:** Recovery costs and diverted resources lead to **slow economic recovery**, with sectors like **tourism** and **agriculture** severely impacted.
  - Economic growth is delayed or reversed, with increased recovery expenses and **reduced income generation**. For example, Fiji's GDP growth was reduced by 1.4% due to the 2016 cyclone.
  - Small island states face prolonged fiscal difficulties, as recovery costs **exacerbate national debt**. Dominica's recovery from **Hurricane Maria** has left it with 150% **debt-to-GDP ratio**.
- **Cost of Climate Change:** USD 141 billion in direct and indirect impacts on SIDS from 2000 to 2020, averaging USD 2,000 per person. However, some countries face even higher per capita costs (e.g., **Dominica** lost USD 20,000 per person after **Hurricane Maria**).
  - **38%** of the total losses are attributable to **climate change**, according to extreme event attribution studies.

What are Major Initiatives Taken to Mitigate Impact on Small Island Developing States?

- **Alliance of Small Island States (AOSIS):** It is an intergovernmental organization that advocates for small island nations and influences international climate policy.
- **Barbados Programme of Action:** The **Barbados Programme of Action (1994)**, established at **UN Global Conference on the Sustainable Development of SIDS**, held at Barbados in 1994, addresses the specific vulnerabilities of SIDS to climate change, sea-level rise, and climate variability.
- **Small Island Developing States Accelerated Modalities of Action (SAMOA) Pathway: SAMOA Pathway,** adopted in 2014 at the **Third International Conference on Small Island Developing States**, aims to address the unique challenges faced by SIDS, supporting their development through international cooperation and climate action.
- **Coalition for Disaster Resilient Infrastructure (CDRI):** **CDRI** is a global partnership launched in 2019 under the leadership of the **Government of India** and with the support the **UN Office for Disaster Risk Reduction (UNDRR)** to boost infrastructure resilience to climate and disaster risks, promoting **sustainable development**.
- **Infrastructure Resilience Accelerator Fund (IRAF):** Founded with the backing of UNDP and UNDRR, with a particular emphasis on developing countries and SIDS, the **IRAF Fund** (USD 50 million) supports disaster resilience, focusing on developing countries and SIDS.
- **India's Assistance for SIDS:** Overall, India has committed a total of **USD 70 million** in **project aid**, along with **US$ 350 million** in **concessional loans** and **credit lines** to **SIDS**, while these nations have made significant efforts towards **sustainable development**, especially in combating **climate change**.

Note:

UNFCCC

Conference of Parties (COP)

- **Supreme decision-making body** of UNFCCC
- **Meets every year** (unless the Parties decide otherwise)
- Meets in **Bonn**, the Secretariat (**unless a Party offers to host the session**)
- First COP – held in **Berlin**, Germany (1995)

COPs and Their Major Outcomes

COP 3 (1997)
Kyoto, Japan

Adopted Kyoto Protocol (legally binded developed countries to reduce emission targets)

COP 7 (2001)
Marrakech, Morocco

Marrakech Accords signed (set stage for ratification of Kyoto Protocol)

COP 8 (2002)
New Delhi, India

Delhi Declaration (development needs of the poorest countries)

COP 13 (2007)
Bali, Indonesia

Bali Road Map and Bali action plan

COP 15 (2009)
Copenhagen, Denmark

Developed countries pledged up to $30 billion in fast-start finance (for 2010-12)

COP 16 (2010)
Cancun, Mexico

- Cancun Agreements (assist developing nations in dealing with Climate Change)
- Estd: Green Climate Fund

COP 18 (2012)
Doha, Qatar

Doha Amendment to Kyoto Protocol (reducing GHG emissions by 18% compared to 1990 levels)

COP 19 (2013)
Warsaw, Poland

- Warsaw Framework for REDD Plus
- Warsaw International Mechanism for Loss and Damage

COP 21 (2015)
Paris, France

- Paris Agreement (global temp. well below 2°C above pre-industrial times)
- Climate finance by rich countries (yearly $100bn funding pledge)

COP 26 (2021)
Glasgow, UK

- India announced Net Zero Targets 2070
- India called for "phase-down" of coal-based power
- Glasgow Breakthrough Agenda (by 41 countries + India)

COP 27 (2022)
Sharm-el-Sheikh, Egypt

- Loss & Damage Fund
- USD 3.1bn plan for early warning systems
- G7-led 'Global Shield Financing Facility' for countries suffering climate disasters
- African Carbon Market Initiative
- Action for Water Adaptation and Resilience (AWARe) initiative
- Mangrove Alliance (in partnership with India)
- India's Long-Term Low Emission Development Strategy

COP 28 (2023)
Dubai, UAE

- USD 700 mn pledged by UAE, Germany, UK, EU, & Japan for the **Loss & Damage Fund**
- Phase out fossil fuels to achieve net zero by 2050
- Reach 11,000 GW of RE by 2030
- 66 nations to cut cooling emissions by 68% by 2050
- Triple global nuclear energy capacity by 2050
- **India led Initiatives at COP 28:**
  - **Green Credit Initiative:** Issues credits for eco-friendly actions like planting on degraded lands
  - **LeadIT 2.0:** Supports fair industry transitions & low-carbon technology
  - **Global River Cities Alliance (GRCA):** Promotes sustainable river development & best practice sharing
  - **Quad Climate Working Group (QCWG):** Enhances local & regional sustainability efforts

COP 29 to be held in Baku, Azerbaijan in November, 2024

Drishti IAS

Note:

Why do Developed Countries Need to Pay Up?

- **Financial Responsibility:** Wealthy, industrialized nations, which are the largest historical carbon emitters, bear the primary responsibility for financing climate change mitigation and adaptation in vulnerable countries.
- **Insufficient Current Funding:** Current financial pledges are not sufficient to address the scale of loss and damage already occurring, let alone prepare for future impacts.
  - The loss and damage fund needs billions more annually, especially for the most vulnerable countries like SIDS.
- **Urgency for a Marshall Plan-Scale Response:** Given the severity of impacts, the fund should be designed with the ambition and scale of a "**modern Marshall Plan**", ensuring that affected nations have adequate resources to recover and adapt.
  - The **Marshall Plan** was a US-led initiative after World War II that provided extensive **economic aid** to help rebuild **Western Europe**, promoting **economic recovery**, **political stability**, and **long-term growth**.
- **Effective Fund Utilization:** The **loss and damage fund** should provide **budget support mechanisms**, ensure **rapid disbursement** for timely recovery in **agriculture** and **tourism**, and offer **concessional finance** to avoid increasing debt burdens.
- **Failure to Meet Climate Commitments:** Developed nations have a history of failing to meet climate finance targets and emissions reduction commitments.
  - **SIDS** are responsible for **less than 1%** of global greenhouse gas emissions but are among the most affected by climate change impacts
  - As climate impacts become more severe and frequent, future climate finance targets need to be sufficiently ambitious to match the scale of challenges **SIDS** face.
- **Induced Economic Loss (IELD) and the FRLD:** Indirect economic losses due to extreme weather events may have totaled **USD 107 billion** from 2000 to 2022, with **36%** attributable to climate change.
  - The **Fund for Responding to Loss and Damage (FRLD)** which aims to provide financial support to vulnerable nations, particularly **SIDS** and developing countries, to address climate change impacts like **loss**, **damage**, and **recovery**, should also address these indirect losses and ensure rapid recovery for vulnerable economies.
- **Growing Fiscal Stress:** The cumulative losses from both direct and indirect impacts could reach **USD 75.2 billion** annually by 2050 under a 2°C warming scenario.
  - Developed countries must step up their financial contributions, ensuring funds are available to address both immediate impacts and long-term economic challenges in SIDS.

Protected Planet Report 2024

Why in News?

The ***Protected Planet Report*** ***2024,*** produced by the UNEP– World Conservation Monitoring Centre (UNEP-WCMC) and the **IUCN** and its World Commission on Protected Areas (WCPA), is the **first comprehensive evaluation of the global status of protected and conserved areas.**

- It highlights both the progress made and the challenges ahead in achieving **Target 3 of the Kunming-Montreal Global Biodiversity Framework(KM-GBF).**

What is the Target 3 of the Kunming-Montreal GBF?

- The KM-GBF was adopted at the **15th COP of the UN Convention on Biological Diversity (CBD).**
  - This framework sets out an ambitious pathway to reach the global vision of a world living in harmony with nature by 2050, with 4 goals for 2050 and 23 targets for 2030.
- **Target 3:** Ensure and enable that by **2030 at least 30%** terrestrial, inland water, coastal, and marine areas, especially those critical for biodiversity, are effectively **conserved and managed** through well-connected, ecologically representative, and equitably governed protected areas.
  - This includes recognizing **indigenous and traditional territories** and integrating these areas into wider landscapes and seascapes, while ensuring sustainable use aligns with conservation goals and respects the rights of Indigenous peoples and local communities.

Note:

4 Overarching Global Goals of KM-GBF

Halting human-induced extinction of threatened species and

Reducing the rate of extinction of all species tenfold by 2050

Sustainable use and management of biodiversity to ensure that nature's contributions to people are **v**alued, **m**aintained and **e**nhanced

Fair sharing of the **b**enefits from the utilization of genetic resources, and digital sequence information on genetic resources

Adequate means of implementing the GBF be accessible to all Parties, particularly Least Developed Countries and Small Island Developing States

2030 Action Targets

1 Land and Sea-Use Planning	2 Ecosystem Restoration	3 Protect and Conserve Land and Sea	4 Active Management of Species and Genetic Diversity	5 Harvest, Trade and Use of Wild Species
6 Invasive Alien Species	7 Reduce Pollution	8 Minimize the Impact of Climate Change	9 Sustainable Use and Benefit-Sharing	10 Sustainable Management of Agriculture, Aquaculture and Forestry
11 Regulation of Air, Hazards and Extreme Events	12 Increase Access to Green and Blue Spaces	13 Access and Benefit-Sharing	14 Mainstreaming Biodiversity	15 Sustainable Production and Supply Chains
16 Eliminate Unsustainable Consumption	17 Manage Impacts of Biotechnology	18 Eliminate Harmful Incentives	19 Resource Mobilization	20 Strengthen Capacity-Buildin g and Development
	21 Traditional Knowledge, Awareness, Education and Research	22 Equitable and Effective Participation in Decision-Makin g	23 Implement Gender-Respon sive Approach	

Targets (2030)

Note:

drishti

Key Terms

- **Protected Area:** Defined by the CBD as "a geographically defined area, which is designated or regulated and managed to achieve specific conservation objectives".
  - IUCN, along with the UNEP–WCMC, maintains a global database of protected and conserved areas.
- **Indigenous and Traditional Territories:** As per CBD, these are the areas with unique and significant biodiversity owned/occupied/managed by indigenous peoples and local communities.

What are the Key Highlights of the Protected Planet Report 2024?

- **Global Coverage Progress: 17.6% of land and inland waters, and 8.4% of oceans** and coastal areas are under protection. While progress has been made, the increase is minimal (less than 0.5% in both realms) since 2020.
  - To meet the 30% target by 2030, additional protection is needed: 12.4% more land needs to be protected and 21.6% more ocean needs to be safeguarded.
- **Progress in Ocean Conservation:** Strongest progress since 2020 has been in the ocean, but most of this has been in national waters.
  - In areas beyond national jurisdiction, coverage remains very low (<11% of the total area covered by marine and coastal protected areas).
- **Challenges with Effectiveness and Governance:** Less than 5% of land and 1.3% of marine areas have been assessed for management effectiveness. Only 8.5% of protected land is well-connected.
  - Governance remains a challenge, with only **0.2% of land and 0.01% of marine areas assessed for equitable management.**
- **Underrepresentation of Biodiversity:** Only one-fifth of areas identified as important for biodiversity are fully protected. Biodiversity is unevenly conserved.
  - Though over two thirds of **Key Biodiversity Areas (KBAs)** are partially or fully covered by protected and conserved areas, the remaining **one third (32%)** of KBAs **fall entirely outside these areas and lack formal protection**.
- **Indigenous Peoples' Role:** Indigenous communities govern less than 4% of protected areas, despite holding 13.6% of global terrestrial areas outside formal protection.
  - Governance data is lacking for these territories, and their contributions are often not fully recognized.
- **Key Recommendations:**
  - Despite challenges, there is reason for optimism as 51 countries have already exceeded the 30% target on land, and 31 countries have done so at sea.
    - With 6 years remaining, the report stresses that the 30% target is still achievable with accelerated efforts, global cooperation, and support for Indigenous Peoples.
  - Insufficient availability of data is a long standing issue, especially regarding the positive biodiversity outcomes of protected and conserved areas, **equitable governance for local people, and upholding the rights** of women, Indigenous Peoples and local communities. Greater efforts are crucial in these areas.
    - **Indigenous People must be supported** to act as stewards of their lands, their voices and knowledge must be heard and valued.
  - Efforts must focus on not just increasing protected area coverage, but also ensuring these areas are well-connected and strategically located in biodiversity hotspots.

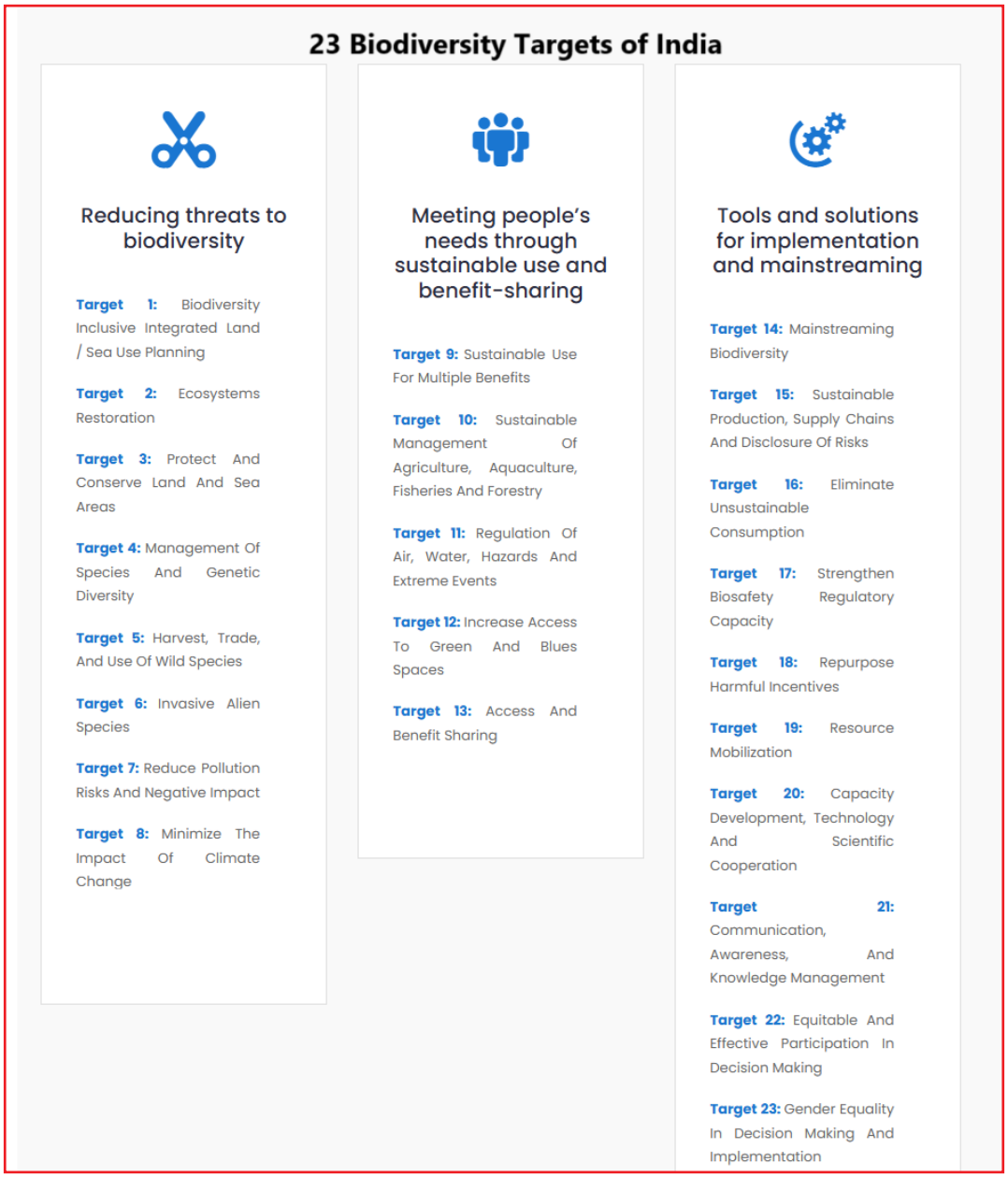
Key Institutions

- **International Union for Conservation of Nature (IUCN):** It was created in 1948 is a global membership organisation that includes governmental and civil society organisations. It serves as the authoritative body on the status of the natural world and the measures necessary to protect it.
  - **India became a State Member of IUCN in 1969,** it provides invaluable scientific knowledge, policy guidance, and support for efforts aimed at conserving nature globally.
- **UNEP-WCMC:** It is a global leader in biodiversity, bridging science, policy, and practice to address nature's crisis and promote a sustainable future. It operates as a collaboration between the **United Nations Environment Programme (UNEP)** and the UK charity WCMC.
- **IUCN World Commission on Protected Areas (WCPA):** It is a global network providing scientific, technical and policy advice, and advocating for effective area-based conservation measures that benefit biodiversity.

Note:

What are the Key Goals of India's Biodiversity Strategy?

- **NBSAP:** The CBD mandates member countries including India, to develop a **National Biodiversity Strategy and Action Plan (NBSAP)** for conserving and sustainably using biodiversity.
  - India recently updated its NBSAP to align with the KM-GBF, setting a goal to protect at least 30% of its natural areas by 2030.
    - Originally created in 1999, India's NBSAP was previously updated in 2008 and 2014 to meet the **Aichi Biodiversity Targets,** demonstrating India's ongoing commitment to addressing biodiversity threats.
- **India's Updated NBSAP:** The updated NBSAP aims to protect 30% of terrestrial, inland water, coastal, and marine areas, aligning with the KM-GBF's global goals.
  - The plan emphasises the restoration of **ecosystems** such as forests and rivers, to ensure resources like clean water and air remain accessible.



Note:

3rd Edition of the World Solar Report Series

Why in News?

Recently, at the **7th Assembly of the International Solar Alliance (ISA),** the 3rd edition of the **World Solar Report Series** was released. This year's **series comprises four key reports:** the World Solar Market Report, the World Investment Report, the World Technology Report, and the Green Hydrogen Readiness Assessment for African Countries.

- Each report highlights **advancements and challenges** in the **solar energy sector,** underlining the growing role of **renewable energy** in addressing global **climate targets.**

Note:

- The World Solar Report series, **launched by the ISA in 2022,** offers a concise overview of global solar technology advancements, key challenges, and investment trends, providing valuable insights into the industry's growth.

What are the Key Highlights of the World Solar Report Series?

- **World Solar Market Report:** Global solar capacity has grown exponentially from just 1.22 GW in 2000 to an impressive **1,418.97 GW in 2023,** reflecting a remarkable 40% annual growth rate.
  - Global solar capacity is projected to reach 5, 457-7, 203 GW by 2030, driven by **Paris Agreement goals,** requiring a massive infrastructure push to meet climate targets.
  - The clean energy industry **now supports 16.2 million jobs,** with solar accounting for 7.1 million.
  - Global solar manufacturing is set to exceed 1,100 GW by 2024, double the demand, making solar more affordable.
- **World Investment Report:** Global energy investments to rise from USD 2.4 trillion in 2018 to USD 3.1 trillion by 2024, with **clean energy investments nearly doubling that of fossil fuels.**
  - Solar investments accounted for 59% of total Renewable Energy investments, driven by lower panel costs. **Asia–Pacific (APAC)** leads in solar investments followed by **Europe, the Middle East and Africa (EMEA).**
- **World Technology Report: Monocrystalline solar PV modules** (solar panel) have achieved 24.9% efficiency, while **multijunction perovskite cells** (a type of solar cell) promise higher efficiency and lower costs, potentially outpacing traditional silicon panels.
  - Solar manufacturing has **reduced silicon usage by 88% in 2023** and a 90% drop in utility-scale solar PV costs, highlighting improvements in material efficiency and potential cost and environmental benefits.
- **Green Hydrogen Readiness Assessment for African Countries:** The report identifies **Egypt, Morocco, Namibia, and South Africa** as potential leaders for developing a **green hydrogen** economy due to their renewable energy resources.
  - The report highlights the Green hydrogen, produced using renewable energy, is key for industries dependent on fossil fuels, such as steel and fertilisers.

International Solar Alliance (ISA)

- The ISA is an **international organisation** with 120 Member and Signatory countries. It works with governments to improve energy access and security worldwide and promote solar power as a sustainable transition to a carbon-neutral future.
- ISA's mission is to unlock **USD 1 trillion of investments in solar by 2030** while reducing the cost of the technology and its financing.
- ISA was formed at the **21st Conference of Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC)** held in Paris in 2015 and partners with **multilateral development banks (MDBs)**, development financial institutions (DFIs), public and private sectors, to deploy cost-effective solar energy solutions, especially in **least Developed Countries (LDCs) and the Small Island Developing States (SIDS).**
  - ISA became the **first international intergovernmental organization to be headquartered in India.**
- ISA drives solar adoption through policies, investments, and new business models, providing clean energy and fostering sustainable growth.

Note:

NATIONAL GREEN HYDROGEN MISSION

NODAL MINISTRY

- Ministry of New and Renewable Energy

OBJECTIVE

- Decarbonise energy/industrial/mobility sector
- Develop indigenous manufacturing capacities
- Create export opportunities for GH_2 and its derivative

COMPONENTS OF NGHM

- Strategic Interventions for Green Hydrogen Transition Programme (SIGHT)
- Strategic Hydrogen Innovation Partnership (SHIP) (PPP for R&D)

GH_2 is not commercially viable at present; current cost in India is around ₹350-400/kg. The National Hydrogen Energy Mission aims to bring it down under ₹100/kg.

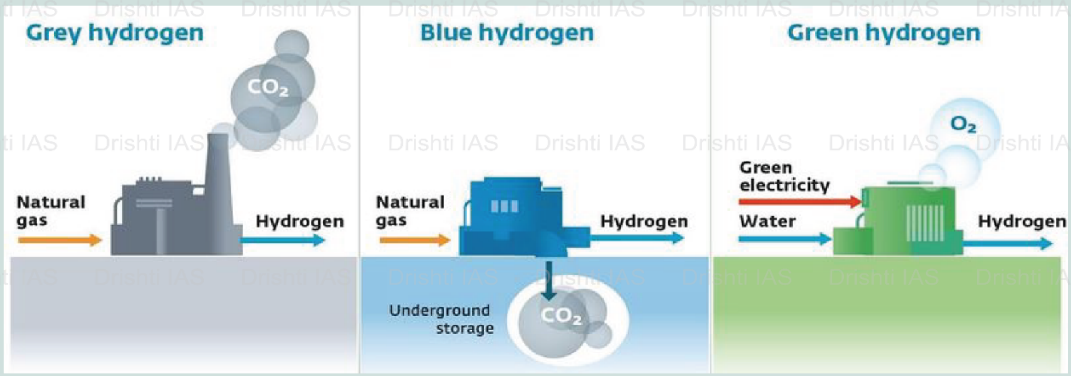
Expected Outcomes by 2030

- Atleast 5MMT GH_2 annual production
- Rs 1 lakh crore fossil fuel import savings
- 6 lakh jobs
- 50MMT CO_2 annual emissions averted
- ₹ 8 lakh crore investment

HYDROGEN AND GREEN HYDROGEN

Hydrogen is the most common element in nature but exists only in combination with other elements. It has to be extracted from naturally occurring compounds (like water).

Green Hydrogen (GH_2) is made by splitting water through an electrical process called electrolysis, using an electrolyser powered by renewable energy (RE).



Note:

World Cities Report 2024

Why in News?

Recently, the **UN-Habitat** has released the **World Cities Report 2024: Cities and Climate Action.**

- The report highlighted that the cities are among the largest contributors to greenhouse gas emissions, yet they **face disproportionately severe impacts of climate change.**

What are the Key Findings of the World Cities Report 2024?

- **Temperature Increases:** By 2040, nearly **two billion people** in urban areas will experience a **0.5°C rise** in temperature.
  - **14% of cities** are expected to transition to drier climates while at least **900 cities** could transition to **more humid climates**, especially tropical ones.
- **Sea-Level Rise:** By 2040, over **2,000 cities** in low coastal areas, many **under 5 metres above sea level**, will expose more than **1.4 billion people** to higher risks from sea-level rise and storm surges.
- **Disproportionate Impact:** Urban areas are disproportionately affected by **climate change** but are also **significant contributors** to **greenhouse gas emissions** (GHGs) making them more vulnerable to **climate shocks** like **floods and cyclones**.
- **Investment Gap:** To build climate-resilient systems, cities need an estimated **USD 4.5 to USD 5.4 trillion per year**. However, current financing stands at just **USD 831 billion**, highlighting a massive **funding shortfall**.
- **Riverine Flooding: Flood exposure** in cities has grown significantly, increasing **3.5 times faster** than in rural areas since **1975.**
  - By **2030**, **517 million people** in cities will be exposed to **riverine flooding**, representing **14% of the global urban population.**
- **Decline of Green Spaces:** Urban green spaces have significantly declined from **19.5%** in 1990 to **13.9%** in 2020 contributing to both environmental and social challenges in cities.
- **Increased Vulnerability: Informal settlements** (slums) are key drivers of vulnerability, as they are often located in **flood-prone**, **low-lying**, or **precarious areas**.
  - **Lack of protective infrastructure**, and **legal recognition** make them more exposed to climate impacts and unable to invest in **upgrades** due to **eviction fears**.
- **Green Gentrification:** Some climate interventions, like the creation of parks, have resulted in **green gentrification** leading to **displacement of underprivileged communities.**
  - Gentrification means a **low-income neighborhood** changes due to an influx of wealthier residents and businesses, leading to **rising property values and rents**.

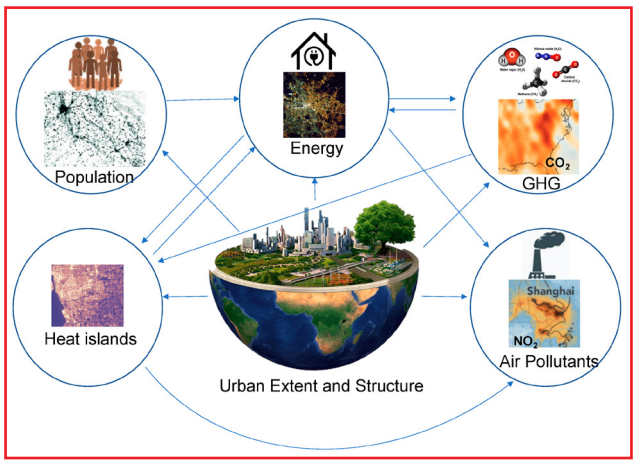
UN-Habitat

- **Mandate**: Established by the **UN General Assembly**, UN-Habitat focuses on promoting socially and environmentally **sustainable urban development.**
- **Global Focal Point**: It serves as the key agency within the UN system for **urbanisation and human settlement issues.**
- **Core Mission**: Aims to create **inclusive, safe, resilient, and sustainable cities** and communities, reducing **inequality, discrimination, and poverty.**
- **Global Presence**: Operates in over **90 countries** to promote transformative change in urban areas through knowledge sharing, policy advice, and technical assistance.
- **Strategic Approach (2020-2023 Plan)**: Emphasises a holistic and integrated strategy to address 21st-century urban challenges.
- **Four Main Roles**:
  - **Think**: Engages in normative work, research, capacity-building, policy formulation, and setting global standards.
  - **Do**: Offers technical assistance and crisis response projects to support sustainable urbanisation.
  - **Share**: Mobilises advocacy, communication, and outreach to inspire change in development plans and investments.
  - **Partner**: Works with **governments, intergovernmental bodies, civil society, academia, and the private sector** to address urbanisation challenges.

Note:

How Urban Areas Contribute to Global Warming?

- **Energy Consumption:** Urban areas account for **71 to 76% of CO_2 emissions** from global final energy use due to concentration of **energy-intensive industries**, transportation, and **high-density residential and commercial buildings**.
  - Urban lifestyles tend to be energy-intensive, with high demand for **electricity, heating, and cooling** systems in buildings.
- **Industrial Activities:** Factories and power plants that burn fossil fuels, contributing to the release of various **GHGs**, including **carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O).**
- **Land Use Changes:** Clearing land for housing, infrastructure, and industrial developments reduce the Earth's ability to **absorb and store carbon**.
  - The growth of urban land areas is projected to more than **triple between 2015 and 2050** which will lead to **deforestation and habitat destruction**.
- **Waste Generation and Landfills:** As organic waste decomposes in **landfills**, it releases **methane**, a greenhouse gas with a global warming potential many times greater than CO_2.
- **Urban Heat Island Effect:** Cities, particularly those with large areas of **concrete, asphalt, and buildings**, absorb and retain heat more than rural areas, creating the **urban heat island effect**.



How Cities are Affected by Global Warming?

- **Heatwaves:** Global warming is causing an increase in global temperatures and the frequency of heatwaves. E.g., Heatwaves are becoming more severe in India.
- **Urban Heat Islands (UHIs):** UHIs are metropolitan areas significantly warmer than surrounding regions due to heat-absorbing surfaces and energy use.
- **Coastal Flooding:** As temperatures rise, glaciers and ice sheets melt, adding water to the oceans and causing sea levels to rise.
  - This inundates coastal areas, displaces communities, and disrupts ecosystems.
- **Wildfire Season:** Wildfire season has been prolonged and intensified due to warming temperatures and long-term drought, increasing the risk of fires.

What are India's Initiatives to Tackle Warming in Urban Areas?

- **Smart Cities**
- **AMRUT Mission**
- **Swachh Bharat Mission-Urban**
- **Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME)**
- **Green Energy Corridor (GEC)**

Urbanisation and Industrialisation Depleting Groundwater

Why in News?

A recent study titled ***Detection and Socio-Economic Attribution of Groundwater Depletion in India*** highlighted the significant impact of urbanisation and industrialisation on groundwater depletion in five Indian states.

What are the Key Findings of the Study?

- **Affected States:** The study raises serious concerns for five hotspots namely Punjab and Haryana, Uttar Pradesh, West Bengal, Chhattisgarh and Kerala:
  - **Punjab and Haryana (Hotspot I):** Most affected, with 64.6 billion cubic metres of groundwater lost in two decades.
  - **Uttar Pradesh (Hotspot II):** Irrigation demand fell by 8%, while domestic and industrial use rose by 38%, causing a 4% groundwater decline.
  - **West Bengal (Hotspot III):** Minimal irrigation growth (0.09%), but a 24% rise in other uses, led to a 3% groundwater drop.

Note:

- **Chhattisgarh (Hotspot IV):** Increased use in all sectors led to declining groundwater levels.
- **Kerala (Hotspot V):** Groundwater declined by 17% despite high rainfall, due to a 36% irrigation drop and 34% increase in other uses.

- **Primary Cause:**
  - **Rapid Urbanisation: It increased by 10 per cent between 2001 and 2011 and industrialisation,** especially in urban areas like Faridabad and Gurgaon which are not heavily reliant on agriculture, but saw sharp declines in groundwater levels since 2012.
  - **Rising Demand:** Increased domestic and industrial water consumption, coupled with only a slight decrease in rainfall during the study period.

Note:

- The study used data from the **Central Groundwater Board (CGWB), India Meteorological Department (IMD),** and **Gravity Recovery and Climate Experiment (GRACE)** satellite between 2003 and 2020.

How is Urbanisation Accelerating Groundwater Depletion?

- **Reduced Natural Recharge:** Impervious surfaces limit rainwater infiltration, hindering natural groundwater recharge.
- **Over-Extraction:** Limited alternative sources in cities lead to excessive, unregulated groundwater extraction.
  - Urban expansion drives high water demand, and it is heavily reliant on groundwater, especially where surface water is scarce.
- **Pollution:** Urban waste and untreated sewage contaminate groundwater, reducing clean water availability and increasing extraction from deeper sources.
- **Higher Extraction Costs:** Deeper water tables from overuse raise pumping costs, with subsidies sometimes exacerbating unregulated extraction.

What are the Major Causes of Groundwater Depletion?

- **Over-Reliance on Groundwater**: Irrigation accounts for approximately **80%** of India's total water usage, with a significant portion of this water drawn from groundwater. As the demand for food rises, the extraction of groundwater for irrigation is increasing, leading to its depletion.
- **Poor Water Management:** Inefficient water use, leaking pipes, and inadequate infrastructure for capturing and storing rainwater all contribute to the depletion of groundwater.
- **Decline in Traditional Water Conservation Methods**: Practices like rainwater harvesting, step wells, and check dams have decreased, leading to missed opportunities for groundwater recharge.
- **Climate Change:** Rising temperatures and shifts in precipitation patterns can impact the recharge rates of groundwater aquifers, making them more susceptible to depletion.
  - Factors like deforestation, which leads to soil erosion, can reduce the amount of water able to seep into the ground, diminishing the natural recharge of groundwater aquifers.
  - Climate change events such as droughts, flash floods, and disrupted monsoon seasons are intensifying pressure on India's groundwater resources.

What are the Impacts of Groundwater Depletion?

- **Reduced Crop Yields:** Depleted groundwater limits irrigation, impacting crop productivity and food security.
- **Urban Water Scarcity:** Cities increasingly rely on groundwater, and depletion leads to higher costs, reduced water availability, and strain on municipal services.
- **Public Health Risks:** India is home to **18%** of the world's population, but only holds **4%** of the world's freshwater resources.
  - Declining water quality from overuse and contamination increases the spread of waterborne diseases and heavy metal exposure.
- **Ecosystem Loss:** Lowered water tables affect wetlands, forests, and aquatic ecosystems, disrupting biodiversity.
- **Increased Drought Risks:** Groundwater depletion reduces resilience to droughts, which are projected to become more frequent with climate change.

Note:

What are India's Initiatives for Sustainable Groundwater Management?

- Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)
- Jal Shakti Abhiyan - Catch the Rain
- National Water Policy (2012)
- National Aquifer Mapping and Management (NAQUIM) programme
- Atal Bhujal Yojana

What are the Challenges in Groundwater Management in India ?

- **Overexploitation:**The Green Revolution increased the need for groundwater to support food security, leading to widespread borewell installations.
  - The Central Groundwater Board reports **17%** of blocks are overexploited, with significant depletion in north-western, western, and southern India.
- **Climate Induced Challenges:** Erratic rainfall and increased pollution have exacerbated water scarcity.
  - Groundwater serves **85%** of rural domestic water, **45%** of urban water, and over **60%** of agricultural irrigation, impacting multiple sectors.
- **Weak Regulatory Framework:** Regulations currently cover only **14%** of overexploited blocks, allowing unchecked groundwater extraction.
  - Lack of local regulatory enforcement in early stages of depletion exacerbates water scarcity.
- **Community Involvement and Institutional Weaknesses:**
  - Participatory Groundwater Management (PGM) has empowered communities in some regions, but success is limited by weak institutions and supply failures.
  - Informal groundwater committees often become inactive after project completion, lacking sustainability in the long term.
- **Subsidies and Usage:**
  - Subsidized power for water pumping encourages excessive groundwater extraction, leading to rapid depletion.
  - Industrial and domestic usage rose by 34%, while irrigation-related groundwater demand dropped by 36%.

What are the Strategies for Sustainable Groundwater Management?

- **Address Demand and Supply:**
  - **Supply Side:** Initiatives like watershed management and aquifer recharge are vital but need complementary demand-side measures.
  - **Demand Side:** Promoting water-efficient irrigation (e.g., drip systems) and encouraging less water-intensive crops can reduce stress on groundwater resources.
- **Community Participation:**
  - Enhanced community involvement in governance improves sustainability, as shown by the PGM approach in regions with defined aquifers.
  - Empowering local institutions and supporting capacity development at the community level is essential for effective management.
- **Regulatory Enhancements:**
  - Comprehensive regulatory measures at local levels before blocks reach the overexploited stage can prevent further depletion.
  - Long-term viability of institutions like **Water User Associations (WUAs)** is crucial for sustained groundwater management.
- **Cross Sectoral Reform:**
  - Cross-sectoral reforms that reduce incentives for groundwater overexploitation, **such as revising power subsidies**, are critical for sustainable usage.
  - Repurposing support for climate-smart agriculture and aligning energy policies with **water conservation objectives** can aid in sustainable resource use.

Geoengineering to Combat Global Warming

Why in News?

A recent study proposes that spraying millions of tonnes of diamond dust annually into the Earth's upper atmosphere **could lower the planet's temperature by 1.6°C**, helping to mitigate global warming.

- This geoengineering **approach suggests that diamonds could be more effective** for Solar Radiation Management (SRM) than materials previously considered.

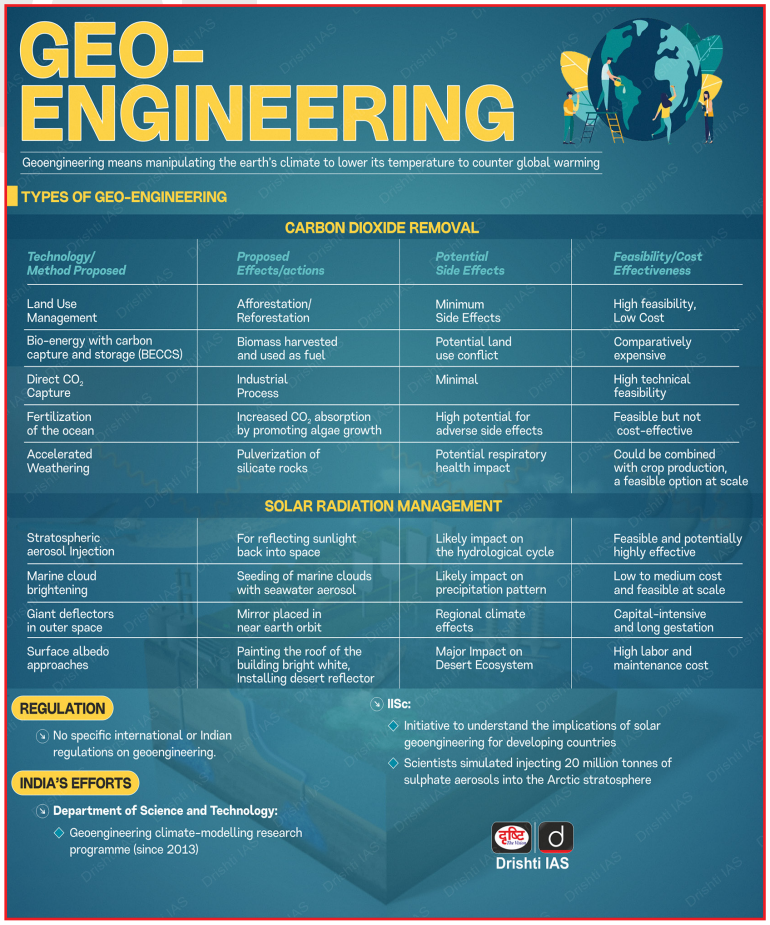
Note:

Current Scenario of Climate Change & Global Warming

- **Global temperatures are now approximately 1.2°C above pre-industrial levels** (1850–1900) and are projected to reach 1.45°C in 2023, highlighting the urgent need for innovative solutions.
- Current trends suggest that the **1.5°C warming limit established by the 2015 Paris Agreement** is unlikely to be achieved.
- Achieving climate targets requires a substantial 43% reduction in emissions **from 2019 levels by 2030**, though current efforts may yield only a 2% decrease.

What is Geoengineering?

- **About:**
  - It refers to **large-scale interventions aimed at altering the Earth's climate system** (more specifically solar radiation management) to counteract the effects of global warming.
- **Classification:** It primarily involves two approaches namely **SRM** and **Carbon Dioxide Removal (CDR).**
  - **SRM:** SRM Involves deploying materials in space to reflect **solar rays** away from the Earth. This method, while still conceptual, draws inspiration from natural phenomena such as volcanic eruptions.
    - For example, **Mount Pinatubo's 1991 eruption** in the Philippines reportedly reduced Earth's temperature by 0.5°C that year.
  - **CDR:** Techniques include **Carbon Capture and Sequestration (CCS), Direct Air Capture (DAC)**, and **Carbon Capture, Utilisation and Storage (CCUS)**, with the focus on long-term reduction of atmospheric **Carbon dioxide (CO_2) levels**.
    - **CCS:** It is the **main CDR method** in practice. It involves capturing CO_2 emissions from industries and storing it underground in suitable geological formations, effectively reducing emissions.
    - **DAC:** It involves extracting CO_2 directly from ambient air using large devices **(often called "artificial trees")** for storage or use.
      - DAC has **greater potential benefits** as it can address historical CO_2 emissions, though it also faces more significant challenges.
    - **CCUS:** Some captured CO_2 is repurposed in industrial processes, while the remainder is stored.
- **Related Challenges:**
  - **Implementation Barriers:** SRM technologies encounter substantial technological, financial, and ethical challenges.
    - Potential unintended effects include **disrupted weather patterns, negative impacts on agriculture**, and threats to biodiversity.
  - **Feasibility of CCS:** While CCS is presently the most widely implemented geoengineering method, relying solely on it may prove economically impractical compared to shifting toward **renewable energy sources**.



Note:

IUCN's First Global Tree Assessment

Why in News?

Recently, the **first Global Tree Assessment** was published as part of an update to the **IUCN Red List** of Threatened Species, with its findings announced at the **Convention on Biological Diversity (CBD COP16)** in Cali, Colombia.

COP16

The **2024 UN Biodiversity Conference of the Parties (COP)** to the **UN Convention on Biological Diversity (CBD)** was held recently in Cali, Colombia with an objective to assess how countries are advancing towards the **2022 Montreal commitment** to **protect 30% of the planet's land and marine areas by 2030.**

What is the Global Tree Assessment Report?

- **About:**
  - **Purpose:** It aims to **evaluate all tree species globally** for inclusion in the IUCN Red List, improving conservation information for decision-making.
  - **Launch:** Started in 2015, the **GTA helps prioritise conservation action**, research, and funding for species most at risk of extinction.
  - **Partnerships and Collaboration:** It collaborates with over 60 botanical organisations, 25 IUCN groups, and numerous tree experts worldwide.
- **Key Findings of the Report:**
  - **Species at Risk:**
    - Of the 47,282 tree species analysed, 16,425 are threatened with extinction. Iconic species, such as **magnolias, oaks, maples, and ebonies**, are among those most endangered.
      - Threatened tree species exceed the combined total of **threatened birds, mammals, reptiles, and amphibians,** with trees at risk in 192 countries.
    - The **South Western Ghats of Kerala** host **Buchanania barberi,** a small tree classified as **Critically Endangered on the IUCN Red List since 2018**.
      - **Urgent conservation initiatives,** including **germination** trials that revealed **high seed viability**, have been undertaken to save this species.
  - **Main Threats:**
    - **Deforestation:** Land clearing for crops and **livestock** production is a leading driver of tree extinction, especially in tropical and forest-rich regions like South America.
    - **Logging:** Many tree species are exploited for timber and other forest products, putting additional pressure on natural populations.
      - Over **5,000 tree species are used for timber,** and more than 2,000 for food, medicine, and fuel.
    - **Invasive Species, Pests, and Diseases:** **Non-native species** and pathogens are increasingly affecting tree health, particularly in temperate zones.
    - **Climate Change:** Warming temperatures, **rising sea levels**, and more frequent and intense storms pose significant risks, especially in tropical and island ecosystems.
  - **Ongoing Conservation Efforts:**
    - Initiatives in regions such as the Juan Fernández Islands, Cuba, Madagascar, and Fiji have **successfully protected endangered tree species**.
    - Countries like Ghana, Colombia, Chile, and Kenya have developed national strategies focused on tree conservation.
    - Gabon has **designated key conservation areas** specifically for trees, demonstrating a proactive approach to biodiversity preservation.

What is the IUCN Red List?

- The IUCN Red List is the foremost global resource for **assessing the risk of extinction among animals, fungi, and plant species.**
- The list Categories define the extinction risk of species assessed. Nine categories extend from **NE (Not Evaluated) to EX (Extinct). Critically Endangered (CR), Endangered (EN) and Vulnerable (VU)** species are considered to be threatened with extinction.
  - It is also a key indicator for the **Sustainable Development Goals** and **Aichi Targets.**

Note:

- The List includes the **IUCN Green Status of Species**, which **assesses the recovery of species' populations** and measures their conservation success.
  - **There are eight Green Status Categories:** Extinct in the Wild, Critically Depleted, Largely Depleted, Moderately Depleted, Slightly Depleted, Fully Recovered, Non-Depleted and Indeterminate.
- A Green Status assessment examines **how conservation actions have affected** the current Red List status.

Asia-Pacific Climate Report 2024

Why in News?

Recently, the **Asian Development Bank (ADB)** released its **Asia–Pacific (APAC) Climate Report 2024,** highlighting alarming economic impacts of **climate change on the Asia-Pacific region**.

What are the Key Highlights of the Asia-Pacific Climate Report 2024?

- **Economic Impacts of Climate Change:**
  - Under high-end **greenhouse gas emissions,** the APAC region could see a 17% reduction in **Gross Domestic Product (GDP)** by 2070.
    - By 2100, this figure may surge to 41% under high GHG emissions.
  - India may experience a 24.7% GDP decline by 2070. Bangladesh faces a potential 30.5% loss, while Vietnam could see a 30.2% reduction, and Indonesia a 26.8% decline.

Note:

- **Main Drivers of Economic Losses:**
  - **Sea Level Rise:** Up to 300 million people are at risk of **coastal flooding** due to **sea level rise** by 2070. Annual damages could climb to USD 3 trillion by 2070.
  - **Labour Productivity Decline:** The APAC region is expected to suffer a 4.9% GDP loss due to **reduced labour productivity**, but **India's loss could be as high as 11.6%.**
  - **Cooling Demands:** Rising temperatures could reduce regional GDP by 3.3%, while India's GDP may face a sharper decline of 5.1% due to **cooling requirements.**
- **Climate Change Impact on Natural Disasters:**
  - **Riverine Flooding:** By 2070, annual **river flooding** could lead to USD 1.3 trillion in damages across the APAC region, impacting over 110 million people.
    - India's projected losses include residential damages exceeding USD 400 billion and commercial damages surpassing USD 700 billion.
  - **Storms and Rainfall:** Increased intensity of tropical storms and rainfall is expected to worsen floods and **landslides,** especially in mountainous areas like the **India-China border, where landslides may increase** by 30-70% under severe warming.
- **Implications for Forests and Ecosystems:** Climate change is projected to reduce forest productivity in the APAC region by 10-30% by 2070 under high-emission scenarios.
  - India faces losses over 25%, alongside Vietnam and Southeast Asia, while regions like China and Central Asia may see losses under 5%.
- **Steps Needed for Improvement:**
  - **Net-Zero Targets and Gaps:** 36 out of 44 economies in Asia have set **net-zero emission targets**. However, only four countries have legally enshrined these targets, and most lack detailed plans.
    - India and China aim for 2070 and 2060 targets, lagging behind many **Organisation for Economic Co-operation and Development (OECD)** economies, of which 32 out of 38 have net-zero targets and 23 are legally committed and many aiming for 2050.
    - To enhance its climate ambitions, developing Asia **requires clearer policies and increased financing support,** with institutions like ADB poised to assist in achieving these goals.
  - **Climate Finance:** The region needs USD 102–431 billion annually for climate adaptation, a significant leap from the USD 34 billion tracked from 2021 to 2022.
    - Greater private investment and enhanced policies are necessary to meet these targets. Enhanced recognition of climate risks and regulatory reforms can help attract private climate investment.
    - The report emphasises the need to accelerate adaptation responses and scale up adaptation-focused climate finance.
  - **Renewable Energy:** The report underscores the region's potential to leverage **renewable energy for a net-zero transition.**
    - Embracing domestic and international carbon markets is highlighted as a cost-effective means for climate action.

Asian Development Bank (ADB)

- ADB is a **regional development bank** founded in **1966** to promote economic growth and **reduce poverty in Asia by providing loans,** technical assistance, and grants for projects in infrastructure, education, health care, and climate change.
  - ADB has 69 shareholding members including 49 from the Asia and Pacific region. **India, a founding member of ADB,** is **now ADB's fourth largest shareholder and its top borrower since 2010.**
- It is committed to achieving a prosperous, inclusive, resilient, and sustainable Asia and the Pacific while sustaining its efforts to **eradicate extreme poverty.**
- **Headquarters:** Manila, Philippines.

Note:

Asian Development Bank (ADB)

what is ADB?
- The Asian Development Bank (ADB) is a multilateral institution that aims to reduce poverty in Asia and the Pacific through environmentally sustainable growth.

When was it founded?
- The ADB was founded in 1966 and is headquartered in Mandaluyong, Philippines.

What is the spread of ADB?
- The ADB has 31 field offices around the world and 68 members, including 48 regional members and 19 non-regional members.

The ADB's work includes:
- Supporting projects in developing member countries that create economic and development impact
- Providing loans and technical assistance for various development activities
- Advisory services and knowledge support
- A Climate Change Action Plan that promotes a just transition to a low-carbon and climate-resilient future

India is a founding member.

COP-16 of Convention of Biological Diversity

Why in News?

Recently, the 16th edition of the **Conference of Parties (COP 16)** to the **Convention of Biological Diversity (CBD)** concluded in **Cali, Colombia.**

- India launched the **updated National Biodiversity Strategy and Action Plan (NBSAP)** at COP 16 to the CBD aligning with the **Kunming-Montreal Global Biodiversity Framework (KMGBF).**

What are the Key Highlights of the COP-16 to the CBD?

- **Operationalization of the Cali Fund**: **Cali Fund** was established to ensure **fair and equitable sharing of benefits** from the use of **digital sequence information (DSI)** on genetic resources.
  - At least **50%** of the Cali Fund will focus on the self-identified needs of **Indigenous Peoples and local communities**, particularly women and youth.
    - DSI refers to **genomic sequence data** that plays a fundamental role in **environmental and biological research**.
- **Permanent Subsidiary Body:** Parties agreed to establish a new **permanent subsidiary body on article 8j** that deals with **preservation and maintenance** of the **knowledge, innovations and practices of indigenous peoples**.
  - They also adopted a **new Programme of Work** on indigenous peoples and local communities.
    - It outlines specific tasks to ensure that indigenous peoples and local communities meaningfully contribute to the conservation, sustainable use, and fair sharing of biological diversity.
- **Resource Mobilisation**: Parties agreed to develop a new **"Strategy for Resource Mobilization"** to help secure **USD 200 billion** annually by **2030** to support biodiversity initiatives worldwide.
  - **Kunming Biodiversity Fund (KBF)** was launched at **COP 16** with a **USD 200 million** contribution from **China.**
  - Another goal is to **redirect USD 500 billion per year** in subsidies that harm biodiversity by 2030.
- **National Biodiversity Targets**: **119 countries out of CBD's 196 Parties**, submitted **national biodiversity targets** to help reach the **23 KMGBF targets**.
  - To date **44 countries** have submitted **National Biodiversity Strategy and Action Plans** to support the implementation of national targets.

Note:

- **Synthetic Biology:** COP-16 introduced a new **thematic action plan** to help address the inequities through **capacity-building, technology transfer and knowledge-sharing** among developing countries.
  - Synthetic biology uses engineering principles to create **new organisms or modify existing ones** through DNA sequencing and genome editing.
- **Invasive Alien Species:** It proposes guidelines for managing **invasive alien species** through new databases, **improved cross-border trade regulations**, and enhanced coordination with e-commerce platforms.
- **Ecologically or Biologically Significant Marine Areas (EBSAs):** COP 16 agreed on a new and evolved process to identify **EBSAs.**
  - Established in 2010, EBSAs identify the **most critical and vulnerable areas of the ocean** and have since become a focal point in ocean conservation efforts.
- **Sustainable Wildlife Management and Plant Conservation:** A decision on sustainable wildlife management emphasised the need for monitoring, capacity-building, and inclusive participation of indigenous peoples, local communities, and women.
  - Progress in plant protection should be **measurable and consistent** with global biodiversity targets.
- **Global Action Plan on Biodiversity and Health:** At COP 16, CBD Parties approved a **Global Action Plan on Biodiversity and Health** designed to help curb the emergence of **zoonotic diseases**, prevent non-communicable diseases, and promote sustainable ecosystems.
  - The strategy embraces a holistic **"One Health"** approach that recognizes the health of ecosystems, animals, and humans as interconnected.
- **Risk Assessment:** In Cali, Parties to the Cartagena Protocol on Biosafety welcomed new, **voluntary guidance** on assessing the risks posed by living modified organisms (LMOs) containing engineered genes.
- **Recognition of People of African Descent**: A further decision was taken to recognize the role of people of **African descent** in implementing the Convention.

Kunming-Montreal Global Biodiversity Framework (KMGBF)

- **About:** It is a **multilateral treaty** aimed at **halting and reversing biodiversity loss** globally by **2030**.
  - Adopted in **December 2022** during the **15th Conference of the Parties (CoP)**, it supports the Sustainable Development Goals (SDGs) and builds on achievements and lessons from the **2011–2020 Strategic Plan for Biodiversity**.
- **Purpose and Goals:** It aims to ensure that by **2030**, **at least 30% of degraded terrestrial, inland water, marine, and coastal ecosystems** are effectively restored.
  - It includes **23 action-oriented global targets** for urgent action by 2030.
  - This target refers to **collective global efforts, not a mandate for each country** to allocate 30% of its land and water areas.
- **Long-Term Vision:** The framework envisions a collective commitment to living in **harmony with nature by 2050,** providing a foundational guide for current actions and policies related to biodiversity conservation and sustainable use.

Note:

- **Historical Context:** India's first **National Biodiversity Strategy and Action Plan (NBSAP)** was created in **1999,** with updates in **2008** and **2014** to align with the Aichi Biodiversity Targets.
- **Need of NBSAP:** India is a **megadiverse country**, home to **over 55,000 plant taxa and 100,000 animal species** conservation of which is vital for both livelihoods and ecological health.

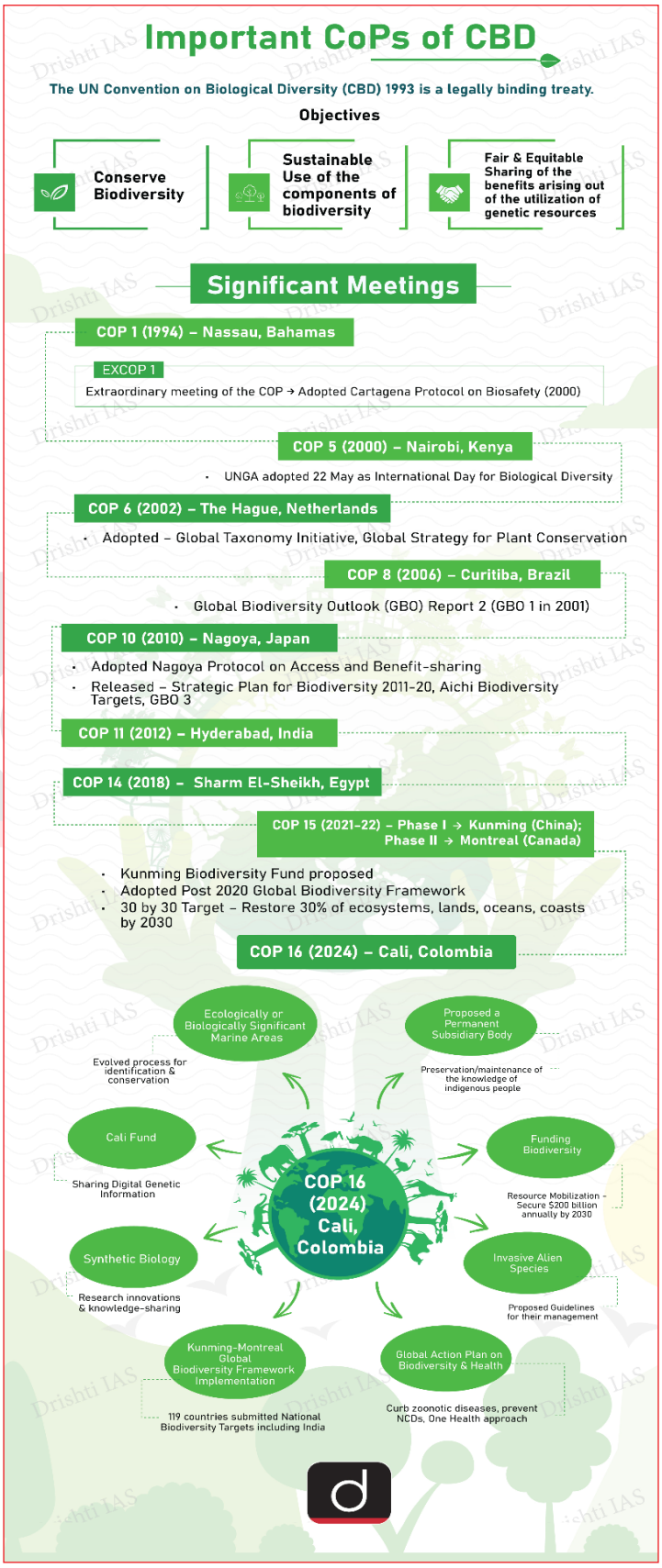
What are the Key Points of India's Updated NBSAP?

- **Updated NBSAP:** The updated NBSAP outlines **23** National Biodiversity Targets aligned with the KMGBF's global objectives.
  - Targets focus on reducing **biodiversity threats**, promoting sustainable use, ecosystem resilience, species recovery, and sustainable management.
- **Comprehensive Structure**: The updated NBSAP includes **seven chapters** addressing contextual analysis,

Note:

capacity-building, financing mechanisms, and biodiversity monitoring frameworks.

- **Implementation:** The **Ministry of Environment, Forest, and Climate Change (MoEFCC)** oversees biodiversity conservation, supported by a multi-tier governance structure.
  - Key entities include the **National Biodiversity Authority (NBA)**, **State Biodiversity Boards (SBBs)**, Union Territory Biodiversity Councils (UTBCs), and **Biodiversity Management Committees (BMCs)**.
- **Targets:**
  - **Conservation Areas:** Aiming for **30% of areas to be effectively conserved** to enhance biodiversity.
  - **Invasive Species Management:** Targeting a **50% reduction** in the introduction and establishment of **invasive alien species**.
  - **Sustainable Consumption:** Enabling sustainable consumption choices and **reducing food waste by half.**
  - **Pollution Reduction:** Committing to reduce pollution, **halving nutrient loss and pesticide risk.**
  - **Benefit Sharing:** Promoting **fair and equitable sharing of benefits** from genetic resources, digital sequence information, and associated traditional knowledge.
- **Financing:** India expects to spend around **Rs 81,664 crore from 2025-30 (FY)** on biodiversity and conservation.
  - Indian officials at the conference said **international finance** would be necessary to meet these goals.
- **Community Engagement:** Local communities, particularly in forest-dependent areas, will be actively involved in conservation efforts.



Note:

WMO's Greenhouse Gas Bulletin 2023

Why in News?

Recently, the **World Meteorological Organisation (WMO)** released its annual **Greenhouse Gas (GHG) Bulletin** for the year 2023.

- The GHG Bulletin provides the latest analysis from the **WMO Global Atmosphere Watch (GAW)** on atmospheric concentrations of GHGs.

Greenhouse Gas (GHGs)

- GHGs are atmospheric gases that **trap heat from the sun**, keeping Earth's surface warm.
  - However, **human activities**, such as burning fossil fuels, deforestation and industrial processes, have **significantly increased the concentration of these gases**, amplifying the greenhouse effect and leading to global warming and subsequent climate change.
- **Key GHGs:**
  - **Carbon Dioxide (CO_2):** It enters the atmosphere through **burning fossil fuels** (coal, natural gas, and oil), solid waste etc.
  - **Methane (CH_4):** Human activities like **cattle farming, landfill waste, rice farming, and fossil fuel extraction** have increased methane levels in the atmosphere.
  - **Nitrous oxide (N_2O):** It is emitted during **agricultural, land use, and industrial activities**, combustion of fossil fuels and solid waste.
  - **Water Vapour (H_2O):** It is the **most abundant** GHG. It exists in the atmosphere for only a few days.
  - **Industrial Fluorinated Gases:** These include **hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6)** having high **Global Warming Potential (GWP).**
    - E.g., SF_6 has a GWP **23,000 times greater than CO_2,** making these gases extremely potent contributors to global warming.
    - GWP indicates how much heat a GHG traps in the atmosphere over a specific period relative to CO_2.

What are the Key Findings of the GHG Bulletin?

- **GHG Levels and Trends:**
  - **Historical Warming:** Since 1990, the warming effect from **GHGs** increased by **51.5%**, with **CO_2** accounting for approximately **81% of this effect.**
  - **Record Highs in 2023:** GHG levels, including **carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O)**, reached record levels globally in 2023.
    - CO_2 rose by 2.3 parts per million (ppm) from 2022, reaching **420 ppm.**
  - **Highest Radiative Forcing: 2023** was recorded as the **warmest year,** surpassing the previous record set in 2016. **Global temperatures were 1.48°C** above the 1850-1900 pre-industrial average.
    - Radiative forcing is the **warming effect on the climate** caused by GHGs.
  - **Historical Comparison:** The current CO_2 concentration is comparable to levels **3-5 million years ago** when global temperatures were **2-3°C higher**, and sea levels were **10-20 metres higher** than today.
    - This marks the **12th consecutive year** with an annual CO_2 rise exceeding 2 ppm.
- **Causes of Increased CO_2 Levels:**
  - **Human Activities:** Persistent high CO_2 emissions from **fossil fuel** use, alongside **industrial activities**, are major contributors to the increase.
  - **El Niño Impact:** The **El Niño** phenomenon, which brings warmer weather and drier conditions, particularly in **South Asia**, caused **drier vegetation** and **forest fires**, which released more GHGs into the atmosphere and affected the efficiency of land **carbon sinks**.
- **Climate Concerns:**
  - **Vicious Cycle Warning:** Rising CO_2 levels and **climate change** risk turning natural ecosystems into GHG sources, as warming could lead to **increased carbon release** from **wildfires** and reduce CO_2 absorption by oceans.
  - **Methane Surge:** Methane saw the largest three-year increase from 2020 to 2022, particularly from natural **wetlands** responding to warmer and wetter **La Niña** conditions.

Note:

- **Reduced Carbon Sink:** It highlighted that warming oceans and frequent wildfires could diminish natural GHG absorption.

➢ **Policy Responses:**

- **Nationally Determined Contributions (NDCs):** According to the UNFCCC's 2023 assessment, NDCs can reduce global emissions by 2.6% from 2019 to 2030, which falls significantly short of the **43% reduction needed** to limit warming to 1.5°C as per the Paris Agreement.
- **UNFCCC's Call for Stronger NDCs:** Countries are required to submit updated NDCs by February 2024, with the UNFCCC urging this as a critical moment to bridge the gap in global emission reduction efforts.

What is Global Atmosphere Watch?

➢ **About:** GAW is a **collaborative programme** involving **100 countries**, providing critical scientific data on atmospheric composition and **changes** due to both natural and human influences.

➢ **Purpose:** It aims to enhance understanding of the interactions between the **atmosphere, oceans, and** biosphere, and supports data collection to inform air pollution and climate change research.

➢ **Core Monitoring Targets:** The GAW programme focuses on **six key atmospheric variables** namely ozone, UV radiation, **GHGs,** aerosols, **selected reactive gases and precipitation chemistry.**

➢ **Governance:** GAW expert groups provide leadership and coordinate key activities in the GAW program.

- GAW expert groups are overseen by the **WMO Research Board** and its **Environmental Pollution and Atmospheric Chemistry Scientific Steering Committee (EPAC SSC)**.

➢ **Publications:** State of the Global Climate, Greenhouse Gas Bulletin, GAW Reports, Ozone Bulletins.

World Meteorological Organisation

➢ **About:** WMO is the UN's **leading authority** on atmospheric sciences, covering Earth's atmosphere, weather, climate, water resources, and their interaction with land and oceans.

- WMO is the **specialised agency** of the United Nations.

➢ **Global Cooperation:** It has a membership of **193 Member States and Territories**. **India** is a member of **WMO.**

➢ **Structure:** WMO is structured with the World Meteorological Congress, the Executive Council, regional associations, technical commissions, and the Secretariat.

- **World Meteorological Congress: Highest decision-making body** and is responsible for setting overall policies and directions.
- **Executive Council:** Implements the decisions of the Congress.
- **Regional Associations: 6 regional associations** that coordinate meteorological, hydrological, and related activities within their specific regions.

➢ **Climate Advocacy:** WMO supports **UNFCCC** and other environmental conventions. It **advises governments** on climate-related issues to foster sustainable development.

➢ **Headquarters:** WMO's Secretariat is based in **Geneva, Switzerland** which is overseen by the **Secretary-General.**

What are the Key Initiatives to Curb Greenhouse Gas Emission?

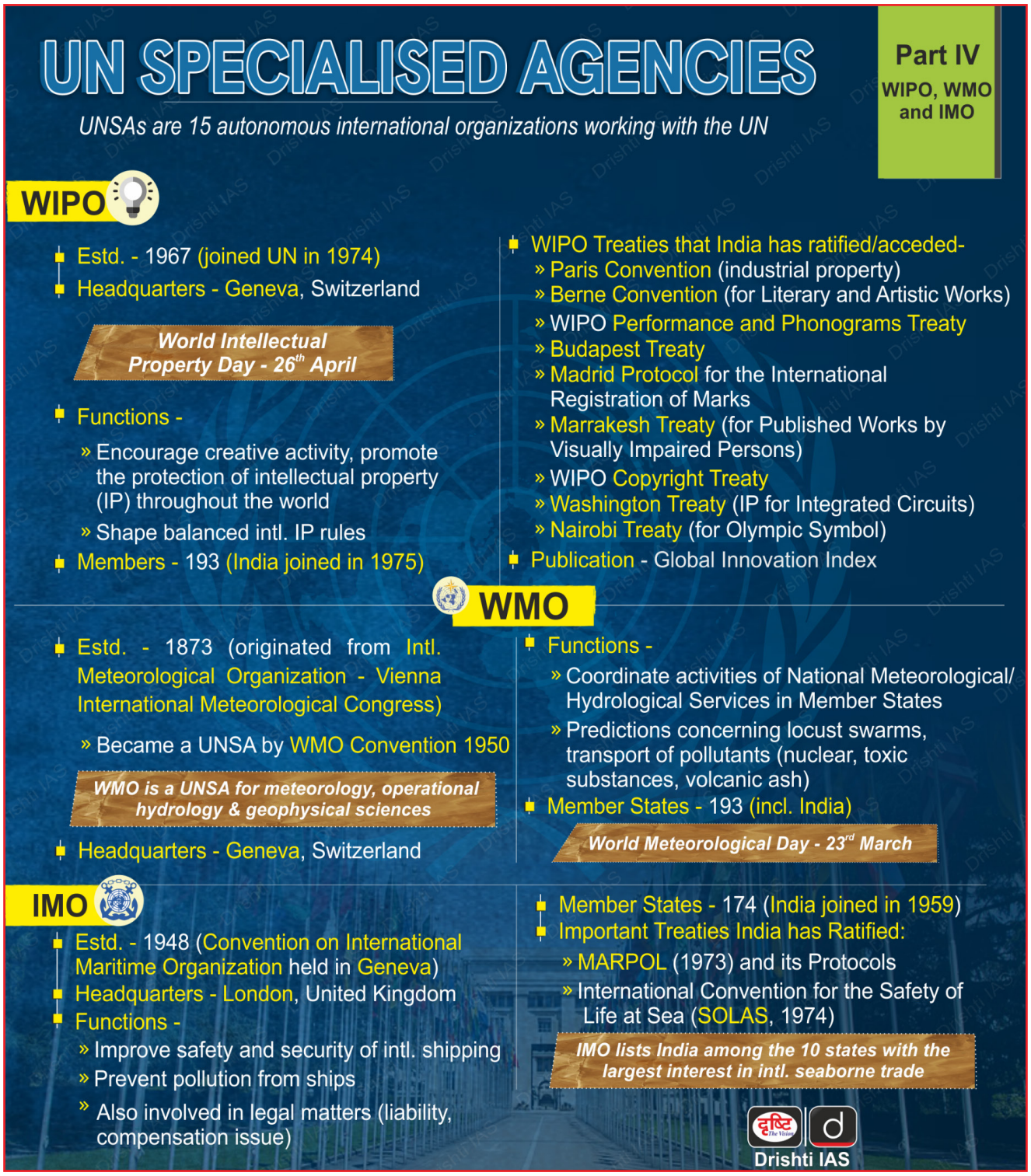
➢ **Global:**

- Kyoto Protocol
- Paris Agreement
- International Solar Alliance
- Global Biofuel Alliance

➢ **India:**

- Bharat Stage-VI (BS-VI) Emission Norms
- National Action Plan on Climate Change (NAPCC)
- Energy Conservation (Amendment) Act 2022
- India's Intended Nationally Determined Contributions (INDCs)
- Panchamrit Goal

Note:



Conclusion

The WMO's 2023 Greenhouse Gas Bulletin reveals **alarming increases in GHG levels** and highlights the urgent need for **stronger policy responses**. As climate change escalates, collaboration through the **Global Atmosphere Watch** and enhanced national contributions are essential to mitigate environmental impacts and safeguard global sustainability.

Note:

Mangroves in Coastal Resilience

Why in News?

Recently, **Cyclone Dana's** landfall near **Bhitarkanika National Park** and Dhamra Port in Odisha underscored the essential role of mangrove forests in reducing cyclone impacts.

The cyclone did not cause as significant damage as anticipated due to the rich mangrove forest cover of Bhitarkanika.

- Bhitarkanika National Park has withstood the onslaught of several cyclones in the past including the **Super Cyclone,** which took place in October 1999.

What are Mangroves?

- **About:** Mangroves are salt-tolerant trees and shrubs that thrive in estuarine and intertidal regions where freshwater meets saltwater.
  - They possess unique adaptations, such as aerial roots and waxy leaves, allowing them to survive in saline environments.
  - They represent a **littoral forest ecosystem**, which means they thrive in saline or brackish waters in coastal regions
  - Some common mangrove trees include **Red mangrove, Grey mangrove,** and **Rhizophora**.
- **Mangrove Cover in India:** According to the **Indian State Forest Report 2021**, Mangrove cover in India is 4992 sq. Km which is 0.15% of the country's total geographical area.
- **Geographical Distribution:** India hosts significant mangrove ecosystems in various states, including Odisha (Bhitarkanika), Andhra Pradesh (Godavari-Krishna delta), Gujarat, Kerala, and the Andaman Islands.
  - The **Sundarbans (spread across India and Bangladesh)** is the largest contiguous mangrove forest in the world. Bhitarkanika is second only to Sunderbans in terms of mangrove cover in India
- **Role of Mangroves in Cyclone Mitigation:**
  - **Coastal Defence**: Mangroves are the first line of defence for coastal communities. They stabilise shorelines by slowing erosion and provide natural barriers protecting coastal communities.
  - **Storm Surge Protection:** Mangrove forests act as natural barriers against cyclone-driven surges, significantly reducing surge height, water flow velocity, and minimising flooding and coastal damage.".
  - **Integration with Infrastructure:** The effectiveness of mangroves can be enhanced when combined with built infrastructure, such as embankments.
- **Initiatives for Protection and Conservation of Mangroves:**
  - **MISHTI Initiative:** The **Union Budget 2023-24** announced **MISHTI initiative** for mangrove plantations along the coastline and on salt pan lands.
  - **Mangrove Alliance for Climate: MAC** includes **UAE, Indonesia, India, Sri Lanka, Australia, Japan, and Spain**. It seeks to educate and spread awareness worldwide on the role of mangroves in curbing global warming and its potential as a solution for climate change.
  - **Blue Carbon Initiative:** It is focused on mitigating climate change through the conservation and restoration of coastal and marine ecosystems.
    - It is coordinated by Conservation International (CI), **IUCN**, and the **Intergovernmental Oceanographic Commission-UNESCO (IOC-UNESCO)**

Note:

What are the Challenges with Mangrove Conservation ?

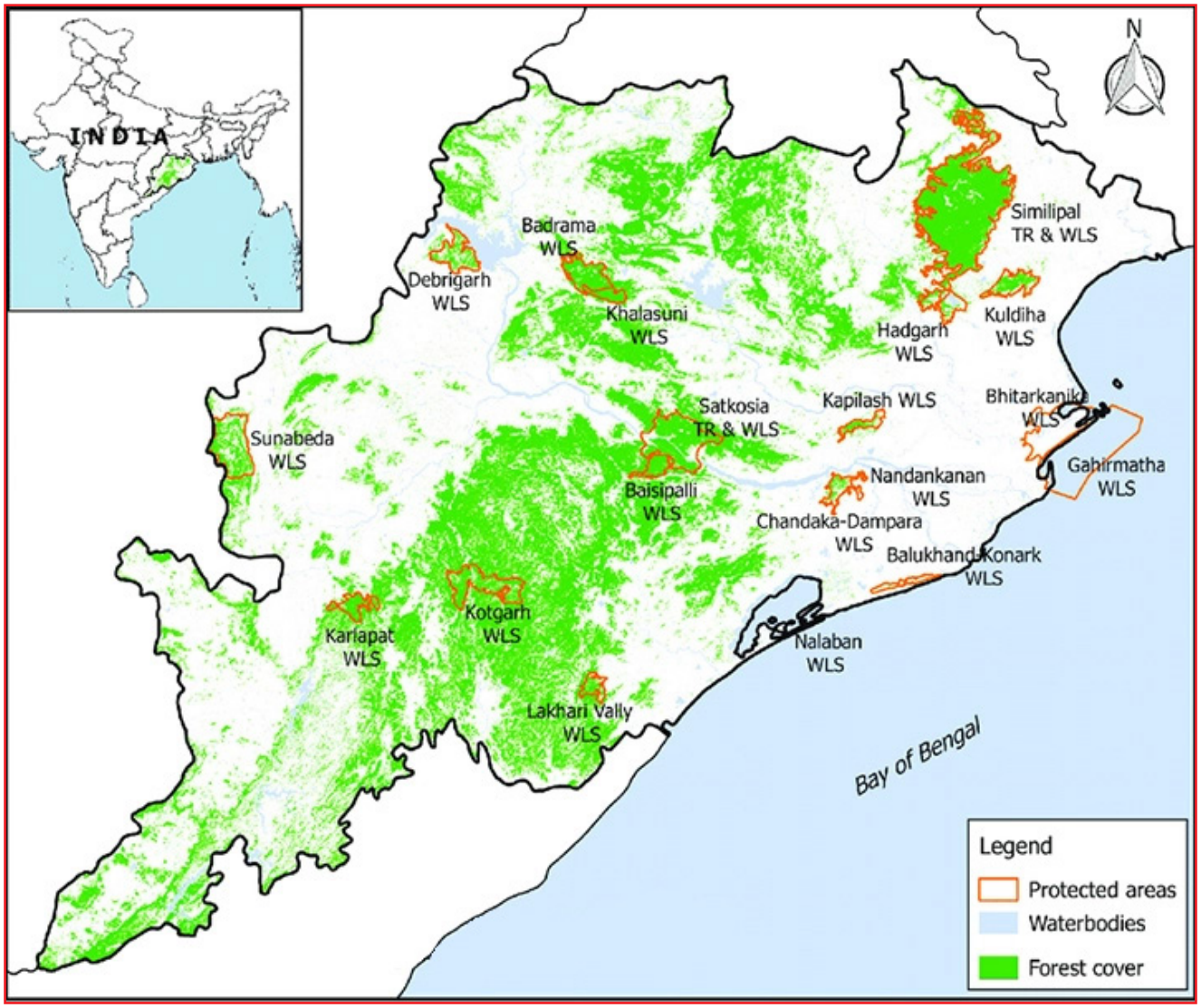
- **Commercialisation of Coastal Areas:** Aquaculture, coastal development, rice and palm oil farming and industrial activities are rapidly replacing these salt-tolerant trees and the ecosystems they support.

Note:

- **Temperature Related Issues:** A fluctuation of ten degrees in a short period of time is enough stress to damage the plant and freezing temperatures for even a few hours can kill some mangrove species.
- **Soil Related Issues:** The soil in which mangroves grow presents a challenge for plants due to its severe lack of oxygen.
- **Pollution and Contamination:** Pollution from agricultural runoff, industrial discharges, and improper waste disposal contaminate mangrove habitats.
- **Lack of Integrated Management:** The management of mangroves often occurs in isolation, failing to recognize their crucial interconnectedness with adjacent ecosystems, such as coral reefs and seagrass beds, which is essential for holistic environmental health.

Bhitarkanika National Park

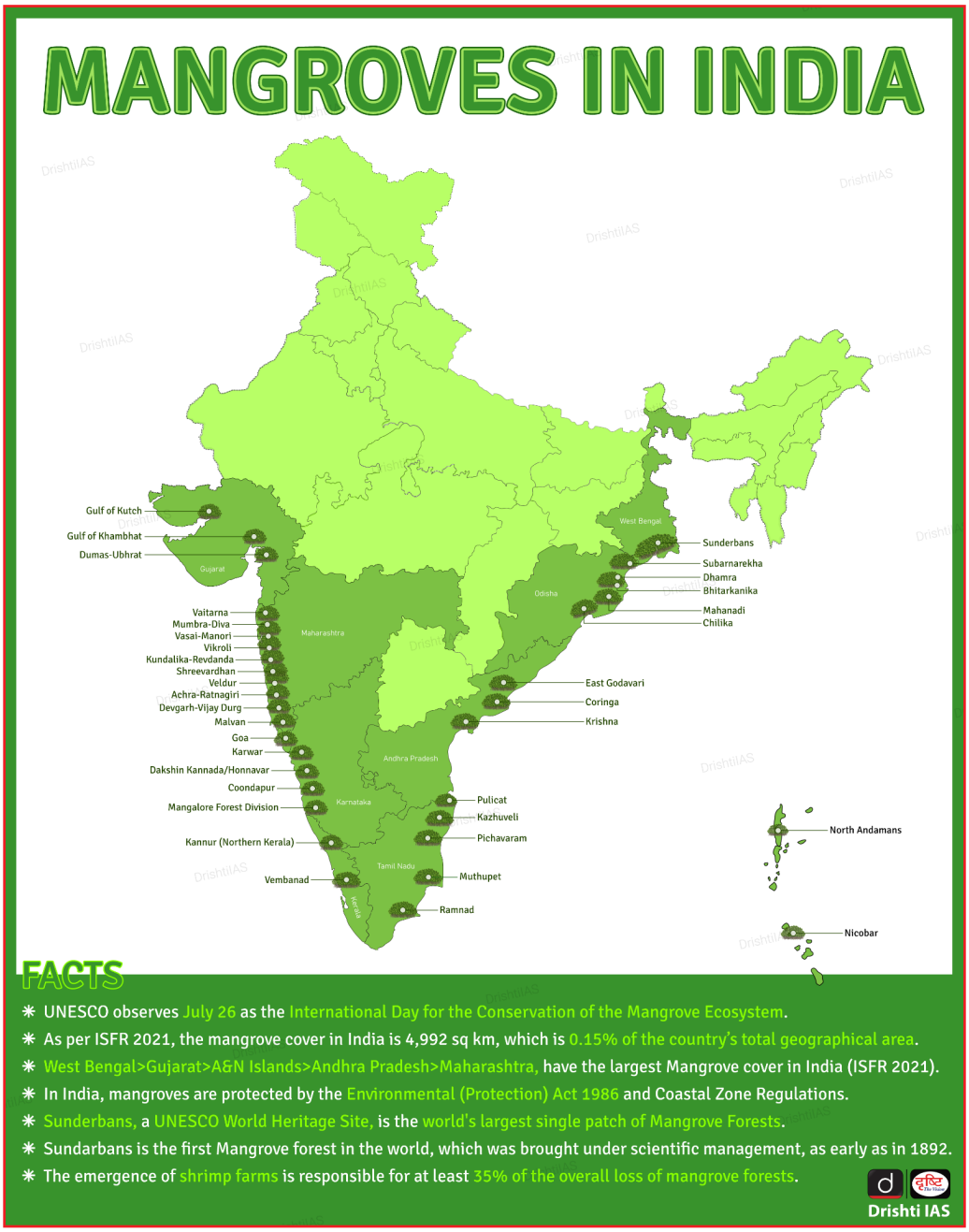
- Bhitarkanika National Park is spread in a vast area of 672 Kms in Orissa.
- The National Park is essentially a network of creeks and canals which are inundated with waters from rivers Brahmani, Baitarani, Dhamra and Patasala forming a unique ecosystem.
- It is the breeding place for the Saltwater Crocodiles. The crocodile conservation project in Bhitarkanika was started in 1975.
- The Gahirmatha Beach which forms the boundary of the sanctuary in the east is the largest colony of the Olive Ridley Sea Turtles.



Note:

What can be Done to Preserve Mangroves ?

- Utilise bio-restoration techniques like **Assisted Natural Regeneration (ANR)** to revive degraded mangrove areas, helping to maintain original biodiversity.
  - Assisted Natural Regeneration (ANR) is a complementary solution to planting. This solution consists of a soft forest management method that preserves and strengthens existing forests through forest maintenance work that respects and mimics the natural reproduction cycle of trees.
- There is a pressing need for policies aimed at conserving existing mangrove forests and restoring degraded areas. Sustainable management practices should be adopted to enhance the resilience of coastal ecosystems.
  - Engaging local communities in mangrove conservation efforts can foster a sense of ownership and ensure the sustainability of these ecosystems. Education and awareness programs about the benefits of mangroves can promote community-driven conservation initiatives.



Note:

Tiger Translocation for Genetic Diversity

Why in News?

Recently, the **Odisha** government translocated a **tigress named Jamuna** from **Tadoba Andhari Tiger Reserve** in Maharashtra to the **Similipal Tiger Reserve (STR)** in Odisha.

- Translocation was aimed at **enhancing genetic diversity** in Similipal, where there are concerns about **inbreeding** due to a **small population.**

What are Key Facts About this Translocation?

- **Previous Translocation Attempts:** In **2018**, a tigress named **Sundari** was relocated to **Satkosia Tiger Reserve**, **Odisha.**
  - The **National Tiger Conservation Authority (NTCA)** gives approval for the translocation project.
- **Translocation of Black Tigers:**
  - **Population:** The Odisha Tiger Estimation conducted in **2024** found a total **24 adult tigers** in Similipal, with a notable presence of **pseudo-melanistic tigers.**
    - STR is the **only habitat** where these **black tigers** are found in the wild.
  - **Inbreeding Concerns:** The high number of **pseudo-melanistic tigers (13 out of 24 adults)** in Similipal raises concerns about **inbreeding and lack of genetic flow**, prompting the need for **external genetic input.**
  - **Future Initiatives:** Plans are in place to establish a **melanistic tiger safari in Similipal**, which would be the first of its kind in the world.

Note:

- **Black or pseudo-melanistic tigers** exist because of a **genetic trait** that creates a **unique phenotype** and indicates a **lack of genetic diversity.**
  - They are characterised by **wide and merged stripes**

What are the Key Facts About Similipal Tiger Reserve?

- **Location:** Similipal tiger reserve and national park is located in **Odisha's Mayurbhanj district.**
  - It was designated as a **tiger reserve** under **Project Tiger** in **1973.**
  - In **2009, UNESCO** included **Simlipal National Park** in its list of **Biosphere Reserve.**
- **Geography: Joranda and Barehipani waterfalls** and **Khairiburu and Meghashini peaks** are located in Simlipal national park.
  - Burhabalanga, Palpala Bandan, Salandi, **Kahairi, and Deo rivers** pass through it.
  - It is named after the **'Simul' (Silk Cotton) tree.**
- **Biodiversity:** Forest type is primarily dominated by **tropical moist deciduous forests**.
  - **Mammals: Tigers, leopards,** sambar deer, barking deer, gaurs, jungle cats, wild boars, **four-horned antelopes, giant squirrels**, and common langurs.
  - **Avian Species: Grey hornbills**, Indian pied hornbills, and **Malabar pied hornbills.**
  - **Reptile: Mugger crocodiles** inhabit Khairi and Deo Rivers.
- **Indigenous Population:** It is inhabited by indigenous tribes like **Kolha, Santhala, Bhumija, Bhatudi, Gondas, Khadia, Mankadia, and Sahara**.
  - The tribals worship **sacred groves** called **Jharia**.

What are the Key Facts About Tadoba Andhari Tiger Reserve?

- **Location:** It is situated in **Maharashtra** and is the **oldest and largest national park** in the state.
  - **Tadoba/Taru** is the **local deity** revered by the tribal people in the area.
  - **Andhari** is derived from the **Andhari river** which flows through the reserve.
- **Geography:** It contains two primary lakes, **Tadoba Lake and Kolsa Lake**, along with the **Tadoba River.**
- **Biodiversity:**
  - **Flora: Teak, semal, tendu**, beheda, karaya gum, mahua madhuca, **arjun, bamboo** etc.
  - **Fauna:** Tigers, Indian leopards, sloth bears, gaurs, nilgai, **dholes**, small Indian civets, sambars, **spotted deer, barking deer, and chital**.

Note:

TIGER

Royal Bengal Tiger (Panthera Tigris) is the National animal of India.

Subspecies of Tiger

- The continental *(Panthera tigris tigris)*
- The Sunda *(Panthera tigris sondaica)*

Habitat

Tropical rainforests, evergreen forests, temperate forests, mangrove swamps, grasslands, and savannas

Countries Where Tiger Population Is Found

- Found only in **13 Tiger Range countries-** India, Nepal, Bhutan, Bangladesh, Myanmar, Russia, China, Thailand, Malaysia, Indonesia, Cambodia, Laos, and Vietnam
  - As per the latest report by IUCN, tiger has gone extinct in Cambodia, Laos, and Vietnam

Protection Status

- **IUCN Red List:** Endangered
- **CITES:** Appendix I
- **WPA 1972:** Schedule I

Threats

- Habitat loss
- Poaching and illegal trade
- Human-Wildlife conflict

Conservation Efforts

- **International Big Cats Alliance (IBCA):** For conservation of seven big cats namely Tiger, Lion, Leopard, Snow Leopard, Cheetah, Jaguar and Puma (launched by India)
- **Tx2 campaign:** Launched by WWF; stands for 'Tiger times 2' signaling the goal to double the tiger population by 2022
- **National Tiger Conservation authority (NTCA):** Constituted under the WPA, 1972
- **Project Tiger:** Launched in 1973
- **Tiger Census:** Every 4 years

Tigers In India

- India has the **largest** population
  - As of 2022, India has 3167 tigers
  - Largest population has been found in Central Indian Highlands & Eastern Ghats Landscape
- **Tiger Reserves:** India now has 53 tiger reserves
  - **Ranipur in UP** is the latest
  - **Nagarjun Sagar** (Andhra Pradesh) **is the largest** while Orang (Assam) **is the smallest** (Core area)

Drishti IAS

■■■

Note:

History

Highlights

- *American Civil War (1861-1865)*
- *Janjatiya Gaurav Divas*
- *Birth Anniversary of Sardar Vallabhbhai Patel*

American Civil War (1861-1865)

Why in News?

Recently, the Presidential candidate of the **Republican Party** became president of the **United States (US)** defeating the Presidential candidate of the **Democratic Party**.

- The **US Civil War** was driven by tensions over **slavery**, economic differences, and states' rights, with the **Republican Party** opposing slavery and the **Democratic Party** initially supporting it.

How did Slavery Evolve Through Human History?

- **Origins & Early Development:**
  - **Slavery** emerged around thousands of years ago with agricultural settlements when **victorious tribes enslaved defeated populations** instead of killing them.
  - **Ancient civilisations** including **Mesopotamia, Egypt, Greece, and Rome** developed complex slave-based economic systems.
  - Various forms of slavery emerged, including **debt bondage**, the enslavement of **conquered peoples**, **child labour** and **generational bondage**.
- **Global Expansion & Trade:**
  - Arab **slave trade** dominated the Indian Ocean routes from 7th-19th centuries, connecting **Africa**, the **Middle East**, and **Asia**.
  - The **trans-Saharan slave trade** transported millions from **Sub-Saharan Africa** to **North Africa** and the **Middle East**.
  - The **transatlantic slave trade** (16th-19th centuries) forcibly moved approximately **12 million Africans to various parts of the world.**
  - European colonial powers established systematic slave trading networks across continents.
- **Slavery in India**:
  - Early Sanskrit texts like **Arthashastra** and **Manusmriti** recognised and regulated slavery.
  - **Buddhist and Jain texts** also mention slavery while advocating compassionate treatment.
  - Islamic rulers introduced military slavery and domestic servitude systems.
  - The Mughal period saw extensive slave trading networks across South Asia.
  - **The Girmitiya system** was a form of indentured labour introduced in British colonies to address labour shortages on sugar plantations after the abolition of slavery in 1833.
  - **Indian Slavery Act of 1843** technically abolished slavery under British rule.
  - Post-independence India banned bonded labour through **Article 23 of the Constitution** and subsequently through the **Bonded Labour System (Abolition) Act 1976**.

What were the Causes and Course of the US Civil War?

- **Causes of the US Civil War:**
  - **Slavery and Sectional Divides:** The **US Civil War** was primarily driven by the conflict over **slavery**.

Note:

- The **northern United States (US)** had a diversified economy with both industry and farming, relying on free labour.
  - In contrast, the **southern United States** depended heavily on slave labour for its agricultural economy, particularly cotton.
- This economic difference led to deep disagreements on the issue of slavery, with many **Northerners** seeking to **prohibit slavery** in new western states, while **Southerners** wanted laws that would protect it.
- As the **US expanded westward,** the issue of slavery became a major point of contention, **especially for northern states.**
  - They **feared that allowing slavery in new territories** would give the **South greater political power in Congress.**
- This growing divide over slavery contributed to **political tensions**, eventually leading **southern states** to seek secession from the Union.
- The debate also centred on states' rights versus federal authority, with **Southern politicians** arguing that states had the right to leave the **Union**, while most **Northerners** believed the Union was permanent under the Constitution.

❍ **Ideological Divide Between North vs. South:**

- The **ideological differences** between the North and the South were stark, with the North advocating for a diversified economy and free labour, while the South's economy was built on slave labour.
- The **conflict was not only about slavery** but also about the nature of democracy, as both sides sought to shape the future of the nation according to their values and way of life.

➢ **Course of the Civil War**:

❍ **Anti-Slavery Protest**: The **Kansas-Nebraska Act of 1854** allowed settlers in **Kansas and Nebraska** to decide on the legality of slavery in their territories through popular **sovereignty**, intensifying sectional tensions in the US.

❍ In response to the passage of the Nebraska Bill, anti-slavery activists organised and came together to create a new political party, which was named the Republican Party.

❍ In February 1856, anti-slavery activists gathered in Pittsburgh to formalise the **Republican Party**, with **Abraham Lincoln** among those present.

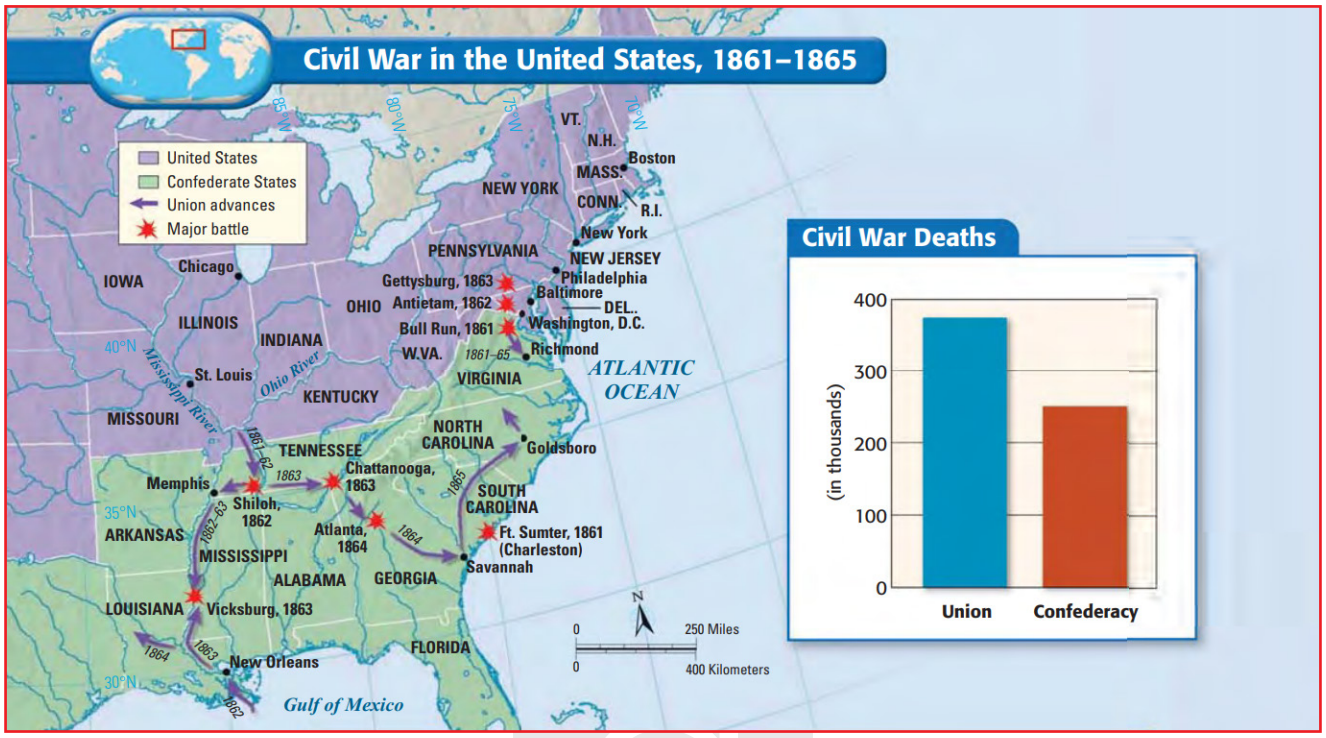
❍ **Secession and Outbreak of War**: The conflict reached a climax in 1860 when **Lincoln** was elected president. His opposition to the spread of slavery led to the secession of Southern states, which formed the **Confederate States of America**.

- In April 1861, **Confederate** forces attacked **Fort Sumter** in South Carolina, marking the start of the war. **Lincoln** ordered the army to bring the rebel states back into the Union.
- Though the South had superior military leadership, the North's larger population, industrial capacity, and infrastructure eventually in **April 1865** South surrendered.

❍ **Emancipation Proclamation**: In 1863, **Lincoln** issued the **Emancipation Proclamation**, declaring that all slaves in the **Confederate** states were free.

- This move also had international significance, discouraging European nations from supporting the Confederacy.
- However, **Lincoln declared that the war was being fought to pres ery**: In the aftermath of the war, the **13th Amendment to the US Constitution** was passed in 1865, abolishing slavery.

Note:



What were the Challenges and Impacts of the US Civil War?

- **Reconstruction and Post-War Challenges in the US:**
  - **Reconstruction and Southern Resistance**: The **Reconstruction era (1865-1877)** sought to reintegrate the Southern states and enforce civil rights for **African Americans**.
    - The **14th and 15th Amendments** granted citizenship and voting rights to African Americans, altering the social and political landscape of the US.
  - **Economic Changes and Industrialisation**: The war accelerated industrialisation in the US. By **1914**, the US became a leading industrial power, partly due to the need for mass production during the war.
    - **Immigration** played a significant role in fueling industrial growth, with nearly 20 million immigrants arriving between 1870 and 1914.
    - The development of the railroad system, particularly the completion of the **Transcontinental Railroad** in 1869, helped facilitate trade and industrial growth, linking the eastern US with the West and promoting the movement of goods.
  - **Postwar Economic Expansion**: The war also spurred the growth of railroads, which linked farming communities to industrial cities.
    - Steel became a crucial resource as railways expanded, and the movement of goods, such as corn, wheat, and cattle, helped position the US as a world leader in agriculture and industry by the 20th century.
- **Global Impact on the Cotton Trade and its Influence on India:**
  - **Disruption of Cotton Exports**: **The Civil War** caused a major disruption in the global cotton trade as the South, a primary supplier of cotton to Britain, could no longer export it.
    - British textile manufacturers turned to **India** as an alternative source, leading to a significant increase in cotton demand from Indian growers.
  - **The Cotton Boom in India:** As a result, India became a key supplier of cotton to British industries during the war.
    - This demand drove Indian merchants to encourage farmers in regions like Gujarat and Maharashtra to plant more cotton, resulting in an economic boom, though it often led to exploitation.

Note:

- **Long-Term Economic Consequences for India:** While India benefited from increased cotton exports, it was primarily British industries that profited.
  - This cotton boom also caused **food shortages** in some regions, as farmers were encouraged to grow cotton instead of food crops, leading to **famines** and economic distress for Indian farmers.
  - The British colonial system continued to extract wealth from India while leaving its farmers in debt and poverty.

Janjatiya Gaurav Divas

Why in News?

Janjatiya Gaurav Divas, celebrated annually on **15th November,** honors the invaluable contributions of India's tribal communities, especially in the nation's freedom struggle.

- This day marks the **birth anniversary of** Birsa Munda, a revered tribal leader and freedom fighter. The Prime Minister of India released a commemorative coin and postal stamp in honour of Birsa Munda, paying tribute to his enduring legacy.

What is Janjatiya Gaurav Divas?

- **Background:** First celebrated in 2021, the day was instituted to recognize the sacrifices of tribal freedom fighters as part of the **Azadi Ka Amrit Mahotsav,** celebrating 75 years of India's independence.
  - Tribal communities, including Santhals, Tamars, Bhils, Khasis, **and** Mizos, led numerous anti-colonial movements, such as **Birsa Munda's** Ulgulan (Revolution), demonstrating remarkable courage and sacrifice.
- **Key Highlights of the Janjatiya Gaurav Divas 2024:**
  - **PM-JANMAN:** The PM participated in the inauguration of 11,000 houses under the Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan (PM-JANMAN).
    - 23 Mobile Medical Units (MMUs) were launched to improve healthcare accessibility in remote tribal areas.
  - **DAJGUA:** Additional 30 MMUs inaugurated under the Dharti Aaba Janjatiya Gram Utkarsh Abhiyan (DAJGUA).
  - **Tribal Entrepreneurship & Education**: The PM inaugurated 300 Van Dhan Vikas Kendras (VDVKs) and 10 Eklavya Model Residential Schools(EMRS) for tribal students, while also laying the foundation stone for 25 more EMRS.
  - **Cultural Preservation**: Two Tribal Freedom Fighters' Museums were inaugurated in Chhindwara and Jabalpur, Madhya Pradesh along with two **Tribal Research Institutes** in Srinagar, Jammu & Kashmir, and Gangtok, Sikkim.

Who was Birsa Munda?

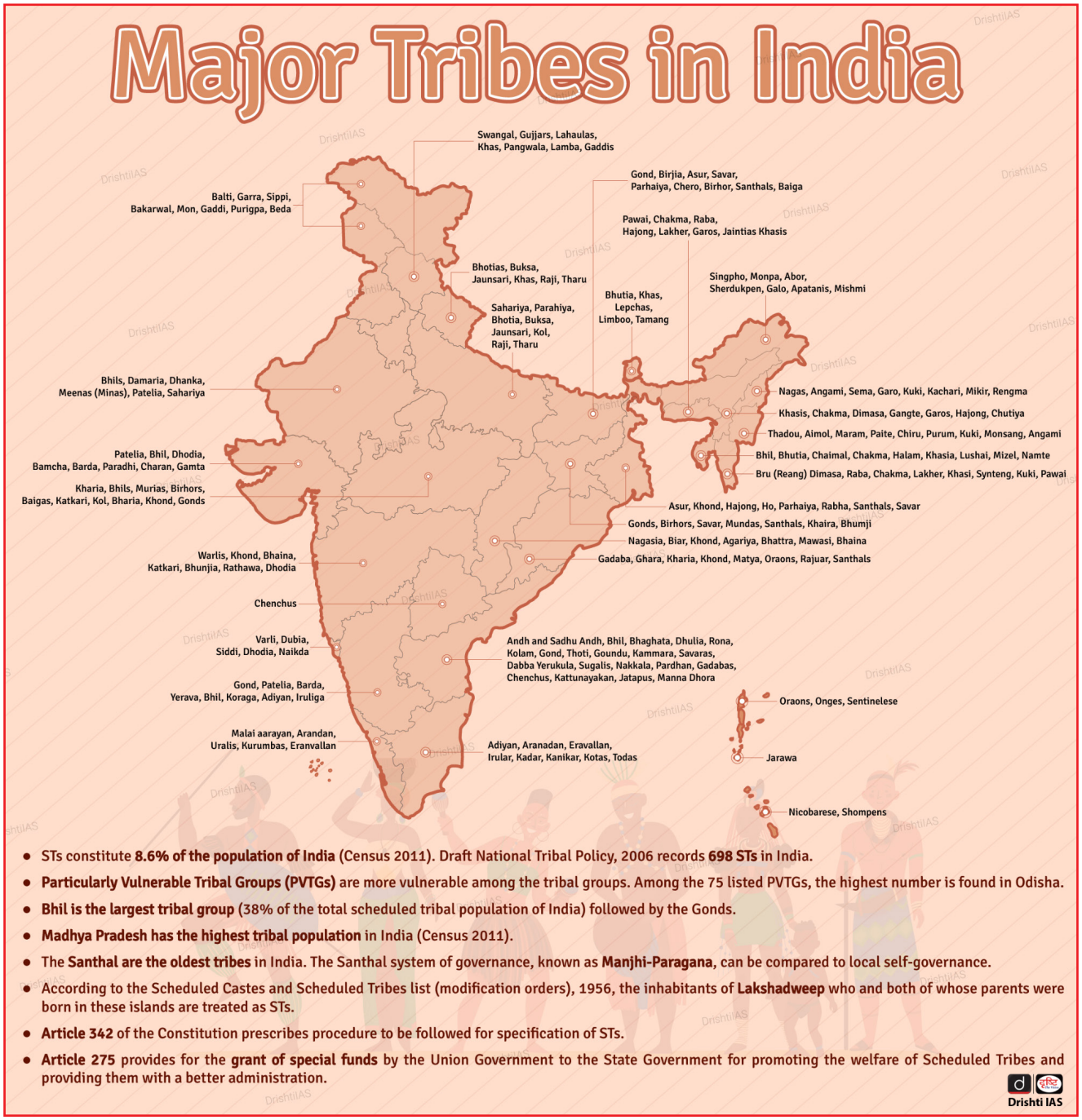
- **Early Life**: Born on **15th November 1875,** in the **Chota Nagpur Plateau** region. He belonged to the **Munda tribe**, an indigenous community in present-day Jharkhand.
  - Spent childhood moving between villages with his parents, experiencing firsthand the **challenges faced by tribal communities.**
- **Founder of the Birsait Sect**: Munda became aware of the British colonial rule and **missionary efforts to convert tribal populations.**
  - Birsa Munda established the **Birsait sect**, which sought to revive tribal identity and resist religious conversion.
  - Attracted followers from the **Munda and Oraon communities(**ethnic group inhabiting the Indian states of Jharkhand, West Bengal, Odisha and Chhattisgarh**)**, uniting them against colonial and **missionary control.**
- **Role in Tribal Mobilization:** Spent significant time in **Chaibasa, Jharkhand** from **1886 to 1890**, where he was influenced by the **Sardars' agitation**.
  - Became deeply involved in **anti-British and anti-missionary activities**, strengthening his resolve to fight for tribal rights.

Note:

- Mobilised the tribal community to challenge the British and protect tribal lands and culture.
- In 1899, he launched the **Ulgulan (The Great Tumult) movement,** which included guerrilla warfare tactics to resist British authority and promote the establishment of a self-governed tribal state known as "Birsa Raj"

➢ **Arrest and Death:** Arrested by British police in **1900**, with his **guerilla group in the Jamkopai forest.**
- Died under mysterious circumstances in **Ranchi jail** on **9th June 1900**, at the young age of 25.

➢ **Legacy:** Known for compelling colonial authorities to introduce laws protecting **tribal land rights**.
- The **state of Jharkhand was established on his birth anniversary in 2000,** honoring his contributions to tribal rights and the freedom movement.



Note:

Sardari Agitation

- The Sardari Agitation(1858-90) was a response to the **socio-economic exploitation in Chotanagpur,** triggered by **agrarian discontent over forced labor (beggars)** and **illegal rent hikes by intermediaries.** Led by the Sardars, the movement aimed to resist these oppressive practices.

MAJOR TRIBAL REVOLTS IN INDIA

TRIBE (REVOLT)	REGION	YEAR	LEADER/S
Pahariya	Rajmahal Hills	1778	Raja Jagannath
Chuar (Jungle Mahal Rebellion)	Jungle Mahal (b/w Chota Nagpur & Bengal plains)	1798	Durjan/Durjol Singh, Madhab Singh, Raja Mohan Singh, Lachman Singh
Oraon and Munda (Tamar Revolt)	Tamar (Chhotanagpur)	1798; 1914-15	Bholanath Sahay/Singh (1798) Jatra Bhagat, Balram Bhagat (1914-15)
Ho and Munda	Singhbhum and Ranchi (Chhotanagpur region)	1820-37; 1890s	Raja of Parahat (Ho) Birsa Munda (1890s)
Ahom	Assam	1828-30	Gomdhar Konwar
Khasi	Hilly region b/w Jaintia and Garo hills	1830s	Nunklow ruler – Tirath Singh
Kol	Chhotanagpur (Ranchi, Singhbhum, Hazaribagh, Palamau)	1831	Buddho Bhagat
Santhals	Rajmahal Hills	1833; 1855-56	Sidhu Murmu and Kanhu Murmu
Khond	Orissa, Andhra Pradesh	1837-56	Chakra Bisnoi
Koya	Eastern Godavari track (Andhra) Rampa (Andhra)	1879-80; 1886 1916; 22-24	Tomma Sora, Raja Anantayyar Alluri Sitarama Raju (Rampa revolt)
Bhil	Western Ghats, Khandesh (MH), south Rajasthan	1817-19; 25; 31; 46 & 1913	Govind Guru (1913 Mangarh Massacre)
Gond	Adilabad (Telangana)	1940	Komrum Bheem

Drishti IAS

What are India's Key Initiatives Supporting Tribal Development?

- **Financial and Social Initiatives:**
  - **Financial Commitments**: The **Union Budget** allocated Rs 13,000 crore to the Ministry of Tribal Affairs in 2024-25, reflecting a **73.6% increase from 2023-24.**
  - **DAJGUA**: Launched with a Rs 79,156 crore outlay to address **social infrastructure gaps across tribal areas**, benefiting over 5.38 crore people in 63,843 villages.

Note:

drishti

- **PM-JANMAN**: Initiated in 2023 to support Particularly Vulnerable Tribal Groups (PVTGs) with targeted schemes, including healthcare, financial inclusion, and community support.
- **Pradhan Mantri Adi Adarsh Gram Yojana**: PMAAGY aims to provide basic infrastructure in villages with a significant tribal population.
  - Around 36500 villages having **50% tribal population and 500** Scheduled Tribes (STs) have been identified for providing basic infrastructure facilities, including villages in the Aspirational Districts **identified by** NITI Aayog (National Institution for Transforming India).

➢ **Education:**

- **EMRS**: Established to offer quality education to Scheduled Tribes students in remote areas, helping bridge educational gaps.
- **Adivasi Shiksha Rinn Yojana (ASRY)**: Offers soft loans for tribal students pursuing higher education.
- **Scholarships for Tribal Students**: Scholarships include Pre-Matric and Post-Matric Scholarships, National Overseas Scholarship for international education, and National Fellowship for financial support in higher education.

➢ **Income Generation Schemes**: The Term Loan Scheme offers up to 90% business loans, **Adivasi Mahila Sashaktikaran Yojna** provides concessional loans for tribal women to **support entrepreneurship,** and Micro Credit Scheme supports tribal groups with loans up to Rs 5 lakh**.**

➢ **Health and Welfare Initiatives:**

- Sickle Cell Anaemia Elimination Mission
- **Mission Indradhanush**
- Nikshay Mitra Initiative
- National Health Mission (NHM)
- **Pradhan Mantri Matru Vandana Yojana**

Birth Anniversary of Sardar Vallabhbhai Patel

Why in News?

Recently, the President of India commemorated Sardar Vallabhbhai Patel's **149th birth anniversary,** observed as National Unity Day **(31st October)**, honouring the legacy of **India's first Deputy Prime Minister and Home Minister.**

What is National Unity Day?

➢ **About:**

- National Unity Day serves as a reminder of the values Patel embodied—**unity, integrity, and inclusiveness.**
  - In a country characterized by its vast diversity in cultures, languages, and religions, National Unity Day emphasizes the importance of fostering a sense of **solidarity among the Indian populace.**
- The day encourages citizens to reflect on the necessity of coming together to overcome challenges, celebrate diversity, and promote **harmony** within the nation.

➢ **Statue of Unity:**

- On 31st October 2018, the Statue of Unity, the world's tallest statue at 182 meters (600 feet), was inaugurated at **Kevadia, Gujarat**, honouring Sardar Vallabhbhai Patel.
  - Overlooking the Narmada River **and the Sardar Sarovar Dam** (the second largest gravity dam worldwide by concrete volume), the statue is situated on **Sadhu Bet hillock**.
- In 2020 India's Statue of Unity was included in the **list of eight wonders of the** Shanghai Cooperation Organisation (SCO).

Who was Sardar Vallabhbhai Patel?

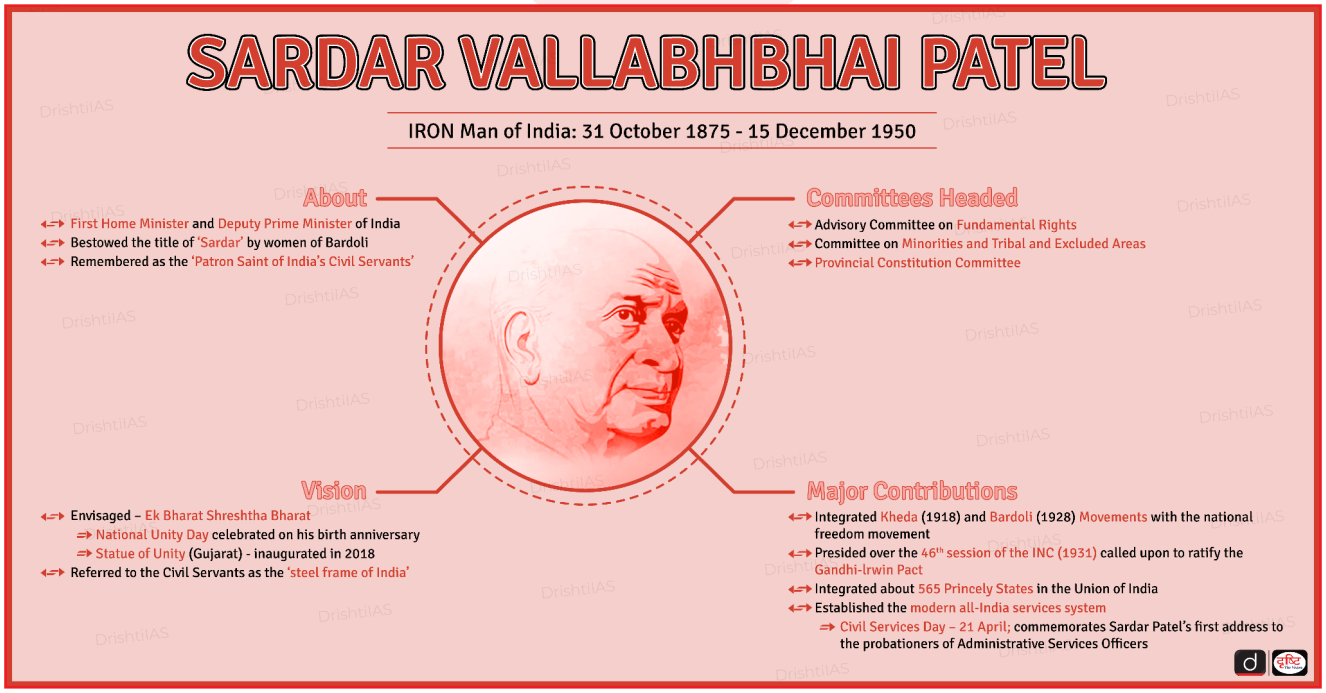
➢ **Birth:** Born on **31st October 1875**, in **Nadiad, Gujarat.**

- His family belonged to the Lewa Patidar community.

➢ **Career:** Completed law studies in England, earning a prize in **Roman Law,** and returned to India as a barrister in 1913.

Note:

- **Title and Legacy:** Popularly known as the **"Iron Man of India"** for his determination and firm approach. He is revered as a **symbol of national unity and resilience.**
- **Political Rise:**
  - **Joining the National Movement:** Patel was inspired by **Mahatma Gandhi** and joined the freedom struggle.
  - **Kheda Satyagraha (1918):** He played a pivotal role in **Kheda Satyagraha** demanding tax exemptions for farmers affected by **crop failure due to drought.**
  - **Bardoli Satyagraha (1928):** Led the resistance during the **Bardoli Satyagraha** against an unjust tax increase, earning him the title "Sardar" for his leadership.
- **Role in the Indian National Movement:**
  - **Non-Cooperation and Civil Disobedience:** Embraced Gandhi's vision, leading actions like the **Salt Satyagraha in 1930** and facing multiple imprisonments for his involvement.
  - **Presiding Over the Congress:** Chaired the **46th session of the Congress in 1931,** navigating through the **Gandhi-Irwin Pact discussions.**
  - **Quit India Movement (1942):** Patel was arrested and imprisoned during this major phase of India's freedom struggle.
- **Contributions Post-Independence:**
  - **Integration of Princely States:** Spearheaded the integration of **562 princely states into the Indian Union,** securing stability and democracy for millions.
    - The **Indian Independence Act of 1947** allowed princely states to declare independence.
  - **Reinforcing India's Civil Services:** Patel was instrumental in establishing the modern **All India Services,** strengthening the administrative framework of the country.
    - Remembered as the **"patron saint of India's civil servants"** for his contribution to reinforcing the bureaucratic system.
    - **National Civil Services Day (21st April)** honors Sardar Patel's 1947 speech, calling **civil servants "the steel frame of India"** and reinforcing their dedication to public service.
  - **Chairmanship and Committee Work:** Led the Advisory Committee on **Fundamental Rights, Minorities,** and **Tribal and Excluded Areas** in the Constituent Assembly.



■■■

Note:

Art and Culture

Highlights

- *Konark Wheels at Rashtrapati Bhavan*
- *1st Asian Buddhist Summit*

Konark Wheels at Rashtrapati Bhavan

Why in News?

Recently, four sandstone replicas of the iconic **Konark** wheels from the Konark Temple have been installed at the **Rashtrapati Bhavan's** Cultural Centre and Amrit Udyan. This initiative is among various efforts to incorporate traditional cultural and historical elements into Rashtrapati Bhavan.

- **Konark temple** was declared a **UNESCO** world heritage site in 1984. It is built in the Odisha School form of temple architecture.

Odisha School of Temple Architecture

- It is a sub-schools of **Nagara School of architecture** and comes under **East Indian Temples**.
- The main architectural features of Odisha temples are classified into three orders, i.e., **rekhapida, pidhadeul and khakra**.
- Most of the main temple sites are located in ancient Kalinga—modern Puri District, including Bhubaneswar or ancient Tribhuvanesvara, Puri and Konark.
- In general, **the shikhara, called deul in Odisha**, is vertical almost until the top when it suddenly curves sharply inwards.
- **Deuls** are preceded, as usual, by **mandapas called jagamohana** in Odisha.
- Odisha temples usually have boundary walls.
- The ground plan of the main temple is almost always square, which, in the upper reaches of its superstructure, becomes circular in the crowning mastaka.
- Compartments and niches are generally square, the exterior of the temples are lavishly carved, their interiors generally quite bare.

What is are Key Facts and Significance of the Konark Sun Temple?

- **About Konark Temple:**
  - The 13th century Konark Sun Temple, near Puri in Odisha, was built by **King Narasimhadeva I (1238–1264 AD).** Its grand scale and intricate design symbolise the strength and cultural values of the **Eastern Ganga Empire**.
    - The Eastern Ganga dynasty also known as Rudhi Gangas or Prachya Gangas.
    - It was a major Indian royal dynasty that ruled Kalinga from the 5th to early 15th century.
  - **Key Features of Temple:**
    - The **vimana (principal sanctuary)** was surmounted by a high tower with a shikhara (crowning cap) also known as **Rekha deul**, which was razed in the 19th century.
    - To the east, the Jagamohana (audience hall or Mandap) dominates the ruins with its pyramidal mass.
    - Farther to the east, the natmandir (dance hall), today unroofed, rises on a high platform.

Note:

- **Architectural Significance:**
  - **Chariot Design:** Temple is shaped as a colossal chariot with 7 horses symbolising the days of the week and 24 wheels representing 24 hours in a day.
  - **Wheel Construction:** Each wheel, 9 feet 9 inches in diameter, has 8 thick and 8 thin spokes, serving as ancient sundials.
    - The intricate carvings include circular medallions, animals, and foliage on the rims, as well as luxury scenes within the medallions.
  - **Symbolic Elements:** The 12 pairs of wheels signify the months of the year, while some interpretations relate the wheel to the 'Wheel of Life'—the cycle of creation, preservation, and realization.
- **Cultural Heritage:**
  - **Dharma and Karma:** The Konark Wheel is akin to the **Buddhist Dharmachakra,** symbolising the cosmic cycle of Dharma (righteousness) and Karma (action).
  - **Zodiac Representation:** Another interpretation suggests the 12 wheels represent the zodiac signs, linking it to astrological and cosmic principles.
- **Sundial Functionality:**
  - **Time Measurement:** Two of the wheels can determine the time from sunrise to sunset.
  - **Spoke Arrangement:** Wider spokes denote 3-hour intervals, thinner spokes represent 1.5-hour periods, and beads between spokes mark 3-minute increments.
  - **Midnight Mark:** The top center wider spoke symbolizes midnight, with the dial moving anti-clockwise to display time.

1st Asian Buddhist Summit

Why in News?

Recently, the first **Asian Buddhist Summit (ABS)** was organised by India's **Ministry of Culture** and the **International Buddhist Confederation (IBC)** in New Delhi, India.

What are the Key Highlights of the 1st ABS?

- **About:** It's a significant **international gathering** aimed at fostering dialogue, promoting understanding, and addressing contemporary challenges in the Buddhist community across Asia.
- **Theme**: **"Role of Buddha Dhamma in Strengthening Asia"** which emphasises Asia's collective, inclusive, and spiritual development.
- **Key Themes of the Summit:**
  - **Buddhist Art, Architecture, and Heritage**: Highlights the rich cultural legacy of Buddhist landmarks like **Sanchi Stupa** and **Ajanta caves**.
  - **Buddha Cārikā and Dissemination of Buddha Dhamma**: Focuses on **Buddha's travels (Buddha Cārikā)** and his role in spreading teachings across India.
  - **Role of Buddhist Relics and its Relevance in Society**: Buddha relics inspire **devotion and mindfulness,** support local economies through **pilgrimage tourism**, and promote peace and compassion.
  - **Role of Buddhist Literature and Philosophy in the 21st Century**: Demonstrates Buddhism's enduring relevance in modern **philosophical discourse.**
  - **Buddha Dhamma in Scientific Research and Well-being**: Integrates **Buddhist principles** with scientific research to enhance **mental and physical health.**
- **Exhibition**: A special exhibition titled **"India as the Dhamma Setu (Bridge) connecting Asia"** highlighted India's role in spreading **Buddhism** across Asia.
- **Significance for India**: The summit supports **India's Act East Policy** and **Neighborhood First Policy**, focusing on collective, inclusive, and spiritual development in Asia.

Note:

- **Buddha Bhoomi Vandan Yatra** was organised by the **Indian Council of Cultural Relations (ICCR)** in 2022 that facilitated Buddhist scholars from countries like **Japan, South Korea, and Sri Lanka** to explore India's Buddhist sites and learn about its Buddhist heritage.
- The IBC is a **Buddhist umbrella body** based in **New Delhi** that serves as a **common platform for Buddhists worldwide**.

What are India's Recent Initiatives to Support Buddhism?

- **Buddhist Tourism Circuit in India**
- **First Global Buddhist Summit**
- **Asian Buddhist Conference for Peace**
- **Classical Status to Pali Language**
- **International Abhidhamma Diwas**

Note:

BUDDHISM

Drishti IAS

ORIGIN

- 6th century BC, based on the teachings of Gautam Buddha

MAIN FEATURES

- Essence - Attainment of enlightenment (Nibbana)
- Supreme Deity - None

PRINCIPLES

- Avoid the extremes; follow Madhyam Marg (middle path)
- Individualistic component (everyone is responsible for their own happiness)
- 4 Noble Truths:
  - Dukkha (suffering)
  - Samudya (cause of suffering)
  - Nirodha (suffering could be ended)
  - Atthanga Magga (8-fold path to achieve this)
- 8-Fold Path:
  - Right - view, intention, speech, action, livelihood, mindfulness, effort and concentration

BUDDHISM REJECTS

- Authenticity of Vedas
- Concept of soul (atman) (unlike Jainism)

MAJOR BUDDHIST TEXTS

- Sutta Pitaka (main teachings of Buddha - Dhamma)
- Vinaya Pitaka (rules of conduct for monks/nuns)
- Abhidhamma Pitaka (philosophical analysis)
- Other imp texts - Divyavadana, Dipavamsa, Mahavamsa, Milind Panha

Budhha's teachings were rehearsed, authenticated & divided in 3 Pitakas at the 1st Buddhist Council

These teachings were written down c. 25 BC in Pali

4 BUDDHIST COUNCILS

Buddhist Council	Patron	Venue	Chairman	Year
First	Ajatashatru	Rajgriha	Mahakashyapa	483 BC
Second	Kalashoka	Vaishali	Sabbakami	383 BC
Third	Ashoka	Patliputra	Mogaliputra	250 BC
Fourth	Kanishka	Kundalban (Kashmir)	Vasumitra	72 AD

■■■

Note:

drishti

Geography

Highlights

- *Dinosaurs and UNESCO Global Geoparks Tag*

Dinosaurs and UNESCO Global Geoparks Tag

Why in News?

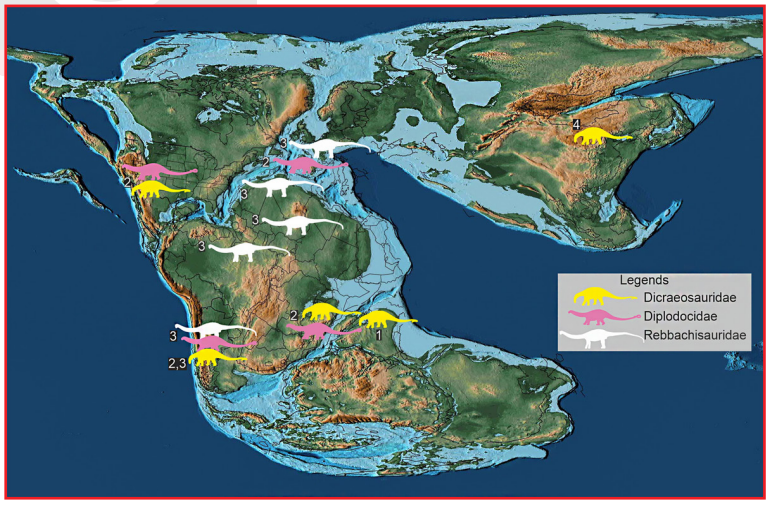
The Geological Survey of India wants **Dinosaur Fossil Park and Museum** in Raiyoli village in Gujarat to get a UNESCO Global Geoparks tag.

What are the Key Points About Gujarat's Dinosaur Fossil Park and Museum?

- **Geological Importance:** In the **early 1980s,** geologists discovered large **dinosaur bones and fossilised eggs.**
  - The bones belong to the ***Rajasaurus Narmadensis*** and ***Rahiolisaurus Gujaratensis***, **carnivorous** dinosaurs from the Late Cretaceous period **(~67 million years ago).**
- **Global Position:** It is one of the largest **dinosaur egg hatcheries** in the world, ranking third globally after **Aix-en-Provence (France)** and the Mongolian Gobi Desert**.**
- **International Interest:** The site gained international attention in the **1990s** when a team of **50 palaeontologists**, visited to study the dinosaur eggs.

What is the History of Dinosaurs in India?

- **Early Dinosaur Discoveries: Asia's first** dinosaur bones were discovered in India in **1828 in Jabalpur, Madhya Pradesh**, by Captain **William Henry Sleeman** which were later named ***Titanosaurus indicus*** **in 1877**.
  - ***Titanosaurus***, a large **herbivorous** dinosaur that lived during the **Late Cretaceous period.**
- **Dinosaur Fossils: Madhya Pradesh, Maharashtra, and Gujarat**, are key fossil-rich regions that have yielded many dinosaur skeletons and eggs.
  - Several important species have been discovered in this region are ***Barapasaurus*** (herbivorous), ***Isisaurus*** (herbivorous), ***Indosuchus*** (carnivorous), and ***Rajasaurus Narmadensis*** (carnivorous).
- **Dinosaur Hatcheries:** India is believed to be one of the largest **dinosaur hatcheries** in the world, with major nesting sites discovered in regions like **Jabalpur (MP)**, **Balasinor (GJ)**, and **Dhar District (MP)**.



What are UNESCO Global Geoparks (Geo Heritage Sites)?

- **About:** UNESCO Global Geoparks are **unified geographical areas** with internationally significant **geological sites**, managed with a holistic approach to protection, education, and sustainable development.
  - Geo Heritage Sites are locations that have geological significance due to their **unique rock formations, fossils, mineral deposits, or** landforms.

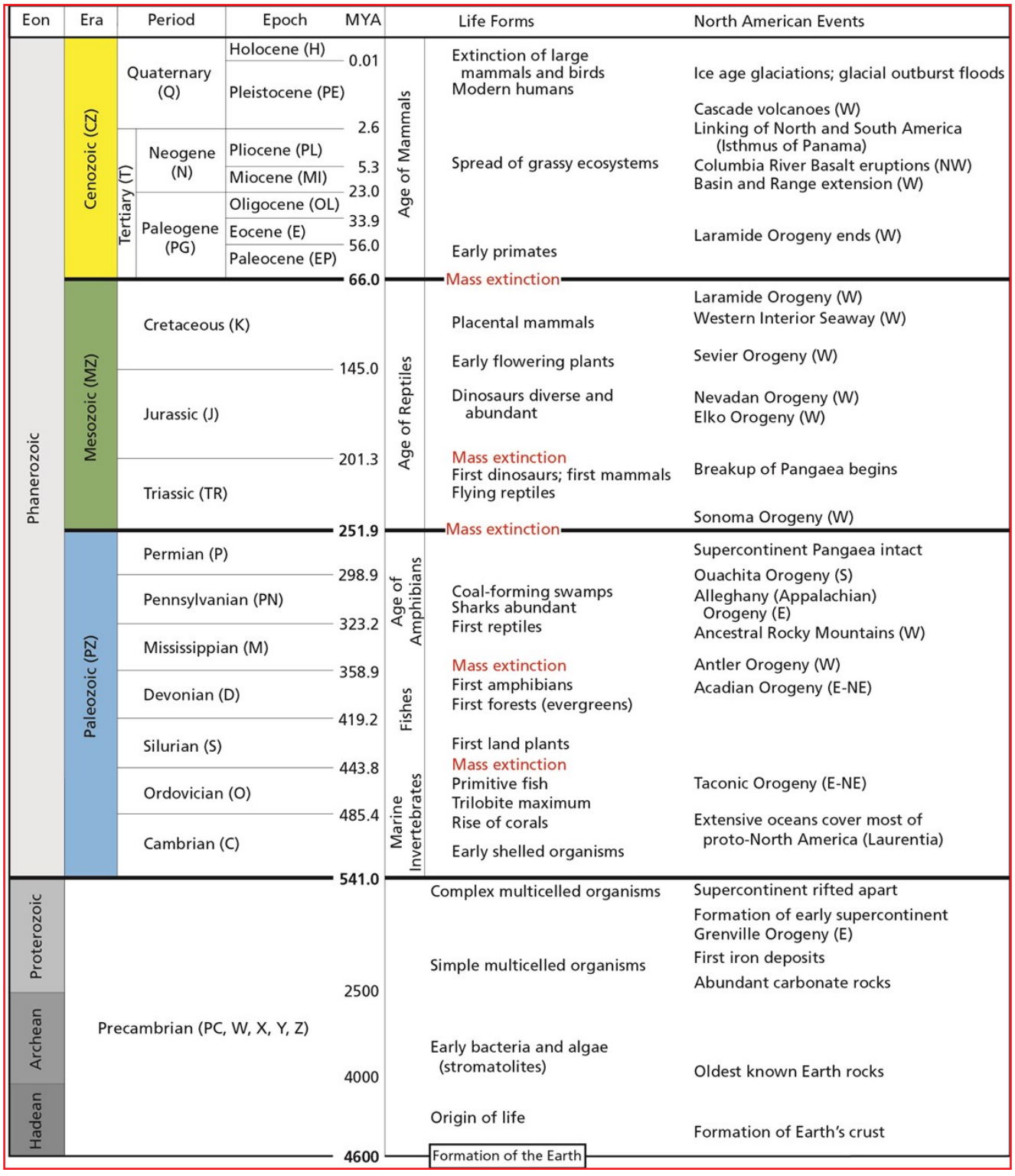
Note:

- **Designation Process**: UNESCO Global Geoparks are designated for **four years**, after which they undergo **revalidation**.
  - **Green Card**: Awarded if the area **continues to meet** the criteria.
  - **Yellow Card**: Issued if the area **no longer meets the criteria**, allowing two years for improvement.
  - **Red Card**: Issued if the area **fails to meet** the criteria within two years after a yellow card, leading to loss of status.
- **Global Presence**: As of now, there are a total of **213 UNESCO Global Geoparks across 48 countries** but **India has no** Global Geoparks. E.g., **Dali-Cangshan UNESCO Global Geopark in China.**
- **Diversity:** Geo heritage sites can include **volcanic formations, fossil-rich areas, caves, mountain ranges, glacial features**, and mineral-rich regions.

What are Key Facts About Dinosaurs?

- **About:** Dinosaurs are prehistoric reptiles that have lived on Earth from **about 245 million years ago** to the present.
  - **Modern birds** are considered a type of **dinosaur** due to sharing a common ancestor with **non-avian dinosaurs**.
- **Size:** Some dinosaurs were **massive**, such as ***Argentinosaurus***, weighing up to **110 tons.**
  - The **smallest** were tiny species, such as the **bee hummingbird**, which is still a **bird descendant** of dinosaurs.
- **Classification:** Dinosaurs are classified into **three major groups.**
  - **Ornithischia**: Beaked **plant-eaters**, including Stegosaurus and Triceratops.
  - **Sauropodomorpha**: Long-necked, **large-bodied herbivores** like Diplodocus.
  - **Theropoda**: **Carnivorous dinosaurs** like *Tyrannosaurus rex* and *Velociraptor*, including the ancestors of modern birds.
- **Period:** Most dinosaurs lived during the **Mesozoic Era (245 to 66 million years ago)**, which is divided into **three periods.**
  - **Triassic (252-201 million years ago)**: Reptiles evolved into dinosaurs on the supercontinent **Pangaea**.
  - **Jurassic (201-145 million years ago)**: Earth cooled, leading to **more plants and dinosaurs,** including *Brachiosaurus*.
  - **Cretaceous (145-66 million years ago)**: More continents formed, and **dinosaur diversity increased,** including the ***Tyrannosaurus Rex* and *Velociraptor***.
- **Diet and Movement**: **Meat-eaters** walked on **two legs** and hunted alone or in groups whereas **plant-eaters** walked on **two or four legs** and grazed on plants.
- **Distinctive Feature**: The key feature that distinguishes dinosaurs from other reptiles is a **hole in the hip socket**, allowing them to **walk upright**.
  - ***Pterosaurs*** (flying reptiles) and ***plesiosaurs*** (ocean-dwelling reptiles) do not have the hip socket feature and are **not classified as dinosaurs.**
- **Extinction**: Dinosaurs went extinct **around 66 million years ago** after a massive asteroid impact during the ***Cretaceous period* (145 million to 66 million years ago)**.
  - The asteroid collision with Earth created an **impact crater over 110 miles (180 km)** wide in the **Yucatan Peninsula**, now located in **Mexico.**

Note:


Eon
Era
Period
Epoch
MYA
Life Forms
North American Events
Phanerozoic
Cenozoic (CZ)
Quaternary (Q)
Holocene (H)
0.01
Pleistocene (PE)
2.6
Tertiary (T)
Neogene (N)
Pliocene (PL)
5.3
Miocene (MI)
23.0
Paleogene (PG)
Oligocene (OL)
33.9
Eocene (E)
56.0
Paleocene (EP)
66.0
Age of Mammals
Extinction of large mammals and birds
Modern humans
Ice age glaciations; glacial outburst floods
Cascade volcanoes (W)
Linking of North and South America (Isthmus of Panama)
Spread of grassy ecosystems
Columbia River Basalt eruptions (NW)
Basin and Range extension (W)
Laramide Orogeny ends (W)
Early primates
Mass extinction
Mesozoic (MZ)
Cretaceous (K)
145.0
Jurassic (J)
201.3
Triassic (TR)
251.9
Age of Reptiles
Laramide Orogeny (W)
Western Interior Seaway (W)
Placental mammals
Early flowering plants
Sevier Orogeny (W)
Dinosaurs diverse and abundant
Nevadan Orogeny (W)
Elko Orogeny (W)
Mass extinction
First dinosaurs; first mammals
Flying reptiles
Breakup of Pangaea begins
Sonoma Orogeny (W)
Mass extinction
Paleozoic (PZ)
Permian (P)
298.9
Pennsylvanian (PN)
323.2
Mississippian (M)
358.9
Devonian (D)
419.2
Silurian (S)
443.8
Ordovician (O)
485.4
Cambrian (C)
541.0
Age of Amphibians
Supercontinent Pangaea intact
Ouachita Orogeny (S)
Coal-forming swamps
Sharks abundant
First reptiles
Alleghany (Appalachian) Orogeny (E)
Ancestral Rocky Mountains (W)
Mass extinction
Antler Orogeny (W)
Fishes
First amphibians
First forests (evergreens)
Acadian Orogeny (E-NE)
First land plants
Mass extinction
Marine Invertebrates
Primitive fish
Trilobite maximum
Taconic Orogeny (E-NE)
Rise of corals
Extensive oceans cover most of proto-North America (Laurentia)
Early shelled organisms
Proterozoic
Archean
Hadean
Precambrian (PC, W, X, Y, Z)
2500
4000
4600
Complex multicelled organisms
Supercontinent rifted apart
Formation of early supercontinent
Grenville Orogeny (E)
Simple multicelled organisms
First iron deposits
Abundant carbonate rocks
Early bacteria and algae (stromatolites)
Oldest known Earth rocks
Origin of life
Formation of Earth's crust
Formation of the Earth

■■■

Note:

Security

Highlights

- *Adaptive Defence for Emerging Security Challenges*

Adaptive Defence for Emerging Security Challenges

Why in News?

Recently, India's Defence Minister advocated to create an **"Adaptive Defence"** in the country to counter the **new security challenges** posed by the **fast-changing world.**

- He also said India is working on **emerging technologies** in face of diverse challenges.

What is Adaptive Defence?

- **About Adaptive Defence:** It is a strategic approach where a nation's **military and defence** mechanisms **continuously evolve** to counter emerging threats.
  - It focuses on **anticipating future threats,** rather than merely reacting to past or current ones.
- **Key Elements of Adaptive Defence:**
  - **Situational Awareness:** The ability to **understand and respond** to dynamic environments.
  - **Flexibility:** Both at strategic and tactical levels to ensure **timely and effective responses.**
  - **Resilience & Agility:** The ability to **recover and adapt** quickly to changing circumstances.
  - **Integration with Emerging Technologies:** Emphasising the need for adaptive defence to **incorporate emerging technologies**.
  - **Joint Military Vision:** Evolution of **joint military strategies** to address future threats, involving not just national military forces, but also **strategic international cooperation.**
- **Evolution of Warfare:**
  - **Grey Zone & Hybrid Warfare:** Traditional notions of war are changing due to new threats such as **cyber-attacks and terrorism**. Modern warfare now includes non-traditional elements, demanding **continuous adaptation.**
  - **Technological Transformation:** Emerging technologies like **Artificial Intelligence (AI), drones, and swarm technologies** are reshaping warfare and defence strategies.
    - **Swarm technology** allows **drones, satellites, or spacecraft** to work together in a **coordinated** way using **decentralised control, automation, and self-organisation.**
  - **Psychological Warfare: Manipulating, disrupting, or controlling information** to influence public opinion, deceive, or disrupt the decision-making processes of governments.
- **Government Initiatives for Adaptive Defence:**
  - **Institutional Strengthening:** Creation of the **Chief of Defence Staff**, promoting jointness among services, and reforming training curricula.
  - **Focus on Self-Reliance:** Strengthening India's defence capabilities through initiatives like the **Make in India programme** and the **Aatmanirbhar Bharat** campaign.
  - **Drone Hub Vision:** India aims to become a **global hub for drones,** with initiatives supporting the domestic drone industry and fostering innovation.
  - **Theaterisation of Armed Forces:** It will integrate the **army, air force and navy** into one architecture, ensuring tri-services synergy and jointness.
  - **Positive Indigenisation List**
  - **Increased FDI in Defence Sector**
  - **Technology Development Fund (TDF)**
  - **iDEX Scheme**

Note:

Note:

- **Grey Zone Warfare:** It involves tactics and strategies that are **below the threshold of full-scale conflict** but still pose **significant risks** to national security. E.g., **cyberattacks, covert influence operations, and espionage.**
- **Hybrid Warfare:** It integrates both **kinetic (physical) and non-kinetic (psychological, cyber, economic)** means of warfare to achieve strategic goals. E.g., a mix of regular **military forces** (conventional) and irregular forces, such as i**nsurgents, mercenaries, or proxy forces** (unconventional).
- **Asymmetric Warfare: Terrorist groups, insurgents**, and other **non-state** actors often rely on unconventional tactics, like **guerrilla warfare and suicide bombings**, to challenge superior military forces. E.g., **Hamas attack on Israel.**

What are New Security Challenges for India?

- **Emerging Technologies:**
  - **Artificial Intelligence (AI):** AI in military applications can manipulate **early warning systems**, and develop new weapons.
  - **Synthetic Biology:** Combination of **biology, engineering, and technology** can design and develop **biological weapons** or even new life forms with harmful effects.
  - **Cybersecurity:** Cyberattacks can debilitate **critical infrastructure** such as **nuclear facilities,** military systems, and intelligence networks.
- **Autonomous Weapons:**
  - **Lethal Autonomous Weapons (LAWs):** **LAWs** can independently **identify, target, and engage threats** without human intervention using **AI and machine learning.**
  - **Unmanned Underwater Vehicles (UUVs):** They are capable of **military surveillance, mine detection,** scientific research, and underwater mapping.
- **Hypersonic Missiles:** **Hypersonic weapons** can avoid **radar detection** and adjust their own path, making them hard to defend against.
- **Space Warfare:** **Space militarisation** could disrupt or destroy satellite systems and other space based services like **communication, navigation systems** etc.
- **Terrorism:** Drones can bypass traditional defence systems **surveillance, targeted attacks, or the delivery of explosives.**
- **Geopolitical Tensions:** China-US tensions, **Ukraine War**, nuclear threats in hotspots like Korea and the **South China Sea** can have significant implications for regional stability.
- **Environmental Security:** Rising temperatures, **sea-level changes**, and extreme weather events can lead to new security challenges, including the **displacement of populations** and resource-based conflicts.
- **Global Security Architecture:** The traditional dominance of the **United States** is being challenged by the rise of **China.**
  - It could lead to a **power vacuum**, encouraging instability in various regions, especially in the **Middle East, Africa, and Eastern Europe**.

What are India's Initiatives in Promoting Emerging Technologies?

- **Artificial Intelligence (AI):**
  - **AIRAWAT (AI Research, Analytics, and Knowledge Dissemination Platform):** **AIRAWAT** provides a **common compute platform** for AI research across various sectors, facilitating access for **technology hubs, start-ups and research labs**.
  - **IndiaAI Mission:** The **IndiaAI Mission** aims to democratise AI access, develop indigenous AI capabilities, and attract top AI talent through initiatives like **AI Compute Capacity, and AI Innovation Centers.**
  - **Global Partnership on Artificial Intelligence (GPAI):** India is a founding member of **GPAI**, an initiative focused on the **responsible development of AI** with an emphasis on **human rights**, inclusion, and innovation.
- **Internet of Things (IoT):** **IoT Centres of Excellence** have been established at **Bengaluru, Gurugram, Gandhinagar, and Visakhapatnam** to support start-ups and enterprises in **IoT, Big Data, AI, and Robotics**.

Note:

- **Virtual Reality and Augmented Reality (VR/AR):** The **Centre of Entrepreneurship for Virtual and Augmented Reality (VARCoE)** has been established at **IIT Bhubaneswar** for VR/AR innovation and skill development.
- **Blockchain Technology:** **National Strategy on Blockchain** has been formulated to create a **secure, transparent digital service delivery** to citizens and businesses.
- **Robotics:** An **Inter-Ministerial Committee for Robotics** was constituted to support the domestic robotics industry.
- **Quantum Technology:** **National Mission on Quantum Technologies and Applications (NMQTA)** was launched to develop **intermediate-scale quantum computers** with **50-1000 physical qubits in 8 years**.

■■■

Miscellaneous

Highlights

- *QS World University Rankings: Asia 2025*

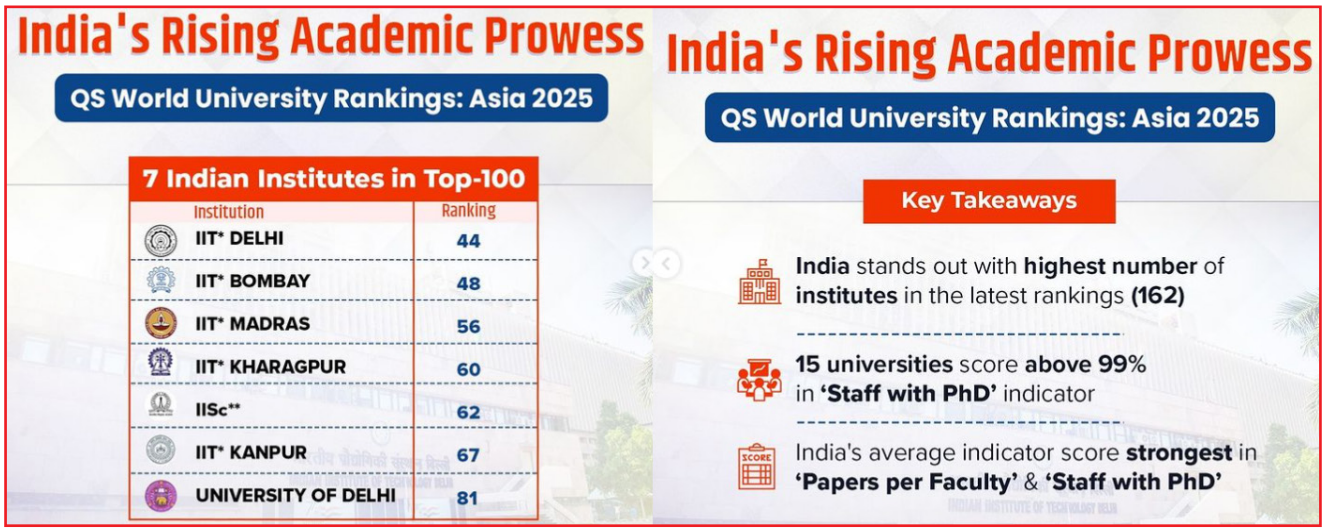
QS World University Rankings: Asia 2025

Why in News?

The Quacquarelli Symonds (QS) **World University Rankings: Asia 2025** highlights India's growth in higher education, with **2 institutions in the top 50** and **7 in the top 100**. This reflects the growing competition of Indian institutions across Asia.

How is India Performing in the QS Asia Rankings?

- **Upward Trajectory in Higher Education:** India has 2 institutions in the top 50, with **Indian Institute of Technology Delhi (IIT-D) ranked 44th** and **IIT Bombay ranked 48th,** underscoring their prominence in Asia's higher education.
  - Additionally, 5 Indian institutions are in the top 100, **IIT Madras (56th), IIT Kharagpur (60th), Indian Institute of Science (62nd), IIT Kanpur (67th)**, and **University of Delhi (81st)**.
  - Other Notable Institutions like IIT Guwahati, IIT Roorkee, Jawaharlal Nehru University, Chandigarh University, and Vellore Institute of Technology highlight India's academic excellence, with many of these institutions securing spots in the **Top 150 globally.**
- **Key Factors Behind the Rise in India's Rankings:** India's strong performance is driven by **high research productivity,** with institutions like Anna University excelling in **Papers Per Faculty.**
  - A focus on **academic excellence** is also evident, with many universities boasting high PhD staff, while growing **international research networks,** like the University of Delhi's rise in rankings, enhance global recognition.



Note:

Implications of the QS University Rankings for India's Education Sector

- **Global Recognition:** Indian universities' improved rankings enhance their global reputation, attracting international students and faculty. This recognition helps position **India as a hub for higher education.**
  - India's educational sector has grown substantially, with **46 institutions** making it to the QS World University 2025, up from just **11 in 2015**, marking a **318% increase** in the last decade.
- **Increased FDI:** Enhanced educational standards and **global recognition can lead to increased** Foreign Direct Investment(FDI) in the education sector, boosting the economy and creating more job opportunities.
- **Improved Academic Standards:** The pursuit of higher rankings encourages Indian universities to improve their academic standards, including curriculum development, teaching methodologies, and educational policies like the National Education Policy (NEP) 2020. This leads to a more robust and competitive educational framework.

Quacquarelli Symonds

- **Quacquarelli Symonds (QS)** is a London-based global higher education analyst best known for its widely recognized QS World University Rankings.
- It assesses universities based on **six indicators** looking at four broad categories: research reputation, the learning and teaching environment, research impact, and internationalisation.

Note:

Rapid Fire Current Affairs

Highlights

- *Partnerships for Accelerated Innovation and Research*
- *Booker Prize 2024*
- *Indian Military Heritage Festival and Project Shaurya Gatha*
- *Sea Ranching Initiative to Boost Marine Fisheries*
- *HP Parliamentary Secretaries Act, 2006*
- *Lightning Rods and Lightning Strikes*
- *Anti-Dumping Duty on Epichlorohydrin Imports*
- *Titan Arum Flower*
- *Global Nature Conservation Index 2024*
- *Gluten*
- *AUSTRAHIND*
- *Antariksha Abhyas 2024*
- *LignoSat*
- *Accessibility for Disabled Persons*
- *H5N1 Reassortant Virus*
- *Acute Famine Conditions in Rakhine*
- *Acharya J. B. Kripalani*
- *National Education Day 2024*
- *Donald Trump 47th President of the US*
- *No Midway Changes in Recruitment Criteria*
- *G20 Pandemic Fund*
- *Digital Population Clock*
- *Namo Drone Didi*
- *Brazil Declines Belt and Road Initiative*
- *Adoption Awareness Month*
- *LMV Licence for Transport Vehicles*
- *PM-Vidyalaxmi Scheme*
- *3rd Edition of MAHASAGAR*
- *DCGI's New Regulations for Imported Cosmetics*
- *Differential Rotation of the Sun*
- *India Bids to Host the 2036 Olympics*
- *Birth Anniversary of Chittaranjan Das*
- *Balfour Declaration*
- *Mount Lewotobi*
- *Elephant Casualties in Bandhavgarh Tiger Reserve*
- *Centralised Asset Liquidation Auction Platform*
- *Diffraction Limit*
- *Civil Registration System (CRS) Mobile Application*
- *US Sanctions Indian Firms for Supporting Russia's War Efforts*
- *India's First Biomanufacturing Institute*
- *Nabhmitra Application*
- *Ballon d'Or Award 2024*
- *SC: Doctors Not Negligent for Poor Outcomes Alone*
- *New Guidelines for Import of Seaweeds*
- *Mule Accounts for Money Laundering*
- *SC Expands Rights for Disabled in Medical Admissions*
- *Mhadei Wildlife Sanctuary*

Partnerships for Accelerated Innovation and Research

The **Anusandhan National Research Foundation (ANRF)** has launched the **Partnerships for Accelerated Innovation and Research (PAIR) Program** to enhance **research capabilities in Indian universities.**

- **Objective:** PAIR aims to enhance university research by using a **hub-and-spoke model,** pairing **top-tier universities (hubs)** with **emerging institutions (spokes)** for mentorship and collaboration.
  - Hub institutions, including top 25 **National Institutional Ranking Framework (NIRF)**-ranked universities and top 50 Institutions of National Importance will mentor spoken institutions(central and state public universities) with limited research infrastructure.
- **Aligned with NEP 2020:** Aligned with **National Education Policy (NEP) 2020,** PAIR bridges research gaps, promotes regional diversity, and fosters innovation across India's universities.
- **ANRF:** It has been established with **ANRF 2023 Act**, it acts as an **apex body to provide high-level strategic**

Note:

direction of scientific research in the country as per recommendations of the NEP.

- With the establishment of ANRF, the **Science and Engineering Research Board (SERB)** established by an act of Parliament in 2008 has been subsumed into ANRF.

Read more: India's Research and Development Landscape

Booker Prize 2024

Recently, British author **Samantha Harvey** won the Booker Prize 2024 for her novel ***Orbital***.

- ***Orbital*** is the **first space boo**k to win the Booker Prize.
- It explores Earth through the experiences of six astronauts aboard the International Space Station (ISS), witnessing **16 sunrises and sunsets daily.**
- **It** is the **second-shortest novel** in Booker Prize history, with the shortest being ***Offshore by Penelope Fitzgerald*** **(132 pages).**
- Harvey is the first woman to win the Booker Prize **since Margaret Atwood in 2019.**
- **The Booker Prize:** Established in the **UK in 1969.**
  - **Awarded annually** to the best **sustained work of fiction.**
  - Initially awarded to writers from Commonwealth nations. Now open to writers worldwide, regardless of origin.
  - Must be **written in English** and **published in the UK or Ireland.**

Read More: International Booker Prize 2024

Indian Military Heritage Festival and Project Shaurya Gatha

Recently, Chief of Defence Staff (CDS) General Anil Chauhan inaugurated the **2nd Indian Military Heritage Festival (IMHF)** in New Delhi. The event also launched **Project Shaurya Gatha**, focusing on conserving and promoting **India's military heritage**.

- **IMHF** aims to enhance awareness of India's military history, strategic culture, and self-reliance in defence.
  - **Participants** include think tanks, public/private sector entities, non-profits, academicians, research scholars, National Cadet Corps (NCC), and youth organisations focusing on India's national security, foreign policy, military history, and heritage.
- Project Shaurya Gatha, in partnership with the Department of Military Affairs and the United Service Institution (USI) of India, seeks to preserve and promote military heritage through education and tourism initiatives.
  - **USI is a national security and defense services think tank** based in New Delhi, India.
- **CDS:** Its creation was recommended in 2001 by a **Group of Ministers (GoM)** that was tasked with studying the **Kargil Review Committee (1999)** report.
  - **General Bipin** Rawat was the **first CDS** in the country and was appointed in 2019.

Read more: Saksham Bharat: Project Udbhav | Indian Army Exploring India's Military Heritage

Sea Ranching Initiative to Boost Marine Fisheries

The Kerala Fisheries Department launched a **sea ranching project** off Thiruvananthapuram, with 10 lakh **pompano and cobia fingerlings (marine fish species)** to be released at 10 coastal locations to replenish **marine fishery resources and support sustainable fishing**.

- Sea ranching, or ocean ranching, is a type of **fish farming where juvenile fish are released into the ocean** to grow naturally without protection or assistance before being harvested.
- The project follows the artificial reef **initiative** under the Pradhan Mantri Matsya Sampada Yojana (PMMSY), aimed at enhancing marine biodiversity.
  - **Artificial reefs** deployed at **42 locations** in Thiruvananthapuram have attracted various fish species like tuna, trevally, and mackerel.
- Future phases of the project propose expanding artificial reefs to **96 villages** in Kerala.
- PMMSY was launched by the Department of Fisheries; Ministry of Fisheries, Animal Husbandry, and Dairying; to bring about **ecologically healthy, economically viable, and socially inclusive development** of the fisheries sector of India.

Note:

Objectives of PMMSY

PMMSY Objectives

- Harness the potential of the fisheries sector in a sustainable, responsible, inclusive and equitable manner
- Enhance fish production and productivity through expansion, intensification, diversification and productive utilization of land and water
- Modernize and strengthen the value chain including post-harvest management and quality improvement
- Double fishers and fish farmers' incomes and generate meaningful employment
- Enhance the contribution of the fisheries sector to Agricultural GVA and exports
- Ensure social, physical and economic security for fishers and fish farmers
- Build a robust fisheries management and regulatory framework

Targets of PMMSY

Fish Production and Productivity

- Increasing fish production to 22 million metric tons by 2024-25 from 13.75 million metric tons in 2018-19.
- Enhancing aquaculture productivity to 5 tons per hectare from the current national average of 3 tons.
- Augmenting domestic fish consumption from 5 kg to 12 kg per capita.

Economic Value Addition

- Increasing contribution of fisheries sector to the Agriculture GVA to about 9% by 2024-25 from 7.28% in 2018-19.
- Doubling export earnings to Rs.1,00,000 crores by 2024-25 from Rs.46,589 crores in 2018-19.
- Facilitating private investment and growth of entrepreneurship in the fisheries sector.
- Reduction of post-harvest losses from the reported 20-25% to about 10%.

Enhancing Income and Employment Generation

- Generating 55 lakh direct and indirect employment opportunities along the value chain.
- Doubling the incomes of fishers and fish farmers.

Read more: Pradhan Mantri Matsya Sampada Yojana

HP Parliamentary Secretaries Act, 2006

The **Himachal Pradesh High Court (HP HC)** recently quashed the HP Parliamentary Secretaries (Appointment, Salaries, Allowances, Powers, Privileges & Amenities) Act (HPPSA), 2006 which had allowed the state government to appoint Members of the Legislative Assembly (MLAs) as **Chief Parliamentary Secretaries (CPS).**

- The Court ruled that the HPPSA, 2006, was beyond the **legislative competence of the State Legislature,** making the law unconstitutional.
- The HPPSA, 2006, was found to violate **Article 164(1-A)**, which **limits the size of a cabinet and its composition.**
  - Article 164(1-A) states that the total number of Ministers, including the Chief Minister, in the Council of Ministers in a **State shall not exceed 15%.**
- The Court noted that **CPS performed tasks similar to ministers**, with similar perks, access to official files, and involvement in decision-making, despite lacking formal powers.
- Additionally, the **"office of profit"** clause prevents public office holders from using their position to **gain additional benefits.** The creation of positions like CPS, when not backed by constitutional provision, is **seen as a violation of this clause.**
- The Court emphasised that the difference between ministers and parliamentary secretaries was artificial and went against constitutional rules.
- The HP HC ordered the government to immediately end the CPS appointments and revoke all associated privileges.
- Earlier, the Supreme Court has consistently struck down the creation of parliamentary secretary posts in states like West Bengal, Punjab, Goa, and Assam, ruling them **unconstitutional for bypassing the 15% ceiling on the Council of Ministers.**

Read more: Himachal Pradesh's Bill to Raise Women's Minimum Marriage Age to 21

Lightning Rods and Lightning Strikes

The **frequency and intensity** of lightning strikes are rising globally, driven by climate change- **induced** increases in **temperatures** and **atmospheric moisture**, as warm air and moisture promote cloud formation and **charge separation**.

- **About Lightning Strikes:** Lightning is a **natural electrical discharge** that occurs during storms due to a buildup of **static electricity** in the atmosphere.

Note:

- This buildup happens when **water droplets in clouds freeze into ice crystals,** which **rub against each other**, generating a static charge that ultimately results in lightning strikes.

➢ **About Lightning Rod:** A **lightning rod** is a **conductive object** installed at the **highest point of a structure** to attract lightning and provide a **controlled path for its discharge**.

- Lightning moves towards the object with the **highest electric potential**.
- The shape of the **rod** creates a **stronger electric field**, ionising the air around it and providing a **route for the current to flow**. The rod directs lightning into the ground, where the earth safely absorbs and dissipates the charge.

Read More: **Lightning in India**

Anti-Dumping Duty on Epichlorohydrin Imports

India recently imposed an **Anti-Dumping(AD) duty** of up to USD 557 per tonne on **Epichlorohydrin imports** from China, Korea, and Thailand to protect domestic industries from cheap imports.

➢ Epichlorohydrin, a **colourless liquid with a strong garlic-like odour**, is used in producing glycerol, elastomers, **adhesives,** and as a solvent for resins, paints, and lacquers.

➢ The **Department of Revenue,** acting on recommendations from the **Directorate General of Trade Remedies (DGTR),** imposed a **five-year anti-dumping duty** on Epichlorohydrin imports.

➢ AD duties are enforced as a protective measure under the multilateral **regime of Geneva-based World Trade Organization (WTO)** to ensure fair trade practices.

- The **Agreement on Implementation of Article VI of the General Agreement on Tariffs and Trade** 1994 (the "AD Agreement") governs the application of **anti-dumping measures by Members of the WTO including India.**
- AD measures are unilateral actions taken by a member after investigating and determining that **dumped imports harm a domestic industry,** in line with the AD Agreement.

➢ India has previously applied anti-dumping duties on various products to curb low-cost imports from other countries, especially **China**.

WTO Framework on Trade Remedies

	Global Safeguards	Anti-Dumping measures	Countervailing Duties
Legal Basis	• GATT Article XIX	• GATT Article VI • Agreement on Implementation of Article VI (AD Agreement)	• WTO Agreement on Subsidies and Countervailing Measures
Objectives and Features	• Create "breathing room" for domestic industry struggling with increasing imports • MFN based import restrictions • No allegations about unfair trade	• Protect domestic industry from imports sold "at less than the normal value of the products" • Departure from MFN principle • It's about the "unfair" (pricing) practices of individual firms	• Protect domestic industry from effects of another country's export subsidies actions • Departure from MFN principle • It's about the "unfair" (subsidies) practices of governments
Measures	• Supplementary tariffs beyond bound MFN rates	• Supplementary tariff beyond bound MFN rates targeted at particular foreign firms based on difference between the import price and the "normal" value	• Supplementary tariff beyond bound MFN rates based on the value of the subsidy provided by the government of the exporting country
Criteria	• Imports must be rising (absolute) • Imports are causing "*serious*" injury to the domestic industry	• Dumping, thus pricing below (1) production cost or (2) market price • Imports are causing "*material*" injury to the domestic industry	• Specific subsidies (financial contribution) by foreign governments that are exported • Imports are causing "*material*" injury to the domestic industry

Read more: **Anti-Dumping Duty**

Note:

Titan Arum Flower

Recently, the **Titan Arum flower**, one of the world's largest flowers, bloomed in **Australia**. It grows over **10 feet tall** and blooms once a decade.

- **Structure:** It has a **tall, pale yellowish phallic structure** rising from the **centre**.
  - The base of the flower has a **'corm'** which is an **underground energy-storing structure** that supports its **10 year bloom cycle** and **6-month fruiting period**.
- **Uniqueness:** It mimics the **stench of rotting flesh** to attract its **pollinators — carnivorous bees and flies** that feed on corpses.
  - Pollination by flies on **rotten meat-smelling plants** is called **Sapromyophily**.
- **Habitat:** It blossoms on **limestone hills** in the rainforests of western Sumatra, **Indonesia**. It **doesn't** bloom in the **wild in Australia.**
- **IUCN Status:** The species has fewer than **1,000 individuals** left in the wild, and is listed as **'endangered'.**
- **Other Similar Flowers:** ***Rafflesia arnoldi*** (largest individual flower in the world), *Dracunculus vulgaris, Stapelia gigantea, Hydnora africana* and *Helicodiceros muscivorus*.

Read More: New Parasitic Plant Discovered in Nicobar Islands

Global Nature Conservation Index 2024

India ranks 176th in the **2024 Global Nature Conservation Index**. It is **among the five lowest-ranked countries**, along with Kiribati (180), Turkey (179), Iraq (178), and Micronesia (177), out of 180 nations.

- India's low ranking is due to **inefficient land management** and increasing **biodiversity threats.**
- **About Nature Conservation Index (NCI):**
  - It is developed by the Goldman Sonnenfeldt School of Sustainability and Climate Change at **Ben-Gurion University and BioDB.com**, a biodiversity database.
  - The **first NCI was launched in October 2024** to evaluate conservation efforts.
  - It assesses **four key markers:** land management, biodiversity threats, capacity and governance, and future trends.
- **Observation of the NCI:**
  - **Sustainable land use** is crucial, as 53% of land is converted for urban, industrial, and agricultural purposes.
  - The index **highlights high pesticide use and warns about soil pollution,**
  - Marine conservation needs improvement, with only 0.2% of national waterways protected and none within India's Exclusive Economic Zone (EEZ).
  - **India** ranks as the **fourth-largest illegal wildlife trading nation globally,** with annual sales totaling approximately 15 billion Euros.
  - **Deforestation** resulted in the loss of 23,300 sq. km of tree cover between 2001 and 2019.
  - India's **ecological wealth** is constantly **threatened** by **overpopulation.**

Read More: Environmental Performance Index 2024

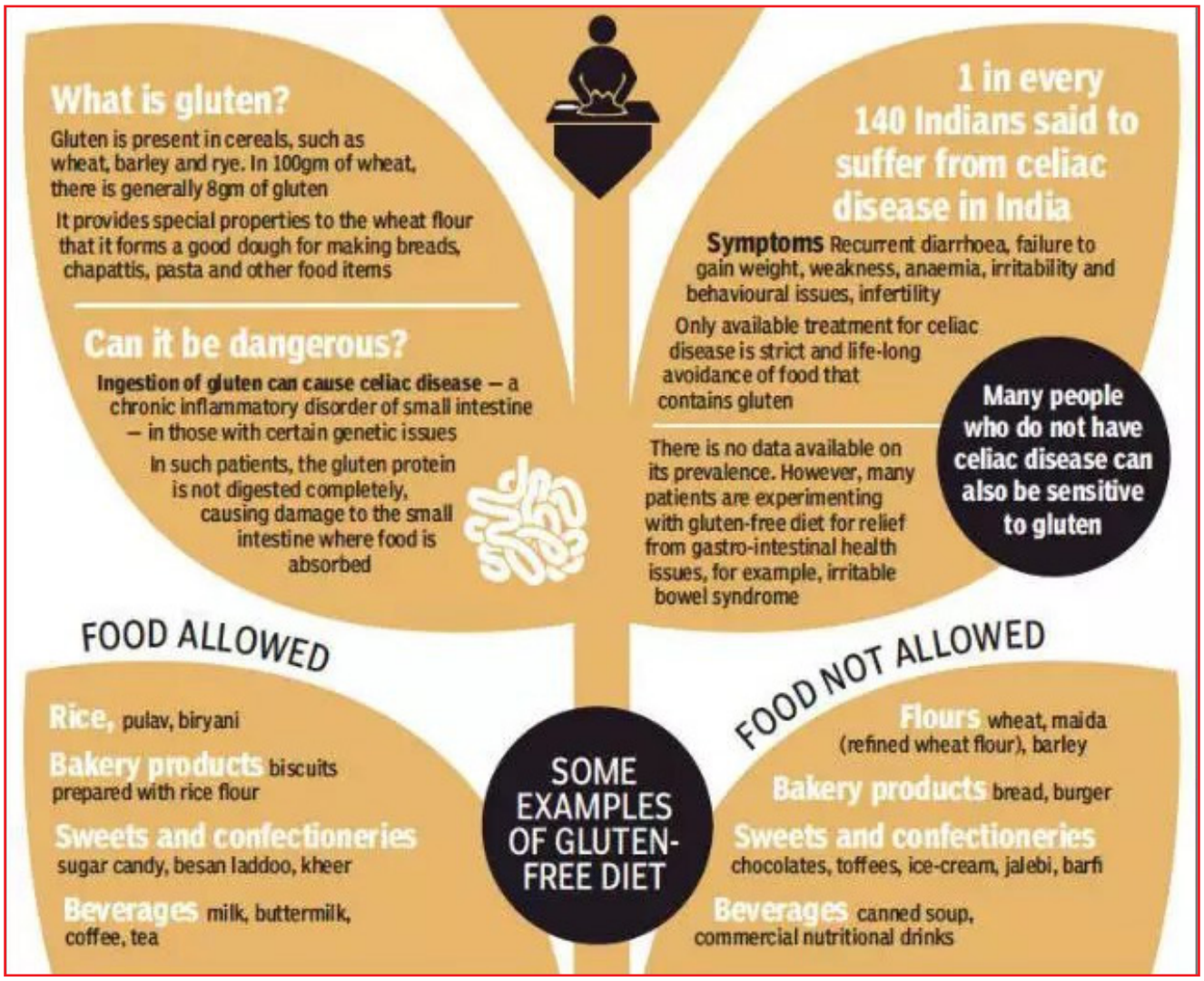
Gluten

Gluten, a protein complex primarily found in **wheat, barley, and rye**, is celebrated for its utility in the food industry but is infamous for causing gluten-related disorders like coeliac disease, a condition affecting **around 2%** of the population.

- Gluten is composed of proteins, mainly gliadins and glutenins, formed when water is added to certain cereal flours.
  - It **provides elasticity to dough,** allowing it to rise and imparting chewiness to baked products.
  - Naturally found, it can be extracted, concentrated, and incorporated into food and other products to enhance protein content, texture, and flavor.
- Gluten resists complete digestion due to the enzyme protease being inefficient in breaking it down. Undigested **gluten may lead to gastrointestinal disorders.**
  - A **protease**, also called a **peptidase, proteinase, or proteolytic enzyme**, is an enzyme that degrades proteins into smaller **polypeptides or amino acids**.

Note:

- **Coeliac Disease** is an **autoimmune condition** triggered by gluten that damages the small intestine, prompting the immune system to produce a large number of antibodies that attack the body's own proteins.
  - Maintaining a diet very low in gluten is the only effective way to treat coeliac disease at present.



Read more: Celiac Disease - Drishti IAS

AUSTRAHIND

Recently, the 3rd edition of **Exercise AUSTRAHIND** commenced at the Foreign Training Node in Maharashtra, in November 2024.

- The exercise, conducted **annually**, alternates **between India and Australia**, aiming to enhance military cooperation and interoperability in joint operations.
- The exercise supports joint planning and sub-conventional operations in semi-urban, semi-desert terrain, focusing on counterterrorism, physical fitness, tactical drills, and high-level coordination as mentioned under **Chapter VII of the UN mandate**
- The exercise will be conducted in two phases – **combat conditioning and tactical training phase** and **validation phase.**

Note:

- The Exercise reflects growing defense cooperation under the **India-Australia Comprehensive Strategic Partnership (2020)**.
- Other Exercises between India and Australia are **AUSINDEX,** and PITCHBLACK**.**
- **Defence Cooperation between India and Australia:**
  - Mutual Logistics Support Agreement
  - Both are members of the **Quad**, **Commonwealth**, **Indian Ocean Rim Association (IORA), ASEAN Regional Forum, Asia Pacific Partnership on Climate and Clean Development,** and have participated in the **East Asia Summits.**

Read More: **Major Military Exercises of India**

Antariksha Abhyas 2024

Recently, the **Defence Space Agency** under the **Ministry of Defence** conducted India's first-ever **Space Exercise 'Antariksha Abhyas'** in New Delhi.

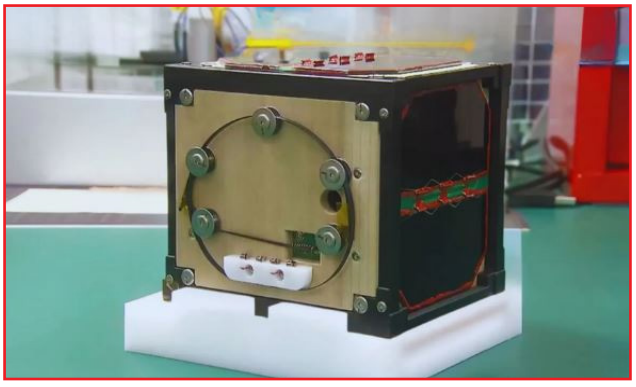
- **Objective:** Simulating and analysing **threats to and from space-based assets and services** to secure national strategic objectives in space.
- **Key Focus Areas:**
  - Enhancing **the integration of space capability** into military operations.
  - Providing a better **understanding** of operational dependencies on **space assets.**
  - Identifying vulnerabilities and handling disruptions or **denial of space-based services.**
- **Military Use of Space:** Armed forces use space capabilities for detecting **border infiltration, artillery movements and missile launches.**
- **India's Capability:** In **March 2019,** India successfully tested an **anti-satellite (ASAT) test** designed to **destroy or disable enemy satellites** in orbit under **Mission Shakti.**
- **Regulation:** According to the **Outer Space Treaty of 1967,** outer space should be used only for peaceful operations.
  - The **Kármán line, 100 kilometres** above mean sea level, is considered the **boundary** where **Earth ends and outer space begins**.

Read More: **India Beyond Earth**

LignoSat

The world's **first wood-panelled satellite, LignoSat,** was launched to test the **viability of timber** as a sustainable building material for future space missions.

- LignoSat, developed by Kyoto University and Sumitomo Forestry of Japan, is made with wooden panels crafted from a **magnolia tree** using traditional Japanese techniques, without screws or glue.
  - It incorporates traditional aluminium structures and electronics, with wood serving as a **casing material.**
  - The satellite aims to test wood's durability in **extreme space conditions** (temperatures ranging from -100°C to 100°C) and its ability to shield **semiconductors** from space radiation.
- Researchers believe wood could replace some metals in space exploration, drawing parallels to early **1900s wooden aeroplanes.**
  - Conventional satellites made of aluminium can damage the **ozone layer** when they **burn up in the atmosphere.** The growing number of satellites, including **mega-constellations,** raises concerns about **space pollution.**
    - LignoSat, made of magnolia instead of aluminium, may have an advantage as it wouldn't introduce damaging pollutants when it falls back to Earth.



Read more: **Outer Space: Innovation, Security, and Sustainability**

Note:

Accessibility for Disabled Persons

Recently, The Supreme Court affirmed that the **right to access environments, services, and opportunities** for persons with disabilities (PWDs) is a **human and fundamental right**.

- **Accessibility:** The court urged the government to create universal **accessible public and private spaces, services, and products** as mandated in **Rule 15** of the Rights of Persons with Disabilities Rules, 2017.
  - **Rule 15** of the Rights of Persons with Disabilities Rules, 2017 covers accessibility of **physical environment, transport, and information and communication technology**.
- **Legal Framework:** The Rights of Persons with Disabilities Act, 2016 aims to **protect and promote** the rights of persons with disabilities (PwDs).
  - It aims to give effect to the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), which India ratified in **2007**.
  - A person with a benchmark disability is defined as someone with **at least 40% of a specified disability.**
- Initiatives Related to the Empowerment of the Disabled: Assistance to Disabled Persons for Purchase/fitting of Aids and Appliances, Accessible India Campaign, and Unique Disability Identification Portal.

Read More: Enhancing Accessibility for Persons with Disabilities

H5N1 Reassortant Virus

Recently, **human cases** of **novel reassortant** H5N1 Bird flu virus were reported in **Cambodia.**

- The **novel reassortant virus** results from the mixing of **clade 2.3.2.1c**, which had been circulating in Southeast Asia, with the **global 2.3.4.4b clade**.
- **H5N1** is one of several influenza viruses that causes a highly infectious respiratory disease in birds called avian influenza **(or "bird flu").**
- **H5N1 bird flu** was first identified in **geese** in **China in 1996.**
  - It can **infect people** who work with **infected animals or their byproducts** (e.g., raw milk), such as dairy workers.
- The virus can spread from **infected mammals to humans** but does not transmit from **person to person**.
- The influenza virus is a **single-stranded** RNA virus with a **lipid-containing envelope**.
- Seasonal **influenza vaccines do not protect** against human infection with animal **influenza A viruses, including H5N1 viruses**.

Read More: H5N1 Bird Flu

Acute Famine Conditions in Rakhine

The United Nations Development Program (UNDP) has warned that Myanmar's Rakhine state, home to the Rohingya minority, is on the brink of an acute famine due to a combination of internal conflicts, economic collapse, and natural disasters.

- **Key factors for Acute Famine:** Blockades restricting goods, hyperinflation, lack of income, reduced food production, absence of essential services.
  - Predictions suggest domestic food production will cover only **20% of Rakhine's needs by March-April 2025.** Over 2 million people are at risk of starvation by March-April 2025 due to declining domestic food production.
  - The military-led government has limited humanitarian aid access, further exacerbating the crisis.
- Rakhine, the **westernmost state in Myanmar,** is one of the poorest regions, facing ongoing conflict, displacement, and poverty.
  - For decades, the **Rohingya, a Muslim ethnic minority in Myanmar,** have faced discrimination and exclusionary citizenship laws, leading to hundreds of thousands fleeing persecution.
  - In 2017, India signed a development program to help **Myanmar build housing infrastructure for displaced persons** in Rakhine State.
- UNDP was established in 1965 by the United Nations, aims to eliminate poverty and promote sustainable development, democratic governance, and climate resilience.

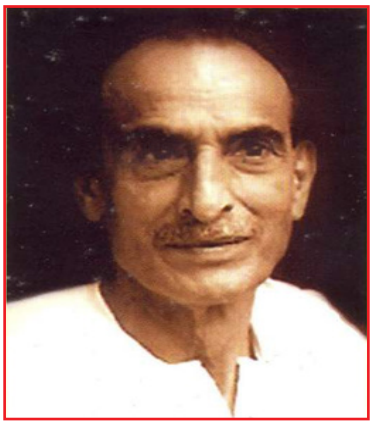
Note:

Read more: Ongoing Issues in Myanmar

Acharya J. B. Kripalani

The birth anniversary of Acharya Jiwantram Bhagwandas Kripalani is observed every year on **11th November.**

- **About:** Acharya Kripalani was born in Hyderabad (Sind, now in Pakistan) in 1888, was a prominent **parliamentarian, and crusader for social justice**.
  - He strongly supported **decentralised industrialization,** development of rural areas, and employment in small and **cottage industries.**
- **Role in Independence Movement:** Deeply inspired by Mahatma Gandhi's philosophy.
  - Kripalani actively participated in various movements like the **Champaran Satyagraha (1917), Kheda Satyagraha (1918), Ahmedabad Mill Strike (1918), and Salt Satyagraha(1930).**
  - Joined the Congress Party in the 1920s, became **President of the Indian National Congress in 1946.**
- **Contributions:** Kripalani served as a member of the Constituent Assembly and Chairman of the **Fundamental Rights Sub-Committee.**
  - Post-Independence he formed the **Krishak Mazdoor Praja Party (1951),** merged with Praja Socialist Party, and later became an independent member of Parliament.
  - He authored his autobiography ***My Times*** and ran the weekly journal ***Vigil***.
- **Death:** 19th March 1982.



Read more: Acharya Kripalani

National Education Day 2024

Recently, the **National Education Day (NED)** is observed annually on **11th November** to honour Maulana Abul Kalam Azad's birth anniversary and his contributions to India's educational landscape. As **India's first Education Minister**, he played a crucial role in establishing foundational institutions and advocating for accessible and inclusive education.

- The Government of India **first declared NED in 2008** to honour Azad's birth anniversary on 11th November 1888.
  - National Education Day emphasises education as a **fundamental right**, inspires reflection on Azad's principles, promotes **creativity and lifelong learning**, and sparks discussions on educational reforms in India.

Note:

- **Contributions of Abul Kalam Azad:**
  - He played a pivotal role in establishing the University Grants Commission (UGC) and All India Council for Technical Education (AICTE).
  - Founded the Council of Scientific and Industrial Research (CSIR), Sahitya Academy, Lalit Kala Academy, Sangeet Natak Academy, and the Indian Council for Cultural Relations (ICCR).
  - Launched **Indian Institute of Technology (IIT) Kharagpur**, laying the foundation for India's premier technical education institutions.

Read More: Abul Kalam Azad: National Education Day

Donald Trump 47th President of the US

The Prime Minister of India congratulated **Donald Trump** on his re-election as the **47th President of the United States.**

- Both leaders reiterated the importance of the India-U.S. Comprehensive Global Strategic Partnership, and reaffirmed their commitment to working together to further strengthen bilateral ties across technology, defence, energy, space and several other sectors.

Read more: The Future of India-US Partnership

Note:

No Midway Changes in Recruitment Criteria

Recently, the **Supreme Court** in the ***Tej Prakash Pathak vs Rajasthan High Court Case, 2013*** ruled that **recruitment rules** for government jobs **cannot be changed mid-process** unless explicitly allowed.

- It endorsed the principles laid down in ***K Manjusree v. State of Andhra Pradesh Case, 2008*** which held that **changing** recruitment criteria during the **selection process** is **impermissible.**
- The Court clarified that the ***K Manjusree case 2008*** cannot be ignored for not considering the ***State of Haryana vs Subhash Chander Marwaha Case, 1973*** ruling.
  - In the Marwaha case, the Court ruled that the **government may set higher standards midway** during the selection process if it serves the larger public interest.
- Recruitment rules must meet **constitutional standards** of equality (**Article 14**) and non-discrimination in public employment (**Article 16**).

Read More: **Important Judgements of Independent India**

G20 Pandemic Fund

In a significant move to bolster animal health and pandemic preparedness, **the government of India has announced a USD 25 million G20 Pandemic Fund** to develop holistic health coverage for livestock.

- The initiative comes in response to pandemics such as **Covid-19**, **which can transmit from animals to humans**.
- **About the Fund:**
  - Fund is developed in partnership with the **Asian Development Bank**, **World Bank**, and **Food and Agriculture Organisation (FAO)** and is planned to be utilized by August 2026.
  - The Fund aims to create a robust framework for monitoring and managing **zoonotic diseases**—**diseases that originate in animals and transfer to humans**.
- **Key Objectives:**
  - Upgrading and expanding animal health laboratories and developing laboratory networks.
  - Enhancing **disease surveillance**, including genomic and environmental monitoring for early warnings.
  - Strengthening **cross-border collaboration** for better disease management.
  - Creating a **disaster management framework** for the **livestock sector**.
- **India's Health Vulnerabilities:**
  - 60% of pathogens causing human diseases originate from domestic animals or wildlife.
  - 75% of emerging human pathogens are animal-derived.
  - India **scored 42.8 on the Global Health Security Index**, reflecting significant environmental risks and public health challenges.

Note:

G20 भारत 2023 INDIA

वसुधैव कुटुम्बकम्

ONE EARTH • ONE FAMILY • ONE FUTURE

Invitee Countries

- Bangladesh, Egypt, Mauritius, Netherlands, Nigeria, Oman, Singapore, Spain and UAE

India's Cultural Showcase

- **Bharat Mandapam** (inspired from **Anubhav Mandapam**)
- Bronze statue of **Lord Nataraja** (Chola style)
- **Konark Chakra** of Odisha's Sun Temple and Image of **Nalanda University** (used as iconic backdrops)
- **Thanjavur Paintings and Dhokra art**
- Brass statue of **Lord Buddha** sitting under Bodhi tree
- Diverse **musical heritage** (Hindustani, Folk, Carnatic, Devotional)

G20 Leaders' New Delhi Declaration

100% consensus on the Declaration

- Overcoming major differences on **Russia-Ukraine war**
  - Call for full implementation of **Black Sea Grain Initiative**
- Action Plan against **Fugitive Economic Offenders**
- Countering **terrorism** and **money laundering**
- Globally fair, sustainable, and modern **international tax system**
- Accelerating Progress on **SDGs**
- **Multilateral Institutions** (UNSC, Multilateral Development Banks etc)
- **Digital Public Infrastructure** (crypto, AI etc)
- **Gender equality** and women empowerment
- G20 Deccan **High-Level Principles on Food Security and Nutrition** 2023
- **Global Biofuel Alliance** formally launched

Other Major Outcomes

India- Middle East- Europe Economic Corridor

- Shipping & railway connectivity corridor **(India, UAE, Saudi, EU, France, Italy, Germany and US)** - part of Partnership for Global Infrastructure Investment

G20 now G21

- Permanent membership of **African Union** in G20 (in line with India as the **'Voice of the Global South'**)

Global Biofuel Alliance

- Led by **India, Brazil and US**
- Other Initiating Members - **Argentina, Bangladesh, Italy, Mauritius, S. Africa and UAE** (Canada and Singapore - observers)
- 19 countries and 12 int'l orgs agreed to join

Climate

- G20 **High-Level Principles on Lifestyles for Sustainable Development**
- Pledge to **3x RE capacity globally** by 2030
- **UK committed USD 2 bn** to Green Climate Fund

Drishti IAS

Read More: 18th G20 Summit in New Delhi

Note:

Digital Population Clock

Bengaluru's first **digital population clock** was inaugurated at the **Institute for Social and Economic Change (ISEC)** through a collaborative effort between **ISEC and the Union Ministry of Health and Family Welfare (MoHFW).**

- Similar digital population clocks are being installed in **18 Population Research Centres** across India by MoHFW.
- The clock provides **real-time population updates**, with **Karnataka's population** updating every **1 minute and 10 seconds**, and **India's** population **every 2 seconds.**
  - Its precision is maintained through **satellite connections**, which ensure accurate, **real-time data updates.**
- ISEC was established in **1972** as an **All India Institute for interdisciplinary research and training in social sciences**.

Read More: India's Demographic Potential

Namo Drone Didi

Recently, the **Department of Agriculture & Farmers Welfare (DoA&FW)** launched the **Namo Drone Didi Scheme**, aiming to empower 14,500 Women **Self-Help Groups (SHGs)** under the **Deendayal Antyodaya Yojana-National Rural Livelihood Mission (DAY-NRLM)** initiative through drone technology for agriculture services.

- **Objectives:**
  - **Empowerment of Women SHGs: Facilitate SHGs with drones** to provide rental services for applying fertilizers and pesticides, promoting technology adoption to enhance crop yields and reduce operational costs.
- **Key Features of the Scheme:**
  - Central financial assistance covers 80% of drone cost, up to Rs. 8 lakhs.
    - Additional funding options available through **Agriculture Infra Financing Facility (AIF)**.
  - Comprehensive package includes a drone with essential accessories (batteries, spray equipment, tools) and a one-year warranty.
  - Mandatory 15-day training to be provided to one of the members of women SHGs as a drone pilot and additional training for agriculture purpose for nutrient and pesticide application.
- **Governing Agencies**
  - **At Central Level:** Empowered Committee of the Secretaries from:
    - DoA&FW
    - Department of Rural Development
    - Department of Fertilizers
    - Ministry of Civil Aviation
    - Ministry of Women and Child Development.
  - **State-Level Implementation: Lead Fertilizer Companies (LFCs)** coordinate with state departments and SHGs for effective drone distribution and usage.

Note:

DRONE TECHNOLOGY

Drone is a pilotless flying machine, using aerodynamics for lift, can operate autonomously or remotely, and may carry lethal or nonlethal cargo.

COMPONENTS

- Unmanned aircraft (UA)
- Control system (ground control station - GCS)
- Control link (specialized datalink)
- Other related support equipment

CLASSIFICATION

(as per Drone Rules, 2021)

- Nano: <250 gm
- Micro: 250 gm to 2 kg
- Mini: 2 kg to 25 kg
- Small: 25 kg to 150 kg
- Large: >150 kg

APPLICATIONS

- **Mapping & Surveying** (asset Inspection, roof inspections)
- **Agriculture** (bird control, crop spraying & monitoring etc)
- Multispectral/thermal/NIR cameras, **Aerial Photo/ videography** and Live streaming events
- **Emergency Response** (search and rescue, marine rescue, fire fighting)
- **Disaster** (zone mapping, disaster relief etc)
- **Mining**
- **Monitoring Poachers**
- **Meteorology**, Aviation, Payload carrying

DRONES IN DEFENCE

Purpose

- Surveillance and Reconnaissance
- Search and Rescue
- Maritime Surveillance
- Combat Drones
- Offensive (heterogeneous SWARM drones)
- Counter-Terrorism Operations

India's Counter-Drone System

- **Indrajaal** (India's inaugural autonomous drone-defense dome)
- Procurement of combat-capable **Heron drones from Israel**
- Acquisition of **MQ-9B Armed Drones from the US**

RELATED REGULATIONS

- Aircraft (Security) Rules, 2023
- Drones Rules, 2021 and Drone (Amendment) Rules, 2022

INDIA'S INITIATIVES

- Digital Sky Platform
- No-Permission-No-Takeoff (NPNT) framework
- PLI Scheme for Drones
- Drone Shakti Scheme

ISSUES

- Increased risk of armed attacks
- Data security
- **Cheaper cost** enables a larger population to procure drones
- Use of drones in warfare **(remote warfare)**
- **Procurement by non-state actors** can pose serious threats
- Ease in **delivering mass destruction weapons**

Drishti IAS

Read More: Sangathan se Samriddhi: DAY-NRLM

Brazil Declines Belt and Road Initiative

Despite having strong economic ties with China, **Brazil has opted not to join China's Belt and Road Initiative (BRI)**, making it the second **BRICS nation to make this choice after India**.

- **About BRI:**
  - BRI is China's **strategic initiative** that aims to connect Asia with Africa and Europe via land and maritime networks with the aim of improving regional integration, **increasing trade and stimulating economic growth**.

Note:

- **Components:**
  - **Silk Road Economic Belt:** This segment of the BRI is dedicated to improving connectivity, infrastructure, and trade links across Eurasia through a network of overland transportation routes.
  - **Maritime Silk Road:** This component enhances maritime connections and cooperation starting in the **South China Sea**, extending to **Indo-China**, Southeast Asia, and across the **Indian Ocean** to Africa and Europe.
- **Key Corridors for Development:**
  - China-Pakistan Economic Corridor (CPEC)
  - New Eurasian Land Bridge Economic Corridor
  - China-Indochina Peninsula Economic Corridor
  - China-Mongolia-Russia Economic Corridor
  - China-Central Asia-West Asia Economic Corridor
  - China-Myanmar Economic Corridor

Read More: China's Belt and Road Initiative

Note:

Adoption Awareness Month

Recently, Central Adoption Resource Authority (CARA) celebrated **November** as **National Adoption Awareness Month** to promote legal adoptions.

- **About CARA:** It is a **statutory body** established under the Juvenile Justice Act, 2015 and functions under the **Ministry of Women & Child Development**.
  - It is the **nodal body** for adoption of Indian children and is mandated to **monitor** and regulate **in-country and inter-country adoptions**.
    - Inter-country adoptions in India adhere to the Hague Convention on Intercountry Adoption, 1993, ratified by Government of India in 2003.
- **Theme: Rehabilitation of Older Children through Foster Care and Foster Adoption.**
- **Hague Convention** is an international treaty to ensure the **prompt return** of the child who has been **"abducted"** from the country of their **"habitual residence".**
  - The Convention shall cease to apply when the child attains the age of 16 years.

Read More: Adoption in India

LMV Licence for Transport Vehicles

Recently, the Supreme Court ruled that a person holding a **driving licence** for a **light motor vehicle (LMV)** is also entitled to drive a **transport vehicle** with an unladen **weight upto 7,500 kg.**

- The **SC upheld its 2017** verdict, which also permitted **LMV licence** holders to drive transport vehicles under **7,500 kg** gross weight.
  - The 2017 decision was accepted by the Central Government, leading to amendments in the Motor Vehicles Rules, 2017.
- As per **Section 2(21)** of The Motor Vehicles Act, 1988, a light motor vehicle is a **transport vehicle, omnibus, motor car, tractor, or road-roller** with a gross vehicle weight or unladen weight **not exceeding 7,500 kilograms**.
- The SC verdict challenged the practice of insurance companies rejecting claims in accidents involving transport vehicles driven by those with LMV licence.

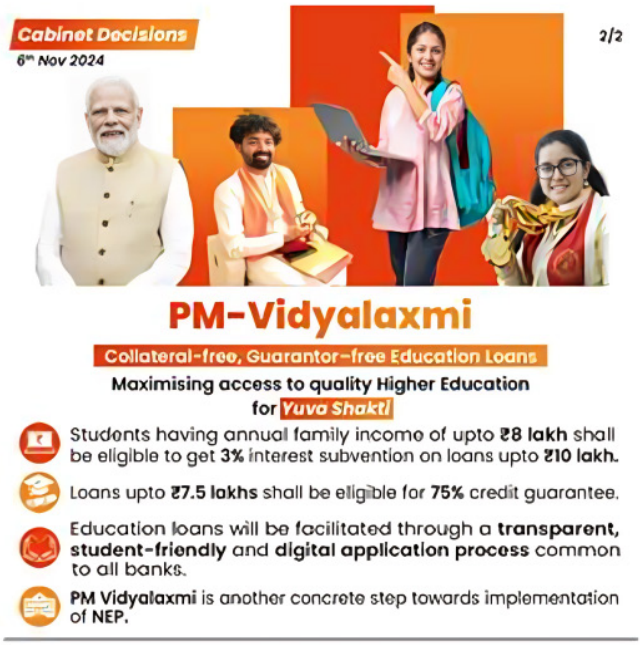
Read More: The Motor Vehicles Bill for Road Safety

PM-Vidyalaxmi Scheme

The Union Cabinet has approved the **Pradhan Mantri Vidyalaxmi scheme,** designed to provide financial assistance to meritorious students for higher education.

- **Objective:** It aligns with the National Education Policy (NEP) 2020 and aims to provide **collateral-free, guarantor-free loans** to students.
- **Eligibility Criteria:** Students enrolled in institutions ranked within the **top 100 by the** National Institutional Ranking Framework (NIRF), and those in the 101-200 range from state government and all central government governed institutions.
- **Beneficiaries:** It can benefit over 22 lakh students, with the list updated annually based on the latest NIRF rankings.
- **Procedure:** The Department of Higher Education will launch the **"PM-Vidyalaxmi" portal** for students to apply for education loans and interest subvention, with payments made via E-voucher and Central Bank Digital Currency (CBDC) wallets.
- **Supplementing Existing Schemes:** The scheme supplements the two components, **Credit Guarantee Fund for Education Loans (CGFSEL)** and **Central Sector Interest Subsidy (CSIS),** under the existing **PM-Uchchatar Shiksha Protsahan (PM-USP) scheme**.
- PM-USP CSIS offers full interest subvention for loans up to Rs 10 lakh to students with family income up to Rs 4.5 lakh, pursuing technical courses.

Note:



Read more: Revamping India's Higher Education System

3rd Edition of MAHASAGAR

Recently, the **3rd edition of MAHASAGAR**, an Indian Navy's flagship outreach for virtual interaction among IOR littorals, was conducted.

- **MAHASAGAR** stands for **M**aritime **H**eads for **A**ctive **S**ecurity **A**nd **G**rowth for **A**ll in the **R**egion. It was started in **2023** and is conducted **bi-annually**.
- Theme – **"Training Cooperation to Mitigate Common Maritime Security Challenges in the Indian Ocean Region (IOR)".**
- The 3rd edition of MAHASAGAR was attended by IOR Littorals viz. **Bangladesh, Comoros, Kenya, Madagascar, Maldives, Mauritius, Mozambique, Seychelles, Sri Lanka and Tanzania.**

Read More: SAGAR Vision

DCGI's New Regulations for Imported Cosmetics

Recently, the Drugs Controller General of India (DCGI) **established new guidelines** to enhance the safety, quality, and regulatory compliance of imported cosmetics in India.

- The cosmetic market in India was valued at USD 8.1 billion in 2023, with projections to **reach USD 18.4 billion by 2032**.
- **Guidelines:**
  - Cosmetics can only be imported if their expiration date is at least **six months from the date of import**.
  - Cosmetics containing **hexachlorophene or those tested on animals** after post-November 2014 are banned from being imported.
    - Hexachlorophene, a topical antibacterial cleanser previously used to clean skin before surgery and prevent infections, **has been banned in cosmetics due to safety concerns**.
  - No cosmetics banned in the country of origin can be imported unless for specific purposes (e.g., testing, analysis).
  - Importers of new cosmetic products must seek approval from the Central Licensing Authority, with proof of safety and efficacy.
- **DCGI:** The DCGI heads the Central Drugs Standard Control Organisation (CDSCO), which is responsible for ensuring quality drugs supply across the country.

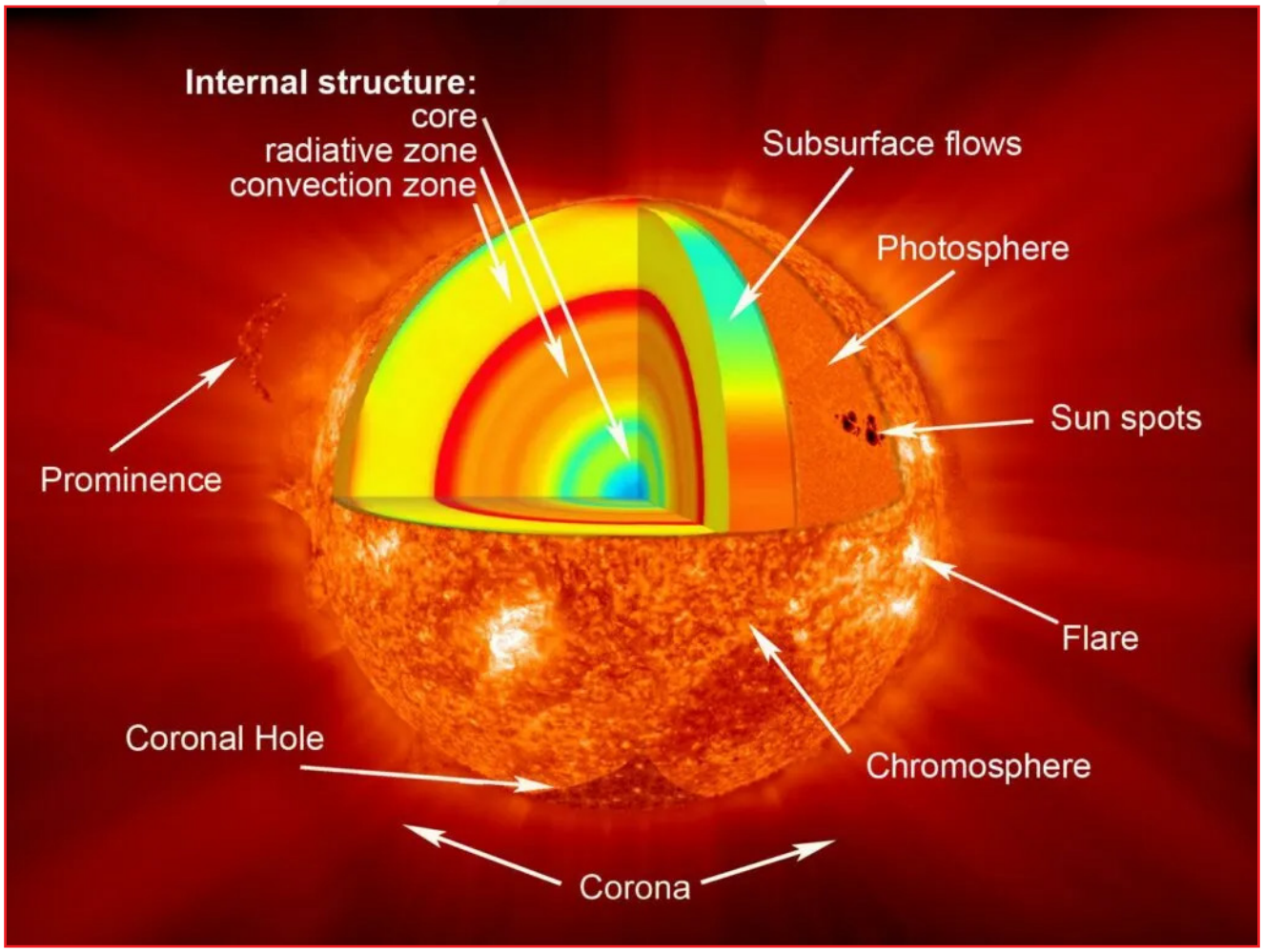
Read More: India's Pharmaceutical Industry

Note:

Differential Rotation of the Sun

The **Sun exhibits a unique rotational pattern** called **differential rotation,** where different parts rotate at varying speeds.

- The **Sun's rotation period varies by latitude,** with the equator rotating in 26.5 days, the **sunspot zone** (16° north) in 27.3 days, and the poles in 31.1 days.
  - The Sun has a **north and south pole,** and **rotates on its axis.** However, unlike Earth which rotates at all latitudes every 24 hours, the Sun rotates **every 25 days at the equator and takes progressively longer to rotate at higher latitudes**. This is known as differential rotation.
    - **Sunspots** are areas that appear dark on the surface of the Sun. They appear dark because they are cooler than other parts of the Sun's surface.
  - The Sun's core temperature is 15 million degrees K, and its surface temperature is 6,000 degrees K, creating a **high-pressure gaseous state known as plasma**.
- Despite extensive research, the underlying cause of differential rotation remains an unsolved puzzle for solar physicists.



Read more: Latitudinal Variation in Sun's Rotation Speed

Note:

India Bids to Host the 2036 Olympics

The **Indian Olympic Association (IOA)** submitted a formal Letter of Intent to the **International Olympic Committee (IOC),** expressing the nation's desire to **host the 2036 Olympic Games.**

- India's bid aligns with the **IOC's sustainability policy,** which encourages using existing infrastructure and minimal new construction to lower costs and reduce the **carbon footprint.**
- Only **three Asian countries** have ever hosted the Olympics- **China, South Korea and Japan,** with Japan hosting the games twice in **1964 and 2020.**
- IOA is registered as a Non-Profit Organisation under the **Societies Registration Act, 1860**. It is recognized by the Ministry of Youth Affairs and Sports.
  - It governs the **Olympic Movement** and Commonwealth Games in India; oversees athletes' participation in **Olympics, Commonwealth Games, Asian Games,** and related multi-sport events.
- The IOC is a **non-governmental international organisation based in Lausanne, Switzerland** that came into existence in 1894.
  - The IOC aims to ensure the regular holding of the **Olympic Games and foster Olympism and the Olympic movement.**

Read more: **India at Paris Olympics 2024**

Note:

Birth Anniversary of Chittaranjan Das

The **Lok Sabha Speaker** honored the **birth anniversary of Deshbandhu Chittaranjan Das (C.R. Das)** on 5th November, 2024.

- CR Das is widely known as **Deshbandhu** meaning **"Friend of the Nation"** and **"Apostle of Nationalism,"** as he inspired youth like **SC Bose**.
- He gained prominence as a barrister by defending **Aurobindo Ghose** in the **Alipore Bomb Case (1908)**, leading to Aurobindo's acquittal.
  - He also served as defence counsel in the **Dacca Conspiracy Case (1910-11)**.
- He was part of a **non-official committee**, along with **Gandhiji and Motilal Nehru**, investigating the **Jallianwala Bagh massacre** (1919).
- Initially, he sought modifications in the **Non-Cooperation programme** but later **supported** it by renouncing his legal practice in 1920.
- He co-founded the **Swarajya Party** with Motilal Nehru in **1923** to pursue **"Non-Cooperation from within the Councils".**
  - He served as **Indian National Congress (INC)** **President in 1922 at the Gaya session** but **resigned** after his council-entry proposal was defeated.
- His biography, ***The Life and Times of C.R. Das*****,** was written by **Prithwis Chandra Ray**.

Read More: Sri Aurobindo

Balfour Declaration

Recently, the **Balfour Declaration** completed **107 years** which was issued on **2nd November, 1917.**

- **The Balfour Declaration (**named after **Arthur James Balfour,** British Foreign Secretary) was a **public statement** issued by the **British government** during **World War I**.
  - It supported the establishment of a **"national home for the Jewish people"** in **Palestine** which was then an **Ottoman region** with a small **Jewish minority** population.
- This declaration was issued to ensure **Jewish safety** amid rising **persecution in Europe.**
- It **conflicted** with Britain's prior promise in the **McMahon-Hussein correspondence (1915-1916)** to support an **independent Arab state** in return for Arab assistance against the **Ottoman Empire.**
- Britain sought Jewish support for the **Allied powers** to influence Jewish communities in the **US and Russia**, while also viewing control over **Palestine** as key for protecting the **Suez Canal** and **British interests in India**.

Note:

ISRAEL-PALESTINE CONFLICT

The Israel-Palestine conflict is a long-standing geopolitical dispute over territory and self-determination in the Middle East.

BEGINNING

- UN adopted **Resolution 181** - the Partition Plan in 1947
- State of Israel created in 1948, sparking the **first Arab-Israeli War** (Israel won)
  - Palestinians displaced
  - Division of territory into - State of Israel, West Bank and Gaza Strip

INITIAL TENSIONS AND CONFLICTS (1956-1979)

- **Suez Crisis** and Israeli **invasion of Sinai Peninsula** in 1956
- **Six-Day War (1967) -** Israel gained control over Sinai Peninsula, Gaza Strip, West Bank, East Jerusalem and Golan Heights

Controversy over Jerusalem as Capital

- **Israel view:** Complete and united Jerusalem
- **Palestinians view:** East Jerusalem future capital

- **Yom Kippur War (1973) -** Surprise attack by Egypt and Syria
- **Camp David Accords (1979)** b/w Egypt and Israel

Intifada (Arabic for 'shake off')

- **First Intifada -** 1987 to 1993
  - Led to the foundation of Hamas (1987) - a Palestinian political party designated as a foreign terrorist org by US
  - Response - **Madrid Conference 1991** (chaired by the US and Russia)
- **Second Intifada -** 2000-2005
- The latest escalation (2023) is being called the beginning of "Third Intifada"

OSLO ACCORDS (MEDIATED BY US)

- **First (1993)**
  - Estd framework for **Palestinian self-governance** in West Bank and Gaza
  - Enabled mutual recognition between Israel and Palestine
- **Second (1995)**
  - Expanded on Oslo I Accords
  - Mandated **complete Israeli withdrawal** from several cities and towns **in West Bank**

POST 2000 CONFLICT AND RESPONSES

- **2013 -** US-led peace process began
- **2014-18 -** Gaza Conflict (2014)
  - Palestine announced break from territorial divisions under Oslo Accords (2015)
- **2018-20 -** US Cancelled funding for Palestinian refugees under UN Relief and Works Agency (UNRWA)
  - US proposed **"Peace to Prosperity"** plan
- **2020 - Abraham Accords**
- **2022-2023:**
  - Israel raids on **Jenin refugee camp**
  - Hamas launched **"Operation Al-Aqsa Flood"** and Israel launched "Operation Iron Swords" (both in 2023)
    - Israel declared a **State of War**
  - **India's Stand:**
    - Supports a **Two State solution** for Israel and Palestine
    - **Condemned the recent attack** by Hamas on Israel

Drishti IAS

Read More: The Israel-Palestine Saga

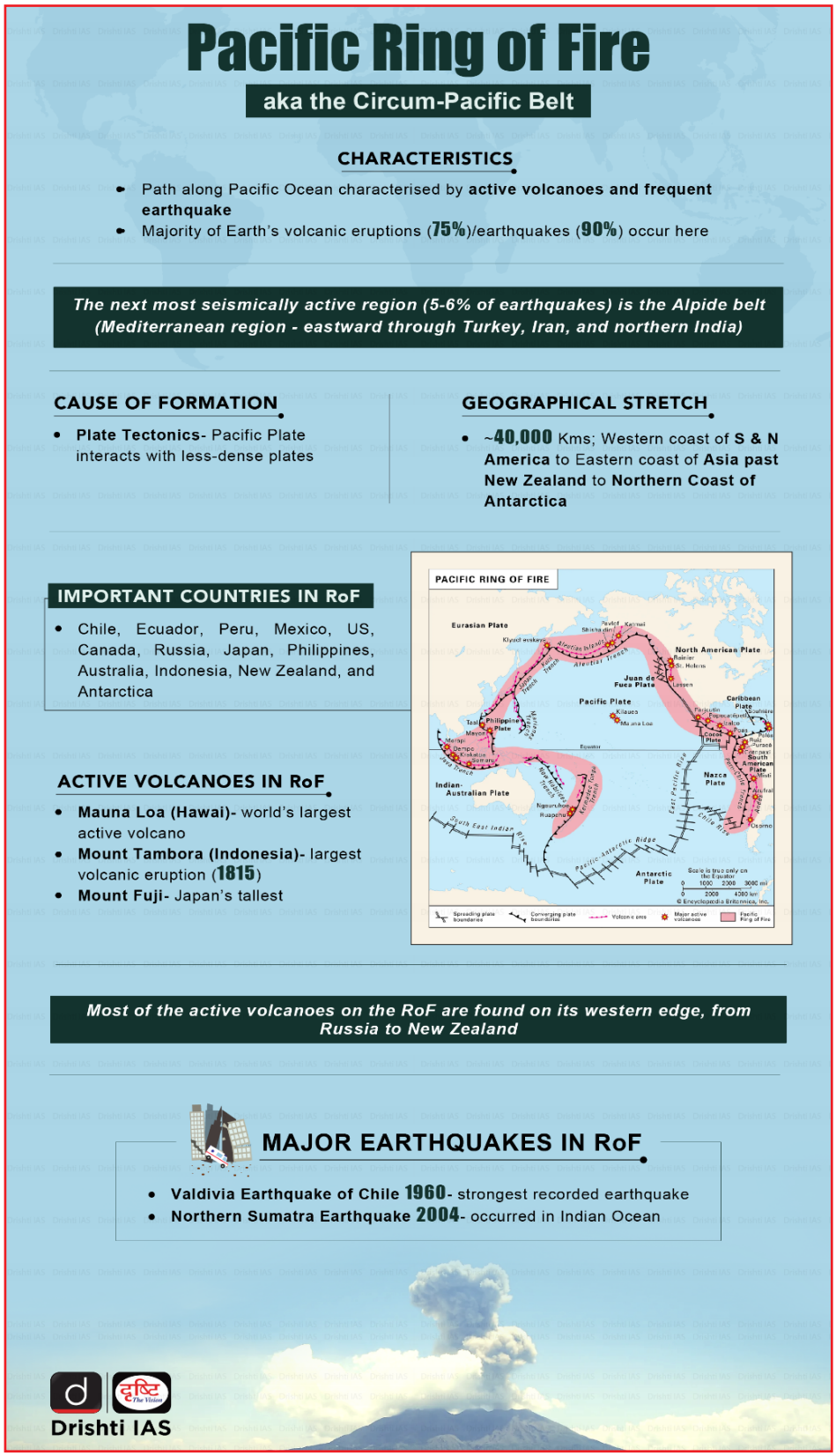
Note:

drishti

Mount Lewotobi

Recently, **Mount Lewotobi Laki-Laki volcano**, located on the **Indonesian island of Flores**, erupted.

- This eruption follows **heightened volcanic activity** in Indonesia, with another recent eruption from **Mount Merapi** in West Sumatra.
- Indonesia has around **120 active volcanoes** and **Mt Lewotobi** is part of the **Pacific Ring of Fire**, an area known for **frequent seismic and volcanic activity**.
- The **Pacific Ring of Fire (Circum-Pacific Belt)** is a path along the **Pacific Ocean** characterised by **active volcanoes and frequent earthquakes**.
  - It is largely a result of **Tectonic Plates** where massive **Pacific Plate** interacts with less-dense plates surrounding it like **Nazca Plate, Juan de Fuca Plate**.



Read More: Volcanoes

Note:

Elephant Casualties in Bandhavgarh Tiger Reserve

A group of **elephants** in Madhya Pradesh's **Bandhavgarh Tiger Reserve (BTR)** reportedly died from **suspected kodo millet poisoning**.

- According to a 2023 research paper led by National Environmental Engineering Research Institute (NEERI), **CSIR**, the consumption of kodo millet is **often associated with intoxication and poisoning in humans and animals**.
- **Bandhavgarh Tiger Reserve:**
  - It is located in the **Umaria district of Madhya Pradesh** and is spread over the **Vindhya hills.**
    - It holds significant historical importance, evidenced by the **presence of the renowned Bandhavgarh Fort**, along with numerous caves, rock paintings, and carvings throughout the protected area.
  - **In 1968**, it was **designated as a national park** and in **1993 was declared a tiger reserve**.
  - It is known for the **Royal Bengal Tigers**.
    - Other important prey species consist of **chital, sambhar, barking deer, nilgai, chinkara, wild pig, chowsingha, langur and rhesus macaque.**
    - Dependent upon them are the major predators like **tiger**, **leopard**, **wild dog, wolf and jackal.**
- **Population of Elephants in India:**
  - India has the **largest number of wild Asian Elephants**, estimated at 29,964 according to the **2017 census by Project Elephant.**
    - **Karnataka** has the highest number of elephants, followed by **Assam and Kerala.**

Read More: National Parks in Madhya Pradesh

Centralised Asset Liquidation Auction Platform

The **Insolvency and Bankruptcy Board of India (IBBI)** and **Indian Banks' Association (IBA)** plans to create a **centralised platform** for **auctioning of assets** under the **Insolvency and Bankruptcy Code (IBC).**

- Auction of assets will be conducted via the **eBKray platform** which has been operating auctions for **mortgaged assets** under the **SARFAESI Act, 2002** for the past **five years.**
  - eBKray platform is managed by **PSB Alliance Private Limited** which is a consortium of **12 public sector banks**.
- The platform will serve as a **single listing point** for all assets in liquidation cases, requiring detailed **asset information from liquidators**.
- **IBBI** is a **statutory body** established under the **IBC 2016** to **oversee and regulate** the insolvency and bankruptcy processes in India.
- IBA is a **representative body** of the **banking sector** in India, established in **1946**.
- IBC is a legislative framework enacted in India in **2016** to **streamline** the process of **insolvency and bankruptcy** for **individuals, partnership firms and companies**.

Read More: Seven Years of the Insolvency and Bankruptcy Code

Diffraction Limit

The **resolution limit** of an **optical instrument** that uses light is constrained by the **diffraction limit**, a fundamental boundary that **prevents improvement** beyond a certain point.

- This diffraction limit affects the instrument's **ability to distinguish** between two close objects**.**
- Due to the diffraction limit, scientists could use the light microscope to **see cells but not the proteins inside them** or a **virus attacking them**.
- However, **optical microscopes** can **see inside cells** and even things as small as **atoms**. This technique is called **super-resolution microscopy**, and it is **not bound by the diffraction limit.**
  - Instead of using light to illuminate the cells in the microscope, special molecules called **fluorophores** were attached to the **cells**.
  - These molecules **glowed when exposed to radiation**, allowing the microscope to also **detect their surroundings**.

Note:

- A microscope's **resolving ability** indicates how well it can **distinguish between two closely spaced distant objects**, with higher resolution resulting in better performance.

➢ The **Nobel Prize in Chemistry 2014** was awarded jointly to **Eric Betzig, Stefan W. Hell and William E. Moerner** for the development of **super-resolved fluorescence microscopy.**

Read More: Glow Scope

Civil Registration System (CRS) Mobile Application

Recently, the Union Home Minister launched **the Civil Registration System (CRS) mobile application** to integrate technology with governance.

➢ It is **developed by** the **Registrar General and Census Commissioner of India (RGCCI)** which is responsible for conducting the decadal **census** in India.

➢ The **application will streamline the registration process for births and deaths, ensuring a hassle-free experience** by allowing citizens to register these vital events at any time, from anywhere, and in their state's official language.

➢ **About CRS:**

- The **Registration of Births and Deaths (Amendment) Act, 2023** mandates **digital registration of all births and deaths in India from 1st October 2023**, through the Centre's portal.
- It will serve as a **single document for verifying date of birth** for services like school admissions, government jobs, and marriage registration.
- A centralised database will **aid in updating the National Population Register (NPR), ration cards, property registration, and electoral rolls.**
  - NPR data, **first collected in 2010 and updated in 2015**, includes details on 119 crore residents and is a precursor to the **National Register of Citizens** under **the Citizenship Act, 2019.**

Read More: Supreme Court Notice on Birth Registration

US Sanctions Indian Firms for Supporting Russia's War Efforts

The United States imposed sanctions on nearly 400 entities and individuals, including 19 Indian firms and two Indian nationals, for allegedly aiding **Russia's war efforts in Ukraine.**

➢ This action highlights the US effort to restrict Russia's military by limiting access to **critical technology** and supplies.

➢ Sanctions **restrict or terminate economic relations** and can include trade bans, asset freezes, and denial of access to financial systems.

- Types of sanctions include comprehensive (e.g., US embargo on Cuba) or targeted (specific individuals or companies).

➢ **Global Mechanisms:** Sanctions can be imposed by individual countries or international bodies like the **United Nations,** although enforcement is carried out by member states.

- Despite extensive sanctions, Russia's economy remains resilient, supported by **trade with nations like India and China**.

➢ Historically, India faced international trade restrictions after its **nuclear tests in 1974 and 1998**, India also sanctioned other nations.

- India targeted **South Africa's apartheid regime(1946)**. More recently, **India revoked Pakistan's Most Favoured Nation (MFN) status in 2019** following a terrorist attack in Kashmir and **banned over 100 Chinese apps,** including **TikTok**, since 2021 after **India- China border clashes.**

Read more: U.S.A's Position on CAATSA

India's First Biomanufacturing Institute

Recently, India's first Biomanufacturing Institute, the **"BRIC-National Agri-Food Bio-Manufacturing Institute" (BRIC-NABI)**, was inaugurated in **Mohali**.

➢ **About BRIC-NABI:** It is formed by merging **National Agri-Food Biotechnology Institute (NABI)** and the

Note:

Center of Innovative and Applied Bioprocessing (CIAB), combining expertise in biotechnology and bioprocessing to scale up agri-tech innovations.

- It aims to boost India's agri-food sector through advanced biotechnology, enhancing agricultural **R&D for high-yield crops**, **disease-resistant crops, biofertilizers, and biopesticides** to support sustainable practices.

- **Launch of BioNest Incubation Center:** The Center aids **agri-food startups, bridging research and industry** while empowering local youth, women, and farmers.
- **BioE3 Policy:** This policy will **explore biomanufacturing applications in agriculture, food, pharmaceuticals, and energy sectors**, aligned with the eco-friendly goals of the **BioE3 policy.**
  - **BioE3 Policy** highlights biotechnology's role in **economic growth, job creation, and environmental protection,** showcasing the administration's commitment to a high-impact science strategy.
- **Science-Driven Economy:** The establishment of BRIC-NABI marks a **major step towards a science-driven economy focused on biomanufacturing**,
  - It positions India as a **global leader in sustainable development and knowledge-based industries.**

Read More: Technology in Indian Agriculture

Nabhmitra Application

Recently, the **Nabhmitra application** helped fishermen in the sea during **cyclone Dana** using the **Vessel Communication and Support System**.

- Nabhmitra allows real-time tracking of **vessel positions, course and speeds**, helping fishermen return safely to shore during **adverse weather conditions** like **cyclones**.
- It is an initiative of the **Ministry of Fisheries, Animal Husbandry, and Dairying** featuring indigenous **transponder technology**.
  - It enables **two-way communication** which was not possible before induction of this technology beyond mobile coverage range.
  - It was developed by **Indian Space Research Organisation (ISRO)** and is being implemented through **NewSpace India Ltd (NSIL),** commercial arm of ISRO.
- Traditionally, authorities relied on **Very High Frequency Radio Waves** and **phone calls** to contact vessels but locating fishing boats in **distant waters** was difficult due to absence of mobile networks.

Read More: Distress Alert Transmitter For Fishermen

Ballon d'Or Award 2024

Recently, Spanish footballers **Rodri and Aitana Bonmatí** won the **Ballon d'Or awards 2024** for the best **male and female** football players, respectively.

- **Manchester City's Rodri** won his first Ballon d'Or, becoming the **first Spanish player since 1960** to claim the men's award.
  - While **FC Barcelona's Aitana Bonmatí** retained her Ballon d'Or title in women's football.
- **Lionel Messi** holds the record for the **most Ballon d'Or awards**, having won it **eight times.**
  - **Cristiano Ronaldo** has won the prestigious best footballer award **five times**.
- **Other Awards:**
  - **Men's Club of the Year:** Real Madrid.
  - **Women's Club of the Year:** FC Barcelona.
- The Ballon d'Or is an annual football award presented by magazine **France Football** since 1956 to honour the **best-performing player** of the previous season.

Read More: Indian Football's Vision 2047

SC: Doctors Not Negligent for Poor Outcomes Alone

Recently, **the Supreme Court** has emphasized that **medical professionals should not be held liable** for **medical negligence** simply due to unsuccessful treatment outcomes.

- Medical negligence, often referred to as **medical malpractice**, occurs when a **healthcare provider does not meet the established standard of care** for a patient, leading to harm, injury, or even death.
- According to the SC, **a doctor cannot be immediately held liable for medical negligence** simply **because a patient did not respond positively** to surgery or treatment.

Note:

- **Liability** can only be established **if there is evidence showing that the doctor failed to exercise the necessary skill** in performing their duties.

- The doctrine of **"Res Ipsa Loquitur" (meaning "the thing speaks for itself") does not apply** in these cases.
- **Res ipsa loquitur Principle:** Implies that **negligence is evident and requires no additional evidence.**
  - However, the bench clarified that a negative outcome does not automatically indicate negligence.

Read More: Medical Negligence Under BNS

New Guidelines for Import of Seaweeds

Recently, the Centre issued the **'Guidelines for Import of Live Seaweeds into India'** to support the **import of** high-quality seed materials **or** germplasm, aimed at enhancing livelihood opportunities for coastal communities.

- **Guidelines:**
  - **Framework and Procedures for Importing Seaweed:**
    - Establishes a regulatory **framework with clear guidelines for live seaweed import into India**, covering quarantine, risk assessment, and post-import monitoring to prevent pests, diseases, and biosecurity risks.
    - India's seaweed industry faces challenges from **limited seed availability and quality issues,** especially in the widely farmed Kappaphycus species.
  - **Pradhan Mantri Matsya Sampada Yojana (PMMSY):**
    - The PMMSY targets raising **India's seaweed production to over 1.12 million tonnes by 2025,** with major initiatives such as a **Multipurpose Seaweed Park in Tamil Nadu** to bolster seaweed farming.
  - **Encouragement for Sustainable and Responsible Cultivation:**
    - The guidelines encourage **environmentally sustainable and economically beneficial seaweed cultivation**.
    - Introducing new strains drives research and development, boosting the production of diverse seaweed species including red, brown, and green algae.

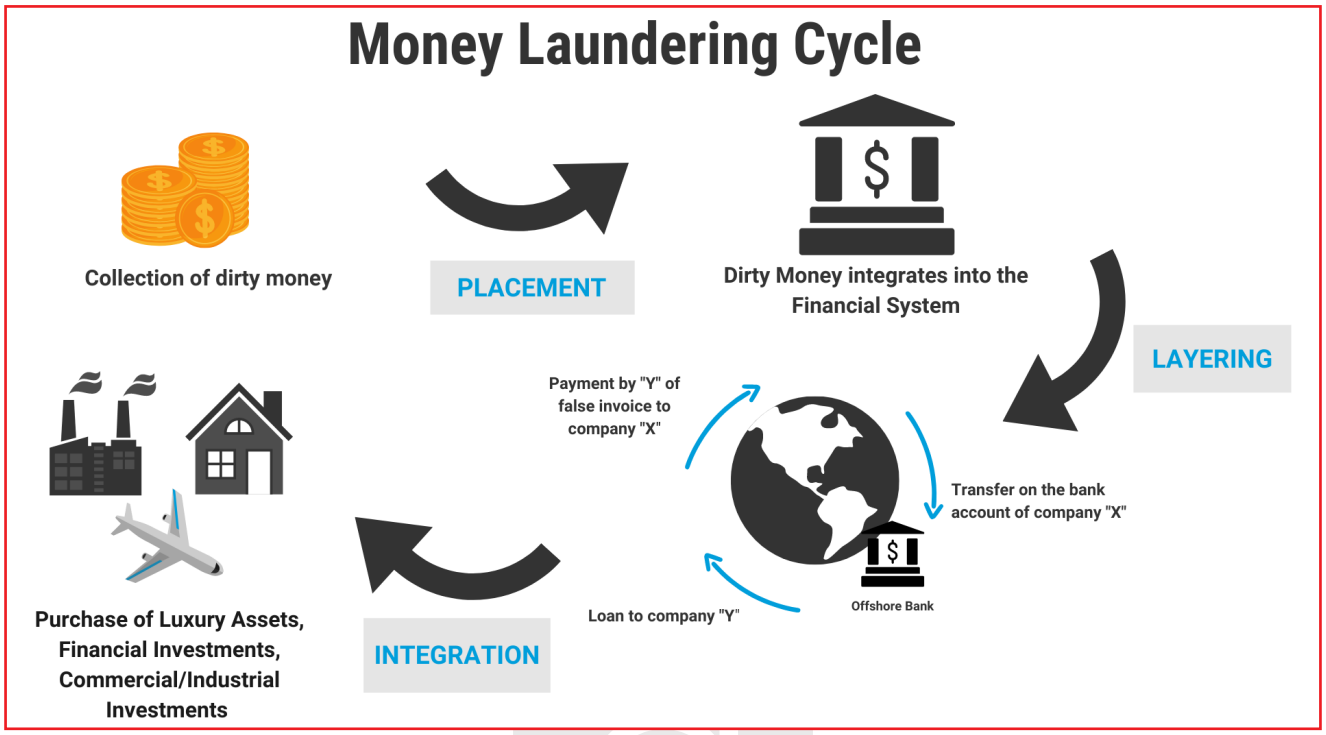
Read More: National Conference on Promotion of Seaweed Cultivation

Mule Accounts for Money Laundering

Recently, the Union **Ministry of Home Affairs** has issued an alert about **illegal** payment gateways like PeacePay, RTX Pay etc set up by **transnational** cybercriminals using mule bank accounts for money laundering**.**

- A mule account is a bank account used to **facilitate illegal activities**.
  - A money mule is someone who **transfers or moves illegally acquired money** on **behalf** of someone else.
- Transnational cybercriminals use accounts of shell companies and individuals as **mule accounts**, exploiting the **bulk payout facility** provided by banks.
  - A **shell company** is a company **without active business operations** or significant assets.
  - They are **not all necessarily illegal**, but they can be used **illegitimately** to **conceal business ownership** from law enforcement or the public.
- The **Bulk Payout facility** offered by banks allows businesses and organisations to **make multiple payments** to various beneficiaries in a **single transaction.**

Note:



Read More: Money Laundering

SC Expands Rights for Disabled in Medical Admissions

The Supreme Court has ruled against denying individuals educational opportunities based on strict disability criteria. It directed the disability assessment boards to evaluate whether an individual's impairment genuinely prevents them from completing the course successfully.

- The ruling comes amid challenges to the **Graduate Medical Education Regulation of 1997**, which previously excluded individuals with a disability of 40% or more from MBBS courses.
- The SC held that mere existence of benchmark disability of 40% or above (or such other prescribed percentages depending on the disability) will not disqualify a candidate from being eligible for the course applied for.
  - It reinforces the importance of individual assessments, advocating for inclusive policies under the **Rights of Persons with Disabilities Act, 2016.**
    - The **2016 RPwD Act supports UN conventions on disability rights**, aiming to promote and protect the full rights and freedoms of persons with disabilities.
- The **Department of Empowerment of Persons with Disabilities (DEPwD)** oversees the implementation of the RPwD Act. **Disability Assessment Board (DAB)** is a designated panel established to evaluate and certify the extent of disability in individuals.
  - As per the latest SC ruling, the DABs should positively record whether the disability of the candidate will or will not come in the way of the candidate pursuing the course in question and shall state reasons if the latter appears to be the case.

Read More: PwDs in India, Medical College Seats and New Regulations in India

Mhadei Wildlife Sanctuary

Recently, an **adult tigress** and **three cubs** were spotted in the **Mhadei Wildlife Sanctuary (WLS), Goa** for the first time since 2020.

Note:

- **Location and Geography:**
  - WLS is located near the **Chorla Ghat**, situated between North Goa and Belgavi. It borders both Maharashtra and Karnataka.
  - The **Mhadei River flows through this sanctuary**.
- **Ecological Significance:**
  - Mhadei WLS, along with other protected areas in Goa like Mollem National Park, forms part of the Western Ghats. This region is globally renowned for hosting the **world's largest tiger population**.
  - The sanctuary plays a vital role in a network of wildlife corridors that connect tiger populations across the **Sahyadri Tiger Reserve** (Maharashtra) and the Kali Tiger Reserve (Karnataka).
- **Unique Flora and Fauna:**
  - Notably, Vazra Falls in Mhadei WLS serves as a nesting ground for **critically endangered** Long-billed vultures, underscoring the sanctuary's importance for avian conservation.
- **Conservation Status and Recommendations:**
  - Goa stands as the **only state in India to have its entire portion of the Western Ghats** under state protection, with Mhadei WLS being a critical part of this area.
  - Previously, the National Tiger Conservation Authority (NTCA) recommended the designation of Mhadei WLS as a tiger reserve under the Wildlife Protection Act, 1972, **to enhance conservation efforts** for the tiger population in this unique region.

Read More: Mhadei Wildlife Sanctuary

■■■

Note: