Current Affairs
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Polity and Governance

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Women's Reservation Bill 2023

Why in News?

Recently, the **Lok Sabha (LS)** and **Rajya Sabha** (RS), both passed Women's Reservation Bill 2023 (**128th Constitutional Amendment Bill**) or Nari Shakti Vandan Adhiniyam.

➢ The bill reserves one-third of the seats in Lok Sabha, State legislative assemblies and the Delhi assembly. This will also apply to the seats reserved for **SCs (Scheduled Castes)** and **STs (Scheduled Tribes)** in Lok Sabha and State Legislatures.

What is the Background and Need for this Bill?

➢ **Background:**
  ○ The discussion upon the reservation of women reservation bill is prevalent since the tenure of Former Prime Minister Shri Atal Bihari Vajpayee in 1996.
  ○ As the then Government lacked a majority, the Bill could not have been approved.
  ○ Earlier Attempts at Reserving Seats for Women:
    ● **1996:** First Women Reservation Bill was introduced in the Parliament.

  ● **1998 – 2003:** Government tabled the Bill on 4 occasions but failed.
  ● **2009:** Government tables the bill amid protests.
  ● **2010:** The Union Cabinet passes the Bill and RS passes it.
  ● **2014:** The Bill was expected to be tabled in LS.

➢ **Need:**
  ○ There are 82 women Member of Parliaments in LS (15.2%) and 31 women in RS(13%).
    ● While the number has increased significantly since the 1st Lok Sabha (5%) but is **still far lower than in many countries**.
  ○ According to recent UN Women data, Rwanda (61%), Cuba (53%), Nicaragua (52%) are the top three countries in women representation. **Bangladesh (21%) and Pakistan (20%) as well are ahead of India in case of female representation.**

What are the Key Features of the Bill?

➢ **Reservation for Women in Lower House:**
  ○ The Bill provided for inserting **Article 330A** to the constitution, which borrows from the provisions of Article 330, which provides for reservation of seats to SCs/STs in the Lok Sabha.
    ● The Bill provided that reserved seats for women may be allotted by rotation to different constituencies in states or Union Territories.

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○ In the seats reserved for SCs/STs, the Bill sought to provide **one-third of the seats to be reserved for women on rotational basis.**

➤ **Reservation for Women in State Legislative Assemblies:**

○ The Bill introduces Article 332A, which mandates the reservation of seats for women in every state Legislative Assembly. Additionally, one-third of the seats reserved for SCs and STs must be allocated for women, and **one-third of the total seats filled through direct elections to the Legislative Assemblies** shall also be reserved for women.

➤ **Reservation for Women in NCT of Delhi (New clause in 239AA):**

○ **Article 239AA** to the constitution grants special status to the Union Territory of Delhi as national capital with regards to its administrative and legislative functioning.

○ **Article 239AA(2)(b)** was amended by the bill accordingly to add that the laws framed by parliament shall apply to the National Capital territory of Delhi.

➤ **Commencement of Reservation (New article - 334A):**

○ The reservation will be effective after the census conducted after the commencement of this Bill has been published. Based on the census, **delimitation will be undertaken to reserve seats for women.**

○ **The reservation will be provided for a period of 15 years.** However, it shall continue till such date as determined by a law made by Parliament.

➤ **Rotation of Seats:**

○ Seats reserved for women will be rotated after each delimitation, as determined by a law made by Parliament.

What are the Arguments Against the Bill?

➤ The Bill merely reads that it shall come into effect "**after an exercise of delimitation** is undertaken for this purpose after the relevant figures for the first Census taken after commencement of the Bill is undertaken. It doesn't specify the cycle of elections from which women will get their due share.

➤ The current Bill **does not provide** women's reservation in the Rajya Sabha and State Legislative Councils. The Rajya Sabha currently has lower representation of women than the Lok Sabha. Representation is an ideal that must be reflected in both the Lower and Upper Houses.

Note:- The Bill also borrowed from the provisions of Article 334 of the constitution which mandated the parliament to review the provisions of reservation after 70 years of the laws coming into existence. But in the case of the Women's reservation Bill, the Bill provided for the sunset clause of 15 years for the reservation provisions for the women to get reviewed by the parliament.

Policy Initiatives for Pharma Med Tech Sector

Why in News?

Recently, the Ministry of Chemicals and Fertilizers has launched initiatives to nurture Innovation, research, and development in the Medical and **Pharmaceutical sectors**.

➤ These Initiatives are **National Policy on Research and Development and Innovation in Pharma-MedTech Sector** in India and Scheme for **Promotion of Research and Innovation in Pharma MedTech Sector (PRIP)**.

Note: Indian pharmaceutical industry is the **3rd largest pharmaceutical industry in the world** by volume with current market size of around USD 50 Billions.

What are the Initiatives Launched?

➤ National Policy on Research and Development and Innovation in Pharma-MedTech Sector:

○ The policy aims to encourage **R&D in pharmaceuticals,** including traditional medicines & phytopharmaceuticals and medical devices.

● It can potentially help in growing the **sector to USD 120-130 Billion** over the next decade, increasing its contribution to the **GDP** by about 100 basis points.

○ **Objectives:**

● To create a regulatory environment that facilitates innovation and research in product development, expanding the traditional regulatory objectives of safety and quality.

● To **incentivize private and public investment in Innovation** through a mix of fiscal and non-fiscal measures.

● To build an enabling ecosystem designed to support innovation and cross-sectoral research as

a strong institutional foundation for sustainable growth in the sector.

➢ Scheme for Promotion of Research and Innovation in Pharma-MedTech Sector (PRIP):

○ The PRIP scheme focuses on **fostering innovation and transforming the MedTech sector i**nto an innovation-driven powerhouse.

○ It emphasizes high-quality research and innovation, aiming to shift the sector towards value and innovation-based approaches.

○ Components:

● **Component A:** Strengthening the research infrastructure by establishment of 7 **Centres of Excellence'** at National Institutes of Pharmaceutical Education and Research (NIPER).

● **Component B:** Promoting research in pharmaceutical sector by encouraging research in six priority areas like New Chemical Entities, Complex generics including **biosimilars, medical devices, stem cell therapy,** orphan drugs, **Anti-microbial resistance** etc., wherein financial assistance will be provided for the Industries, **MSME, SME, Startups working with government institutes** and for both in- house and academic research.

What are the Initiatives Related to the Pharmaceutical Sector?

➢ **Production Linked Incentive (PLI) Scheme for Pharmaceuticals**

➢ **Promotion of Bulk Drug Parks Scheme**

➢ **Strengthening Pharmaceuticals Industry Scheme**

Delimitation Concerns in Women's Reservation Bill, 2023

Why in News?

The recent passage of the **Women's Reservation Bill, 2023** in the **Indian Parliament** has been hailed as a historic milestone towards **gender equality** in the country's political landscape.

➢ However, the fate of this landmark legislation is currently intertwined with the issue of **delimitation,** a move criticized by **opposition parties.**

What is Delimitation?

➢ **About:**

○ Delimitation is the process of **redrawing parliamentary or assembly seat borders** to ensure an **equal number of voters in each constituency.**

○ It is done **every few years after each census** to ensure each constituency has one representative in both the **Lok Sabha** and state assembly across the nation.

○ **Delimitation links population increase** to the number of elected legislators in a state, ensuring that no delegates are **overrepresented or underrepresented.**

➢ **Constitutional Provisions Related to Delimitation**:

○ **Article 82:**

● The Parliament enacts a **Delimitation Act** after every census. This act allows the Parliament to readjust the allocation of seats in the Lok Sabha and the Legislative Assemblies of States.

○ **Article 170:**

● This article deals with the composition of state Legislative Assemblies, **specifying a minimum of 60 members and a maximum of 500.**

● The **size of the population**, as determined by the most recent census, forms the basis for **delimitation and seat distribution**.

➢ **Delimitation Commission:**

○ The **Delimitation Commission Act was enacted in 1952.**

● Once the Act is in force, the Union government sets up a **Delimitation Commission.**

○ Delimitation Commissions have been set up four times 1952, 1963, 1973 and 2002 under the Acts of 1952, 1962, 1972 and 2002.

○ The Delimitation Commission is **appointed by the President of India** and works in **collaboration** with the **Election Commission of India.**

○ The commission's main task is to **redraw the boundaries based on a recent census.**

○ The current boundaries of the Lok Sabha and State Assembly constituencies were drawn on the **basis of the 2001 Census by the Delimitation Commission of 2002**.

● However, the number of seats allocated to each state in the Lok Sabha and the total number

Note:

of seats in a Legislative Assembly were **frozen** on the **basis of the 1971 Census by the 42nd Amendment Act of 1976**.

- This freeze was extended until the **first census after 2026 by the 84th Amendment Act of 2001**.

How is Women's Reservation Bill,2023 Linked to Delimitation?

➢ The Indian government has stated that the Women's Reservation Bill, 2023 will come into effect **only after the delimitation exercise is undertaken** based on the census data, which has been delayed due to the **Covid-19 pandemic** and several other reasons has been further pushed to 2024-25 until further orders.

➢ The government has argued that linking the reservation with delimitation will ensure a transparent and **fair allocation of seats for women,** and will also increase the **total number of seats for both men and women,** as the delimitation exercise is expected to raise the strength of the Lok Sabha and the state assemblies seats.

What are the Concerns Regarding the Delimitation?

➢ **Potential Underrepresentation:**
  ○ One of the primary concerns is that if delimitation is carried out based on population parameters, **southern states** like **Telangana** and others that have successfully **implemented population control measures** may face **underrepresentation in Parliament.**
    - This fear arises from the possibility that northern states with higher **population growth, such as Bihar and Uttar Pradesh**, could gain **more seats in Parliament at the expense of the south.**
  ○ Despite having only **18% of the country's population,** the southern states **contribute 35% to the country's GDP.**
    - Leaders argue that their **economic strength** should be reflected in political representation to ensure that their interests are adequately represented.
  ○ Southern political leaders worry that a shift in the number of Lok Sabha seats towards northern states could result in a reduced political voice for the South at the national level.

➢ **Linkage with Women's Reservation Bill:**
  ○ The government's decision to link the implementation of the Women's Reservation Bill with delimitation is a major concern for opposition parties.
  ○ Opposition argues that there is no apparent reason or requirement to connect the two issues, as there was no such linkage in **previous discussions of the women's reservation Bill.**
    - They suggest that the government could have chosen to delink the women's quota from the census and delimitation. A simpler bill could have allowed all parties to **ensure 33% reservation for women within the current architecture of the Lok Sabha.**

POPULATION-SEAT RATIO BROADLY EQUITABLE ACROSS INDIA

State	1961 population	1967 seats	Popn/seat ratio, 1967	1971 population	1976 seats	Popn/seat ratio, 1976
UP	7,01,43,635	85	8,25,219	8,38,48,797	85	9,86,456
Bihar	3,48,40,968	53	6,57,377	4,21,26,236	54	7,80,115
Rajasthan	2,01,55,602	23	8,76,331	2,57,65,806	25	10,30,632
Tamil Nadu	3,36,86,953	39	8,63,768	4,11,99,168	39	10,56,389
Kerala	1,69,03,715	19	8,89,669	2,13,47,375	20	10,67,369
India	43,92,34,771	520	8,44,682	54,81,59,652	542	10,11,365

PROJECTED 2025 POPULATION, SEATS AT MULTIPLE RATIOS

States	Current seats	2025 projected population (in thousands)	Seats at the same ratio as last time (10.11 lakh)	Seats at 15 lakh ratio	Seats at 20 lakh ratio
UP	85	2,52,342	250	168	126
Bihar	54	1,70,890	169	114	85
Rajasthan	25	82,770	82	55	41
Tamil Nadu	39	77,317	76	52	39
Kerala	20	36,063	36	24	18
India	**545**	**14,13,324**	**1,397**	**942**	**707**

Rashtriya Vayoshri Yojana

Why in News?

In a significant initiative to empower senior citizens and persons with disabilities across India, the **Ministry of Social Justice and Empowerment,** Government of India, organized **'Samajik Adhikarita Shivirs'** camps at 72 locations simultaneously.

➢ These camps aim to distribute various types of aid and assistive devices to over 12000 persons with disabilities and senior citizens under the **Rashtriya Vayoshri Yojana.**

What is the Rashtriya Vayoshri Yojana?

➢ **About:**
  ○ It was launched in 2017 by the Ministry of Social Justice and Empowerment.
  ○ It is a central sector scheme funded from the **Senior Citizens' Welfare Fund**.
  ○ The Scheme is being implemented by the **Artificial Limbs Manufacturing Corporation (ALIMCO),** a PSU (Public Sector Undertaking) under the **Ministry of Social Justice and Empowerment.**

➢ **Features:**
  ○ The eligibility criteria for the scheme are: **Senior Citizens, belonging to Below Poverty Line(BPL)** category and suffering from any of the age related disability or infirmity.
  ○ The scheme works by distributing free of cost devices, commensurate with the extent of disability or infirmity that is manifested among the eligible senior citizens.
    ● The devices supported under the scheme are: Walking sticks, Elbow crutches, Walkers/ Crutches, Hearing Aids, Wheelchair, Artificial Dentures and Spectacles.
  ○ The scheme is expected to **benefit over 5 lakh Senior Citizens across the country.**

What are the Other Initiatives Related to Elderly in India?

➢ **National Policy on Older Persons (NPOP).**
➢ **National Social Assistance Programme.**
➢ **Pradhan Mantri Vaya Vandana Yojana (PMVVY).**
➢ **SAMPANN Project.**

ECI Clarifies Aadhaar Linkage with Electoral Roll is Voluntary

Why in News?

In a recent plea before the **Supreme Court of India**, the **Election Commission of India (ECI)** clarified that the **linking of Aadhaar numbers with the Electoral roll** is not mandatory.

Note:
➢ An electoral roll is a list of eligible voters in a specific jurisdiction, prepared and updated by the ECI.

What are the Concerns Regarding Aadhaar Linkage with the Electoral Roll?

➢ **The Plea:**
  ○ **Background:**
    ● A petitioner, filed a plea urging the court to **direct the Centre and the ECI to amend the application forms** for **enrolment and update electoral rolls** on amended provisions/ rules notified by the Union of India for the **authentication of Aadhaar number** with the electoral rolls on or before 1st April 2023.
  ○ **Concerns Raised:**
    ● The Petitioner expressed concerns about **voter privacy** and alleged that the Centre and EC were compelling voters to submit their **Aadhaar numbers without providing an alternative option.**
  ○ **Legal Stand:**
    ● This practice violated **Articles 14 and 21 of the Constitution and could lead to the misuse of voters' personal data.**

➢ **Supreme Court's Decision:**
  ○ The Supreme Court recorded that the **submission of Aadhaar numbers is not mandatory** according to **Rule 26-B of the Registration of Electors (Amendment) Rules 2022.**
    ● Rule 26B, dealing with "special provision for providing Aadhaar number by **existing electors"**, states that "every person whose name is listed in the roll **may intimate his Aadhaar number to the registration officer** in Form 6B in accordance with sub-section (5) of Section 23 of the **Representation of the People Act, 1950.**
    ● Form 6B is a letter of information that contains a person's Aadhaar number for the purpose of electoral roll authentication.

➢ **ECI's Response:**
    ● The ECI's response was that the submission of **Aadhaar numbers is voluntary.** The EC is considering making appropriate

clarificatory changes to the forms related to the Aadhaar linkage, indicating its intent to clarify the voluntary nature of the Aadhaar submission.

- The poll body informed the Bench that **"nearly 66.23 crore Aadhaar numbers have already been uploaded** in the process of finalizing electoral rolls".

The Election Commission of India (ECI)

➢ **Establishment and Role:**
- ○ The ECI was established on **January 25, 1950, in accordance with the Indian Constitution.**
- ○ It is an **autonomous constitutional authority** responsible for overseeing and managing both Union and State election processes in India.
- ○ The commission's secretariat is based in **New Delhi.**
- ○ The ECI administers elections for the Lok Sabha, Rajya Sabha, and State Legislative Assemblies in India. It also oversees the elections for the offices of the President and Vice President of India.
- ○ It is not concerned with the elections to panchayats and municipalities in the states. For this, the Constitution of India provides for a separate **State Election Commission.**

➢ **Structure of the ECI:**
- ○ Originally, the commission had one election commissioner, but it became a **multi-member body after the Election Commissioner Amendment Act 1989.**
  - The **Chief Election Commissioner (CEC)** and t**wo Election Commissioners (ECs)** make up the Election Commission of India.
    - The CEC and ECs have the same powers and salaries as a Supreme Court judge.
- ○ At the state level, the Chief Electoral Officer, typically an IAS rank officer, supports the election commission in its duties.

➢ **Appointment and Tenure of Commissioners:**
- ○ The President of India appoints the CEC and Election Commissioners.
- ○ They serve fixed terms of 6 years or until the age of 65, whichever is earlier.

➢ **Removal of Commissioners:**
- ○ Commissioners **can resign voluntarily or be removed before their term expires.**
- ○ The CEC can be removed from office only through a process of removal similar to that of a SC judge by Parliament.

➢ **Limitations:**
- ○ The Constitution has not prescribed the qualifications (legal, educational, administrative or judicial) of the members of the Election Commission.
- ○ The Constitution has **not specified the term of the members of the Election Commission.**
- ○ The Constitution has not debarred the retiring election commissioners from any further appointment by the government.

OBC Concerns in the Women's Reservation Bill, 2023

Why in News?

The recent **Women's Reservation Bill, 2023** has garnered attention **due to its omission of a quota for Other Backward Classes (OBC) women**. Critics point to the underrepresentation of OBCs individuals in **key governmental positions** as a related concern.

What are the Concerns Raised Concerning the Representation of Other Backward Classes?

➢ **Context:**
- ○ The women's reservation bill 2023, which reserves **33% of seats for women in the Lok Sabha and state assemblies,** does not include a quota for women from the OBCs.
  - Also, unlike **Scheduled Castes (SCs) and Scheduled Tribes (STs)**, the **Constitution does not provide for political reservation for OBCs** in the Lok Sabha or state assemblies.

➢ **Issues Raised**:
- ○ Critics argue that OBCs who constitute **41% of the population** (National Sample Survey Organisation Survey 2006) **are inadequately represented in the Lok Sabha, State Legislatures and Local governments.**

- They have been **demanding a separate quota for themselves in the Lok Sabha and state assemblies**, similar to the reservation for SCs and STs.
  - However, the **government has not implemented such a quota**, citing **legal and constitutional hurdles.**
- Several State Governments like **Uttar Pradesh and Maharashtra have provided them representation in Local Body elections**.
  - But the **Supreme Court** has put **a cap of 50% on the overall reservations** (*Vikas Kishanrao Gawali vs State of Maharashtra*) **which limits OBC reservation to 27%.**
    - This 50% upper limit is in line with the *Indira Sawhney vs Union of India* judgment.
    - This decision has been criticized as **27% reservation is disproportionate to the OBC population in the states.**
- **Current Strength of OBCs in Lok Sabha:**
  - The 17th Lok Sabha has **around 120** MPs from the OBC community, which **accounts for approximately 22% of the total Strength** of Lok Sabha.

Caste profile of 17th Lok Sabha

■ Upper caste ■ Minorities ■ SCs ■ STs ■ OBCs

OBCs 120
Upper caste 232
STs 52
SCs 86
Minorities 52

Source: Lok Sabha
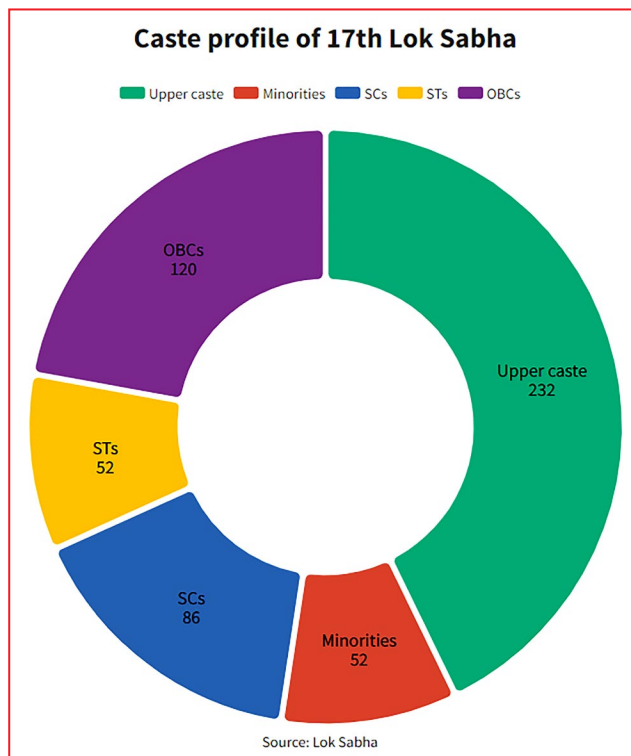
- **Geeta Mukherjee Report:**
  - The **Geeta Mukherjee report** was a comprehensive review of the **Women's Reservation Bill** that was first introduced in the Parliament in 1996.
  - The report contained **seven recommendations** to improve the bill, which aimed to provide 33% reservation for women in both the Lok Sabha and state assemblies.
  - **Some of the recommendations are as follows:**
    - Reservation for a period of 15 years
    - Including sub-reservation for Anglo Indians
    - **Including reservation in cases where the state has less than three seats in Lok Sabha** (or less than three seats for SCs/STs)
    - Including reservation for the Delhi assembly
    - Reserving seats in Rajya Sabha and Legislative Councils
    - **Providing sub-reservation for OBC women** after the Constitution extends reservation to OBCs

What are the Arguments in Favour and Against the Reservation of Seats for Women from OBCs?

Arguments in Favor	Arguments Against
➢ They **face multiple forms of discrimination and oppression** based on their caste, class and gender. They are often denied access to education, health, employment, political representation and social justice. ➢ They constitute a large and diverse section of the population, with different cultures, languages, religions and regions. They have **different needs and aspirations that may not be adequately**	➢ The **Bill already provides for the reservation of seats for SC/ST women**, who are the most disadvantaged and vulnerable groups in the society. **Adding another quota for OBC women would reduce the seats available for the general category of women, who also face discrimination and challenges** in the male-dominated political system. ➢ The idea of having a **separate reservation for OBC women would create further divisions and conflicts** among the women's movement. It would also undermine the **solidarity and unity**

Note:

Arguments in Favor	Arguments Against
represented by women from other categories. ➤ They have been **historically underrepresented and marginalized in the political sphere**, both at the national and state levels. They have **faced barriers such as patriarchal norms, caste prejudices, violence and intimidation**, lack of resources and awareness, and low self-confidence.	**of women** as a collective force for social change. ➤ Separate reservation for OBC women **would not address the root causes of their problems**, such as poverty, illiteracy, violence, patriarchy, casteism and corruption. ➤ It would also **not guarantee their effective participation and representation in the political arena, as they may still face obstacles such as tokenism, co-option, manipulation and domination** by the male leaders of their parties and communities.

What is the Historical Development of OBC Reservation in India?

➤ **Kalelkar Commission (1953)**: The journey began with the **establishment of the Kalelkar Commission in 1953**, recognizing backward classes beyond SCs and STs on a national level.

➤ **Mandal Commission (1980):** The **Mandal Commission Report** estimated the **OBC population at 52%** and identified 1,257 backward communities. It recommended increasing quotas from **22.5% to 49.5% and extending reservation to OBCs.**

  ❍ Following these recommendations, the **central government implemented the reservation policy**, reserving **27% of seats in union civil posts and services for OBCs under Article 16(4).**

  ❍ This policy was also enforced in central government educational institutions under **Article 15(4).**

➤ **"Creamy Layer" Exclusion (2008):** The Supreme Court directed the **exclusion of the "creamy layer" among OBCs** to ensure reservation benefits reach the most disadvantaged.

➤ **Constitutional Status for NCBC (2018):** The **102nd Constitution Amendment Act granted constitutional status to the National Commission for Backward Classes (NCBC)**, elevating its authority and recognition in safeguarding the interests of backward classes, including OBCs.

➤ **Justice G. Rohini Commission:** The **Justice G. Rohini Commission**, inaugurated on **October 2, 2017**, in accordance with **Article 340 of the Constitution and chaired by Justice G. Rohin**i, has recently submitted its report following nearly six years of work.

  ❍ The report underscores the imperative for sub-categorization among OBCs.

  ❍ This sub-categorization aims to **allocate quotas within the existing 27% reservation to enhance opportunities for historically underrepresented OBC communities.**

Concerns for Aadhaar In India

Why In News?

Recently, In the midst of India's extensive digital infrastructure development, Moody's report "**Decentralized Finance and Digital Assets**" has underscored that the world's largest digital identification program frequently denies services to users.

➤ The report raises concerns about the dependability of biometric technology, while also sounding a warning about potential privacy and security risks.

What are the Key Highlights of Moody's Report?

➤ **Privacy and Security Concerns:**

  ❍ The rating agency termed **Aadhaar**, and a new crypto-based digital identity token called **Worldline**, as two digital ID systems in the world that stand out due to their scale and extent of innovation.

  ❍ However, they have "drawn scrutiny, especially concerning privacy and security".

  ❍ Aadhaar leads to the concentration of sensitive information with specific entities and increases the risks of data breaches.

➤ **Biometric Authentication Concerns:**

  ❍ The Rating Agency remarked in its report about the government's adoption of **Aadhaar** for routing **Direct Benefit Transfers** to beneficiaries of welfare schemes such as **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)** etc, which is hindering their effective Implementation.

- Aadhaar biometric faces hurdles, including the burden of establishing authorization and concerns about biometric reliability.
- Aadhaar system enables access to public and private services, with verification via **fingerprint or iris scans** and alternatives like One-Time Passcodes (OTPs).

> **Concerns Related to Service Denials:**
- The **Unique Identification Authority of India (UIDAI)** administers Aadhaar, aiming to integrate marginalized groups and expand welfare benefits access.
- The system often results in **service denials, and the reliability of biometric technologies**, especially for manual labourers in hot, humid climates, is questionable.

> **Issues Related to Centralisation of Data:**
- Moody's made a pitch for **decentralized ID (DID) systems** such as **digital wallets,** based on **blockchain capabilities** that give users more control of their private data and can reduce online fraud.

What is the Government's Response to Moody's report?

> **Recognition by International Agencies:**
- Government held that a number of international agencies, including the **IMF** and the **World Bank**, have lauded Aadhaar and several nations have also engaged with the **Unique Identification Authority of India (UIDAI)** to understand how they may deploy similar digital ID systems.

> **Facilitation of Schemes like MGNREGA:**
- Government said that authors of the report are unaware that the seeding of Aadhaar in the MGNREGS database has been done without requiring the worker to authenticate using their biometrics.

> **Advantages of Direct Benefit Transfer:**
- Government stressed that even payment to workers under the scheme is made by directly crediting money into their account and does not require the worker to authenticate using their biometrics.

What are the Decentralized Systems?

> In a **centralized system, a single entity** such as a bank, social media platform or government electoral roll **controls and manages a user's identifying credentials** and their access to online resources.

- Managing entity can dispose of the **user's identity data for internal or third-party profiling purposes.**

> However, **the adoption of DID** — where personal data is saved in a user's **digital wallet** and identity verification takes place not via a single, centralized institution but on a decentralized digital ledger such as a blockchain.
- It **increases privacy and reduces the amount of personal information** held by intermediaries.
- It can be stored and managed in a user's **portable and reusable digital wallet,** rather than by a government, business, employer, or other entity.

What are the Challenges Related to Decentralised ID Systems?

> Digital IDs, centralized or not, **can have negative social repercussions,** since they may strengthen group identities and political divides, particularly if offered by technology and social media companies with significant monopolistic influence.

> Consolidation of control within these entities could **lead to a concentration of power** over individual identities, shaping perceptions and interactions in the digital realm.

> Further polarization of group identities and political affiliations would **undermine the goal of a united and diverse digital space.**

What is Aadhaar?

> Aadhaar is a **12-digit individual identification** number issued by the Unique Identification Authority of India on behalf of the Government of India. The number serves as proof of identity and address, anywhere in India.
- The Aadhaar number is **unique for each individual** and will remain valid for life time.
- Aadhaar number will help the residents to **avail various services provided by banking, mobile phone connections** and other Govt and Non-Govt services in due course.
- Establishes identity of individuals **on the basis of demographic and biometric information**.
- It is a **voluntary service** that every resident can avail irrespective of present documentation.

Note:

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What are Direct Benefit Transfers?

➢ **Aim:**
  ❍ It has been visioned as an aid for simpler/faster flow of information and funds to the beneficiaries and to reduce the fraud in the delivery system.

➢ **Implementation:**
  ❍ It is a mission or an initiative by the government of India started on 1st January 2013 as a way to reform the government delivery system.

➢ **Central Plan Scheme Monitoring System (CPSMS)**, the earlier version of the **Public Financial Management System (PFMS)**, of the Office of Controller General of Accounts, was chosen to act as the common platform for routing of the Direct Benefit Transfer.

➢ **Components of DBT:**
  ❍ Primary components in the implementation of DBT schemes include the Beneficiary Account Validation System, a robust payment and reconciliation platform integrated with the **Reserve Bank of India (RBI)**, **National Payments Corporation of India (NPCI)**, **Public & Private Sector Banks**, **Regional Rural Banks and Cooperative Banks** (core banking solutions of banks, settlement systems of RBI, Aadhaar Payment Bridge of NPCI) etc.

Scheme for Remission of Duties and Taxes on Exported Products

Why in News?

The **Scheme for Remission of Duties and Taxes on Exported Products (RoDTEP)**, initially notified until 30th September 2023, has been extended until **30th June 2024**, with the same rates applicable to existing export items.

What is the RoDTEP Scheme?

➢ **About:**
  ❍ The **Scheme for Remission of Duties and Taxes on Exported Products (RoDTEP)** has emerged as a critical tool in supporting **India's exporters.**
  ❍ It became operational on 1st January 2021 replacing the existing export incentive scheme, **Merchandise Exports from India (MEIS).**
    ● This change was prompted by a **World Trade Organization (WTO) ruling that determined the**

MEIS scheme's violation of WTO regulations due to its provision of export subsidies for a broad spectrum of goods.
  ❍ The rebate under the scheme is allowed, based on the allowed percentage of **FOB (Freight On Board) value of exports** and issued in the form of a transferable **duty credit/electronic scrip (e-scrip)**, the details of which are maintained in a digital ledger by the **Central Board of Indirect Taxes and Customs (CBIC).**
  ❍ The RoDTEP Committee operates within the **Department of Revenue.**
    ● Its primary responsibility is to review and recommend ceiling rates for different export sectors under the RoDTEP Scheme.

➢ **Objective:**
  ❍ Its primary objective is to provide **comprehensive support to exporters by remitting duties and taxes incurred during the production** and distribution of exported products.
    ● Importantly, RoDTEP covers **taxes, duties, and levies at the central, state, and local levels**, which are not refunded through any other existing mechanisms.

➢ **Financial Allocation:**
  ❍ In the financial year 2023-24, the Indian Government has allocated a **substantial budget of Rs. 15,070 crores to support the RoDTEP Scheme.**

➢ **Stakeholder Engagement**
  ❍ The Committee recently initiated its activities by engaging with **Export Promotion Councils (EPCs)** and Chambers of Commerce.

What is Freight on Board?

➢ **Freight on Board or Free on Board (FOB)** is a shipment term that defines the point in the supply chain when a buyer or seller becomes liable for the goods being transported. Purchase orders between buyers and sellers specify the FOB terms and help determine ownership, risk, and transportation costs.
  ❍ **"FOB Origin"** means the **buyer accepts the title of the goods at the shipment point** and assumes all risk once the seller ships the product.
    ● The buyer is responsible if the goods are damaged or lost while in transit.
  ❍ **"FOB Destination"** means the **seller retains the title of the goods and all responsibility during transit until the items reach the buyer.**

National Education Policy 2020 in Higher Education

Why in News?

In a **special session of Parliament**, the **Parliament Standing Committee on Education,** presented a comprehensive report on the **"Implementation of the National Education Policy (NEP) 2020 in Higher Education."**

➢ The report examined the **progress and challenges** in implementing this significant policy shift in India's higher education sector.

What are the Major Highlights of the Report?

➢ **Diversity of Higher Education Institutions (HEIs):**

  ○ The report emphasized that a **significant portion of India's higher education system operates under State Acts**, with **70% of universities falling under this category**.

  ○ Furthermore, **94% of students are enrolled in State or private institutions**, leaving just **6% in Central higher educational institutions.**

    ● This underscores the critical role played by States in providing higher education

➢ **Key Issues Discussed:**

  ○ **Disciplinary Rigidity:** The panel raised concerns about the **rigid separation of disciplines**, which can **hinder interdisciplinary learning and innovation.**

  ○ **Limited Access in Disadvantaged Areas:** Access to higher education in **socio-economically disadvantaged regions** remains limited, impeding the equitable distribution of educational opportunities.

  ○ **Language Barriers:** There's a dearth of higher education institutes (HEIs) that **offer instruction in local languages**, potentially excluding a substantial section of the population.

  ○ **Faculty Shortage:** A scarcity of qualified faculty members is **plaguing the higher education sector**, adversely impacting the quality of education.

  ○ **Lack of Institutional Autonomy:** Many institutions face a lack of autonomy, hindering their ability to adapt and innovate.

  ○ **Research Emphasis:** The panel noted a diminished emphasis on research within the current higher education system.

  ○ **Ineffective Regulatory System:** The regulatory framework governing higher education was deemed ineffective, requiring comprehensive reform.

  ○ **Concern Related to Multiple Entry Multiple Exit Programme:** The panel expressed concerns that implementing the **MEME system** in Indian institutions, **while flexible in theory, may not align effectively due to unpredictability** in student entry and exits. This unpredictability could **disrupt the pupil-teacher ratio.**

➢ **Recommendations:**

  ○ **Equitable Funding:** Both the **Union and State Governments** should allocate sufficient funds to support **Socially and Economically Disadvantaged Groups (SEDGs)** in higher education.

    ● Clear targets for the **Gross Enrolment Ratio should be set for SEDGs** to ensure increased access to higher education.

  ○ **Gender Balance:** Efforts should be made to **enhance gender balance in admissions to HEIs.**

  ○ **Inclusive Admissions and Curriculum:** Admission processes and curriculum should be made more **inclusive to cater to diverse learner needs.**

  ○ **Regional Language Courses:** Development of **more degree courses** taught in regional languages and bilingually should be encouraged.

  ○ **Accessibility for Physically Challenged:** Specific infrastructural steps should be taken to make higher education institutions **more accessible to physically challenged students.**

  ○ **Anti-discrimination Measures:** Strict **enforcement of no-discrimination and anti-harassment rules** was recommended to ensure a safe and inclusive environment.

  ○ **HEFA Diversification:** The **Higher Education Financing Agency (HEFA)** should **diversify its funding sources beyond government allocations.**

    ● Exploration of partnerships with private sector organizations, philanthropic foundations, and international financial institutions for funding should be pursued.

Note:

What is National Education Policy 2020?

➢ **About:**
  ○ The **National Education Policy 2020** seeks to tackle the evolving development needs of India.
    • It calls for a **comprehensive overhaul of the education system**, including its **regulations and management,** to establish a modern system that aligns with 21st-century educational goals, including **Sustainable Development Goal 4 (SDG4)**, while respecting **India's cultural heritage and values.**
  ○ It replaces the thirty-four year old **National Policy on Education, 1986, modified in 1992** (NPE 1986/92).

➢ **Salient Features:**
  ○ **Universal Access:** NEP 2020 focuses on **universal access to school education**, including pre-school to secondary levels.
  ○ **Early Childhood Education:** The **10+2 structure will shift to a 5+3+3+4 system**, bringing 3-6-year-olds under school curriculum, with a focus on **Early Childhood Care and Education (ECCE).**
  ○ **Multilingualism: Mother tongue or regional language will be the medium of instruction till Grade 5,** with options for Sanskrit and other languages.
    • Indian Sign Language (ISL) will be standardized.
  ○ **Inclusive Education:** Special emphasis on **Socially and Economically Disadvantaged Groups (SEDGs),** support for children with disabilities, and **establishment of "Bal Bhavans."**
  ○ **Elimination of Barriers:** The policy promotes a seamless education system with **no rigid distinctions between arts and sciences**, curricular and extracurricular activities, and vocational and academic streams.
  ○ **GER Enhancement:** Aim to increase **Gross Enrolment Ratio from 26.3% to 50% by 2035**, adding 3.5 crore new seats.
  ○ **Research Focus:** Creation of **National Research Foundation** to boost research culture and capacity.
  ○ **Language Preservation:** Support for Indian languages, including an **Institute of Translation and Interpretation (IITI)** and strengthening language departments.

  ○ **Internationalization:** Facilitation of international collaborations and **entry of top-ranked foreign universities.**
  ○ **Funding:** Joint efforts to increase **public investment in education to 6% of GDP.**
  ○ **PARAKH Assessment Center:** The establishment of **PARAKH (Performance Assessment, Review, and Analysis of Knowledge for Holistic Development)** as a national assessment center signifies a significant step towards competency-based and holistic assessment in education.
  ○ **Gender Inclusion Fund:** The policy introduces a **Gender Inclusion Fund,** emphasizing the importance of gender equality in education and supporting initiatives to empower disadvantaged groups.
  ○ **Special Education Zones**: **Special Education Zones** are envisioned to address the specific needs of disadvantaged regions and groups, furthering the policy's commitment to equitable access to quality education for all.

SC Calls for Stronger Discipline Mechanism for TV News Channels

Why in the News?

The **Supreme Court (SC) of India** has expressed its **concern over the lack of discipline** and **accountability among TV news channels** and has called for **stronger self-regulation**.

➢ The SC has asked the two representative bodies of TV news channels, **the News Broadcasters and Digital Association (NBDA)** and the **News Broadcasters Federation (NBF),** to suggest ways to strengthen the mechanism for dealing with errant channels.

➢ This issue started with **NBDA's** petition against the **Bombay High Court's decision not to give legal recognition** to the **self-regulatory mechanism** used by news channel associations.

What are the Problems with the Current Self-Regulation Mechanism of TV News Channels?

➢ **Balancing Freedom of Speech and Accountability:**
  ○ The Supreme Court acknowledges the importance of protecting the right to **free speech and expression, as enshrined in Article 19(1)(a) of the Constitution.**

- Striking a balance between this fundamental right and ensuring accountability and discipline among news channels poses a challenge.

➤ **Ineffectiveness of Current Self-Regulation:**

○ The current self-regulation mechanism of TV news channels is based on the guidelines issued by the **NBDA and the NBF**, which are voluntary associations of the broadcasters.

○ The NBDA has a regulatory overseer called the **News Broadcasting Standards Authority (NBSA),** headed by a former Supreme Court judge, which can **impose a penalty of ₹ 1 lakh on violations.**

- The fines imposed by self-regulatory bodies **may not be seen as a sufficient penalty** for channels **engaging in unethical or sensationalized reporting.** Channels may be willing to pay these fines as a cost of doing business, rather than changing their practices.

○ The **NBF, which claims to represent half of the news broadcasters**, has **not framed any regulation so far** and is not registered with the government.

○ The court says the current system doesn't stop TV channels from breaking rules effectively.

- The court observed that news channels sometimes become overly excited and **sensationalize sensitive topics** like criminal cases before the investigation is complete.

➤ **Registration and Recognition:**

○ The government's **Cable Television Networks (CTN) Amendment Rules** in 2021 require registration of self-regulatory bodies.

- NBSA has refused to register while the self-regulatory body of NBF, called the **Professional News Broadcasters Standards Authority (PNBSA), is registered and it is the only statutorily recognised self-regulatory body for news channels.**

➤ **Monopolistic Concerns:**

○ There are concerns that self-regulatory bodies, such as the NBDA, could be **perceived as trying to create monopolistic control** over the complaints redressal mechanism of news broadcasters, bypassing government or statutory oversight.

What are the Implications of the Case?

➤ The case will have a direct impact on the TV news channels, which are facing **various allegations and complaints of violating the norms and ethics of journalism**, such as spreading misinformation, sensationalism, hate speech, and defamation.

○ Depending on the outcome of the case, they may **face stricter regulations and penalties**, or continue to enjoy their immunity and autonomy.

➤ The case will have an indirect impact on the **functioning and integrity of the media and the democracy**, as well as the **rights and interests of the public**. Depending on the outcome of the case, it may **strengthen or weaken the accountability and transparency of the media** and may encourage or discourage the **practice of responsible and ethical journalism.**

What are the Media Regulatory Bodies in India?

➤ **Conventional Media:**

○ **Print:**

- The **Ministry of Information and Broadcasting (MIB)** is responsible for disseminating information about government policies and programs.

- The MIB regulates print media through its Information Wing.

- The **Press Council of India (PCI)** is the apex body for regulating print media in India.

○ **Cinema:**

- The **Central Board of Film Certification (CBFC)** was established by the Cinematographic Act of 1952. The CBFC regulates the certification and exhibition of films for public exhibition.

○ **Telecommunication Sector:**

- **Telecom Regulatory Authority of India.**

○ **Advertisement:**

- Advertising Standards Council of India (a self-regulatory body).

➤ **Digital Media:**

○ These are regulated under the provisions of the Information Technology Act, 2000 and the rules framed therein under section 69, which are called **Information Technology (Intermediary Guidelines and Digital Media Ethics Code), Rules 2021 (from now on, IT Rules, 2021).**

Note:

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Bima Sugam

Why in News?

Recently, **the Insurance Regulatory and Development Authority of India (IRDAI)** has formed a steering committee to act as the apex decision-making body for the creation of its ambitious **'Bima Sugam' online platform.**

➢ IRDAI says Bima Sugam is an electronic marketplace protocol which would universalise and democratize insurance. This protocol will be connected with **India Stack.**

What is Bima Sugam?

➢ **About:**
  ❍ It's an online platform where customers can choose a suitable scheme from multiple options given by various companies.
  ❍ All insurance requirements, including those for life, health, and general insurance (including motor and travel) will be met by Bima Sugam.

➢ **Features:**
  ❍ It will simplify and digitize the insurance marketplace— **right from buying policies, to renewals, claim settlement, and agent and policy portability.**
  ❍ It will assist consumers with all insurance related queries.

➢ **Role:**
  ❍ The proposed platform would act as a **single window** for the policyholder to manage his/her insurance coverage.
  ❍ It will provide **end-to-end solutions** for customers' insurance needs i.e., purchase, service, and settlement.

➢ **Utility:**
  ❍ It will facilitate insurance companies to access the validated and authentic data from various touch points on a r**eal-time basis**.
  ❍ **The platform** will interface for the intermediaries and agents to sell policies and provide services to policyholders, among others, and reduce paperwork.

➢ **Stakeholders:**
  ❍ Life insurance and general insurance companies will own a 47.5% stake each, while brokers and agent bodies will own 2.5% each in Bima Sugam Platform.

What is IRDAI?
➢ IRDAI, founded in 1999, is **a regulatory body created with the aim of protecting the interests of insurance customers.**
  ❍ It is a statutory body under the IRDA Act 1999 and is **under the jurisdiction of the Ministry of Finance.**
    ● It regulates and sees to the development of the insurance industry while monitoring insurance-related activities.
    ● The powers and functions of the Authority are laid down in the IRDAI Act, 1999 and Insurance Act, 1938.

What is India Stack?

➢ **About:**
  ❍ **India Stack is a set of APIs** (Application programming interface) that allows governments, businesses, startups and developers to utilize a unique digital Infrastructure to solve India's hard problems towards presence-less, paperless, and cashless service delivery.
  ❍ It aims to unlock the economic primitives of identity, data, and payments at population scale.

➢ **Features:**
  ❍ **Digital transactions** through India Stack often have lower transaction costs compared to traditional methods. This benefits businesses, consumers, and the government by reducing the cost of conducting various transactions.
  ❍ Bridging the **wealth gaps and building an efficient and resilient digital economy** that drives economic growth and social development.

➢ **Components:**
  ❍ The key components of INDIA STACK include **Aadhaar** (unique biometric-based identification system)**, Unified Payments Interface (UPI) for instant digital payments, and Digital Locker** for secure storage of personal documents.

Note:
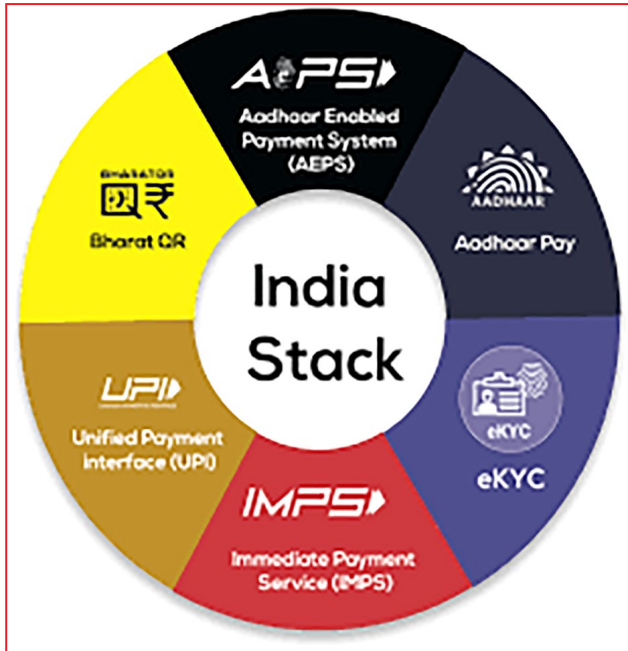
SC to Revisit Legislative Immunity on Bribery

Why in News?

The **Supreme Court of India** has referred the **1998, 5-judge Constitution Bench judgement P V Narasimha Rao** case to a 7-judge Bench for reconsideration.

➢ The case deals with the **interpretation of Articles 105(2) and 194(2) of the Constitution,** which extends **parliamentary privilege** and immunity to members of Parliament and State Legislatures against **criminal prosecution on bribery charges for any speech or vote in the House.**

➢ The decision was taken in another case related to bribery charges against an MLA, who had relied on **Article 194(2) for quashing the charge sheet and criminal proceedings.**

What is the Case of PV Narasimha Rao v/s State,1998?

➢ **Case:**
  ○ The P V Narasimha Rao case refers to the *1993 Jharkhand Mukti Morcha(JMM) bribery case*. In this case, Shibu Soren and some of his party MPs were accused of taking bribes to vote against a **no-confidence motion against the then P V Narasimha Rao government.**

● No-confidence motions are significant political events that usually occur when there is a perception of the government losing majority support.
  ○ The Supreme Court had quashed the case against the JMM MPs, **citing immunity under Article 105(2) of the Constitution.**
➢ **Articles 105(2) and 194(2) of the Constitution:**
  ○ **Article 105(2):**
    ● No member of Parliament **shall be liable to any proceedings in any court** in respect of **anything said or any vote given by him in Parliament** or any committee thereof, and no person shall be so liable in respect of the publication by or under the authority of either House of Parliament of any report, paper, votes or proceedings.
    ● The purpose of Article 105(2) is to ensure that **members of Parliament can perform their duties without fear of consequences.**
  ○ **Article 194(2):**
    ● No member of the **Legislature of a State shall be liable to any proceedings in any court** in respect of anything said or any vote given by him in the Legislature or any committee thereof, and no person shall be so liable in respect of the publication by or under the authority of a House of such a Legislature of any report, paper, votes or proceedings.

Why did the Supreme Court Refer the Matter to a 7-Judge Bench?

➢ The Supreme Court referred the matter to a 7-judge Bench because it recognized the need to reexamine the correctness of its previous 1998 constitution bench ruling in the PV Narasimha Rao case.
  ○ The purpose of Articles 105(2) and 194(2) is to ensure that members of Parliament and the State Legislatures **can discharge their duties freely, without fear of consequences for their speech or vote.**
    ● The objective is **not to give legislators higher privileges in terms of immunity from the general criminal law of the land.**

Note:

What are the Parliamentary Privileges?

➤ **About:**
  ○ Parliamentary privileges are special rights, immunities and exemptions enjoyed by the two Houses of Parliament, their committees and their members.
    ● These privileges are defined in **Article 105 of the Indian Constitution.**
  ○ Under these privileges, the members of Parliament are exempted from any **civil liability (but not criminal liability)** for any statement made or act done in the course of their duties.
    ● The privileges are claimed only when the person is a member of the house.
    ● As soon as s/he ends up being a member, the privileges are said to be called off.

➤ **Privileges:**
  ○ **Freedom of Speech in Parliament:**
    ● The **freedom of speech and expression guaranteed to a citizen under Article 19(2)** is different from the freedom of speech and expression provided to a member of the parliament.
      ■ It has been guaranteed under **Article 105(1) of the Indian constitution. However, freedom is subject to rules and orders that regulate the proceedings of the parliament.**
    ● **Limitations:**
      ■ Freedom of speech should be in **accordance with the constitutional provisions** and subject to rules and procedures of the parliament, as stated under Article 118 of the Constitution.
      ■ **Article 121 of the Indian Constitution** states that members of parliament **cannot discuss the conduct of Supreme Court or High Court judges while they are performing their duties.**
        ◆ The only exception is if there is a motion to present an address to the President requesting the judge's removal.
  ○ **Freedom from Arrest:**
    ● Members enjoy immunity from arrest in any civil case **40 days before and after** the adjournment of the house or during a session.
      ■ Arrest within the Parliament's limits requires the **house's permission.**
    ● If the detention of any members of the parliament is made, **the chairman or the speaker should be informed by the concerned authority, of the reason for the arrest.**
      ■ But a member can be arrested outside the limits of the house on criminal charges against him under the **Preventive Detention act**, **the Essential Services Maintenance Act (ESMA),** **the National Security Act (NSA), or any such act.**
  ○ Right to Prohibit the Publication of Proceedings:
    ● Article 105(2) of the Constitution, no person shall be held liable for publishing any reports, discussions etc. of the house under the authority of the member of the house.
      ■ For paramount and national importance, it is essential that the proceedings should be communicated to the public to aware them of what is going on in the parliament.
  ○ **Right to Exclude Strangers:**
    ● The members of the house have the power and right to exclude strangers who are not members of the house from the proceedings. This right is very essential for securing free and fair discussion in the house.

AI Chatbot for PM-KISAN Scheme

Why in News?

Recently, the Ministry of Agriculture and Farmers' Welfare launched an **AI chatbot** — the first of its kind to be integrated with a major flagship scheme of the central government — for the **Pradhan Mantri Kisan Samman Nidhi Yojana (PM-KISAN scheme)**.

➤ The Chatbot will provide the farmers with **"prompt, clear and accurate"** responses to their queries.

What are the Key Features of the AI Chatbot for PM KISAN?

➤ It has been developed and improved with the support of EkStep foundation and **Bhashini.**

Note:

➢ In the first phase of the development, the AI Chatbot will **assist farmers in seeking information related to their application status,** payment details, ineligibility status etc.

➢ The **AI Chatbot**, accessible through the **PM-KISAN mobile application**, is integrated with Bhashini which offers multilingual support, catering to the linguistic and regional diversity of the PM-KISAN beneficiaries.

➢ This integration of advanced technology will not only enhance transparency but also empower farmers to make informed decisions.

What is an AI Chatbot?

➢ **About:**

○ Chatbots, also called chatterbots, is a form of **Artificial Intelligence (AI)** used in messaging apps.

○ This tool helps add convenience for customers—**they are automated programs that interact with customers like a human would** and cost little to nothing to engage with.

● Key examples are **chatbots used by businesses in Facebook Messenger, or as virtual assistants,** such as Amazon's Alexa and **ChatGPT** etc.

● Chatbots tend to operate in one of two ways—either via **machine learning or with set guidelines.**

● However, due to advancements in AI technology, chatbots using set guidelines are becoming a historical footnote.

➢ **Machine Learning Chatbot:**

○ A chatbot that functions through machine learning have an **artificial neural network** inspired by the neural nodes of the human brain.

○ The bot is programmed to self-learn as it is introduced to new dialogues and words.

○ In effect, as a **chatbot receives new voice or textual dialogues**, the number of inquiries that it can reply to and the accuracy of each response it gives increases.

● Meta (as Facebook's parent company is now known) has a machine learning chatbot that creates a platform for companies to interact with their consumers through the Messenger application.

What is PM KISAN Scheme?

➢ **About:**

○ It was launched on 24th February, 2019 to supplement financial needs of land holding farmers.

➢ **Financial Benefits:**

○ Financial benefit **of Rs 6000/- per year, in three equal installments** every four months, is transferred into the bank accounts of farmers' families across the country through **Direct Benefit Transfer (DBT) mode.**

➢ **Scope of the Scheme:**

○ The scheme was initially meant for **Small and Marginal Farmers (SMFs) having landholding upto 2 hectares** but scope of the scheme was **extended to cover all landholding farmers.**

➢ **Funding and Implementation:**

○ It is a **Central Sector Scheme** with 100% funding from the Government of India.

○ It is being implemented by the **Ministry of Agriculture and Farmers Welfare.**

➢ **Objectives:**

○ To supplement the financial needs of the Small and Marginal Farmers in procuring various inputs to **ensure proper crop health and appropriate yields, commensurate with the anticipated farm income** at the end of each crop cycle.

○ To protect them from falling in the clutches of moneylenders for meeting such expenses and ensure their continuance in the farming activities.

➢ **PM-KISAN Mobile App**:

○ It was developed and designed by the National Informatics Centre in collaboration with the Ministry of Electronics and Information Technology.

➢ **Physical Verification Module:**

○ A mandatory physical verification of **5% beneficiary every year is being done as per the provisions** laid down in the scheme.

➢ **Excluded Category:** The following categories of beneficiaries of higher economic status shall not be eligible for benefit under the scheme:

○ All Institutional Land holders.

○ Farmer families which belong to one or more of the following categories:

● **Former and present holders of constitutional posts**.

Note:

- **Former and present Ministers/ State Ministers** and former/present Members of LokSabha/ RajyaSabha/ State Legislative Assemblies/ State Legislative Councils,former and present Mayors of Municipal Corporations, former and present Chairpersons of District Panchayats.
- **All serving or retired officers and employees of Central/ State Government Ministries** /Offices/Departments and its field units Central or State PSEs and Attached offices / Autonomous Institutions under Government as well as regular employees of the Local Bodies (Excluding Multi Tasking Staff /Class IV/Group D employees)
- All superannuated/retired pensioners **whose monthly pension is Rs.10,000/-or more** (Excluding Multi Tasking Staff / Class IV/Group D employees) of above category
- All Persons **who paid Income Tax in last assessment year.**
- Professionals like **Doctors, Engineers, Lawyers, Chartered Accountants, and Architects** registered with Professional bodies and carrying out profession by undertaking practices.

National Higher Education Qualifications Framework

Why in News?

   University Grants Commission (UGC) has finalised the **National Higher Education Qualifications Framework (NHEQF)** to standardise qualifications and promote academic mobility.

➢ However, the implementation of this framework has raised concerns **due to the presence of multiple guidelines, and frameworks**, leading to confusion among stakeholders.

What is the National Higher Education Qualifications Framework?

➢ **Background:**
  ❍ The movement to specify frameworks for higher education qualifications gained momentum across the world in the late 1990s, but India remained without an NHEQF.

  ❍ The idea was deliberated at the **60th meeting of the Central Advisory Board of Education in 2012,** which assigned the responsibility to the **UGC.**

➢ **About:**
  ❍ The UGC has formulated the **NHEQF** with the aim of facilitating transparency and comparability of **higher education qualifications at all levels**. The framework has been issued for all educational institutes to adopt.
    - The NHEQF is based on the **National Education Policy (NEP) 2020,** which envisages a new and forward-looking vision for **India's higher education system.**

➢ **Main Features:**
  ❍ The framework categorizes education into eight levels, with the **first four being part of the National School Education Qualification Framework (NSEQF)** and the **latter four pertaining to higher education qualifications (level 4.5 to level 8),** each with a corresponding level descriptor that specifies the learning outcomes, the volume of learning, and the qualification type and title.
  ❍ The NHEQF provides the guidelines for the **development and implementation of programmes of study,** such as the programme learning outcomes, the course learning outcomes, the curriculum design, the pedagogy, the assessment, and the feedback.
  ❍ The credit framework document of the UGC mandates that **each semester must have a minimum of 20 credits.**
    - This document suggests that **one credit must comprise 15 hours of direct and 30 hours of indirect teaching.** This means that students are required to study for a minimum of **900 hours per semester or close to 10 hours a day.**
  ❍ Qualification types are broad and discipline-independent, including certificates, diplomas, bachelor's degrees, master's degrees, and PhDs. The NHEQF also includes qualifications from **technical and vocational education and professional and technical education programs**, **excluding medical and legal education, all within one framework.**
  ❍ It **establishes the quality assurance mechanism such as** the roles and responsibilities of the regulators, the higher education institutions, and the external agencies, as well as the processes and criteria for the approval, monitoring, and evaluation of programmes and qualifications.

Note:

What are the Issues with the NHEQF?

➤ **Multiplicity of Guidelines:**
- ○ The UGC has prescribed two separate frameworks - **the NHEQF and the National Credit Framework.**
- ○ Higher educational institutions are separately required to implement the **Academic Bank of Credits** as a mandated modality for recognizing, accepting, and transferring credits across courses and institutions.
- ○ The presence of **multiple regulations impinges on higher education qualifications.**

➤ **Ambiguity:**
- ○ The **NHEQF provides exit requirements**, but it doesn't clearly explain eligibility conditions and pathways through which a student can enter a program at a particular level.
  - The absence of clear eligibility conditions and pathways may lead to confusion among students and institutions.

➤ **Lack of Consensus:**
- ○ Disciplines such as **agriculture, law, medicine, and pharmacy may be under the jurisdiction of separate regulators**, but they could have been included in the NHEQF through consensus across various regulatory bodies.
- ○ The lack of consensus may lead to a fragmented higher education system and impede academic mobility.

➤ **Degrees Within a Degree:**
- ○ The framework appears to create a hierarchy, allowing certain students who **hold four-year undergraduate degrees with a minimum CGPA of 7.5** to be eligible for **admission to PhD programmes**.
  - This approach may lead to elitism, as academic performance is often influenced by socioeconomic conditions.

➤ **Equating Postgraduate Diplomas and Undergraduate Programs:**
- ○ The NHEQF creates issues by **equating postgraduate diplomas with four-year undergrad programs**, causing confusion, especially for degrees like B.Ed (could be completed in one, two or four years is confusing).
  - This framework's attempt to **standardise qualifications on a scale of 4.5 to 10 complicates categorizing degrees that don't fit neatly**, making it hard to determine their level.

➤ **Influence of International Models:**
- ○ The NHEQF draws heavily from the **European Bologna process and Dublin descriptors.**
  - The Bologna Process is a series of agreements between **European countries** to ensure the **quality and comparability of higher education qualifications.**
  - The Dublin descriptors are a system of qualifications frameworks for **evaluating students for bachelor's, master's, and doctoral degrees.**
- ○ India's **higher education system is more complex and diverse than the European model**. The NHEQF's development could benefit from broader consultations with Indian states.

India's Digital Landscape with PM-WANI

Why in News?

The **Prime Minister Wi-Fi Access Network Interface (PM WANI)** scheme is set to **revolutionize public Wi-Fi in India.** PM-WANI can be a **potential game-changer for India's digital public infrastructure.**

➤ The scheme enables **public Wi-Fi data service through small retail data offices**, which can potentially **bring broadband internet to remote locations at a minimum investment.**

What is PM-WANI?

➤ **About**:
- ○ The PM-WANI, launched by the **Department of Telecom (DoT) in December 2020**, is one key scheme launched to bolster the penetration of **public WiFi hotspots to establish a robust digital communication infrastructure throughout the nation, especially in rural areas.**
- ○ It is a framework that enables any entity, such as a shopkeeper, a tea stall owner, or a Kirana store owner, to set up a public Wi-Fi hotspot and provide internet service to customers.
- ○ This framework takes forward the goal of the **National Digital Communications Policy, 2018 (NDCP)** of creating a robust digital communications infrastructure.

Note:

➤ **Importance:**
  ○ To facilitate **ease of doing business and encourage local shops and small establishments** to become Wi-Fi providers, it has been approved that the last-mile Public Wi-Fi providers require no license, no registration and will not need to pay any fees to DoT.

➤ **PM-WANI Ecosystem:**
  ○ **PM-WANI consists of four elements:**
    ● **Public Data Office (PDO):** PDO is the entity that **establishes, maintains, and operates the Wi-Fi hotspot** and provides last-mile connectivity to the users by procuring internet bandwidth from telecom service providers or internet service providers.
    ● **Public Data Office Aggregator (PDOA):** PDOA is the entity that provides aggregation services, such as **authorization and accounting,** to PDOs, and facilitates them in providing services to the end users.
    ● **App Provider:** It is the entity that develops an application to register users and discover and display PM-WANI compliant Wi-Fi hotspots in proximity for accessing the internet service and also authenticate the potential users.
    ● **Central Registry:** It is the entity that **maintains the details of App Providers, PDOAs, and PDOs**. It is currently maintained by the **Centre for Development of Telematics (C-DoT).**
  ○ **Status:**
    ● As of November 2022, the PM-WANI central registry reported the existence of **188 PDO aggregators, 109 app providers, and 11,50,394 public WiFi hotspots.**

➤ **Benefits of PM-WANI:**
  ○ It can **expand Internet access** in rural and remote areas.
  ○ It can provide an **affordable and convenient option for internet access**, as compared to **mobile technologies like 5G**, which require high investment and subscription costs.
  ○ It can stimulate **innovation and competition in the internet market**.

➤ **Challenges of PM-WANI:**
  ○ **Ensuring Wi-Fi quality and user experience poses challenges** related to **bandwidth availability, managing user numbers, device compatibility,** and maintaining data security and privacy.

  ○ Security threats like **data leakage, hacking, and malware** can jeopardize user and provider privacy.
  ○ **Mobile telecom companies might face challenges,** including market share and revenue loss, due to PM-WANI's affordability and accessibility.
  ○ Expanding and **maintaining PM-WANI in rural and remote areas** with low internet demand and **high operational costs** could be challenging.

How can PM-WANI be a Game-Changer for India's Digital Public Infrastructure?

➤ PM-WANI is a key part of **India's Digital Public Infrastructure (DPI)**. It can democratize internet access and bridge the digital divide by enabling anyone to become a Wi-Fi provider and anyone to become a Wi-Fi user, without any license, registration, or fee.

➤ Leverage the existing physical and social infrastructure, such as the shops, the CSCs, the SDCs, the post offices, the schools, the panchayats, etc., to create a distributed and decentralized network of Wi-Fi hotspots, and also utilize the existing digital infrastructure, such as **Aadhaar, UPI, e-KYC, e-Sign, etc**., to enable **seamless and secure authentication and payment of the Wi-Fi services.**

➤ Empower the citizens and the communities by providing them access to information, knowledge, opportunities, and services that can **improve their quality of life, and also enable them to participate and contribute to the digital economy and society.**

What is Digital Public Infrastructure (DPI)?
➤ **About:**
  ○ DPI refers to blocks or platforms such as **digital identification, payment infrastructure and data exchange solutions** that help countries deliver essential services to their people, empowering citizens and improving lives by enabling digital inclusion.
  ○ DPIs mediate the **flow of people, money and information.** First, the flow of people through a **digital ID System**. Second, the flow of money through a **real-time fast payment system**. Third, the flow of **personal information through a consent-based data-sharing system** to actualize the benefits of DPIs and to empower the citizens with a real ability to control data.
    ● These three sets become the foundation for developing an effective DPI ecosystem.
  ○ Operates under open, transparent, and participatory governance.

Note:

❍ India, through **India Stack**, became the first country to develop **all three foundational DPIs, Digital identity (Aadhar), Real-time fast payment (UPI)** and **Account Aggregator** built on the **Data Empowerment Protection Architecture (DEPA).**

➢ **Constitutes Digital Public Infrastructure (DPI):**

❍ **DPI comprises three integral layers:**

  • **Market:** Innovative and competitive players designing inclusive products.

  • **Governance:** Legal and institutional frameworks, public programs, and policies.

  • **Technology Standards:** Identity, payments, and data sharing standards for interoperability.

➢ **Benefits of DPI's Approach:**

❍ Reduced **development costs and modular end-user solutions.**

❍ An ecosystem of **diverse applications and lower entry barriers.**

❍ A democratic, non-monopolistic system with built-in scalability.

➢ **Successful DPI Initiatives in India:**

❍ Aadhaar, Unified Payment Interface (UPI), and CoWin. Others like Unified Health Interface (UHI), Ayushman Bharat Digital Mission (ABDM), and Open Network for Digital Commerce are in progress.

Debate over the Words Socialist and Secular in Constitution

Why in News?

Recently, some of the Members of the Lok Sabha have claimed that the words "Socialist" and "Secular" were omitted in the New Copies of the **Preamble of the Constitution of India.**

➢ These two words were originally not a part of the Preamble. They were added by The **Constitution (42nd Amendment) Act, 1976** during the **Emergency** imposed by then Prime Minister Indira Gandhi.

What is the Preamble of the Indian Constitution?

➢ **About:**

❍ Every Constitution has a philosophy. The philosophy underlying the Constitution of India was summed up in the **Objectives Resolution**, which was adopted by the Constituent Assembly on 22nd January, 1947.

❍ The **Preamble of the Constitution** puts in words the ideal contained in the Objectives Resolution.

❍ It serves as an introduction to the Constitution, and contains its basic principles and goals.

➢ **The Preamble of the Constitution that Commenced in 1950 read:**

❍ "WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a SOVEREIGN DEMOCRATIC REPUBLIC and to secure to all its citizens:

  • JUSTICE, social, economic and political;

  • LIBERTY of thought, expression, belief, faith and worship;

  • EQUALITY of status and of opportunity; and to promote among them all

  • FRATERNITY assuring the dignity of the individual and the unity of the Nation;

❍ IN OUR CONSTITUENT ASSEMBLY this 26th day of November, 1949, do HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION."

➢ **Insertion of the words Socialist and Secular:**

❍ The words "Socialist" and "Secular" were added to the Preamble through the **Constitution (42nd Amendment) Act, 1976**, during the **period of Emergency** under Prime Minister Indira Gandhi's government.

  • The **insertion of "socialist"** aimed to emphasize **socialism as a goal and philosophy of the Indian stat**e, with a focus on eradicating poverty and adopting a unique form of socialism that involved nationalization only in specific sectors where necessary.

  • The **inclusion of "secular"** reinforced the **idea of a secular state**, treating all religions equally, maintaining **neutrality, and not endorsing any particular religion** as a state religion.

What is the Debate Over Removing Socialist and Secular Words from the Preamble?

➢ **Political Ideology and Representation:**

❍ Those advocating for the removal argue that the words "socialist" and "secular" were inserted during the **Emergency in 1976**.

Note:

- They believe this was an **imposition of a particular political ideology** and goes against the **principles of representation and democratic decision-making.**
- **Original Intent and Constitution's Philosophy:**
  - Critics argue that the original Preamble, as adopted in 1950, didn't include these words. They emphasize that the **Constitution's philosophy already encompassed the ideas of justice, equality, liberty**, and fraternity without explicitly mentioning **socialism and secularism.**
  - They argue that these values **were always implicit in the Constitution**.
- **Concerns of Misinterpretation:**
  - Some critics express concerns that the words "socialist" and "secular" might be misinterpreted or misused, potentially **leading to policies and actions that deviate from their original intent.**
  - They argue for a **more neutral and flexible** approach in the Preamble.
- **Social Implications:**
  - The presence or absence of these words can **have implications for public policy**, governance, and societal discourse.
  - The term "secular" is particularly significant in a country with a diverse religious population, and its removal might **raise concerns about the state's commitment to religious neutrality**

SHREYAS Scheme

Why in News?

The **Scholarships for Higher Education for Young Achievers Scheme (SHREYAS)** initiative has been a cornerstone in India's efforts to empower students from **Scheduled Castes (SC)** and **Other Backward Classes (OBC)** by providing them **access to quality education.**

What is SHREYAS?

- **About:**
  - SHREYAS is an umbrella scheme, under the Ministry of Social Justice & Empowerment.
  - SHREYAS aims for the Educational Empowerment of OBC & Economically Backward Class (EBC) students by way of **awarding fellowships (financial assistance**) in obtaining **quality higher education** and **interest subsidy on educational loans for overseas studies.**

- **Sub-Schemes:**
  - The umbrella scheme of "SHREYAS" comprises **4 central sector sub-schemes.**
    - Free Coaching Scheme for SCs and OBCs:
- **Objective:**
  - Provide **coaching of high quality to economically disadvantaged SCs and OBCs for competitive exams** and admission to technical and professional institutions.
  - **Income Ceiling:** Family income under the scheme is **capped at 8 lakhs per annum.**
  - **Slot Allocation:** 3500 slots are allotted annually.
  - **Gender Inclusivity: 30% of slots** are reserved for **females i**n both categories.
  - **Allocation Ratio:** The SC: OBC ratio is **70:30,** ensuring equitable access.
  - **Outcomes:** From 2014-15 to 2022-23, 19,995 beneficiaries have benefited through this.
- **Top-Class Education for SCs:**
  - **Objective:** Recognize and promote **quality education among SC students, covering studies beyond the 12th class.**
  - **Income Ceiling:** The family income limit is set at **8 lakhs per annum.**
  - **Coverage:** 266 higher education institutes, including prestigious institutions like IIMs, IITs, and NITs.
  - **Scholarship:** Under the scheme, tuition fee, non-refundable charges, academic allowance and other expenses are provided.
  - **Outcomes:** From 2014-15 till 2022-23 21,988 beneficiaries have benefited through this.
- **National Overseas Scheme for SCs:**
  - **Objective:** Under the **National Overseas Scheme for SCs**, financial assistance is provided to the selected students from SCs; De-notified, Nomadic and Semi-Nomadic Tribes; landless agricultural labourers and traditional artisan categories, for pursuing masters and Ph.D. level courses abroad.
  - **Eligibility:** A student with a total family income including the candidate should be less than **Rs. 8 lakhs per annum,** who has **more than 60% marks** in the qualifying examination, is below **35 years of age** and who secured admission in the **top 500 QS ranking foreign Institutes/ Universities.**

❍ **Scholarship:** Total tuition fee, maintenance and contingency allowance, visa fee, to and fro air passage etc. are provided to the awardees.

❍ **Outcomes:** From 2014-15 to 2022-23, 950 beneficiaries have benefited through this.

➢ **National Fellowship for SC Students:**

❍ **Aim:** This fellowship supports **SC students pursuing M.Phil/Ph.D. degrees in Sciences, Humanities, and Social Sciences** in Indian Universities/Institutions/Colleges recognized by the **University Grants Commission (UGC).**

❍ **Eligibility:** Candidates who have **qualified for the National Eligibility Test (NET-JRF)** or Junior Research Fellows for Science stream qualifying UGC-Council of Scientific and Industrial Research (UGC-CSIR) Joint Test.

❍ **Allocation:** The scheme provides for 2000 new slots per year (500 for the science stream and 1500 for the Humanities and Social Sciences).

What are the Other Education Schemes in India?

➢ **National Programme on Technology Enhanced Learning.**

➢ **Beti Bachao Beti Padhao**

➢ **PM SHRI Schools**

➢ **National Means cum Merit Scholarship (NMMS)**

➢ **Swachh Vidyalaya Abhiyan**

➢ **Eklavya Model Residential Schools**

Fraternity in India

Why in News?

Fraternity, one of the core values enshrined in the Indian Constitution, plays a pivotal role in fostering unity and equality in society. However, the practical application of fraternity in India raises several questions and challenges.

What is the Origin of the Concept of Fraternity?

➢ **Ancient Greece:**

❍ Fraternity, the idea of brotherhood and unity, has a long history.

❍ In Plato's Lysis, the philosopher invokes the **word philia (love) for the strong desire to pursue wisdom.**

● In this context, fraternity was seen as the strong desire to share knowledge and wisdom with others, making friendship more meaningful through intellectual exchange.

➢ **Aristotle's Idea:**

❍ Aristotle, the Greek philosopher, added to the idea of fraternity by highlighting the importance of the **"polis," the city-state where people belonged as political beings** and friendships among citizens in a city-state (polis) is crucial.

➢ **Middle Ages:**

❍ During the Middle Ages, fraternity took on a different dimension, **primarily within the Christian context in Europe.**

● Here, fraternity was often associated with **religious and communal bonds.**

● It was fostered through shared **religious beliefs and practices**, emphasizing a sense of brotherhood among believers.

➢ **French Revolution:**

❍ French Revolution in 1789, which gave rise to the **famous motto "liberté, égalité, fraternité" (liberty, equality, fraternity).**

● This marked the introduction of **fraternity into the realm of politics, alongside liberty and equality.**

■ Fraternity, in this context, symbolized the **idea of unity and solidarity among citizens** as they fought for their rights and freedom.

What is the Concept of Fraternity in India?

➢ India's fraternity has its own journey within **India's sociology**, and the current nature of India's fraternity is different from the political fraternity espoused in its Constitution.

➢ Fraternity is a constitutional value in India, alongside liberty and equality, aimed at achieving social harmony and unity.

❍ The framers of the Indian Constitution recognized the importance of fraternity in a **society marred by hierarchical social inequalities.**

➢ **Dr. Bhim Rao Ambedkar** stressed the inseparability of liberty, equality, and fraternity, considering them as fundamental tenets of Indian democracy.

➢ **Constitutional Provisions Related to Fraternity:**

Note:

- **Preamble:**
  - The principle of fraternity was added to the principles in the **Preamble** along with liberty, equality, and justice.
- **Fundamental Duties**:
  - **Article 51A** on **Fundamental Duties,** added to by the **42nd Amendment** in 1976 and further amended by 86th Amendment in 2002.
  - **Article 51A(e)** generally refers to the duty of every citizen 'to promote harmony and the spirit of common brotherhood amongst all the people of India.'

What are the Limits and Challenges to Fraternity in India's Context?

- **Social and Cultural Differences:**
  - India's diverse cultures and traditions can lead to **misunderstandings and conflicts among different communities.**
    - **Religious or caste-based differences** often result in mistrust, discrimination, and even violence, eroding the spirit of brotherhood.
    - Incidents of **religious intolerance or conflicts** can disrupt social cohesion and unity, making it difficult to foster fraternity.
      - Religious minorities have faced such social and political opprobrium countless times in this country.
- **Economic Disparities:**
  - The significant **economic gap between different sections of society** can breed resentment and feelings of discrimination.
  - When people perceive economic barriers to their success, they may hesitate to cooperate, hindering social cohesion, a crucial element of fraternity.
- **Political Differences:**
  - **Political ideologies can create deep divisions in society**, impeding cooperation and dialogue.
    - Such differences often **lead to polarization**, fostering an atmosphere of hostility and intolerance that obstructs constructive engagement.
- **Lack of Trust:**
  - A lack of **mutual trust and understanding among groups** can undermine fraternity.

- When trust is lacking, working together toward common goals becomes challenging.
- **Failure of Constitutional Morality:**
  - **Constitutional morality**, based on Indian constitutional values, is vital for maintaining fraternity.
    - Its failure can lead to a loss of **confidence in institutions and the rule of law, creating instability and undermining brotherhood.**
- **Inadequate Moral Order:**
  - A functioning moral order in society, including adherence to ethical values and social responsibility, is crucial for democracy's success.
  - Failure in this area can result in the erosion of brotherhood, with unethical actions eroding trust among citizens.
- **Educational Disparities:**
  - Disparities in **access to quality education can perpetuate social inequalities and hinder fraternity.**
  - Educational inequities often result in unequal opportunities, reinforcing divisions among communities.
- **Regional Disparities:**
  - India's vast geographical and regional diversity can lead to disparities in economic development and infrastructure.
  - These **regional inequalities may create a sense of marginalization** among certain communities, challenging efforts to promote brotherhood.
- **Language and Cultural Barriers:**
  - India's multitude of **languages and dialects can sometimes create communication barriers.**
    - Language and cultural differences can hinder effective dialogue and cooperation, affecting the spirit of fraternity.

Initiatives for Agriculture

Why in News?

Recently, the Ministry of Agriculture (MoA&FW) has launched three initiatives, namely the **Kisan Rin Portal (KRP), KCC Ghar Ghar Abhiyaan** and a manual on **Weather Information Network Data Systems (WINDS).**

- These initiatives aim to revolutionize agriculture, enhance financial inclusion, optimize data utilization, and improve the lives of farmers across the nation.

Note:

What are the Key Points of these Schemes?

➢ **Kisan Rin Portal (KRP):**

- Developed through a collaborative effort involving MoA&FW, Ministry of Finance, **RBI**, and **NABARD**, the KRP aims to **revolutionize access to credit service**s under the **Kisan Credit Card (KCC)** scheme.

- It facilitates **farmers in availing subsidized agriculture credit** through the **Modified Interest Subvention Scheme (MISS)**.

- The portal offers an **integrated hub, providing a comprehensive view of farmer data,** loan disbursement specifics, interest subvention claims, and scheme utilization progress.

➢ **Ghar-Ghar KCC Abhiyaan:**

- The "Ghar-Ghar KCC Abhiyaan" underscores government commitment to **Universal Financial Inclusion**, ensuring e**very farmer has unhindered access to credit facilities** crucial for their agricultural pursuits.

  - This campaign, starting from 1st October 2023 to 31st December 2023, targets the **saturation of KCC accounts among eligible PM KISAN** beneficiary farmers.

- The ministry has verified existing KCC account holders' data against the PM KISAN database, identifying those with KCC accounts and those without.

- The campaign **aims to reach out to non-KCC account holder PM KISAN beneficiaries** and facilitate their seamless integration into the KCC scheme.

➢ **Launch of WINDS Manual:**

- The WINDS initiative is an effort aimed at **establishing a network of Automatic Weather Stations & Rain Gauges** at taluk/block and gram panchayat levels.

- This initiative creates **a robust database of hyper-local weather data**, supporting various agricultural services.

- The comprehensive WINDS manual **launched provides stakeholders with an in-depth understanding** of the portal's functionalities, data interpretation, and effective utilization.

  - It guides States and Union Territories in establishing and **integrating with the WINDS platform**.

- Additionally, it offers practical insights into leveraging weather data for improved crop management, resource allocation, and risk mitigation.

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What are the Initiatives Related to Agriculture?

➢ **Mission Organic Value Chain Development for North Eastern Region (MOVCDNER)**

➢ **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)**

➢ **National e-Governance Plan in Agriculture (NeGP-A)**

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Ayushman Bhav Campaign

Why in News?

In a move towards achieving **Universal Health Coverage (UHC)** and ensuring healthcare for all, the President of India virtually launched the **Ayushman Bhav campaign** and the **Ayushman Bhava portal**.

➢ This initiative aims to deliver healthcare services to the **last mile and consolidate access and affordability for underserved populations.**

➢ The campaign also raises awareness about vital health schemes and diseases, leveraging **India's digital inclusion efforts to extend healthcare accessibility.**

➢ The 'Ayushman Bhav' campaign will be implemented during the **'Seva Pakhwada' embodying a whole-of-nation and whole-of-society approach.**

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Note:

➢ The Seva Pakhwada is a two-week initiative(running from September 17th to October 2nd, 2023) that aims to outreach essential health services programs at the state level.

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How Does Ayushman Bhava Transform India's Healthcare Landscape?

➢ **Universal Health Coverage (UHC) Goal:**

- The campaign adopts a collaborative, multi-ministerial approach.

○ Ayushman Bhava aligns with the motto of **"Sabka Saath Sabka Vikas" (Together with All, Development for All).**

● This philosophy underscores inclusivity, leaving no one behind in healthcare access.

➤ **Three Key Components of Ayushman Bhava:**

○ **Ayushman - Apke Dwar (AAD) 3.0:** AAD 3.0 will enable eligible beneficiaries to **create Ayushman cards for himself/herself/any of the family members.**

● This streamlines healthcare access and benefits.

○ **Ayushman Melas at HWCs and CHCs:**

● **Health Melas and Medical Camps** are established weekly at Health and Wellness Centres (HWCs) and Community Health Clinics (CHCs).

■ They prioritize the delivery of super-specialty healthcare services, including **non-communicable disease** screenings, tele-consultations, free medicines, and diagnostics.

○ **Ayushman Sabhas:**

● Ayushman Sabha is a community-level assembly, **led by the Village Health and Sanitation Committee (VHSNC) in rural areas** or the **Ward Committee/Municipal Advisory Committee (MAS) in urban wards.**

■ Its primary mission is to ensure comprehensive health coverage and optimal healthcare service delivery.

➤ **Ayushman Gram Panchayats:** Gram Panchayats that successfully meet their healthcare objectives will attain the status of **Ayushman Gram Panchayats.**

○ This encourages local participation and dedication.

What are the Recent Government Initiatives Related to Healthcare?

➤ **National Health Mission**

➤ **Ayushman Bharat**

➤ **Pradhan Mantri Jan Arogya Yojana (AB-PMJAY)**

➤ **National Medical Commission**

➤ **PM National Dialysis Programme**

➤ **Janani Shishu Suraksha Karyakram (JSSK)**

➤ **Rashtriya Bal Swasthya Karyakram (RBSK)**

PM Vishwakarma Scheme

Why in News?

Recently, the Prime Minister of India has launched the **'Prime Minister (PM) Vishwakarma Scheme'** on the occasion of **Vishwakarma Jayanti.**

What is the PM Vishwakarma Scheme?

➤ **About:**

○ The scheme is designed to **uplift traditional artisans and craftspeople** engaged in various occupations like **blacksmithing, goldsmithing, pottery, carpentry, and sculpting**, with a focus on preserving cultural heritage and integrating them into the formal economy and global value chains.

○ It will be implemented as a **Central Sector Scheme**, fully funded by the Government of India.

➤ **Ministry:**

○ **Ministry of Micro, Small and Medium Enterprises (MoMSME)** is the Nodal Ministry for the Scheme.

○ The Scheme will be jointly implemented by the MoMSME, the Ministry of Skill Development and Entrepreneurship and the Department of Financial Services, Ministry of Finance, Government of India.

➤ **Features:**

○ **Recognition and Support:** Artisans and **craftspeople enrolled in the scheme will receive a PM Vishwakarma certificate** and an identity card.

● They will also be eligible for collateral-free credit support of up to Rs 1 lakh (first tranche) and Rs 2 lakh (second tranche) at a concessional interest rate of 5%.

○ **Skill Development and Empowerment:** The Scheme has been allocated a budget ranging from **Rs 13,000 crore** for five financial years from 2023-2024 to 2027-2028.

● The scheme offers a stipend of **Rs 500 for skill training per day and Rs 15,000** grant for the purchase of modern tools.

○ **Scope and Coverage:** The scheme encompasses **18 traditional trades across both rural and urban areas.**

● These trades encompass carpenters, boat-makers, blacksmiths, potters, sculptors, cobblers, tailors, and more.

Note:

○ **Registration and Implementation:** Registration for the Vishwakarma Yojana can be completed at **common services centers in villages.**

- While the central government will provide funding for the scheme, state governments' support will also be sought.

➢ **Objectives:**

○ To ensure that artisans are seamlessly integrated into both domestic and global value chains, thus enhancing their market access and opportunities.

○ Preservation and promotion of **India's rich cultural heritage** of traditional crafts.

○ Assisting artisans in **transitioning to the formal economy** and integrating them into global value chains.

➢ **Significance:**

○ Vishwakarmas (Traditional Artisans) play a critical role in society regardless of technological advancements.

○ There is a need to recognize and support these artisans and integrate them into the global supply chain.

What are the Government Initiatives for the Upliftment of Artisans?

➢ **Ambedkar Hastshilp Vikas Yojana**
➢ **Mega Cluster Scheme**
➢ **National Handicraft Development Programme**
➢ **Comprehensive Handicrafts Cluster Development Scheme**
➢ **Export Promotion Council for Handicrafts**
➢ **One District One Product**
➢ **Atmanirbhar Hastshilpkar Scheme.**

PM VISHWAKARMA SCHEME

Vishwakarma Jayanti is celebrated to honour Vishwakarma – the architect of the gods in Hindu Mythology

Vishwakarma is also believed to be the architect of mythical city Lanka and the great image of Jagannatha at Puri in Odisha

OBJECTIVE
- To uplift traditional artisans and craftspeople
- Preservation of India's rich cultural heritage of traditional crafts
- Transitioning to the formal economy and global value chain

IMPLEMENTING MINISTRIES
- **Ministry of MSMEs (Nodal Ministry)**
- Ministry of Skill Development and Entrepreneurship
- Department of Financial Services (Ministry of Finance)

TYPE OF SCHEME
- Central Sector Scheme

TIMELINE
- **5 years** from (FY23-24 to FY 27-28)

FEATURES
- **Collateral-free credit support** of up to **Rs 3 lakhs** @ interest rate of 5%
- PM Vishwakarma certificate and an I-card for enrolled artisans and craftspeople

REGISTRATION
- Common Service Centres in villages

COVERAGE – 18 TRADITIONAL TRADE SECTORS
- Carpenters
- Boat Makers
- Armourers
- Blacksmiths
- Hammer and Tool Kit Makers
- Locksmiths
- Goldsmiths
- Potters
- Sculptor, Stone breakers
- Cobblers
- Masons
- Basket/Mat/Broom Makers /Coir Weavers
- Doll & Toy Makers
- Barbers
- Garland makers
- Washermen
- Tailors
- Fishing Net Makes

STIPEND AND INCENTIVES
- Rs 500 for **skill training** (stipend)
- Rs 1,500 to **purchase modern tools**
- Rs 15,000 as **toolkit incentive**

SIGNIFICANCE
- Recognition/support of artisans and their **integration in global supply chain**

Drishti IAS

Note:

drishti

Skill India Digital

Why in News?

Recently, the **Union Minister for Skill Development and Entrepreneurship,** launched **Skill India Digital (SID).**

➢ This comprehensive digital platform aspires to provide **every Indian with access to quality skill development,** relevant opportunities, and entrepreneurial support.

What is Skill India Digital?

➢ **About:**

○ **Skill India Digital (SID)** is envisioned as the **Digital Public Infrastructure (DPI)** for **skilling, education, employment, and entrepreneurship in India.**

○ It aims to bring together various skilling initiatives and create a seamless ecosystem for skill development, **aligning with the principles of the G20 framework** for building DPIs.

> **Note: Digital public infrastructure** refers to blocks or platforms such as **digital identification, payment infrastructure and data exchange solutions** that help countries deliver essential services to their people, empowering citizens and improving lives by enabling **digital inclusion**.

➢ **Core Features of SID:**

○ **Comprehensive Skill Development:** SID extends **industry-relevant skill courses**, job opportunities, and entrepreneurship support, ensuring comprehensive skill development.

○ **Digital Transformation:** With a focus on digital technology and **Industry 4.0 skills,** SID seeks to make skill development more innovative, accessible, and personalised.

○ **Information Gateway:** SID serves as a **central information hub for all government skilling and entrepreneurship initiatives,** facilitating easy access for citizens seeking career advancement and lifelong learning.

○ **Intersection of Skill India and Digital India:** SID intersects with the government's vision of **Skill India** and **Digital India,** creating opportunities for the youth.

➢ **Key Elements Enhancing SID:**

○ **Aadhaar/AI-based Facial Authentication:** Ensuring secure access and verification.

○ **Digital Verifiable Credentials (DVC)**: Providing a tamper-proof, verifiable record of qualifications.

○ **AI and ML Recommendations**: Offering personalised learning paths and career guidance.

○ **Citizen-Centric Approach:** Ensuring **inclusivity by supporting multiple Indian languages.**

○ **Interoperability:** Promoting the integration of government training programs.

> **Note:**
> ➢ SID has introduced **Digitally Verified Credentials,** revolutionising how qualifications are exhibited and recognized.
> ○ These tamper-proof credentials empower users to present their qualifications confidently in a digital format.
> ➢ Moreover, the **platform integrates Digital CVs with personalised QR Codes,** simplifying the sharing of skills and qualifications with potential employers and partners.

What are the Other Government Initiatives Related to Skill Development?

➢ **Pradhan Mantri Kaushal Vikas Yojana**

➢ **SANKALP Scheme**

➢ **TEJAS Skilling Project**

National Judicial Data Grid

Why in News?

Recently, the **Supreme Court** has integrated its case data on the **National Judicial Data Grid (NJDC).**

➢ The integration with NJDG as part of an **'Open Data Policy (ODP)'** to provide transparent case information to the public.

➢ ODP is increasingly a set of policies - that promotes **transparency, accountability, and value creation** by making government data available to all.

Note:

What is the National Judicial Data Grid (NJDG)?

➢ **About:**
- ❍ The NJDG portal is a **national repository of data** relating to cases instituted, pending, and disposed of by the courts across the country.
- ❍ It is a **database of orders, judgments and case** details of 18,735 District and **subordinate Courts and High Courts** created as an online platform under the **e-Courts** **Project.**
- ❍ Its key feature is that t**he data is updated in real-time and has granular data up to the Taluka level.**
  - ● It was built as part of **Phase II of the e-Courts project,** which is a **Centrally Sponsored Scheme**.
- ❍ Currently, litigants can access case status **information of 23.81 crore cases and more than 23.02** crore orders/judgments.

➢ **Developed By:**
- ❍ The platform has been developed by the **National Informatics Centre (NIC)** in **close coordination with the in-house software development team** of the Computer Cell, Registry of the **Supreme Court (SC)** with an interactive interface and analytics dashboard.

➢ **Significance:**
- ❍ NJDG works as a **monitoring tool to identify, manage & reduce pendency** of cases.
- ❍ It helps **identify specific bottlenecks** in judicial processes. For example, if the number of land disputes in a particular state shoots up, **it helps policymakers look into whether the law needs** to be strengthened.
- ❍ It also helps generate **inputs related to particular areas** of law. For example, to track cases related to land disputes, Land Records data of 26 States have been linked with NJDG.

What is the Current Pandency Status of Cases?

➢ For the year 2023, the total pendency of registered cases in SC is 64,854.

➢ In SC, there are 5,412 cases filed and 5033 cases disposed in August 2023.

➢ There are 583 three-judge Bench matters, 288 five-judge Bench cases, 21 seven-judge Bench cases, and 135 nine-judge Bench cases, all of which are civil, pending in the Supreme Court.

What are the Other Initiatives under E-court Projects?
➢ **Case Information Software (CIS)**
➢ **Virtual Courts**
➢ **Video-conferencing (VC).**
➢ **National Service and Tracking of Electronic Processes (NSTEP)**
➢ **Supreme Court Portal for Assistance in Court's Efficiency**

Pradhan Mantri Rashtriya Bal Puraskar

Why in News?

The Ministry of Women & Child Development, Government of India, organises **Pradhan Mantri Rashtriya Bal Puraskar** every year to celebrate the energy, determination, ability, zeal and enthusiasm of our children.

What is Pradhan Mantri Rashtriya Bal Puraskar?

➢ **Two Categories:** The Pradhan Mantri Rashtriya Bal Puraskar is given under two categories:
- ❍ **Bal Shakti Puraskar,** and
- ❍ Bal Kalyan Puraskar.

➢ **Bal Shakti Puraskar:**
- ❍ **Recognition:**
  - ● It is given by the Government of India every year to **recognize exceptional achievements of children** in various fields i.e., innovation, scholastic achievements, social service, arts & culture, sports and bravery.
- ❍ **Eligibility:**
  - ● A child who is an Indian Citizen and residing in **India and is between 5-18 years of age.**
- ❍ **Award:**
  - ● A medal, a **cash prize of Rs. 1,00,000**, book vouchers worth Rs.10,000, a certificate and citation.
- ❍ **Background:**
  - ● It was instituted in 1996 as the National Child Award for Exceptional Achievement, renamed from 2018 as Bal Shakti Puraskar.

Note:

➢ **Bal Kalyan Puraskar:**
  ○ **Recognition:**
    ● It is given as recognition to **Individuals and Institutions**, who have made an outstanding contribution towards service for children in the field of child development, child protection and child welfare.
  ○ **Eligibility:**
    ● An individual who is an I**ndian Citizen and residing in India and should have attained the age of 18 years** or above (as on 31st August of respective year). She/he should have worked for the cause of children for not less than 7 years.

    ● The institution should **not be entirely funded by the government** and should have been in the field of child welfare for 10 years and performing consistently in the field.
  ○ **Award:**
    ● Three awards are **given in each of the two categories** - Individual and Institution - along with cash prizes (Rs. 1,00, 000 and Rs. 5,00, 000 respectively).
  ○ **Background:**
    ● It was instituted in **1979 as the National Child Welfare Awards**, renamed from 2018 as Bal Kalyan Puraskar.

■■■

Note:

Economic Scenario

Highlights

- *International Organization of Legal Metrology*
- *Surety Bonds*
- *Palm-Oil Production*
- *Global Debt Trends and Implications*
- *Concerns Related to India's GDP Data*
- *India's Inclusion in JPMorgan GBI-EM Index*

- *State of Working India 2023*
- *Boosting Rubber Cultivation in Northeastern India*
- *India's Outward and Inward Investment Trends*
- *Business Responsibility and Sustainability Reporting Framework*
- *Gresham's Law and Currency Exchange Rate*
- *RBI to Discontinue I-CRR*

International Organization of Legal Metrology

Why in News?

Recently, India has become the 13th country that can issue **OIML (International Organization of Legal Metrology)** Certificates.

➢ The Legal Metrology Division, Department of Consumer Affairs, is now **authorised to issue OIML certificates.**

What is Legal Metrology?

➢ Legal Metrology **refers to a branch of metrology** that focuses on the regulation and legislation **concerning measurements and measuring instruments** to ensure accuracy, consistency, and fairness in commercial transactions and other areas where measurements play a critical role.
  ❍ Metrology is the **science of measurement** and its application.

➢ The primary objective of legal metrology is to protect the interests of both consumers and producers by establishing clear and uniform standards for measurements.

Note:
➢ The **CSIR-National Physical Laboratory (NPL-India)** is India's **National Metrology Institute' (NMI)** that maintains **standards of SI units in India and calibrates** the national standards of weights and measures.

What is the International Organization of Legal Metrology (OIML)?

➢ **About:**
  ❍ The OIML was established in **1955 and headquartered in Paris**.
  ❍ It is an **international standard-setting body** that develops model regulations, standards and related documents for use by legal metrology authorities and industry.
  ❍ It plays a crucial role in **harmonising national laws and regulations** on the performance of measuring instruments like clinical thermometers, alcohol breath analysers, radar speed measuring instruments, ship tanks found at ports, and petrol dispensing units.

➢ **India's Membership:**
  ❍ India became a member of the OIML in 1956. In the same year, **India signed the Metric Convention.**
    - The **Metric Convention of 1875**, more formally known as the Metre Convention or Treaty of the Metre, is an international treaty that was signed on 20th May, 1875, in Paris, France.

➢ **World Metrology Day** is celebrated on this day.
    - It established the International System of Units (SI), which is the modern form of the metric system.

➢ **OIML Certificate:**
  ❍ The OIML-CS is a system for **issuing, registering and using OIML** certificates, and their associated OIML type evaluation/test reports, for instruments like **digital balance, clinical thermometers**, etc.

- To **sell a weight or measure** in the international market an **OIML Pattern Approval certificate is mandatory.** It is a single certificate accepted worldwide.
- With the addition of India, the number of countries **authorised to issue OIML certificates has increased to 13.**

What is the Significance of India's Becoming OIML Certificate Authority?

- **Ease in Exports:** For instance, suppose there is an equipment-manufacturer making digital balances in Noida who wants to export to the US or to any other coun**Countries that can Issue OIML Certificates:**
- Australia, Switzerland, China, Czech Republic, Germany, Denmark, France, the UK, Japan, Netherlands, Sweden, and Slovakia (and now India too).try. Earlier, he would be required to go to one of the other 12 (eligible) countries for certification.
  - Now, the certificates can be **issued in India and the equipment will be exportable** (without incurring additional testing fees), and acceptable to the entire world.
- **Better Forex:** The move is expected to help the Indian economy in **several ways, including** an increase in exports, **earning of Foreign Exchange**, and **generation of employment.**
  - Since only 13 countries are authorised, **neighbouring countries and manufacturers can come to India** to get their certification done. So it will be **a revenue earner for India** in terms of foreign exchange.

Surety Bonds

Why in News?

Recently, some of the leading general insurers like New India Assurance, SBI General Insurance etc. have announced their plans to issue **Surety Bonds**, but nobody has been able to do so due to lack of supporting elements.

- **The Ministry of Finance** and the **Ministry of Road Transport and Highways** are putting pressure on the **Insurance Regulatory and Development Authority of India (IRDAI)** to push the insurance industry to launch surety Bond Products.

What is Surety Bond?

- **About:**
  - A surety bond can be defined in its simplest form as a **written agreement to guarantee compliance, payment, or performance of an act.**
  - It is a unique type of insurance because it involves a **three-party agreement.** The three parties in a surety agreement are:
    - **Principal** – The party that purchases the bond and undertakes an obligation to perform an act as promised.
    - **Surety –** The insurance company or surety company that guarantees the obligation will be performed. If the principal fails to perform the act as promised, the surety is contractually liable for losses sustained.
    - **Obligee** - The party who requires, and often receives the benefit of the surety bond. For most surety bonds, the obligee is a local, state or federal government organization.
  - Surety bond is **provided by the insurance company** on behalf of the contractor to the entity that is awarding the project.
  - It will help contractors to have financial closure of their projects **without depending upon only bank guarantees.**
- **Aim:**
  - Surety bonds are mainly aimed at infrastructure development, mainly to reduce indirect cost for suppliers and work contractors thereby diversifying their options and acting as a substitute for bank guarantee.
- **Benefits:**
  - Surety bonds **protect the beneficiary** against acts or events that impair the underlying obligations of the principal.
  - They **guarantee the performance** of a variety of obligations, from construction or service contracts to licensing and commercial undertakings.

How can it Boost the Infra Project?

- The move to frame rules for surety contracts will **help address the large liquidity and funding requirements** of the infrastructure sector.
- It will **create a level-playing field for large, mid and small contractors**.

➤ The Surety insurance business will assist in developing an alternative to bank guarantees for construction projects.

➤ This shall **enable the efficient use of working capital and reduce the requirement of collateral** to be provided by construction companies.

➤ Insurers shall work together with financial institutions to share risk information.

○ Hence, this shall assist in releasing liquidity in infrastructure space without compromising on risk aspects.

What are the Issues with the Surety Bonds?

➤ Surety bonds, a new concept, are **risky and insurance companies in India are yet to achieve expertise** in risk assessment in such business.

➤ Also, there's no clarity **on pricing, the recourse available against defaulting contractors and reinsurance options.**

○ These are critical and may impede the creation of surety-related expertise and capacities and eventually deter insurers from writing this class of businesses.

➤ Surety Bonds need extensive **reinsurance support** and no primary insurers can issue any policy without proper reinsurance backup.

➤ The issuer of Surety Bonds in India should be in a position to legally enforce tripartite contracts that guarantee compliance, payment and/or performance.

○ **Indian Contract Act** and **Insolvency and Bankruptcy code** does not recognize rights of Insurers at par with financial creditors yet and thus insurance companies do not have recourse to recovery like banks in case of any default.

Palm-Oil Production

Why in News?

The **European Union (EU)** has taken significant steps in recent years to address deforestation and environmental concerns **through the EU Deforestation-Free Regulation (EUDR)** related to **palm oil** production and made massive efforts to phase out palm oil-based biofuels by 2030.

➤ Malaysia's signing of a deal to double palm oil exports to China annually is **a move to offset potential revenue losses from the EU's ban** on commodities that are linked to deforestation.

What is the EU Deforestation-Free Regulation (EUDR) and Malaysia and Indonesia's Reactions?

➤ **EUDR:**

○ This aims at removing deforestation from supply chains of everyday items in the EU. Legislation adopted in Brussels in 2023 with **2030 as the target and Imposes administrative burdens on palm oil exporters** wanting to sell in the EU.

○ Apart from this, Biofuels, palm oil, and deforestation are the core focus areas of Palm Oil Policy and Deforestation Legislation.

○ The regulation requires firms **to ensure that the product exported to the EU has been grown on land** which has **not been deforested after December 31, 2020.**

○ The regulation is not **WTO (World Trade Organization)** compatible and a non-tariff barrier.

➤ **Malaysia and Indonesia's Response:**

○ Widespread opposition to perceived European protectionism through this legislation.

○ It would promote **dependency on China for exports**, which could nullify environmental benefits.

○ Implications for the EU are immense and Chinese markets can benefit from it tremendously.

What is Palm Oil & Its Use?

➤ **About:**

○ Palm oil is an edible vegetable oil derived from the **mesocarp (reddish pulp) of the fruit of the oil palms.**

○ It is used as cooking oil, and in everything from **cosmetics, processed foods, cakes, chocolates, spreads, soaps, shampoo**, and cleaning products to biofuel.

● The use of crude palm oil in making **biodiesel** is being branded as **'green diesel'.**

➤ **Production:**

○ Indonesia and Malaysia together account for almost **90% of the global palm oil production**, with Indonesia producing the largest quantity at over **45 million tonnes in 2021.**

➤ **Issues with Oil Palm Industry:**

○ The oil palm industry has come under criticism for what are reportedly unsustainable production practices leading to **deforestation, and exploitative labor practices** carried forward from the colonial era.

- However, **palm oil** is preferred by many as it is **inexpensive**, oil palms produce more oil per hectare than some other vegetable oil plants **like soybean**.

How Important is Palm Oil for Global Supply Chains?

➢ **Global Supply Chain:**
  - **Palm oil is the world's most widely used vegetable oil** with its global production in the year 2020 **being over 73 Million Tones (MT)**, according to the United States Department of Agriculture (USDA).
    - It is estimated to be 77 MT for the current year FY 2022-23.
  - According to Reuters, **palm oil makes up 40% of the global supply** of the four most widely used edible oils: palm, soybean, rapeseed (canola), and sunflower oil.
    - Indonesia is responsible for 60% of the global supply of palm oil.

➢ **Status of India in Palm Oil Import:**
  - India is the biggest importer of palm oil, which makes up **40% of its vegetable oil consumption.** India meets **half of its annual need for 8.3 MT of palm oil from Indonesia.**
  - In 2021, India unveiled the National **Mission on Edible Oil-Oil Palm** to boost India's domestic palm oil production.
    - Given advantages pertaining to Palm oil for India's cooking requirements, the Indian farmers should be incentivized to intensify efforts for area expansion under oil palm to enhance palm oil production in the country.
    - India should also diversify its procurement as well as requirements.

Global Debt Trends and Implications

Why in News?

According to the **Institute of International Finance (IIF),** Global **Debt** rose to an all-time high of USD 307 trillion in the second quarter 2023.

➢ Global debt has risen by about USD 100 trillion over the last decade. Further, global debt as a share of **Gross Domestic Product (GDP)** has started to increase once again to hit 336% after dropping quite steeply for seven consecutive quarters.

What is Global Debt?

➢ **About:**
  - Global debt **refers to the borrowings of governments** as well as private businesses and individuals.
  - Governments **borrow to meet various expenditures** that they are unable to meet through tax and other revenues.
  - Governments may also borrow to **pay interest on the money** that they have already borrowed to fund past expenditures.
  - The private sector borrows predominantly to make investments.

➢ **Regional Contributors to Debt Growth:**
  - In the first half of 2023, advanced economies, including the US, U.K, **Japan, and France, accounted for over 80% of the rise** in global debt.
  - Emerging market economies like China, India, and Brazil also witnessed **substantial debt growth** during this period.

➢ **Reasons Behind Rising Global Debt:**
  - Economic growth, population expansion, and **increased government spending drive the need** for borrowing. During economic downturns, governments intensify borrowing to stimulate economic activity and provide financial support.
  - During the first half of 2023, total global debt rose by USD10 trillion. This has happened amid rising interest rates, which was **expected to adversely affect demand for loans**.
  - But a rise in debt levels over time is to be expected since the **total money supply usually steadily rises** each year in countries across the globe.

Why is the Growing Global Debt a Cause for Concern?

➢ **Debt Sustainability and Fiscal Imbalance:**
  - Rising debt can lead to **concerns about its sustainability.** If a country's debt grows faster than its economy, it may become **increasingly challenging to service the debt in the long** term without resorting to extreme measures.

Note:

○ High levels of debt **can strain a nation's fiscal health**, diverting significant portions of revenue towards interest payments. This reduces the funds available for essential public services, infrastructure, and social welfare programs.

➤ **Reduced Economic Flexibility:**

○ High debt levels can limit a government's ability to respond to economic downturns effectively. It constrains **fiscal policy options, making it difficult to implement stimulus measure**s during recessions.

○ Excessive debt may lead to a **Recession** if the government's debt burden becomes unmanageable. This could result in reduced consumer spending, business investments, and overall economic growth.

➤ **Financial System Risks:**

○ A high concentration of debt in the financial system can **pose systemic risks,** particularly if the debt is held by a few major institutions. If a significant borrower defaults, it could **trigger a chain reaction affecting the stability of the entire financial system.**

○ Global financial **markets are interconnected**, and a debt crisis in one region can quickly spread to others. The interconnectedness increases the potential for a global financial crisis if a major economy faces a severe debt issue.

  ● The **2008 global financial crisis,** which followed an economic boom fueled by easy credit policies. Excessive private debt levels often precede economic **crises, highlighting the importance of prudent borrowing practices** and genuine savings to avert future crises.

➤ **Impact on Interest Rates:**

○ As debt levels rise, governments may **face higher interest rates on new borrowings**, which can exacerbate debt burdens.

○ Elevated interest rates can also **lead to increased borrowing costs** for businesses and individuals, hindering investment and consumption.

➤ **Potential for Defaults and Inflation:**

○ In extreme cases, a **government burdened by high debt levels may default on its obligations,** creating a loss of confidence in financial markets and affecting global economic stability.

○ In an attempt to manage debt, governments may resort to inflationary measures, devaluing their currencies and eroding the real value of debt.

However, this approach can lead to higher prices for goods and services, impacting consumers and businesses negatively.

What can be Done to Tackle Debt Growth?

➤ The **International Monetary Fund (IMF)** during the G20 Finance Ministers and Central Bank Governors potential actions and methods to enhance the Global Debt Architecture.

○ **Debt Resolution and Restructuring:**

  ● Conducting a fair, objective, a**nd in-depth analysis of global debt issues is crucial.** This analysis should guide **debt restructuring decisions,** including potential debt haircuts or accepting losses on loans to ensure sustainability and fairness.

○ **Strengthening Financial Architecture:**

  ● Implement urgent **reforms to strengthen the international financial architecture,** especially in the area of debt resolution.

  ● This includes enhancing **frameworks for debt restructuring**, promoting transparency in debt-related transactions, and improving the efficiency and effectiveness of debt resolution mechanisms.

○ **Support for Vulnerable Economies:**

  ● Focus on developing and low-income countries facing acute economic stress and limited policy space.

  ● Provide targeted financial support, debt relief, or restructuring mechanisms tailored to their specific needs and circumstances.

○ **Global Financial Safety Net:**

  ● Strengthen and improve the global financial safety net to respond effectively to economic shocks and crises. This involves optimizing lending mechanisms, ensuring rapid disbursement of funds, and increasing access to financial assistance for countries in need.

○ **International Collaboration and Cooperation:**

  ● Encourage collaboration and cooperation among nations, international organizations, and financial institutions to develop comprehensive solutions. Multilateral efforts can foster coordinated action, knowledge sharing, and the pooling of resources to address debt challenges effectively.

Note:

Concerns Related to India's GDP Data

Why in the News?

Recently, the Ministry of Finance has **addressed concerns regarding the credibility of Indian GDP (Gross Domestic Product) data**, particularly in light of a 7.8% increase in the first quarter of FY 2023-24.

➢ Several experts have pointed out **discrepancy in India's GDP statistics**, which present a positive image of economic growth on billboards, while underlying issues such as **rising inequalities, job scarcity, and a decline in manufacturing job**s persist.

What are the Concerns Raised with Respect to GDP Numbers?

➢ **Discrepancies in GDP Calculation:**
- ❍ An analysis of the GDP expenditure components **reveals a concerning trend** where **most elements have decreased** as a percentage of GDP.
  - ● This includes private consumption, government spending, valuables, and exports.
- ❍ Imports have slightly increased, while **Gross Fixed Capital Formation** (investment in assets) and Change in Stocks (inventory changes) have remained stable.
- ❍ Therefore, there is an unexplained gap in the GDP calculation, which raises questions about the **accuracy of the reported economic data.**

➢ **Dual GDP Calculation Methods:**
- ❍ India's GDP is calculated using two distinct methods: Economic activity (at factor cost) and Expenditure (at market prices).
  - ● **The factor cost** method assesses the **performance of eight different industries.** The following eight industry sectors are considered in this cost:
    - ■ Agriculture, forestry, and fishing,
    - ■ Mining and quarrying,
    - ■ Manufacturing,
    - ■ Electricity, gas, water supply, and other utility services,
    - ■ Construction,
    - ■ Trade, hotels, transport, communication, and broadcasting,
    - ■ Financial, real estate, and professional services,
    - ■ Public administration, defense, and other services
  - ● **The expenditure-based method** indicates how different areas of the economy are performing, such as trade, investments, and personal consumption.
- ❍ The differences between **these methods may lead to variations in GDP figures**.

Statement 2: Quarterly Estimates of Expenditure Components of GDP for Q1 (April-June) 2023-24 (at 2011-12 Prices)

(₹ Crore)

Expenditure Components[#]	April-June (Q1)			Share in GDP (%)[#]	
	2021-22	2022-23	2023-24	2022-23	2023-24
1. Private Final Consumption Expenditure (PFCE)	1,822,102	2,182,357	2,312,601	58.3	57.3
2. Government Final Consumption Expenditure (GFCE)	403,808	411,243	408,300	11.0	10.1
3. Gross Fixed Capital Formation (GFCF)	1,077,836	1,297,588	1,400,832	34.7	34.7
4. Changes in Stocks (CIS)	28,895	31,050	32,256	0.8	0.8
5. Valuables	22,035	34,959	27,633	0.9	0.7
6. Exports	765,031	915,111	844,252	24.4	20.9
7. Imports	749,401	1,001,571	1,102,748	26.7	27.3
8. Discrepancies	-59,256	-126,452	114,019	-3.4	2.8
GDP	3,311,050	3,744,285	4,037,144	100.0	100.0
GDP (Percentage change over previous year)		13.1	7.8		

@ GDP (Production/Income Approach) = GVA at Basic Price + Net Taxes on Product

➢ **Impact on Public Perception:**
- ❍ Experts express concern that **presenting an overly positive image of economic growth** through GDP figures can mask the **economic struggles and challenges faced by a significant portion** of the population.
- ❍ This can impact public perception and policy decisions.

➢ **Outdated Data Sets and Delayed Census:**
- ❍ One of the major concerns is the **usage of outdated data sets** in the calculation of GDP, which may not **accurately reflect the current economic scenario**.
- ❍ Additionally, delays in conducting the census c**ontribute to potential inaccuracies in economic assessments.**
- ❍ There are concerns that the methods employed may not effectively capture the complex and evolving economic landscape, leading to potentially skewed GDP figures.

➢ **Allegations of Government Interference:**
- ❍ Allegations of government interference in the calculation and release of GDP figures have surfaced.
- ❍ Experts worry that **political motivations might influence the presentation** of economic data, impacting its accuracy and reliability.

Note:

How has the Government Addressed the Issues Raised by the Experts?

➢ **Credibility of Indian GDP Data:**

❍ The Finance Ministry **refuted doubts about the credibility of Indian GDP data**, clarifying that **it is not seasonally adjusted** and is finalized three years later.

❍ This implies that relying solely on GDP indicators to assess underlying economic activity is misleading.

➢ **Need for Comprehensive Analysis:**

❍ The Ministry urged **critics to consider various growth indicators**, such as **Purchasing Managers' Indices**, **Bank Credit Growth,** and consumption patterns, to form a well-rounded view of the economic activity.

➢ **Underestimation of Growth Numbers:**

❍ The Ministry argued that **India's growth numbers might actually underestimate** the economic reality, citing the **Index of Industrial Production (IIP)** as an example where reported manufacturing growth is lower than what companies are indicating.

➢ **Nominal vs. Real GDP Growth:**

❍ Addressing concerns about nominal GDP growth being lower than real GDP growth, the Ministry explained that **India's GDP deflator,** dominated by the **Wholesale Price Index (WPI)**, is affected by various factors and will **normalize in the coming months.**

➢ **Income Approach for GDP Calculation:**

❍ The Ministry highlighted that India consistently uses the **Income Approach for calculating GDP** growth and does not switch between approaches based on favorability, dismissing **arguments that favor nominal GDP growth.**

What is GDP?

➢ **About:**

❍ GDP is the gross valuation of all the goods and services generated within a country's borders for a specific period, typically one financial year.

● One can identify a **country's development and economic progress** from its GDP.

❍ The percentage growth of **GDP over a quarter is taken as a standard growth** of the economy.

● As per the reports by **International Monetary Fund (IMF)**, India is among the top 10 countries in the world **based on the nominal GDP in 2023.**

➢ **Types of GDP:**

❍ **Real GDP:**

● Real GDP is measured with **respect to a base year.** It is adjusted to inflation and hence is also known as **inflation-corrected GDP** or current price.

■ For example, the base year for calculating **India's Real GDP is 2011- 12.** Earlier, it used to be 2004- 05.

● It is considered to be a more precise representation of GDP as it considers the actual income of **individual residents after adjusting to the price fixed for a base year.**

❍ **Nominal GDP:**

● Nominal GDP is assessed u**sing prevailing market prices** and does not consider inflation or deflation.

● From the government's perspective, **Nominal GDP is a more accurate reflection of economic growth** as it affects the citizens directly.

➢ **Calculation of GDP:**

❍ **Expenditure Method:** This approach **takes into consideration** the total expenditure incurred by **all individuals in one economy** for Goods and Services.

● GDP (as per expenditure method) = C + I + G + (X-IM) where, C: Consumption expenditure, I: Investment expenditure, G: Government spending and (X-IM): Exports minus imports, that is, net exports.

❍ **Output Method:** This approach is used to determine the **market value of all the services and products** produced within a country.

● This method **helps eliminate any difference** in GDP measurement due to price level fluctuations.

❍ **Income Method:** This approach **considers the gross income earned** by various factors of production, like capital and labour, within the boundaries of a country.

● This is a **sum of expenditure** made by companies on their workforce.

● GDP calculated based on this approach is known as GDI or Gross Domestic Income.

Note:

- GDP (through Income Method) = Wages + Rent + Interest + Profit

Ways To Calculate Gross Domestic Product (GDP)

Expenditure Method	Income Method	Production Method
Consumption + Investment + Government + Net Exports	Wages + Rental rate on Capital + Profits + Interest	Final value of all goods and services + Intermediate Costs

Ways To Calculate Gross Domestic Product (GDP)
(How India does it)

Expenditure method	Value Addition Method
Private consumption + Gross investment + Government spending + Net exports (total exports – total imports)	Final value of all goods and services – Intermediate costs

*GDP Indicates, Capacity and Efficiency of Economy
*In India, GDP estimates are prepared every Quarter

What Are the Limitations Of GDP?

➢ GDP does not include **non-market transactions** that positively impact productivity, such as domestic, voluntary, or other participations. Also, it **doesn't take into account goods produced** for private consumption.

➢ India is one of those countries **where unequal income distribution is a prime discrepancy** in its economy. **GDP doesn't reflect that.**

➢ One cannot **determine the standard of living of a country** from its GDP.
  ○ India is the best example of it. It has a high **GDP but a relatively low standard of living.**

➢ Most importantly, GDP doesn't reflect **how industries affect the environment and social well-being.**
  ○ The government launched **Green Gross Domestic Product (Green GDP)** to address this issue.

India's Inclusion in JPMorgan GBI-EM Index

Why in News?

Recently, JPMorgan Chase & Co. will include India in its **Government Bond Index-Emerging Markets (GBI-EM) index from June 2024**, anticipating significant inflows to India. This move is expected to widen the investor base and **potentially lead to the appreciation of the Rupee.**

What is the JPMorgan Government Bond Index-Emerging Markets (GBI-EM) index?

➢ **About:**
  ○ The JP Morgan GBI-EM is a widely followed and influential **benchmark index that tracks the performance of local-currency-denominated Sovereign Bonds** issued by emerging market countries.
  ○ It is designed to provide investors with a **representative measure of the fixed income market** within emerging market economies.
  ○ It Includes government bonds issued by various emerging market countries.
  ○ The composition may change over time based on eligibility criteria.

➢ **India's Inclusion:**
  ○ JPMorgan has identified **23 Indian government bonds with a combined nominal value of USD 330 billion** as eligible for inclusion in the GBI-EM.
  ○ India's weight is expected to reach the maximum weight threshold of 10% in the GBI-EM Global Diversified, and approximately 8.7% in the GBI-EM Global index.
  ○ India's **local bonds will become part** of the GBI-EM index and its suite of indices, which serve as **benchmarks for approximately USD 236 billion in global funds**, as per JPMorgan.

What is the Significance of India's Inclusion in GBI-EM Index?

➢ **Enhanced Investment Attractiveness:**
  ○ India's inclusion in the GBI-EM index positions India as a **coveted investment destination.**

Note:

➢ **Par with other Countries:**
- ❍ India is expected to reach a **maximum weightage of 10 %** in the GBI-EM Global Diversified Index, putting it at par with others like C**hina, Brazil, Indonesia and Malaysia.**

What are the Challenges of India's Inclusion in GBI-EM Index ?

➢ **Market Fluctuations:**
- ❍ Inclusion may introduce **volatility in local debt markets,** especially during global economic turmoil or uncertainty, requiring the **Reserve Bank of India (RBI)** to manage and stabilize the markets effectively.
- ❍ The RBI w**ill need to carefully manage its monetary policy decisions** to balance the impact of increased foreign investment while also ensuring domestic economic stability and growth.

➢ **Geopolitical Risks:**
- ❍ High foreign holding of debt exposes Indian markets not **only to external macro-economic shocks but also to geo-political risks.** The recent experience of how Russia was ousted from international currency markets and the **SWIFT (Society for Worldwide Interbank Financial Telecommunications)** is a cautionary tale of how geopolitics can impact financial flows and hence economic well-being.

➢ **Currency Management:**
- ❍ The inclusion may impact the **domestic currency's value**, posing challenges in managing exchange rates and ensuring the rupee remains competitive to support exports.

➢ **Transparency and Fiscal Responsibility:**
- ❍ It may subject India to **increased scrutiny regarding government finances**, necessitating greater transparency and fiscal responsibility in managing the **fiscal deficit.**

➢ **Taxation Challenges:**
- ❍ Unresolved tax treatment for f**oreign investors may deter potential investors**, necessitating clarity and favorable tax policies to attract foreign capital into Indian government bonds.
- ❍ The behavior of **foreign investors, especially during global economic shifts**, could result in sudden surges or withdrawals of funds, impacting market stability and capital flows.

State of Working India 2023

Why in News?

Recently, Azim Premji University's Centre for Sustainable Employment has released the Report titled- **"State of Working India 2023"** highlighting the State of Indian workforce.

➢ It covers **unemployment** rates, women's participation, intergenerational mobility, and caste-wise workforce dynamics.

➢ The report used various data sources like surveys conducted by the **National Statistical Office** including **Employment-Unemployment Surveys** and **Periodic Labour Force Surveys** along with the India Working Survey.

What are the Highlights of the Report?

➢ **Faster Structural Change:**
- ❍ After stagnating since the 1980s, **the share of workers with regular wage or salaried work started increasing in 2004,** going from 18% to 25% for men and 10% to 25% for women.
- ❍ Between 2004 and 2017, around 3 million regular wage jobs were created annually. Between 2017 and 2019 this jumped to 5 million per year.
- ❍ **Since 2019, the pace of regular wage jobs creation has decreased** due to the growth slowdown and the pandemic.

➢ **Gender-Based Earnings Disparities Reduced:**
- ❍ In 2004, salaried women workers earned 70% of what men earned.
- ❍ By 2017 **the gap had reduced and women earned 76% of what men did.** Since then the gap has remained constant till 2021-22.

➢ **Unemployment Rates and Education:**
- ❍ The overall unemployment rate reduced to **6.6% in 2021-22 from 8.7% in 2017-18.**
- ❍ However, for graduates **under the age of 25**, the unemployment rate was strikingly high at 42.3%.
- ❍ In contrast, those completing **higher secondary education had a lower unemployment rate of 21.4%.**

➢ **Women's Workforce Participation:**
- ❍ Post the **Covid-19 Pandemic**, 60% of women were self-employed compared to 50% before.

Note:

○ However, this increase in workforce participation was **accompanied by a decline in self-employment** earnings, reflecting the pandemic's distressing impact.

➤ **Intergenerational Mobility:**
○ **Intergenerational upward mobility** has shown an upward trend, indicating socio-economic progress.
○ However, this trend is weaker for workers from **Scheduled Castes and Scheduled Tribes** compared to general castes.
  ● 75.6 % of SC/ST men in casual wage work **also had sons involved in casual wage work in 2018**. In comparison, the figure stood at 86.5 % in 2004, indicating that sons of casual wage workers belonging to SC/ST category have **moved to other kinds of employment**, most notably informal regular wage work.

➤ **Caste-wise Workforce Dynamics:**
○ There are changes in **caste-wise workforce participation** over the years.
○ The share of SC workers in **casual wage work has significantly reduced,** but this reduction is **more pronounced in the general caste category.**
  ● For instance, in 2021, 40% of SC workers were involved in casual employment as compared to 13% of general caste workers.
  ● Furthermore, around 22 % of SC workers were regular wage workers as opposed to 32% of general caste workers.

➤ **Economic Growth vs. Employment Generation:**
○ Economic growth has not proportionately translated into job creation, with the capacity to generate jobs declining as **GDP (Gross Domestic Product)** increases.
○ The transition from agriculture to other sectors has not ensured a **shift to salaried employment.**

➤ **Informal Salaried Work:**
○ Despite the aspiration for salaried employment, the majority of salaried work is informal, lacking contracts and benefits. **Good salaried jobs** with proper benefits are becoming **less prominent.**

➤ **Factors Influencing Graduate Unemployment:**
○ Graduate unemployment could be attributed to **high aspirations and wage demands** that the economy may not meet. Additionally, **graduates from well-off households** might have the luxury to remain unemployed.

What are Government's Initiatives to Curb Unemployment?

➤ **Support for Marginalized Individuals for Livelihood and Enterprise (SMILE)**
➤ **PM-DAKSH (Pradhan Mantri Dakshta Aur Kushalta Sampann Hitgrahi)**
➤ **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)**
➤ **Pradhan Mantri Kaushal Vikas Yojana (PMKVY)**
➤ **Start Up India Scheme**
➤ **Rozgar Mela**

Boosting Rubber Cultivation in Northeastern India

Why in News?

The **Rubber Board,** in partnership with the **Central government and the Automotive Tyre Manufacturers' Association,** is spearheading a project to **increase the area dedicated to natural rubber in the Northeastern States**, excluding Sikkim but including West Bengal.

➤ Tyre manufacturers, the primary consumers of rubber, have committed **₹1,000 crore to this five-year project that started in 2021.**

What is the Current Rubber Landscape in India?

➤ **About Natural Rubber:**
○ Natural rubber is a versatile and essential raw material derived from the **latex or milky sap of certain plant species**, primarily the rubber tree, scientifically known as *Hevea brasiliensis.*
  ● This latex contains a **complex mixture of organic compounds,** with the primary component being a polymer called **polyisoprene.**

➤ **Growing Conditions:**
○ Tropical climate with annual rainfall of **2000 – 4500 mm** is suited for cultivation.
○ It requires **deep and lateritic fertile soil with an acidic pH of 4.5 to 6.0** and highly deficient in available phosphorus.
○ Minimum and maximum temperature should be ranged from **25 to 34°C with 80 % relative humidity is ideal for cultivation.**

Note:

- Regions prone to heavy winds should be avoided.
  - Bright sunshine amounting to about 2000 hours per annum **at the rate of 6 hours per day through all the months.**
- ➢ **Rubber Production and Consumption:**
  - India is **currently the world's fifth largest producer of** natural rubber while it also remains the second biggest consumer of the material globally.(About **40% of India's total natural rubber consumption is currently met through imports**)
- ➢ **Rubber Distribution**:
  - As of now, India boasts approximately **8.5 lakh hectares of rubber plantations.**
  - Major rubber producing states include: **Kerala, Tamil Nadu, Tripura, Assam.**
    - The lion's share of this rubber farming, nearly **5 lakh hectares, is concentrated in the southern states of Kerala and the Kanyakumari district** of Tamil Nadu.
    - Additionally, **Tripura contributes around 1 lakh hectares** to the rubber production landscape
- ➢ **Major Applications:**
  - **Tyre Manufacturing:** Rubber is a key component in tire production due to its excellent grip and wear resistance.
  - **Automotive Parts:** Used in seals, gaskets, hoses, and various components for vehicles.
  - **Footwear**: Commonly used in shoe soles for its cushioning and slip-resistant properties.
  - **Industrial Products**: Found in conveyor belts, hoses, and machinery components.
  - **Medical Devices**: Used in gloves, syringe plungers, and medical equipment.
  - **Consumer Goods:** Used in products like balloons, erasers, and household gloves.
  - **Sporting Goods:** Found in items like tennis balls, golf balls, and protective gear.

What is a Rubber Board?
- ➢ The **Rubber Board is a statutory organization constituted under Section (4) of the Rubber Act, 1947** and functions under the administrative control of the Ministry of Commerce and Industry.
- ➢ The **Board is headed by a Chairman appointed by the Central Government** and has 28 members representing various interests of the natural rubber industry.

- ○ The Board's headquarters is located at **Kottayam in Kerala.**
- ➢ The Board is responsible for the development of the rubber industry in the country by assisting and encouraging **research, development, extension and training activities related to rubber.**

India's Outward and Inward Investment Trends

Why in News?

In the fiscal year 2023, India saw a significant increase in **Outward Direct Investment (ODI)** by Indian firms, as well as a surge in inward **Foreign Direct Investment (FDI)**, according to a census conducted by the **Reserve Bank of India (RBI).**

What is Foreign Direct Investment (FDI)?
- ➢ FDI is a type of **cross-border investment** in which an investor from one country establishes a lasting interest in an enterprise in another country.
- ➢ FDI can take various forms, **such as acquiring shares**, establishing a subsidiary or a joint venture, orAn ODI is a business strategy in which **a domestic firm expands its operations** to a foreign country.
- ➢ providing loans or technology transfers.
  - ○ FDI is considered to be a key driver of economic growth, as it can bring in capital, technology, skills, market access and employment opportunities to the host country.

What is Outward Direct Investment (ODI)?
- ➢ Employing ODI is a natural progression for firms if their domestic markets become saturated and better business opportunities are available abroad.
- ➢ American, European, and Japanese firms have long made extensive investments outside their domestic markets.
  - ○ **China has emerged as a large ODI player in recent years.**

What are the Key Highlights of the Outward Direct Investment Trends?

- ➢ **Singapore Leads in ODI:**
  - ○ Singapore emerged as the largest beneficiary of Indian ODI in FY2023, receiving Rs 2.03 lakh crore,

Note:

representing 22.3% of the total ODI, indicating the **growing interest of Indian firms** in the Singaporean market.

- Singapore serves as a crucial hub for Indian businesses expanding internationally.
  - ○ **Singapore, the US, the UK**, and the **Netherlands** were **among the top destinations**, receiving 60% of the total Rs 9.1 lakh crore invested during FY23.

➢ **Overall ODI Growth:**

- ○ Indian firms' total ODI rose by an impressive 19.46%, reaching Rs 9.11 lakh crore in FY2023, compared to Rs 7.62 lakh crore in 2022.

OUTWARD DIRECT INVESTMENT FROM INDIA

COUNTRY	2022	2023	SHARE
Singapore	₹182,200 cr	₹203,233 cr	22.3%
USA	₹102,078 cr	₹124,123 cr	13.6%
UK	₹84,075 cr	₹116,398 cr	12.8%
Netherlands	₹97,723 cr	₹106,395 cr	11.7%
UAE	₹55,608 cr	₹87,459 cr	9.6%
Mauritius	₹70,392 cr	₹76,881 cr	8.4%
Switzerland	₹26,130 cr	₹28,228 cr	3.1%
Bermuda	₹11,515 cr	₹12,582 cr	1.4%
Jersey	₹13,198 cr	₹11,661 cr	1.3%
Cyprus	₹10,142 cr	₹9,985 cr	1.1%
Other Countries	₹1,09,591 cr	₹1,34,124 cr	14.7%
All Countries	₹7,62,652 cr	₹9,11,069 cr	100.0%

➢ **Tax Havens in the Mix:**

- ○ Bermuda, Jersey and Cyprus are **three jurisdictions known for tax benefits** and are in the **top ten countries** that received Indian ODI.
  - Bermuda, in particular, is renowned for its favourable tax policies, including no taxes on profits, income, dividends, or capital gains.

What are the Key Highlights of Inward Foreign Direct Investment Trends?

➢ **Total FDI Growth:**

- ○ India witnessed a notable increase in FDI flows, with the total FDI inflow in FY2023 reaching Rs 49.93 lakh crore, compared to Rs 46.72 lakh crore in 2022.

➢ **US Tops Inward FDI:**

- ○ The United States was the largest source of inward FDI in India in FY2023, bringing in Rs 8.58 lakh crore, accounting for 17.2% of the total share.

➢ **Other Major FDI Contributors:**

- ○ Mauritius, the UK, and Singapore followed the US in contributing to India's FDI. The top ten countries were responsible for over 90% of the total FDI inflows.

What are the Implications of the Growing ODI and FDI on Indian Economy?

➢ The growth in ODI and FDI indicates the **increasing global footprint of Indian firms and a willingness to invest** in and **expand operations overseas**, contributing to economic growth and diversification.

➢ Investing in a variety of countries and sectors allows Indian firms to **diversify risks, gain access to new markets**, technology, and resources, and improve competitiveness.

➢ If India continues to attract significant FDI from various countries, its appeal as an investment destination and **potential for economic development and job creation will** increase.

Business Responsibility and Sustainability Reporting Framework

Why in News?

Recently, **Indian Institute of Corporate Affairs (IICA)**, organised a workshop on **Business Responsibility and Sustainability Reporting** in collaboration with **United Nations Children's Fund (UNICEF)** and **National Stock Exchange(NSE)** at the NSE premises in Mumbal.

What is Business Responsibility and Sustainability Reporting Framework?

➢ BRSR is a **mandatory disclosure mechanism for top 1000 listed companies or businesses** to report their performance on **Environmental, social, and corporate governance (ESG) parameters** and demonstrate their commitment to responsible business practices.

- ○ SEBI in 2021 replaced Business Responsibility Reports (BRR) with BRSR.

➢ BRSR is rooted in the nine principles outlined in the **National Guidelines for Responsible Business Conduct (NGRBC).** The nine principles are:

Note:

○ Businesses should conduct and govern themselves with integrity, and in a manner that is **ethical, transparent and accountable.**

○ Businesses should provide **goods and services in a manner that is sustainable and safe.**

○ Businesses should **respect and promote the well-being of all employees, including those in their value chains.**

○ Businesses should **respect the interests of and be responsive to all their stakeholders.**

○ Businesses should respect and promote **human rights.**

○ Businesses should **respect and make efforts to protect and restore the environment.**

○ Businesses, when engaging in influencing public and regulatory policy, should do so in a manner that is responsible and transparent.

○ Businesses should **promote inclusive growth and equitable development.**

○ Businesses should engage with and provide value to their consumers in a responsible manner.

What is Environmental, Social, and Corporate Governance?

➢ ESG represents a **set of guidelines that compel companies to adhere to improved standards in their operations,** encompassing **better governance, ethical conduct, environmentally sustainable practices, and social responsibility.**

➢ Since the introduction of the **United Nations Principles for Responsible Investing (UNPRI) in 2006,** the ESG framework has become an integral aspect of contemporary businesses, recognized as an inseparable component of modern corporate practices.

What is the Indian Institute of Corporate Affairs?

➢ The **Indian Institute of Corporate Affairs (IICA)** was registered as a society on September 12, 2008 under the **Societies Registration Act, 1860.**

○ The proposal to establish the IICA was approved by the **Planning Commission in February 2007.**

➢ It is an autonomous institute and works under the aegis of the **Ministry of Corporate Affairs** to deliver opportunities for research, education, and advocacy.

○ It is also a think tank that curates a **repository of data and knowledge for policy makers,** regulators as well as other stakeholders working in the **domain of corporate affairs.**

What is the United Nations Children's Fund?

➢ The **United Nations Children's Fund (UNICEF),** originally known as the **United Nations International Children's Emergency Fund,** was created by the United Nations General Assembly on **11 December 1946,** to provide emergency food and healthcare to children and mothers in countries that had been devastated by **World War II.**

➢ In 1950, **UNICEF's mandate was extended to address the long-term needs** of children and women in developing countries everywhere.

○ In **1953, it became a permanent part of the United Nations System.**

What is the National Stock Exchange?

➢ **National Stock Exchange (NSE)** is a **leading stock exchange market in India** which provides fully automated screen based trading in India.

○ NSE was incorporated in **1992**. It was recognised as a stock exchange by **SEBI** in April 1993 and **commenced operations in 1994** with the launch of the wholesale debt market.

➢ One of its more **popular offerings is the NIFTY 50 Index,** which tracks the largest assets in the Indian equity market.

Gresham's Law and Currency Exchange Rate

Why in News?

Gresham's law, attributed to **English financier Thomas Gresham,** was a significant factor in the **2022**

Note:

economic crisis in Sri Lanka. The crisis was characterized by the Central Bank of Sri Lanka's implementation of a **fixed exchange rate** between the **Sri Lankan Rupee and the U.S. Dollar.**

What is Gresham's Law?

➢ **Gresham's law** is a monetary principle that states that "**bad money drives out good". Bad money** is a currency with equal or less value than its face value. **Good money** has the potential for a greater value than its face value.

  ○ This means that if there are two types of **money in circulation,** one with a **higher intrinsic value and one with a lower intrinsic value,** people will tend to hoard the more valuable money and spend the less valuable money.

    ● As a result, the **less valuable money will dominate the market**, while the more valuable money will disappear from circulation.

  ○ This law comes into play when the **government fixes the exchange rate between two currencies**, creating a disparity between the official rate and the market rate.

    ● It applies not just to **paper currencies but also to commodity currencies** and other goods.

➢ **Instances of Gresham's Law in Action:**

  ○ Gresham's Law became noticeable during **Sri Lanka's economic crisis** when the country's Central Bank set a **fixed exchange rate between the Sri Lankan rupee and the U.S. dollar.**

    ● Despite unofficial market rates suggesting that the U.S. dollar was worth much more, the **government insisted on a fixed rate of 200 Sri Lankan rupees for one U.S. dollar.**

    ● This led to the **Sri Lankan rupee being considered more valuable than it actually was** and the U.S. dollar being undervalued according to market rates.

  ○ As a result, **fewer U.S. dollars were available in the official foreign exchange market**, and people started to avoid using them in official transactions.

➢ **Contrast to Gresham's Law:**

  ○ In contrast to **Gresham's Law**, **Thiers' Law** highlights a phenomenon where **"good money drives out bad."** In a free exchange rate environment, **people tend to favor higher-quality currencies** and **gradually discard those they perceive as inferior.**

● The **rise of private cryptocurrencies (Good Money)** in recent years is often cited as an example of **how well-regarded, private money producers can displace government-issued currencies (Bad Money).**

What is a Fixed Exchange Rate?

➢ **About:**

  ○ A fixed exchange rate, also **called pegged exchange rate,** is a regime applied by a government or central bank that **ties the country's official currency exchange rate to another country's currency** or the price of gold.

    ● The purpose of a fixed exchange rate system is to **keep a currency's value within a narrow band.**

➢ **History:**

  ○ The **Bretton Woods Conference, which took place in 1944,** established the international monetary system that was characterized by fixed exchange rates.

    ● At the conference, participating countries agreed to peg their currencies to the U.S. dollar, which was convertible into gold at a fixed rate of **USD 35 per ounce**.

  ○ It aimed to **promote stability and prevent competitive devaluations of currencies,** which had contributed to **economic instability during the Great Depression and World War II.**

➢ **Downfall:**

  ○ The downfall of the fixed exchange rate system, established at the Bretton Woods Conference, was **due to persistent trade imbalances, inflation, speculative attacks, lack of exchange rate adjustability**, and **dwindling U.S. gold reserves.**

  ○ The **"Nixon Shocks" in 1971**, which included **suspending the U.S. dollar's convertibility into gold,** marked the system's collapse.

  ○ This **transitioned major currencies to floating exchange rates**, allowing flexibility in response to economic conditions.

What are Some Advantages and Disadvantages of Fixed Exchange Rates?

➢ **Advantages:**

  ○ **Price Stability:** Fixed exchange rates can provide **price stability**. This stability can be especially

Note:

beneficial for countries with **high inflation rates or volatile currencies.**

○ **Reduced Transaction Costs:** In a fixed exchange rate system, businesses engaged in international trade may face **fewer currency-related transaction costs,** such as **currency conversion fees** and exchange rate risk management expenses.

○ **Investor Confidence:** Fixed exchange rates can **boost investor confidence.** Investors are more likely to commit capital to a country with a stable currency, reducing the cost of capital and potentially spurring economic growth.

➢ **Disadvantages:**

○ **Loss of Monetary Policy Autonomy:** One significant drawback is that countries adopting fixed exchange rates **give up control over their monetary policy.**

● To maintain the peg, they may **need to adjust interest rates and money supply according to the anchor currency's policies,** which may not align with their domestic economic needs.

○ **Speculative Attacks:** Fixed exchange rate systems can be vulnerable to speculative attacks.

● If investors believe a **country's currency is overvalued, they may engage in massive sell-offs,** forcing the central bank to deplete its foreign exchange reserves to maintain the peg.

○ **External Dependency:** Fixed exchange rate systems tie a country's **fortunes to the stability and policies of the anchor currency issuer.**

● If the anchor currency faces problems, the pegged country may suffer without the ability to adjust its exchange rate.

What are Alternatives to Fixed Exchange Rates?

➢ **Floating Exchange Rate:** A floating exchange rate, also known as a flexible exchange rate, is a system where a **currency's value is determined by supply and demand in the foreign exchange market.**

○ In this system, exchange rates can fluctuate continuously and are not officially pegged or fixed to any other currency or commodity.

○ Floating exchange rates allow currencies to adjust freely to **economic conditions, trade imbalances, and market forces.**

● **Example:** Canada and Australia.

➢ **Managed float:** A managed float exchange rate, also referred to as a **dirty float,** is a system where a **country's central bank or government occasionally intervenes in the foreign exchange market** to influence its currency's value.

○ While the exchange rate is allowed to float to some extent, **authorities may buy or sell their own currency to stabilize or manage its value** in response to certain economic goals or to prevent excessive volatility.

○ **Example:** India and China.

RBI to Discontinue I-CRR

Why in News?

Recently, the Reserve Bank of India (RBI) announced that it would discontinue the **Incremental Cash Reserve Ratio (I-CRR)** in a phased manner.

➢ The central bank will release the amount that banks have maintained under I-CRR in stages.

How Will the RBI Implement Discontinuation of I-CRR?

➢ The discontinuation of the I-CRR will be **implemented in stages** to ensure a smooth transition and **prevent sudden shocks to the system's liquidity.**

○ In the first and second stages of the I-CRR reversal, 25 % of each of the Banks' impounded funds will be released. The remaining 50% of the balance will be released in the third stage.

➢ This measured approach aims to ensure that **banks have sufficient liquidity to meet increased credit demand** during the **upcoming festival season.**

What is I-CRR?

➢ **Background:**

○ On 10th August 2023, following the announcement of the **monetary policy** and the **demonetization** of Rs 2000 notes, the RBI declared that banks would be required to maintain an **Incremental Cash Reserve Ratio (I-CRR)** of 10% on the increase in their **Net Demand and Time Liabilities (NDTL).**

● **NDTL** is the **difference** between the **sum of demand and time liabilities** (deposits) of a bank (with the public or the other bank) and the deposits in the form of **assets held by the other banks.**

Note:

drishti

○ Stated that it would review it in September 2023, or earlier.

➢ **Purpose of Introducing I-CRR:**

○ The RBI introduced the I-CRR as a temporary measure to **manage excess Liquidity** in the banking system.

● Several **factors contributed** to the **Surplus Liquidity**, including the demonetisation of Rs 2,000 banknotes.

○ RBI's surplus transfer to the government, increased **government spending, and capital inflows.**

○ This liquidity surge had the **potential to disrupt price stability and financial stability**, necessitating efficient liquidity management.

➢ **Impact of I-CRR on Liquidity Conditions:**

○ The I-CRR measure would absorb over **Rs 1 lakh crore of excess liquidity** from the banking system.

○ As a result of the I-CRR mandate, the banking system's **liquidity temporarily turned into a deficit on 21st August 2023**, exacerbated by **outflows related to Goods and Services Tax (GST)** and central bank intervention to stabilize the rupee.

○ However, liquidity conditions returned to Liquidity from the system.

What is the Cash Reserve Ratio (CRR)?

➢ **About:**

○ The percentage of cash required to be kept in reserves as against the bank's total deposits, is called CRR.

○ All banks in India, except Regional Rural Banks (RRBs) and Local Area Banks (LABs), have to deposit the CRR money to RBI.

● RRBs and LABs are exempted from maintaining CRR with RBI, **as per the RBI Act, 1934**. However, they have to maintain CRR with themselves in the form of **cash or gold or unencumbered approved securities**.

○ Banks can't lend the CRR money to **corporates or individual borrowers**, banks can't use that money for investment purposes, and **Banks don't earn any interest on that money.**

➢ **Need to Have Reserve cash with the RBI:**

○ Since a part of the bank's deposits is with the RBI, it ensures the **security of the amount in case of any emergencies**.

○ The cash is **readily available when customers want** their deposits back.

○ CRR helps in keeping **inflation under control.** If there is a threat of high inflation in the economy, RBI increases the CRR, so that banks need to keep more money in reserves, effectively reducing the amount of money that is available to the banks.

● This curbs the **excess flow of money in the economy.**

○ When there is a need to pump funds into the market, the RBI lowers the CRR rate, which in turn, helps the banks provide loans to a large number of businesses and industries for investment purposes. **Lower CRR also boosts the growth rate of the economy.**

○ The CRR and other monetary tools require every commercial bank to maintain but not the NBFC.

Why is RBI using I-CRR in the Case of Demonetisation?

➢ RBI has chosen to implement I-CRR in the case of a **sudden influx of liquidity, such as during demonetization**.

○ **RBI used I-CRR in November 2016**, after the demonetization of Rs 500 and Rs 1,000 banknotes.

➢ It allows the RBI to **address the issue without affecting other aspects of monetary policy**. This precision can be crucial, especially during **unique situations like demonetization.**

➢ The I-CRR **can be implemented relatively quickly**. When there is a sudden surge in liquidity due to a large-scale event like the **return of demonetized currency notes,** the central bank may need a tool that can be put into effect promptly.

➢ The **I-CRR is typically intended to be a temporary measure.** It can be introduced when there is a need to absorb excess liquidity temporarily and can be phased out once the liquidity situation stabilizes.

➢ But on the other hand **Other tools such as Repo Rate, Statutory Liquidity Ratio (SLR) etc may have rather long term and slower impact on liquidity.**

What are the Monetary Policy Instruments Available to the RBI?

➢ **Qualitative:**

○ **Moral Suasion:** This is a **non-binding technique where the RBI uses persuasion and communication** to influence banks' lending and investment behavior.

Note:

○ **Direct Credit Controls:** These are measures that involve **regulating the flow of credit to specific sectors or industries**. The RBI can issue directives on lending to certain sectors or set credit limits to achieve policy objectives.

○ **Selective Credit Controls:** These are **more specific than direct credit controls and target particular types of loans, such as consumer credit**, to control demand in specific areas of the economy.

➢ **Quantitative:**

○ **Cash Reserve Ratio (CRR):** CRR is the proportion of a **bank's deposits that it must keep as reserves with the RBI** in the form of cash. By adjusting the CRR, the RBI can control the amount of funds available for lending by banks.

○ **Repo Rate:** The repo rate is the **interest rate at which the RBI lends money to commercial banks for the short term**. A change in the repo rate can influence banks' borrowing costs and, subsequently, their lending rates.

○ **Reverse Repo Rate:** The reverse **repo rate is the interest rate at which banks can park their excess funds with the RBI**. It provides a floor for short-term interest rates and helps manage liquidity.

○ **Bank Rate:** The bank rate is the rate at which the **RBI provides long-term funds to banks and financial institutions**. It influences interest rates in the long-term money market.

○ **Open Market Operations (OMOs):** OMOs involve the **buying or selling of government securities by the RBI in the open market.** This action affects the money supply and liquidity in the banking system.

○ **Liquidity Adjustment Facility (LAF):** The LAF includes the repo rate and the reverse repo rate and is used by banks for their short-term liquidity needs. It **helps the RBI manage daily liquidity conditions**.

○ **Marginal Standing Facility (MSF):** MSF is the rate at which **banks can borrow overnight funds from the RBI against the collateral of government securities.** It serves as a secondary source of funding for banks.

○ **Statutory Liquidity Ratio (SLR):** SLR is the percentage of a bank's net demand and time liabilities (NDTL) that it must maintain in the form of approved securities.

■■■

Note:

International Relations

Highlights

- China's Geopolitical Initiatives in Nepal
- Significance of Indo-Pacific
- Asia Pacific Forum on Human Rights
- Five Eyes Alliance
- The Khalistan Shadow on India-Canada Ties
- India-Middle East-Europe Corridor
- Changing Dynamics of Global South
- India's Socio Economic Performance in Comparison to G20 Nations
- Women, Power and Cancer: Lancet

China's Geopolitical Initiatives in Nepal

Why in News?

Recently, China and Nepal have signed 12 agreements to enhance Bilateral Cooperation in sectors including **trade, road connectivity, and information technolog**y.

What are the Agreements Signed between Nepal and China?

➢ **The agreements include MoUs for:**
  ○ Cooperation between The **National Planning Commission of Nepal** and China's National Development and Reform Commission
  ○ Enhancing digital economy corporation,
  ○ Cooperation on green and low-carbon development
  ○ Cooperation in the fields of agriculture, livestock and fisheries,
  ○ Cooperation in the field of science, technology and innovation; and in the field of Human Resources Development.
  ○ Mechanism to review the Nepal-China trade and payment agreement.
➢ They also signed **a protocol of phytosanitary requirements** for the export of plant-derived medicinal materials for Chinese medicine from Nepal to China.
➢ Nepal declined **China's invitation** to join China's **Global Security Initiative (GSI),** advocating that joint security is not in the interest of Nepal to maintain a strategic balance between India, China and the US.

How Have Been China Nepal Relations So Far?

➢ **Geopolitical Relations:**
  ○ Nepal has increasingly sought to balance its relations with its two giant neighbours, India and China, as part of its **foreign policy strategy.**
  ○ China's influence in Nepal has **grown significantly in recent years**, the almost **Six-Month Economic Blockade of Nepal** by India from September 2015 onward gave China a fast track into the country.
    ● China intervened aggressively in Nepal's politics and played **a role in bringing the two communist parties**, Maoist Centre and Unified Marxist-Leninist together.
    ● China has historical ties with the **communist movement in Nepal**, particularly with the **Communist Party of Nepal (Maoist Centre)**, which was involved in **a decade-long armed insurgency against the Nepalese state.** During this period, the Maoist movement received ideological, logistical, and even military support from China.
➢ **Economic Cooperation:**
  ○ Economic cooperation between China and Nepal has intensified, focusing on trade, investment, and infrastructure development.
  ○ Key projects like cross-Himalayan railways, ports, and hydroelectric power plants are enhancing connectivity and contributing to Nepal's economic growth.
    ● Nepal has expressed interest in **China's Belt and Road Initiative (BRI)**, aiming to improve infrastructure connectivity and trade facilitation.
➢ **Security and Defense Cooperation:**

- ❍ China and Nepal have engaged in joint military exercises and increased defense cooperation, focusing on capacity building and military training.
- ❍ China has provided military aid to Nepal, further strengthening their defense ties.
- ➤ **Issue Between China and Nepal:**
  - ❍ In its new map, **China refused to recognize a portion of land in Nepal's northwestern region**—an area that Nepal had claimed and depicted in its own map in 2020.

What are the Implications of China's Growing Presence in Nepal for India?

- ➤ **Security Concerns:**
  - ❍ China's enhanced influence in **Nepal could potentially lead to strategic encirclement** for India, as it strengthens its presence in a country that shares a long border with India.
  - ❍ This raises **security concerns** for India.

- ➤ **Access to Resources:**
  - ❍ China's infrastructure projects and economic engagement in Nepal may compete with **Indian investments and economic interests**, affecting India's access to resources and markets in the region.
- ➤ **Belt and Road Initiative (BRI) and Connectivity:**
  - ❍ Nepal's participation in China's BRI Initiative can result in a **significant increase in Chinese-backed infrastructure projects** and connectivity, which will increase Nepal's dependence on China for trade and consequently harm the interest of India.
- ➤ **Challenges in Regional Coordination:**
  - ❍ Nepal's closer ties with China provide strategic depth to China in South Asia, potentially allowing China to project power and influence beyond its borders.
  - ❍ China's deepening involvement in Nepal might make it more challenging for India to coordinate regional responses and initiatives effectively.

What is the Significance of Nepal for India?

- ➤ **Nepal's Strategic Importance:**
  - ❍ **Nepal shares border with 5 Indian states-** Uttarakhand, Uttar Pradesh, West Bengal, Sikkim and Bihar. Hence an important point of cultural and economic exchange.
  - ❍ Nepal is right in the middle of **India's 'Himalayan frontiers'**, and along with Bhutan, it acts as a **northern 'borderland' flank and acts as buffer states** against any possible aggression from China.

Which States/Union Territories Share Boundaries with Nepal?

- ➤ **Defence Cooperation:**
  - ❍ India has been assisting the **Nepal Army (NA)** in its modernisation by supplying equipment and providing training.
  - ❍ The 'Indo-Nepal Battalion-level Joint Military Exercise **Surya Kiran**' is conducted alternately in India and in Nepal.
    - Also, Currently, **about 32,000 Gorkha Soldiers** from Nepal are serving in the Indian Army.
- ➤ **Economic Cooperation:**
  - ❍ India is the largest trading partner of Nepal. Nepal is also India's 11th largest export destination.
  - ❍ Indian firms are among the largest investors in Nepal, accounting for more than 30% of the total approved **foreign direct investments**.
- ➤ **Treaty of Peace and Friendship of 1950:**
  - ❍ The treaty talks about the **reciprocal treatment of Indian and Nepali citizens** in the two countries, in residence, property, business and movement.
- ➤ **Power Sector Cooperation:**
  - ❍ In June 20023 India and Nepal signed a long-term **Power Trade Agreement,** targeting the import of 10,000 MW of electricity from Nepal in the coming years.
  - ❍ Memoranda of Understanding (MoUs) were signed between **National Hydroelectric Power Corporation (NHPC)**, India and Vidyut Utpadan Company Ltd, Nepal for the development of the **Phukot Karnali Hydroelectric Project and the Lower Arun Hydroelectric Project.**

Note:

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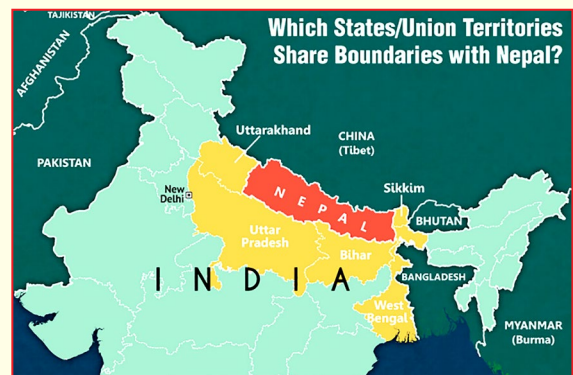
Significance of Indo-Pacific

Why in News?

The General Secretary of the Communist Party of Vietnam and the U.S. President met in Vietnam during the visit of the US President, marking a new phase in the bilateral relationship between the two countries.

➤ Both nations **elevated their cooperation to a Comprehensive Strategic Partnership** from a Comprehensive Partnership forged in 2013.

How were the US-Vietnam Relations in the Past?

➤ The **United States and Vietnam have a complex history** marked by the **Vietnam War**, which lasted from 1955 to 1975. The conflict arose during the **Cold War** when North Vietnam, backed by the **Soviet Union** and China, sought to reunify with South Vietnam, supported by the United States and other Western allies.

  ❍ The war resulted in significant loss of life and widespread destruction in Vietnam and had a profound impact on U.S. society.

➤ In 1975, the war ended with the **fall of Saigon to North Vietnamese forces**, leading to the **reunification of Vietnam** under communist control. This marked a low point in U.S.-Vietnam relations.

➤ In 1995, the United States **normalized diplomatic ties with Vietnam**, and the two countries have since engaged in economic cooperation and increased people-to-people exchanges.

➤ Today, while the Vietnam War remains a part of their history, the **United States and Vietnam have developed a more positive and constructive relationship**, focusing on trade, security cooperation, and addressing common regional challenges.

What is the Indo-Pacific?

➤ **About:**

  ❍ **Indo-Pacific** is a recent concept. It was about a decade ago that the world started talking about the Indo-Pacific; its rise has been quite significant.

  ❍ One of the reasons behind the popularity of this term is an understanding that the **Indian and the Pacific Oceans are a linked strategic theater.**

  ❍ **Each and every nation perceives** the concept of the Indo-Pacific with its own benefits and concerns and there are no absolute concepts and geographical boundaries of the Indo-Pacific.

➤ **Present Context:**

  ❍ The Indo-Pacific region is one of the most populous and economically active regions of the world which includes four continents: Asia, Africa, Australia and America.

  ❍ The dynamism and vitality of the region are self-evident, **60% of the world's population and 2/3rd of the global economic output** makes this region a global economic center.

➤ **India's Perspective of the Indo-Pacific:**

  ❍ **Cooperate with Others for Security Architecture:** A lot of India's special partners, the US, Australia, Japan and Indonesia want India's presence in the **South China Sea**, and East China Sea, basically to counter China.

    ● **India,** however, seeks to cooperate for an architecture for peace and security in the region. The common prosperity and security require the countries to evolve, through dialogue, a common rules-based order for the region.

  ❍ **Equal Share in Trade and Investment:** India supports a rule-based, open, balanced and stable trade environment in the Indo-Pacific Region, which lifts up all nations on the tide of trade and investment.

    ● This is the same as what the country expects from the **Regional Comprehensive Economic Partnership (RCEP).**

➤ Importance of Indo-Pacific for ASEAN countries Like Vietnam:

  ❍ **Unified ASEAN:** Unlike China, India seeks a unified **ASEAN**, not a divided one. China tries to play off some ASEAN members against others, thereby in a way executing a 'divide and rule' conquest strategy.

INDO-PACIFIC REGION

Note:

○ **Work in Collaboration with China:** ASEAN does not comply with the US version of Indo-Pacific, which seeks to contain Chinese dominance. ASEAN is rather looking for ways through which it can work together with China.

What is the Significance of the Indo-Pacific?

➢ **Indo-Pacific Extends from Africa to America:**
○ For America, Indo-Pacific stands for a free, open, inclusive region. It includes all nations in the geography and also others who have a stake in it.
○ **In its geographical dimension,** the US considers the area from the shores of Africa to the shores of the US.

➢ **Against Dominance of a Single Player:**
○ India is **looking to democratise the region.** Earlier, the region used to be almost like an American lake. However, there exists a fear that the region will become a Chinese lake. The US, like India, doesn't want the hegemony of any player in the region.

➢ **Geopolitical Importance:**
○ The Indo-Pacific region is home to some of the world's most populous and economically dynamic countries, including India, China, Japan, Australia, and Indonesia.
  ● This concentration of economic and political power makes it a critical center of global geopolitics.

➢ **Economic Significance:**
○ The region is a major driver of the global economy. It contains key maritime trade routes, such as the Strait of Malacca, through which a significant portion of the world's trade flows.
  ● Many of the world's busiest and most important ports are located in the Indo-Pacific, facilitating trade between Asia, Europe, and Africa.

➢ **Security and Strategic Concerns:**
○ The Indo-Pacific is a region of increasing strategic competition among major powers, notably the United States, China, India, and Russia. The presence of nuclear-armed states and unresolved territorial disputes, such as the South China Sea disputes, add to its strategic complexity.

➢ **Balancing China's Rise:**
○ The rise of China as a global economic and military power is a central factor in the Indo-Pacific's significance.

○ Many countries in the region are seeking to balance China's influence and ensure their own security by strengthening alliances and partnerships with like-minded nations.

➢ **Maritime Security:**
○ Ensuring the security of maritime trade routes is a major concern for countries in the Indo-Pacific.
○ Issues such as piracy, territorial disputes, and the need to protect sea lanes make maritime security a top priority.

➢ **Regional Organizations and Forums:**
○ Various regional organizations and forums, such as ASEAN, **QUAD**, and the **Indian Ocean Rim Association (IORA)**, are actively engaged in addressing regional issues, promoting economic cooperation, and enhancing security.

➢ **Connectivity and Infrastructure Development:**
○ There is a growing focus on infrastructure development, connectivity projects, and economic integration in the Indo-Pacific.
○ Initiatives like **China's Belt and Road Initiative (BRI)** and the U.S. "Free and Open Indo-Pacific" strategy aim to shape the economic and political landscape of the region.

➢ **Environmental and Ecological Significance**:
○ The Indo-Pacific is home to diverse ecosystems, including coral reefs and marine biodiversity.
○ Climate change and environmental issues, such as plastic pollution and overfishing, are of global concern, as they affect not only the region's nations but also the entire planet.

Asia Pacific Forum on Human Rights

Why in News?

President of India inaugurated the **annual general meeting** and **Biennial Conference** of the **Asia Pacific Forum on Human Rights** in New Delhi celebrating the landmark **75th anniversary** of the **Universal Declaration on Human Rights (UDHR).**

What was the President's Perspective on Human Rights?

➢ **Balancing Human Rights and Environmental Concerns:** The President emphasized on addressing human rights issues while protecting the environment.

Note:

- ➢ **Concerns Over Man-Made Environmental Destruction:** The President expressed concern about human actions' destructive impact on nature.
- ➢ **Moral Obligation to Safeguard Human Rights:** She highlighted the moral duty of the international community to protect human rights beyond legal frameworks.
- ➢ **India's Commitment to Gender Justice:** She reiterated India's Constitution has supported universal adult franchise rights, leading to gender justice and dignity protection.
- ➢ **Openness to Global Best Practices:** She said India is willing to learn from global best practices to improve human rights.
- ➢ **Nurturing Mother Nature:** She urged not to isolate human rights issues and equally prioritize the protection of the wounded Mother Nature.

What is the Asia Pacific Forum on Human Rights?
- ➢ **Background and Mission:**
  - ○ Founded in 1996
  - ○ Unites National Human Rights Institutions (NHRIs) across the Asia Pacific region
  - ○ Aims to address significant human rights challenges in the region
- ➢ **Membership and Growth:**
  - ○ The APF has 17 full members and eight associate members.
  - ○ To be admitted as a full member, a National Human Rights Institution must fully comply with the minimum international standards set out in the Paris Principles.
  - ○ National Human Rights Institutions that partially comply with the **Paris Principles** are granted associate membership.
- ➢ **Goals:**
  - ○ Promote the establishment of independent NHRIs in the Asia Pacific region
  - ○ Support member NHRIs in their effective functioning
- ➢ **Functions and Services:**
  - ○ Offers a comprehensive range of programs and services
  - ○ Represent members' collective voice on regional and international human rights issues
  - ○ Form partnerships with various international agencies, governments, and non-government organizations
  - ○ Collaborates with organizations such as **OHCHR, UNDP, UN Women, and UNFPA**

Why are Human Rights Important?

- ➢ **Protection of Individual Dignity:** Ensures the preservation of the inherent dignity and worth of every human being.
- ➢ **Social Justice and Equality:** Promotes social justice and equality by safeguarding the rights of marginalized and vulnerable populations.
- ➢ **Rule of Law:** Fosters the rule of law by establishing a framework for accountability and justice.
- ➢ **Peace and Stability:** Contributes to peace and stability within and among nations by addressing grievances and conflicts.
- ➢ **Development and Prosperity:** Facilitates economic and social development, leading to improved living standards.
- ➢ **Global Cooperation:** Promotes international cooperation and diplomacy to address human rights abuses on a global scale.
- ➢ **Preventing Atrocities:** Acts as a deterrent against human rights abuses and atrocities.
- ➢ **Human Dignity as a Universal Value:** Upholds human dignity as a universal value transcending cultural, religious, and political boundaries.
- ➢ **Individual Empowerment:** Empowers individuals to claim their rights and participate in decision-making processes.
- ➢ **Accountability and Justice:** Holds governments and institutions accountable for human rights violations and seeks justice for victims.

What is the NHRC?

- ➢ **About NHRC:**
  - ○ Ensures protection of rights related to life, liberty, equality, and dignity of individuals.
  - ○ **Upholds rights guaranteed by the Indian Constitution** and international covenants enforceable by Indian courts.
- ➢ **Establishment:**
  - ○ **Established on 12th October 1993**, under the **Protection of Human Rights Act (PHRA), 1993.**
  - ○ Established in accordance with the **Paris Principles** for promoting and protecting human rights.
- ➢ **Role and Function:**
  - ○ Possesses **powers of a civil court** with judicial proceedings.

Note:

○ Empowered to **use the services of central or state government officers** or investigation agencies for probing human rights violations.

○ Can **investigate matters** within one year of their occurrence.

○ Functions are primarily **recommendatory** in nature.

➢ **Limitations:**

○ Cannot inquire into any matter after one year from the date of the alleged human rights violation.

○ **Limited jurisdiction** in cases of human rights violations by armed forces.

○ **Lacks authority** to act in cases of human rights violations by private parties.

Five Eyes Alliance

Why in News?

Since the **Canadian Prime Minister alleged** that the Indian Government may have "potential links" to the killing of a Sikh separatist leader and **Khalistan Movement** proponent in Canada, the ties between the two countries are under strain; where his allegations are backed by reports of **Five Eyes Alliance.**

What is Five Eyes Alliance?

➢ **About:**

○ The Five Eyes is an intelligence alliance comprising nations including **Australia, Canada, New Zealand, the United Kingdom and the US.**

○ These countries are parties to the **multilateral UK-USA Agreement**, a treaty for joint cooperation in signals intelligence.

➢ **Features:**

○ These partner nations exchange a wide spectrum of intelligence within one of the world's most tightly-knit multilateral agreements as part of the collaboration.

○ Following its origin, the agency later enlarged its core group to 'Nine Eyes' and 14 Eyes alliances as well, encompassing more countries as security partners.

○ The **'Nine Eyes'** group expands to cover the Netherlands, Denmark, France and Norway, whereas the **14 Eyes bloc** further includes Belgium, Italy, Germany, Spain and Sweden.

Why was the Five Eyes Alliance Formed?

➢ The alliance's origins can be traced back to the **Second World War**. The UK and the US decided to share intelligence after successfully breaking German and Japanese codes, respectively.

➢ In 1943, the **Britain-USA (BRUSA) agreement** laid the foundations for what would become the UK-USA (UKUSA) agreement.

○ BRUSA was signed to share intelligence information between the two countries to support US forces in Europe

➢ Following this, **the UKUSA (UK-USA) was signed in 1946. Canada joined it in 1949, and New Zealand and Australia did so in 1956, forming the alliance**.

➢ The Agreement was not officially acknowledged though its existence was known about from the 1980s. **But in 2010**, the UKUSA agreement files were released.

How does the Five Eyes Alliance Work?

➢ Countries often engage with each other on matters of intelligence gathering and security.

➢ In recent years, common interests, such as balancing the rise of China, have led to a closer alignment among the Five Eyes countries.

➢ Their closeness has also been attributed to a **common language and mutual trust** built over decades of association.

➢ In 2016, the **Five Eyes Intelligence Oversight and Review Council** came into being. It includes the non-political intelligence oversight, review, and security entities of the Five Eyes countries.

How could Five Eyes Play a Role in the Current India-Canada Issue?

➢ Countries like the **US, the UK and Australia especially are seen as close to India.** They also have **significant Indian and Indian-origin populations within them**, similar to Canada.

○ They have also **seen some instances of pro-Khalistan activities** in the last few years. But due to their historical closeness to Canada and the alliance on one hand, and India,an emerging global power on the other, **outright support for India or Canada is unlikely.**

➢ Given the state of ties, these countries, particularly **the US, could play a mediating role in the issue once they have clear intelligence and information on the matter.**

Note:

The Khalistan Shadow on India-Canada Ties

Why in News?

Recently, the tensions between India and Canada escalated when the Canadian Prime Minister alleged Indian involvement in the killing of a Khalistani Leader designated as a terrorist by India, in Surrey in June 2023.

➢ India rejected these allegations and accused Canada of sheltering Khalistani Extremists.

What is the Khalistan Movement?

➢ The **Khalistan movement** is a fight for a **separate, sovereign Sikh state** in present day Punjab (both India and Pakistan).

➢ The demand has **resurfaced many times,** most prominently during a violent insurgency in the 1970s and 1980s which **paralysed Punjab for over a decade**.

➢ The movement was crushed in India following **Operation Blue Star (1984)** and Operation Black Thunder (1986 and 1988), but it continues to **evoke sympathy and support among sections of the Sikh population**, especially in the **Sikh diaspora in countries such as Canada, the UK, a**nd Australia.

What are the Recent Anti-India Activities in Canada?

➢ **Recent Anti-India Activities:**

   ○ **Operation Bluestar Anniversary Parade (June 2023):** In Brampton, Ontario, a parade seemed to celebrate the assassination of former **Prime Minister Indira Gandhi,** displaying a blood-stained figure and advocating revenge for the attack on Darbar Sahib.

   ○ **Pro-Khalistan Referendum (2022):** SikhsforJustice (SFJ), a pro-Khalistan organization, conducted **a so-called "referendum" on Khalistan** in Brampton, claiming significant support.

   ○ **Sanjh Savera Magazine (2002):** In 2002, the Toronto-based Punjabi-language weekly Sanjh Savera **greeted Indira Gandhi's death anniversary** with a cover illustration celebrating her murder, glorifying those responsible.

   ○ The magazine received government advertisements and is now a prominent daily newspaper in Canada.

➢ **Indian Concerns Over such Activities:**

   ○ Indian diplomats based in Canada have on numerous occasions said that Canada's failure to **tackle "Sikh extremism"**, and the constant harassment of Indian diplomats and officials by Khalistanis, is a **major foreign policy stress point.**

   ○ The Indian Prime Minister (PM) raised **strong concerns about Sikh protests in Canada** with the Canadian PM on the sidelines of a **G20 summit in New Delhi.**

   ○ Canada has paused talks **on a proposed trade treaty with India.**

How will Khalistan Radicalism Impact India-Canada Relations?

➢ **Strained Diplomatic Relations:**

   ○ The allegations and counter-allegations can strain diplomatic ties, affecting the overall **relationship between the two nations.**

   ○ Trust and confidence may **be eroded, making it difficult to collaborate** on various bilateral and international issues.

➢ **Security Implications for India:**

   ○ The Khalistan movement is considered a security threat to India's Sovereignty getting grounds in Foreign Countries.

      ● In April 2023, India arrested a Sikh separatist Leader for allegedly **reviving calls for Khalistan,** sparking fears of new violence in Punjab.

   ○ Earlier in 2023, India hit out at **Canada for allowing a float in a parade** depicting the **assassination of Indira Gandhi**, perceiving this to be a glorification of Sikh separatist violence.

      ● It is also concerning for India about frequent **demonstrations and vandalism by Sikh separatists** and their supporters at **Indian diplomatic missions** in Canada, Britain, the U.S. and Australia causing threat to Indian Sovereignty and Integrity.

➢ **Impact on Trade and Economy:**

   ○ Trade relations might suffer as the accusations could **affect business partnerships and investment flows** between India and Canada.

   ○ Businesses may exercise caution or reassess their engagement due to the heightened political tension.

Note:

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- India-Canada bilateral trade in goods reached **approximately USD 8.2 billion in 2022**, showing a 25% growth compared to 2021.
- The services sector was emphasised as a significant contributor to the bilateral relationship, with bilateral services trade valued at around USD 6.6 billion in 2022.

➢ **Reduced Cooperation on Key Issues:**
  ○ Cooperation on critical global challenges such as climate change, counter-terrorism, and international security might be adversely impacted.
  ○ Both countries may find it challenging to align their positions and work together effectively on these shared concerns.

➢ **Potential Travel and People-to-People Impact:**
  ○ The escalating tensions could affect travel and interactions between Indian and Canadian citizens, making it more cumbersome or less appealing to travel to each other's countries.

➢ **Reassessment of Immigration Policies:**
  ○ Canada **may review or tighten its immigration policies**, especially concerning individuals associated with Khalistani separatism, in response to India's concerns about sheltering such elements.

➢ **Long-Term Bilateral Cooperation:**
  ○ The recent tensions could have a lasting effect on long-term bilateral cooperation and partnerships.
  ○ Rebuilding trust and reestablishing a constructive relationship might require substantial efforts and time.
    - India established diplomatic relations with Canada in 1947. India and Canada have a **long-standing bilateral relationship based on shared democratic values**, the multi-cultural, multi-ethnic and multi religious nature of two societies and strong people-to-people contacts.

What is the History of Khalistan Movement and Terrorism in Canada?

➢ **Early Khalistan Movement in Canada:**
  ○ The Khalistan movement traces back to **Surjan Singh Gill's establishment** of the **'Khalistan government in exile'** office in Vancouver in 1982, with limited local Sikh support.

➢ **Connection to Punjab Militancy:**
  ○ The militancy in Punjab during the **1980s had repercussions in Canada.**

  ○ Canada's handling of individuals like Talwinder Singh Parmar, accused of terrorism in Punjab, was criticized by India.

➢ **Air India Bombing (1985):**
  ○ Canada witnessed a **horrific act of terrorism** with the bombing of Air India Kanishka in June 1985, orchestrated by the Babbar Khalsa, a Khalistani outfit.

What are the Previous Instances of India-Canada Tensions?

➢ **Early Tensions (1948):**
  ○ The strained relations trace back to 1948 when Canada supported a plebiscite in Kashmir, reflecting early discord.

➢ **1998 Nuclear Tests:**
  ○ Canada's recall of its high commissioner to India following India's nuclear tests marked a **significant downturn in relations.**

➢ **Recent Developments:**
  ○ PM of Canada expressions of concern regarding India's response to farmers' protests and his Liberal Party's alliance with the New Democratic Party (NDP), which endorsed the Khalistan Referendum, further fueled tensions.

India-Middle East-Europe Corridor

Why in News?

Recently, the India-Middle East-Europe Economic Corridor (IMEC) Project was signed at the **G20 Summit in New Delhi,** which holds significant geopolitical and economic implications for India.

➢ The project forms part of the **Partnership for Global Infrastructure and Investment (PGII).** PGII is a values-driven, high-impact, and transparent infrastructure partnership to meet the **enormous infrastructure needs of low and middle-income countries.**

What is the India-Middle East-Europe Economic Corridor (IMEC) Project?

➢ **About:**
  ○ The proposed IMEC will consist of **Railroad, Ship-to-Rail networks** and Road transport routes extending **across two corridors**, that is,

- **The East Corridor** – connecting **India to the Arabian Gulf,**
- **The Northern Corridor** – connecting the **Gulf to Europe.**
- The IMEC corridor will also include **an electricity cable, a hydrogen pipeline and a high-speed** data cable.

India-Middle East-Europe Corridor (IMEC)

Sea route — Rail route
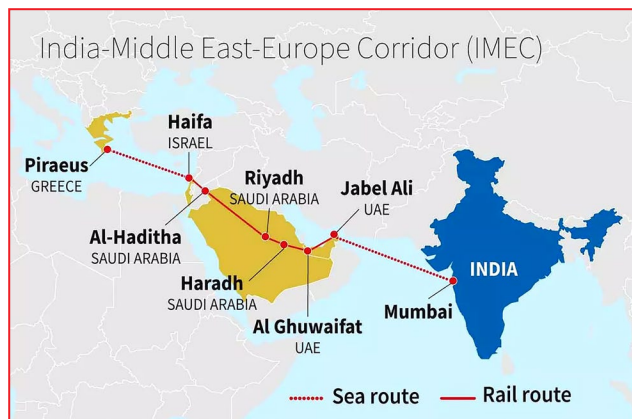
➢ **Signatories:**
- India, the US, Saudi Arabia, UAE, the **European Union**, Italy, France, and Germany.

➢ **Ports to be Connected:**
- **India:** Mundra (Gujarat), Kandla (Gujarat), and Jawaharlal Nehru Port Trust (Navi Mumbai).
- **Middle East:** Fujairah, Jebel Ali, and Abu Dhabi in the UAE as well as Dammam and Ras Al Khair ports in Saudi Arabia.
  - **Railway line will connect** Fujairah port (UAE) to Haifa port (Israel) via: Saudi Arabia (Ghuwaifat and Haradh) and Jordan.
- **Israel:** Haifa port.
- **Europe:** Piraeus port in Greece, Messina in South Italy, and Marseille in France.

➢ **Objective:**
- It aims to create a **comprehensive transportation network**, comprising rail, road, and sea routes, connecting India, the Middle East, and Europe.
- It aims to **enhance transportation efficiency**, reduce costs, increase economic unity, generate employment, and **lower Greenhouse Gas (GHG) emissions**.
- It is expected to transform the integration of Asia, Europe, and the Middle East by facilitating trade and connectivity.

➢ **Significance:**
- Upon completion, it would provide a "reliable and cost-effective cross-border ship-to-rail transit network to supplement existing maritime and road transports".

What are the Geopolitical and Economic Implications of IMEC?

➢ **Geopolitical:**
- **Thwart to China's BRI:**
  - IMEC is seen as a **potential counter to China's Belt and Road Initiative (BRI)** in the **Eurasian** region.
  - It can serve to **counterbalance China's growing economic and political influence**, especially in regions with historically strong ties to the U.S.
- **Integration Across Civilizations:**
  - The project can strengthen **ties and integration across continents and civilizations.**
  - It offers a **strategic opportunity for the U.S.** to maintain influence and reassure traditional partners amidst China's growing influence in the region.**.**
- **Breaking Pakistan's Overland Connectivity Veto:**
  - IMEC **bypasses Pakistan**, breaking its veto over **India's overland connectivity** to the West, a hurdle persistently faced in the past.
- **Strategic Engagement with Arabian Peninsula:**
  - The corridor deepens **India's strategic engagement with the Arabian peninsula** by establishing enduring connectivity and **elevating political and strategic links** with nations in the region.
- **Promoting Intra-Regional Connectivity and Peace:**
  - IMEC has the potential to promote intra-regional connectivity and could help reduce **political tensions in the Arabian peninsula**.
  - It holds the prospect of becoming an "infrastructure for peace" in the region.
- **India's Strategic Role in Africa:**
  - The corridor's model **could be extended to Africa,** aligning with the US and EU's plan to develop a **Trans-African corridor.**
  - This signifies India's intent to strengthen its engagement with Africa and contribute to its infrastructure development.

Note:

- ➢ **Economic:**
  - ○ **Enhanced Trade Opportunities**
    - IMEC presents a **transformative opportunity for India to boost economic growth** by enhancing its trade connectivity with key regions.
    - The route could **significantly reduce transit times**, making trade with Europe 40% faster compared to the Suez Canal maritime route.
  - ○ **Stimulated Industrial Growth:**
    - The corridor will create an **efficient transport network for the seamless movement of goods.**
    - This will encourage industrial growth, particularly in regions connected to the corridor, as companies will find it easier to transport raw materials and finished products.
  - ○ **Job Creation:**
    - As economic activities **expand due to improved connectivity**, there will be a surge in job opportunities across sectors.
    - The growth in trade, infrastructure, and allied industries will necessitate skilled and unskilled labor, promoting employment.
  - ○ **Energy Security and Resource Access:**
    - The corridor can **facilitate secure energy and resource supplies**, especially from the Middle East.
    - Reliable access to these resources will stabilize India's energy sector and support its growing economy.
  - ○ **Facilitating Special Economic Zones (SEZs):**
    - The corridor can be strategically leveraged to develop **SEZs (Special Economic Zones)** along its route. SEZs can attract foreign investment, promote manufacturing, and drive economic growth in these designated zones.

What are the Challenges to the India-Middle East-Europe Corridor (IMEC)?

- ➢ **Logistics and Connectivity Issues:**
  - ○ Developing a **multimodal transport corridor** involving rail, road, and sea routes spanning multiple countries requires **complex logistical planning and coordination** among stakeholders.
  - ○ Selecting the m**ost viable and cost-effective routes**, assessing the feasibility of rail and road connections, and ensuring optimal connectivity are key challenges.
- ➢ **Missing Rail Links and Construction:**
  - ○ Significant portions of rail links are missing**, especially in the Middle East**, requiring substantial construction efforts and **investment to complete the rail network.**
- ➢ **Coordination among Multiple Countries:**
  - ○ Coordinating efforts, policies, and regulations among multiple countries with diverse interests, legal systems, and **administrative procedures is a major challenge** in realizing this cross-continental corridor.
- ➢ **Potential Opposition and Competition:**
  - ○ Opposition or competition from existing transport routes, especially Egypt's Suez Canal, which may see reduced traffic and revenue, **could pose challenges and diplomatic hurdles.**
- ➢ **Cost and Financing:**
  - ○ Estimating and securing adequate financing for the construction, operation, and maintenance of the corridor is a significant challenge.
  - ○ The costs for development are estimated to be substantial, and funding sources need to be identified.
    - Initial estimates suggest that developing each of these IMEC routes could cost anywhere **between USD 3 billion to USD 8 billion.**

Changing Dynamics of Global South

Why in News?

Earlier in 2023, the **Prime Minister of India organised a virtual summit on the "Voice of the Global South"**, involving approximately 125 countries. The objective of this summit was to **solicit the opinions and input of countries from the Global South** in order to determine the priorities for the region.

Note:

What is the History of the Global South?

> **Historical Context:** The term "Global South" is often used to highlight the historical legacy of colonialism and the **economic disparities between the formerly colonised nations and the developed Western nations**.
>   - It underscores the **challenges faced by these countries in achieving economic growth and development**.

> **Formation of the G-77:** In 1964, the **Group of 77 (G-77)** countries came into existence when they signed a Joint Declaration **during the first session of the UN Conference on Trade and Development (UNCTAD)** in Geneva.
>   - The G-77 **became the largest intergovernmental organisation** of developing countries at the time.

> **Purpose of G-77:** It was created to promote the economic interests of developing countries and improve their ability to negotiate on international economic issues within the UN system.
>   - It now **includes 134 countries** across Asia, Africa, South America, the Caribbean and Oceania. **China is not technically part of the group**, hence, the grouping is **often referred to as "G-77+China" in multilateral forums**.

> **UNOSSC:** The UN Office for South-South Cooperation (UNOSSC) was established in 1974. Its **role is to coordinate cooperation between countries in the Global South and with developed countries** or multilateral agencies, in collaboration with the G-77.

What led to the Revival of Global South?

> In the early decades of the 21st century, there was **a noticeable decline in interest and attention towards the Global South**.

>   - This trend was **particularly evident in countries like India and Indonesia**, which were perceived as **moving away from their 'Third World' origins** and seeking a more prominent role on the global stage as they reformed and expanded their economies.

> However, in recent times, the **Global South has regained its importance and relevance,** signifying a growing recognition of the region's significance in shaping the emerging global order. **Several key factors are cited as contributing to this resurgence:**
>   - **Impact of Covid-19 Pandemic:** The **Covid-19 pandemic** had a severe impact on many countries in the Global South, both in terms of public health and economic challenges. This **crisis refocused attention on the vulnerabilities and needs of these nations.**
>   - **Economic Downturn:** The economic downturn resulting from the pandemic disproportionately affected countries in the Global South, **highlighting the need for international cooperation and support**.
>   - **Repercussions of Russia-Ukraine Conflict:** The **Russia-Ukraine conflict** had a global economic impact. This **had ripple effects on the developing world**, further underscoring the interconnectedness of global affairs and the importance of the Global South in international diplomacy.

Why is the Term Global South Criticised?

> **Inaccuracy of the Term:** The term "Global South" is **criticised for its inaccuracy in representing the countries** it was intended to describe.
>   - It is pointed out that **some countries typically considered part of the Global South**, like India, **are actually located in the Northern Hemisphere**, while others, such as Australia, are in the **Southern Hemisphere but often categorised as part of the Global North**.

> **Need for a More Precise Classification:** In the 1980s, **the recognition of this inaccuracy led to the development of the "Brandt Line"** - a curve that more accurately **divided the world into the economic North and South based on factors like economic development and wealth distribution**, rather than simply by geographical location.

Note:

What are the Demands of the Global South?

➢ **Proportionate Voice at Global Level:** The Global South, comprising countries with significant populations, recognises that they have the most at stake in shaping the future of the world.

❍ With three-fourths of the global population residing in these countries, they argue that **they should have a proportionate and meaningful voice in global decision-making processes**.

➢ **Equitable Representation:** Global South demands an equitable representation in global governance. The **current model of global governance may not adequately reflect the demographic and economic realities of the world**, and there is a call for change to ensure that the voices of the Global South are heard and considered.

What Signifies the Influence of the Global South in Global Politics?

➢ **Prioritising Global South:** India's Presidency of the G20 was driven by the priorities of the Global South. This suggests a **growing awareness of the need to address issues and concerns** that are particularly relevant to developing countries in the Global South.

➢ **Global South Leadership:** The fact that developing countries like Indonesia, India, Brazil, and South Africa are consecutively hosting the **G20 summit indicates a desire for greater leadership and influence from the Global South** in global decision-making processes.

❍ These countries represent a significant portion of the world's population and economies.

➢ **Inclusivity:** The "Voice of the Global South" summit demonstrates a commitment to inclusivity and consultation with a wide range of nations from the Global South.

❍ This indicates **a shift away from traditional power structures dominated by Western countries**.

➢ **Multilateralism:** The emphasis on the Global South's priorities and the involvement of these countries in hosting and shaping the G20 agenda **reflects a commitment to multilateralism, where decisions are made collectively** by a diverse group of nations.

➢ **Rising Influence of Developing World:** This is evident through the participation of various organisations such as G20, BRICS, **Shanghai Cooperation Organisation (SCO), Quad,** the **Indo-Pacific Economic Forum**, and other global players who are **actively seeking involvement from countries in the Global South in decision-making processes**.

What is the Evidence of the Global South's Increasing Influence?

➢ **Establishment of the 'Loss and Damage Fund':** At the **COP27 Climate Change conference** in Egypt, the establishment of the 'Loss and Damage fund' was celebrated as a significant win for the Global South.

❍ It **signifies a recognition of the disproportionate burden borne by countries in the Global South**.

➢ **Global South in COP28:** In the upcoming **UNFCCC COP 28** in the UAE, it is anticipated that **countries from the Global South will take a leading role in driving discussions on mitigating climate change**.

➢ **G7 Inclusivity:** Japan, as the host of the **G7 summit**, made a notable effort to involve developing countries such as India, Brazil, Vietnam, Indonesia, Comoros, and the Cook Islands in the discussions.

❍ This was seen as **an outreach to the Global South, indicating a desire for a more inclusive dialogue among the world's wealthiest nations**.

➢ **BRICS Summit Expansion:** The **BRICS summit**, held in South Africa, expanded its membership from five to 11 members. This **expansion was attributed to a concerted effort to engage with and incorporate more countries from the Global South** into the BRICS grouping, underscoring its growing importance.

➢ **G-77 Summit in Cuba:** The G-77 summit held recently in Havana, Cuba **showcased the significance of the Global South on the global stage**, as it **brought together a substantial number of developing countries to discuss key issues**.

Note:

➢ **African Union's Inclusion into G20:** The inclusion of the **55-nation African Union** into the G20 is seen as a significant outcome of the conference indicating **a growing recognition of the African nations** in global affairs and **the need to include their perspectives and contributions in shaping the emerging global order**.

India's Socio Economic Performance in Comparison to G20 Nations

Why in News?

Recently, India hosted the **18th G20 Summit** in New Delhi under the **theme 'One Earth, One Family, One Future.'**

➢ As **India handed over the G20 Presidency of 2024 to Brazil**, it was essential to evaluate its **socioeconomic performance in comparison to fellow G20 nations**. , Unfortunately, **India's recent performance** in key socioeconomic indicators **lagged behind its G20 counterparts.**

What is the Status of India's Progress on Various Metrics in Comparison to G20 Members?

➢ **Gross Domestic Product (GDP) per capita:**
   ○ **GDP per capita** is the **sum of gross value added by all resident producers in the economy divided by mid-year population.**
   ○ In 1970, India ranked 18th out of 19 regions analysed (Russia excluded), with a GDP per capita of USD 111.97.
      ● By 2022, **India's GDP per capita had increased to USD 2,388.62** but remained at the **bottom among the 19 regions.**

➢ **Human Development Index (HDI):**
   ○ **HDI** is a composite index that **measures average achievement in human development** taking into account four indicators:
      ● Life expectancy at birth (Sustainable Development Goal 3),
      ● Expected years of schooling (Sustainable Development Goal 4.3),
      ● Mean years of schooling (Sustainable Development Goal 4.4),
      ● Gross national income (GNI) (Sustainable Development Goal 8.5).
   ○ HDI is measured on a scale of 0 (worst) to 1 (best). The **HDI of 19 countries (European Union(EU) excluded)** between 1990 and 2021 is compared and India's HDI improved **from 0.43 in 1990 to 0.63 in 2021, reflecting progress in life expectancy, education, and living standards.**
      ● However, despite its progress in absolute terms, **India ranked at the bottom of the list.**

➢ **Health Metrics:**
   ○ **Life Expectancy:**
      ● India's average **life expectancy increased from 45.22 years in 1990 to 67.24 years in 2021**, surpassing South Africa but still lagging behind China.
   ○ **Infant Mortality:**
      ● In 1990, India ranked last with an infant mortality rate of 88.8. By 2021, the rate improved to 25.5, but **India ranked 19th out of 20 regions.**

➢ **Labour Force Participation Rate (LFPR):**
   ○ The **(LFPR)** above 15 years of age in the 20 regions was compared between 1990 and 2021-22.
      ● In 1990, with an LFPR of 54.2%, India ranked 18, above Italy (49.7%) and Saudi Arabia (53.3%).
      ● However, **by 2021-22, India's LFPR slipped to 19th place, only ahead of Italy, with a reduced LFPR of 49.5%.**

➢ **Women in Parliament:**
   ○ The share of **women in the Parliament** of 19 regions (Saudi Arabia excluded) was compared between 1998 and 2022.
      ● India's share of women in Parliament increased **from 8.1% in 1998 to 14.9% in 2022.**
      ● However, compared to other G20 countries and the EU, **India's rank declined from 15th in 1998 to 18th in 2022, just ahead of Japan.**

➢ **Environmental Performance:**
   ○ India has effectively curbed **carbon emissions** over the past three decades, consistently ranking as the lowest emitter among the 20 regions.
      ● However, India's progress in adopting eco-friendly energy sources has been relatively slow, with **just 5.36% of electricity generated from renewables in 2015, ranking 13th among the 20 regions.**

Note:

Social Issues

Highlights

- *Women, Power and Cancer: Lancet*
- *India Ageing Report 2023*
- *International Day of Sign Languages 2023*
- *Expediting the Enrolment of Children in Schools*
- *Global Report on Hypertension*
- *Patient Safety Rights Charter of WHO*
- *Suicidal Patterns in India*

Women, Power and Cancer: Lancet

Why in News?

Recently, The Lancet Global Health has released a report titled-**"Women, Power and Cancer",** which highlights how societal apathy towards women's health has delayed their **access to Cancer prevention**.

What is the Methodology of the Study?

➢ This study estimated premature **deaths at ages 30–69 years** and distinguished these as deaths **that are preventable** or treatable in 185 countries worldwide.

➢ For this population-based study, estimated **Cancer deaths by country, cancer, sex, and age groups** were retrieved from the **International Agency for Research on Cancer's GLOBOCAN 2020 database.**

➢ Crude and age-adjusted cancer-specific **Years of Life Lost (YLLs)** were calculated for **36 cancer types.**

What are the Findings of the Report?

➢ **Cancer-Related Mortality and Burden:**
  ❍ In 2020, there were **5.28 million premature cancer-related deaths** worldwide, occurring between the ages of 30 and 69.
  ❍ These premature deaths resulted in a significant burden of 182.8 million years of life lost (YLLs), accounting for 68.8% of the total YLLs from cancer across all age groups.

➢ Preventable and Treatable Deaths:
  ❍ Among the premature YLLs, 68% were deemed preventable, achievable **through primary prevention or early detection efforts**.

  ❍ The remaining 32.0% YLLs were considered treatable, where effective evidence-based treatment with curative intent could reduce mortality.

➢ **Gender Disparities:**
  ❍ **Men experienced a higher proportion of preventable premature YLLs** compared to women (70.3% for men vs. 65.2% for women).
  ❍ However, the proportion of **treatable premature YLLs was higher for women** than for men (34.8% for women vs. 29.7% for men).

➢ **Human Development Index (HDI) and Mortality:**
  ❍ Countries with lower **HDI** levels had **greater proportions of YLLs at premature ages** compared to very high HDI countries.
  ❍ **Lung cancer** was a major contributor to preventable premature YLLs **in medium to very high HDI countries**, while **cervical cancer led in low HDI countries.**
  ❍ **Colorectal and breast cancers** were major treatable cancers across all tiers of HDI.

What are the Key Highlights of the Study Pertaining to India?

➢ **Cancer Deaths Among Women in India:**
  ❍ Nearly 63% of cancer deaths among women in India **could have been prevented by reducing risk factors,** screening, or early diagnosis.
  ❍ 37% of deaths **could have been averted** with appropriate and timely treatment.

➢ **Challenges and Factors Affecting Cancer Care for Women:**
  ❍ Societal apathy towards women's health, lack of awareness, and absence of quality expertise at the primary care level delayed access to cancer prevention, detection, **and care for women.**

Note:

- ➢ **Gender Gap and Discrimination in Healthcare:**
  - ❍ Because of **Gender Inequity** in cancer care, a woman's **health concerns were dismissed or ignored.**
  - ❍ Women are less likely to be in a position of power and may face difficulty in determining **their care due to gender bias** and discrimination.
- ➢ **Leading Risk Factors Among Women in India:**
  - ❍ The top three cancers among women in India are **Breast, Cervical, and Ovarian Cancers.**
    - One woman dies from cervical cancer every eight minutes.
  - ❍ Infection continues to be the **biggest risk factor for cancer in Indian women, contributing to 23%** of deaths.

- Infections that increase the risk of cancers include the **HPV virus**, which causes cervical cancer, and **Hepatitis B and C infections** that increase the risk of liver cancer.
- Tobacco is the second important risk factor, contributing to 6% of the cancer deaths.
- Alcohol and obesity each contributed to 1% cancer mortality in India.
- ➢ **Economic and Social Impact:**
  - ❍ **BRICS (Brazil, Russia, India, China, South Africa)** nations lost out on USD 46.3 billion because of **productivity loss** as a result of premature cancer deaths.
  - ❍ The value of unpaid cancer care-giving by women is about 3.66 of India's **national health expenditure.**

OVER THE YEARS

YEAR	INCIDENCE	MORTALITY
2020	13.92 lakh	7,70,230
2021	14.26 lakh	7,89,202
2022	14.61 lakh	8,08,558
2025	15.69 lakh (projected)	

Source: National Cancer Registry data presented in Parliament; ICMR National Centre for Disease Informatics and Research study

INCIDENCE PER 1 LAKH, 2020*

94.1 Males   **103.6** Females

*Estimate

COMMON CANCER SITES

MALE: Lung, mouth, prostate, tongue, stomach (36% of all cancers)

FEMALE: Breast, cervix, ovary, uterus, lung (53% of all cancers)

FOR WOMEN, SCREENING MATTERS

BREAST & CERVICAL, the two most common cancers in women, are highly preventable and treatable.

SELF-EXAMINATION of breasts every month, and a clinical examination by a doctor every year, is important. Women who detect any lumps during self-examination must consult a doctor immediately. Women over age 40 should get a mammography once a year.

A PAP SMEAR TEST to check for pre-cancerous growth in the genitals is recommended for women ages 25-60.

HPV TEST to detect human papilloma virus that causes the majority of cervical cancers, can be done every 5-10 years.

Note:

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What are the Recommendations of the Report?

➢ There is a need to call for a **new feminist and inclusive agenda for cancer care**, aiming to address the gender disparities and challenges women face in accessing appropriate cancer prevention, detection, and treatment.

➢ There is a need **for more sex- and gender-inclusive policies** and guidelines, addressing long-standing discriminatory practices undermining women's interaction with the health system.

➢ There should be **tailored programs for early diagnosis**, screening, comprehensive treatment, risk factor reduction, and vaccination to address premature cancer inequalities.

➢ Screening is crucial for **early detection and prevention of breast and cervical cancers.**

  ❍ Self-examination of breasts every month and clinical examination by a doctor every year is advised.

  ❍ Women over the age of **40 should get a mammography once a year** to check for breast cancer.

  ❍ Women between the **ages of 25 and 65 years** should get a **pap smear test** to check for pre-cancerous growth on their cervix.

Why are Women More Precarious to Dying of Cancer?

➢ Many women in India face barriers in accessing healthcare. Their headaches, stemming from a **developing brain cancer,** are ignored generally in many cases.

  ❍ There is a need of addressing societal apathy towards women's health, lack of awareness, and absence of quality healthcare at the primary level.

➢ The challenges faced by **dispossessed women,** including early marriage, lack of education, and financial dependence, hinder their ability to seek medical attention and sustain treatment.

➢ Lack of knowledge and **delayed diagnosis by local healthcare providers** can severely impact a patient's prognosis and quality of life.

> **What are the Government Initiatives Related to Cancer Treatment?**
> ➢ **National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke**
> ➢ **National Cancer Grid**
> ➢ **National Cancer Awareness Day**
> ➢ **HPV Vaccine**
> ➢ **Universal Immunization Programme (UIP).**

India Ageing Report 2023

Why in News?

Recently, the **UNFPA (United Nations Population Fund)** India, in collaboration with the **International Institute for Population Sciences (IIPS) has unveiled** the India Ageing Report 2023, highlighting the rapidly growing elderly population in India.

What are the Key Highlights of the Report?

➢ **Demographic Trends:**

  ❍ India's elderly population is growing rapidly, with a decadal growth rate of 41%.

  ❍ By 2050, over 20% of India's population will be elderly.

  ❍ The elderly population in India will surpass the **population of children (0 to 15 years old)** by 2046.

  ❍ The population of people aged **80+ years is expected to increase by around 279%** between 2022 and 2050.

➢ **Higher Life Expectancy of Women:**

  ❍ Women have a **higher life expectancy at ages 60 and 80** compared to men, with variations across states and territories.

    ● For instance, in Himachal Pradesh and Kerala, women at **60 years have a life expectancy of 23 and 22 years**, respectively, which is four years greater than men at **60 years in these States** — as compared to the national average differential of only 1.5 years.

➢ **Poverty and Well-being:**

  ❍ More than 40% of the elderly in India are in the poorest wealth quintile.

    ● **Poverty** among the elderly is a concern, affecting their quality of life and healthcare utilization.

  ❍ A substantial proportion of elderly individuals, especially women, are living **without any income, affecting their quality of life** and healthcare utilization.

➢ **Regional Variations:**

  ❍ There are significant inter-State variations in the elderly population and their growth rates.

  ❍ Most States in the southern region and select northern States such as Himachal Pradesh and Punjab reported a **higher share of the elderly population** than the national average in 2021, a gap that is expected to widen by 2036.

Note:

- ➢ **Sex Ratio of the Elderly Population:**
  - ○ The sex ratio among the elderly has been **climbing steadily since 1991,** with the ratio in the general population stagnating.
    - ● Between 2011 and 2021, the **ratio increased in India as a whole and across all regions**, barring the Union Territories and western India.
  - ○ In the northeast and the east, while the sex ratio of the elderly increased, it **remained below 1,000 in both years**, indicating that **men still outnumber the women** in these regions even at 60-plus years.
    - ● However in central India, where the sex ratio went from 973 in 2011 to 1,053 in 2021, implying that the women caught up with and outperformed the men in survival after 60 years over the decade.
- ➢ **Low Awareness of Social Security Schemes:**
  - ○ The elderly in India have **low awareness about the various social security schemes** designed for them.
  - ○ A little more than half of the elderly (55%) are aware of the **old-age pension scheme (IGNOAPS);** 44% about the widow pension scheme **(IGNWPS**); and 12% about the Annapurna Scheme.
- ➢ **Concern and Challenges:**
  - ○ Poverty is **inherently gendered in old age** when older women are more likely to be widowed, living alone, with **no income and with fewer assets** of their own, and fully dependent on family for support.
  - ○ The major challenges facing India's aging population are the **feminisation and ruralisation** of this older population.

What are the Recommendations of the Report?

- ➢ Address the **lack of credible data on various issues** related to the elderly by including relevant questions in data collection exercises such as the **National Sample Survey**, the **National Family Health Survey**, and the **Census of India.** This will help in informed policymaking.
- ➢ Increase awareness about **existing schemes for older persons and bring all Old Ag**e Homes under regulatory purview. Encourage the creation and running of elderly self-help groups.
- ➢ Emphasize the **importance of elderly people living in multigenerationa**l households. Encourage policies that facilitate and support this living arrangement.

- ➢ Encourage in **situ (at home) ageing** as much as possible by creating short-term care facilities like creches or day-care facilities. The report suggests that elderly people receive better care when living with their respective families.

What is the United Nations Population Fund (UNFPA)?

- ➢ **About:**
  - ○ It is a subsidiary organ of the **UN General Assembly** and works as a sexual and reproductive health agency.
  - ○ The **UN Economic and Social Council (ECOSOC)** establishes its mandate.
- ➢ **Establishment:**
  - ○ It was established as a trust fund in 1967 and began operations in 1969.
  - ○ In 1987, it was o**fficially renamed the United Nations Population Fund** but the original abbreviation, 'UNFPA' for the **United Nations Fund for Population Activities was retained**.
- ➢ **Objective:**
  - ○ UNFPA works directly to tackle **Sustainable Development Goals** on health **(SDG3), education (SDG4) and gender equality (SDG5).**
- ➢ **Fund:**
  - ○ UNFPA is not supported **by the UN budget, instead, it is entirely supported by voluntary contributions** of donor governments, intergovernmental organizations, the private sector, foundations and individuals.

International Day of Sign Languages 2023

Why in News?

On the occasion of International Day of Sign Languages (23rd September), the Government of India has introduced several initiatives to improve c**ommunication and accessibility for the hearing-impaired.**

- ➢ Initiatives for the hearing-impaired include **online Indian Sign Language (ISL) courses, introduction of 267 signs for financial terms in ISL,** a comprehensive ISL dictionary, tailored courses for special schools, and **a WhatsApp-based video relay service for improved communication.**

Note:

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What is International Day of Sign Languages?

➢ **About:**

○ International Day of Sign Languages is an annual event that **promotes the linguistic and cultural diversity of deaf communities** around the world.

○ In 2017, the **United Nations General Assembly** proclaimed 23rd September as the official day to celebrate the International Day of Sign Languages.

○ It is an opportunity to **raise awareness of the importance of sign languages** in the lives of deaf communities and the need to protect them as an essential part of human diversity.

○ Millions of people around the world use sign language as their primary means of communication.

● They are complex visual-gestural communication systems with their own grammar and syntax.

➢ **Theme of 2023:**

○ A World Where Deaf People Can Sign Anywhere.

➢ **History:**

○ The World Federation of the Deaf (WFD), a federation of 135 national federations of the deaf, proposed the i**dea for the day on behalf of the estimated 70 million deaf people around the world.**

○ The Permanent Mission of Antigua and Barbuda to the United Nations, along **with 97 other UN Member States, sponsored a resolution,** which was unanimously adopted in December, 2017.

○ The date of September 23 was chosen to **honour the day in 1951 when the WFD was established.**

○ In 2018, as part of the International Week of the Deaf, the International Day of Sign Languages was **observed for the first time.**

➢ **Status of Deaf People:**

○ According to the **World Federation of the Deaf**, there are over 70 million deaf people in the world.

○ More than 80% of them live in underdeveloped countries. They collectively use more than **300 different sign languages.**

Expediting the Enrolment of Children in Schools

Why in News?

Recently, 2023 Global Education Monitoring Report titled **'SDG 4 Mid-Term Progress Review'** released by **UNESCO**, paints a grim picture across the underdeveloped and developing countries with respect to enrolment of children at primary levels.

➢ There are **now 250 million children not enrolled in school,** up by six million since 2021, according to the report.

➢ 1.4 million children must be enrolled in preschool every year until 2030, and primary completion rates must be almost tripled, as per the report.

What are the Key Highlights of the Report ?

➢ **About:**

○ The **2023 Global Education Monitoring Report** shows the progress made since 2015 against all SDG 4 targets based largely on the data of the UNESCO Institute for Statistics, which oversees 10 of the 12 global indicators.

➢ **Report Finds that between 2015 and 2021**:

○ **Early Childhood:** The percentage of children one year younger than the official primary entry age who are in organized learning programmes has remained constant at 75%.

○ **Higher Education:** The tertiary education gross enrolment ratio increased from 37% to 41%, with women (44%) having a six percentage point gap over men (38%).

○ **Adult Education:** Among **57 mainly high-income countries,** the participation rate of adults in **formal or non-formal education and training fell by 10%**, mostly as a result of Covid-19.

○ **Gender Parity:** The number of **young women completing secondary school for every 100 young men increased from 102 to 105 globally** and from 84 to 88 in sub-Saharan Africa, which remains the region where young women face the largest disadvantage.

○ **School Infrastructure:** The share of schools with electricity **increased from 66% to 76% in primary education** and from 88% to 90% in upper secondary education.

○ **Teachers:** The percentage of trained teachers in primary education has remained almost stagnant at 86%. In sub-Saharan Africa, the percentage of trained pre-primary teachers increased from 53% to 60%.

○ **Inequity in Access:** During the **Covid-19** Pandemic, the rapid shift to online learning **left out at least half a billion students worldwide,** disproportionately affecting the poorest and those in rural areas.

Note:

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- ❍ **Education Completion Rate:**
  - ● **Sub-Saharan Countries**
    - ■ Sub-Saharan Africa remained well below the global average by more than 20% in primary education(64%).
    - ■ Whereas, in upper secondary education, it remained below the global average (27%).
  - ● **Vietnam:**
    - ■ In the 31 low- and lower-middle-income countries that measure learning progress at the end of primary school, Vietnam is the **only country where a majority of the children** achieved minimum proficiency in both reading and mathematics.

What are Sustainable Development Goals for Education?

- ➢ **About:**
  - ❍ The **Sustainable Development Goals (SDGs)** are a set of **17 global goals** established by the United Nations in 2015 as part of the 2030 Agenda for **Sustainable Development.**
  - ❍ These goals provide a comprehensive framework for addressing social, economic, and environmental challenges to achieve a sustainable future for all.
- ➢ **SDGs and Education:**
  - ❍ SDG 4 has 10 targets encompassing many different aspects of education.
  - ❍ There are seven targets which are expected outcomes and three targets which are means of achieving these targets.
  - ❍ By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes.

Global Report on Hypertension

Why in News?

Recently, during the **United Nations General Assembly's (UNGA) 78th session, the World Health Organization (WHO)** released a report titled *"Global report on hypertension: The race against a silent killer."*

- ➢ It is the **first-ever report by the WHO on the worldwide implications of hypertension,** commonly referred to as high blood pressure.

What are the Key Highlights of the Report?

- ➢ **A Global Epidemic:**
  - ❍ **One in three adults** across the world suffers from hypertension.
  - ❍ The number of hypertension cases has **doubled from 650 million to a staggering 1.3 billion between 1990 and 2019.**
  - ❍ Hypertension affects **approximately 33% of adults aged 30-79 worldwide.**
  - ❍ Approximately **four out of every five people with hypertension are not adequately treated.**
- ➢ **India's Hypertension Burden:**
  - ❍ **India alone has an estimated 188.3 million adults** aged 30–79 years grappling with hypertension**.**
  - ❍ The prevalence of **high blood pressure in India is slightly lower than the global average of 31%**.
  - ❍ To reach a **50% control rate**, India needs to ensure that an additional **67 million people with hypertension receive effective treatment.**
    - ● If the progress scenario were achieved, **4.6 million deaths due to high blood pressure would be averted by 2040.**
- ➢ **Inadequate Treatment:**
  - ❍ About **80%** of individuals with hypertension **do not receive adequate treatment.**
    - ● Effective hypertension treatment has the potential to **prevent 76 million deaths, 120 million strokes, 79 million heart attacks, and 17 million cases of heart failure by 2050.**
- ➢ **Disparities in Treatment Coverage:**
  - ❍ Treatment coverage for hypertension exhibits significant disparities among countries, with **high-income nations having a more favourable coverage rate.**
    - ● The WHO region of the **US leads with a 60% coverage rate, while the African region lags behind at 27%.**
  - ❍ **More than three-quarters** of adults with hypertension **live in low- and middle-income countries.**
- ➢ **The Urgency of Timely Treatment:**
  - ❍ Nearly **30% of individuals with uncontrolled hypertension** exhibit blood pressure measurements above the **threshold warranting urgent treatment.**
    - ● Globally, the percentage of **adults aged 30–70 taking medication for hypertension has doubled from 22% in 1990 to 42% in 2019.**

Note:

❍ Effective **treatment coverage has quadrupled** during the same period, reaching **21%.**

➢ **The WHO's Call to Action:**

❍ The WHO calls for prioritising the **prevention, early detection, and effective management of hypertension** as part of national health benefit packages.

➢ **Recommendations:**

❍ There is a need to strengthen hypertension control programs that remain **under-prioritized and acutely underfunded.**

❍ Strengthening hypertension control must **become an integral part of every country's journey toward universal health coverage.**

INDIA
Hypertension profile

Total population (2019): **1,38,30,00,000**
Total deaths (2019): **91,71,000**

Age-standardized prevalence of hypertension among adults aged 30-79 years (2019)[a]

⚥ **31%**   ♂ **32%**   ♀ **31%**

Prevalence of hypertension - global comparison (both sexes)[a]
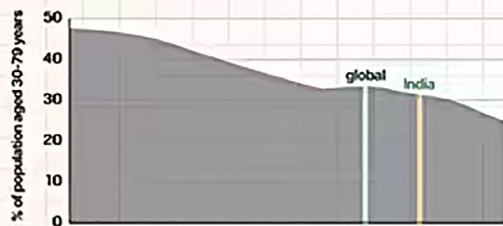
Of the **188.3 million adults** aged 30-79 years with hypertension:

In order to achieve **a 50% control rate, 67 million more people** with hypertension would need to be effectively treated

	diagnosed	treated	controlled
	37%	**30%**	**15%**
♂	32%	25%	11%
♀	42%	35%	19%
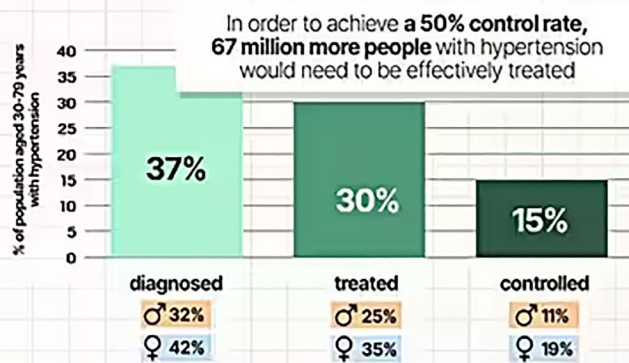
Trends in uncontrolled hypertension in adults aged 30–79 years[c]

⚥   ♂   ♀

Past trends
projected trends
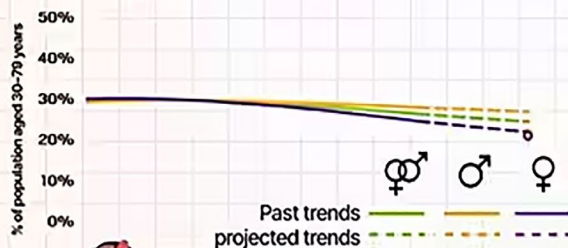
Hypertension control rate scenarios

If the progress scenario were achieved, **4.6 million deaths would be averted by 2040.**

2023   2025   2030   2035   2040

Projected hypertension control rates by scenario:[d]
business as usual   progress   aspirational
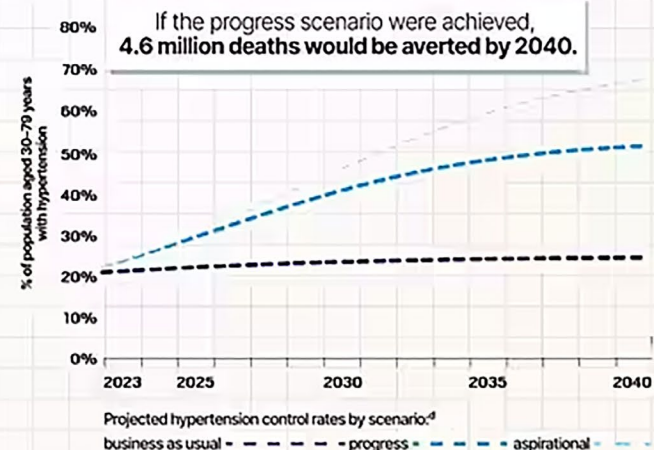
Note:

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What is Hypertension?

➤ **About:**

○ Hypertension (high blood pressure) is when the **pressure in your blood vessels is too high (140/90 mmHg or higher).** It is common but can be serious if not treated.

● Blood pressure is written as two numbers.

■ **The first (systolic) number represents the pressure in blood vessels** when the heart contracts or beats.

■ The **second (diastolic) number** represents the pressure in the vessels when the heart rests between beats.

○ **World Hypertension Day is celebrated on May 17 every year** to promote awareness about hypertension and encourage people to prevent and control this silent killer.

➤ **Risk Factors:**

○ High-salt diets, lack of physical activity, and excessive alcohol consumption are significant contributors to hypertension, and **genetics are believed to play a role in high blood pressure as well**.

➤ **Symptoms:**

○ **Most people with hypertension don't feel any symptoms.** Very high blood pressure can cause headaches, blurred vision, chest pain and other symptoms.

➤ **Complications of Uncontrolled Hypertension:**

○ **Severe heart issues,** including chest pain, heart attacks, heart failure, and irregular heartbeats, as well as increase the risk of stroke by affecting blood flow to the brain.

➤ **Treatment:**

○ **Lifestyle changes** like adopting a low-salt diet, weight loss, physical activity, and quitting tobacco etc. and **medications**.

➤ **Initiatives:**

○ **Global:**

● To achieve the **global target to reduce the prevalence of hypertension by 25% by 2025,** WHO and the United States Centers for Disease Control and Prevention launched the **Global Hearts Initiative in 2016.**

● The **United Nations Sustainable Development Goal 3 (SDG 3)** aims to ensure healthy lives and promote well-being for all.

○ **India:**

● **India Hypertension Control Initiative Program (IHCI):**

■ Through programmes such as IHCI and the government's push towards **non-communicable disease screening and treatment** at the primary healthcare level, **India aims to put 75 million patients with hypertension or diabetes on standard care by 2025.**

Patient Safety Rights Charter of WHO

Why in News?

Ahead of **World Patient Safety Day (17ᵗʰ September, 2023)**, the **World Health Organization (WHO)** released the first-ever **Patient Safety Rights Charter**, focusing on **safeguarding patients in healthcare contexts.**

➤ WHO advocates transitioning from a **blame-oriented approach to a system-based perspective**, focusing on understanding the underlying systemic errors in medical care.

➤ The **theme for World Patient Safety Day 2023** is 'Engaging patients for patient safety'.

What is Patient Safety?

➤ **About:**

○ Patient safety **encompasses efforts to prevent unintended harm** during healthcare provision, a critical aspect of global healthcare.

➤ **Factors Contributing to Patient Harm:**

Note:

○ **Identified Sources of Harm:** Medication **errors, surgical errors, healthcare-associated infections**, sepsis, diagnostic errors, and patient falls as frequent causes of patient harm.

○ **Varied Factors:** Patient harm arises **from system and organizational failures,** technological limitations, human factors, and patient-related circumstances, illustrating the multi-dimensional nature of patient safety incidents.

What is the Patient Safety Rights Charter?

➢ **About:**
  ○ The charter outlines t**he core rights of all patients in the context of safety of health care** and seeks to assist governments and other stakeholders to ensure that the voices of patients are heard and their right to safe health care is protected.

➢ **Need:**
  ○ Approximately **1 in 10 patients encounter harm during healthcare procedures**, resulting in over 3 million annual deaths attributed to unsafe care, as reported by the Organisation for **Economic Co-operation and Development (OECD).**
    ● According to the OECD, investing in **patient safety positively impacts health outcomes**, reduces costs related to patient harm, improves system efficiency, and helps in reassuring communities and restoring their trust in health care systems.
  ○ The majority of patient harm is avoidable, underscoring the **vital role of engaging patients, families,** and caregivers in minimizing harm.
  ○ A 2023 survey of WHO Member States revealed gaps in implementing the **Global Patient Safety Action Plan 2021-2030**, emphasizing the need for patient representation and addressing income-based disparities in implementation.
    ● Interim results of the survey showed only 13% of responding countries have a **patient representative on the governing board** or an equivalent mechanism in the majority of their hospitals.

Suicidal Patterns in India

Why in News?

Recently, **World Suicide Prevention Day** was observed serving a sobering reminder of the persistent problem of **female suicide in India**, especially among housewives.

➢ Despite being an often-overlooked issue, **housewives consistently rank among the top categories for suicide**, with alarming numbers reported in recent years.

World Suicide Prevention Day

➢ **World Suicide Prevention Day (WSPD) is** observed on **10ᵗʰ September every year.** It was **established in 2003 by the International Association for Suicide Prevention (IASP)** in conjunction with the **WHO.**
  ○ It focuses attention on the **issue, reduces stigma and raises awareness among organizations, government, and the public,** giving a singular message that suicide can be prevented.

➢ **"Creating hope through action"** is the **triennial theme for the WSPD from 2021 - 2023.** This theme is a reminder that there is an alternative to suicide and aims to inspire confidence and light in all of us.

What are the Challenges Faced by Housewives in India?

➢ **Recent Statistics:** The **National Crime Records Bureau** reported that **housewives** accounted for 51.5% of female suicides in 2021.
  ○ Among the major states, **Kerala, Tamil Nadu, Telangana, and Karnataka** featured at the top of this list.
  ○ Housewives also account for around 15% of all suicides, highlighting the magnitude of this issue.

➢ **Challenging Circumstances:**
  ○ **Limited Mobility:** Many women in India face restrictions on their mobility, particularly in rural areas.
    ● **Societal norms and safety concerns** often discourage them from traveling alone or venturing far from their homes.
    ● This limited mobility can lead to feelings of isolation and helplessness.
  ○ **Restricted Financial Autonomy:** Economic dependence on their spouses or families can make women vulnerable to various forms of abuse. Lack of financial independence limits their ability to make choices and escape abusive situations.
  ○ **Marital Control:** Traditional gender roles and **patriarchal norms in Indian society** often result in women having little control over their lives, especially in the context of marriage.

Note:

- **Expectation that women should conform to the wishes of their husbands** and in-laws can lead to feelings of powerlessness.
  - **Physical, Sexual, and Emotional Abuse:** **Domestic violence**, including **physical, sexual, and emotional abuse,** is a significant problem in India. Many women endure these forms of abuse in silence **due to stigma, fear of reprisal, or lack of support systems.**
  - **Reluctance to Seek Help:** Societal stigma around discussing mental health issues and seeking help for them is widespread in India. **Many women hesitate to seek external assistance** or confide in others about their struggles, leading to a lack of access to mental health support.

What are the Other Factors Contributing to the Problem of Suicide in India?

- ➢ **Agricultural Distress and Farmer Suicides:** India's **agrarian economy** faces numerous challenges, including **erratic weather patterns, land degradation, and high input costs.**
  - ○ This has led to a significant number of farmer suicides due to **debt burdens and crop failures.**
  - ○ In rural areas of India, access to **lethal means like pesticides is relatively easy,** and this contributes to a higher rate of impulsive suicides**.**
- ➢ **Educational Pressure:** India's **competitive education system** places **immense pressure on students to perform well academically**.

- ○ The **fear of failure and the high expectations of parents** lead to **mental health issues and suicides,** with students feeling they have no way out.
- ➢ **Lack of Mental Health Services:** Despite recent efforts to improve mental health services, there is still a **shortage of mental health professionals and limited access to affordable mental healthcare**, especially in **rural areas.**
  - ○ It amplifies the mental health crisis in India and emerges as a paramount concern **linked to the rise in suicides.**
- ➢ **Family Pressure on LGBTQ+ Individuals:** Many **LGBTQIA+ individuals in India** face severe discrimination and rejection from their families, leading to feelings of isolation and depression.
  - ○ The lack of acceptance and support within families is a significant factor contributing to **suicides in this community.**
- ➢ **Cyberbullying:** With the rise of technology and social media, **cyberbullying has become a significant issue,** particularly among young people. **Online harassment and bullying** can have **severe consequences on mental health and lead to suicides.**

What are the Recent Government Initiatives Related to Suicide Prevention?
- ➢ **Mental Healthcare Act (MHA), 2017**
- ➢ **KIRAN Helpline**
- ➢ **Manodarpan Initiative**
- ➢ **National Suicide Prevention Strategy 2022**

■■■

Note:

Science & Technology

Disability Certificate for Sickle Cell Patients

Why in News?

A plan to issue **permanent disability certificates for Sickle Cell Disease (SCD) patients** above the age of 5 years has been stuck in a dilemma between three Union Ministries (Health, Social Justice and Empowerment, Tribal Affairs)   for nearly three years.

What Causes Delays in Issuing Permanent Disability Certificates for SCD?

➢ After SCD was included in the list of disabilities **under the Rights of Persons with Disabilities Act, of 2016**, the Department of Empowerment of Persons with Disabilities (DEPwD) increased the validity of disability certificates for SCD patients **from one year to three years**, but still required a **minimum of 25% disability.**

➢ The **Ministry of Health and Family Welfare**, which is in charge of setting the **criteria and rules** for the certificates.

➢ The **Ministry of Social Justice and Empowerment issues the certificates**, while the **Ministry of Tribal Affairs advocates for the rights of SCD patients.**

➢ The Parliamentary Standing Committee on Empowerment of Women noted that SCD is a **"lifelong illness"** with a **blood and bone marrow transplant** being the only cure, "which very few people, especially among the tribal population, can undertake."

   ○ They urged the government to expedite the process of issuing permanent or longer-term certificates for SCD patients.

➢ The **Ministry of Health and Family Welfare** is expected to release a report on the issue by October 2023.

What is Sickle Cell Disease (SCD)?

➢ **About:**
   ○ SCD is a group of inherited **red blood cell disorders**. In SCD, the red blood cells become hard and sticky and look like a **C-shaped farm tool called a "sickle."**

➢ **Symptoms:**
   ○ Symptoms of sickle cell disease can vary, but some common symptoms include:
      - **Chronic Anaemia:** leading to fatigue, weakness, and paleness.
      - **Painful episodes** (also known as sickle cell crisis): these can cause sudden and intense pain in the bones, chest, back, arms, and legs.
      - Delayed growth and puberty

➢ **Treatment:**
   ○ **Blood Transfusions:** These can help relieve anaemia and reduce the **risk of pain crises.**
   ○ **Hydroxyurea:** This is a medication that can help **reduce the frequency of painful episodes** and prevent some of the long-term complications of the disease.
   ○ It can also be treated by **bone marrow or stem cell** transplantation

➢ **Government Initiatives to Tackle SCD:**
   ○ The **National Sickle Cell Anemia Eradication Mission** aims to eliminate sickle cell anemia from **India by 2047.**
   ○ The government released technical operational guidelines for the **prevention and control of sickle cell anaemia in 2016.**

Note:

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- Integrated centres have also been established in **22 tribal districts for treatment and diagnosis.**
- The **State Haemoglobinopathy Mission** has been established in **Madhya Pradesh** to address the challenges in screening and management of the disease.
- **Anaemin Mukt Bharat Strategy.**

Drone Technology

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

Note:

The Phosphorus Problem

Why in News?

The **global phosphorus problem** is gaining attention. With limited **phosphorus reserves, contamination issues, and disruptions in the fertilizer market,** finding sustainable solutions has become a critical priority.

What are the Major Facts Related to Phosphorus?

➢ **About:**
  ○ **Phosphorus is a chemical element with the symbol "P" and atomic number 15**. It is an essential element for life and has various important properties and applications.

➢ **Chemical Properties:**
  ○ Phosphorus readily forms compounds with other elements, especially oxygen, forming various phosphates.
  ○ It is highly reactive and can spontaneously combust in air, producing a white smoke.
  ○ **Phosphorus compounds are crucial in biology**, as they are a fundamental component of **DNA**, RNA, and ATP **(adenosine triphosphate).**

➢ **Natural Occurrence:**
  ○ Phosphorus is commonly found in the Earth's crust in the form of various **phosphate minerals, such as apatite.**

➢ **Industrial Uses:**
  ○ Phosphorus compounds are used in the production of fertilizers, as they are necessary for plant growth.
  ○ It is also **used in detergents**, where phosphate compounds help break down and remove stains.
  ○ Phosphorus is utilized in the **production of steel and other metallurgical processes.**

➢ **Phosphorus in India:**
  ○ India is **deficient in Apatite** (group of phosphate minerals) **& Rock Phosphate availability**.
  ○ According to **Indian Minerals Yearbook 2018,** in case of apatite, the country is fully dependent upon imports, while the Rock Phosphate production is only from two states namely, **Rajasthan and Madhya Pradesh.**
    ● India is the world's **largest importer of phosphorus**, primarily **sourcing it from West African deposits contaminated with cadmium**.
    ● **Paddy,** a **staple crop in India**, is **particularly prone to cadmium uptake**, and Indian farmers extensively use fertilizers on paddy fields.

What is the Historical Evolution of Fertilization and Contemporary Challenges Surrounding Phosphorus?

➢ **Historical Evolution:**
  ○ The issue of fertilizing land has **plagued agriculture since its inception.** Early agricultural societies recognized that **repeated cultivation and harvest cycles depleted essential nutrients** from the soil, diminishing crop yields.
    ● Indigenous communities devised various fertilization methods**, including using fish remnants and bird droppings (guano).**
  ○ However, significant advancements in chemistry during the **19th century** led to the creation of **synthetic fertilizers** and the identification of vital elements like **nitrogen, phosphorus, and potassium.**
    ● These elements laid the **foundation for modern chemical fertilizers** and played a pivotal role in boosting agricultural productivity during the **Green Revolution of the mid-20th century.**
    ● In the present scenario, **there exists a multifaceted challenge involving phosphorus**, a crucial component of fertilizers.

➢ **Challenges Associated with Phosphorus:**
  ○ **Limited Reserves and Cadmium Contamination:**
    ● Phosphorus is **scarce and primarily found in specific geological formations**. This is a major geopolitical concern.

Note:

- **Morocco and the Western Sahara region possess the world's largest phosphorus reserves**, but these reserves contain **cadmium**, **a harmful heavy metal** that can accumulate in the kidneys of animals and humans when consumed.
- The extraction and removal of cadmium from phosphorus resources are costly processes.
  - Cadmium-laden fertilizers can **contaminate crops, leading to potential health risks, such as heart disease.**

> **Note: Failing to eliminate cadmium** from phosphorus sources carries the potential for a public health crisis. Conversely, the **removal of cadmium could result in higher fertilizer expenses,** introducing a **complex trade-off between safeguarding public health and maintaining agricultural affordability.**

➢ The **European Union** has introduced l**egislation to regulate cadmium levels in fertilizers.**
  ○ **Market Disruptions and Associated Concerns:**
    - Out of all the countries, only **six have significant reserves of cadmium-free phosphorus**.
      - Among them**, China imposed export restrictions in 2020**, and several EU nations stopped purchasing from Russia.
  ○ Consequently, there has been a surge in demand for safe phosphorus.
    - This is **one of the factors behind Sri Lanka's decision to ban synthetic fertilizer imports in 2021** and shift to organic farming.
  ○ However, **this transition led to a sudden decline in crop yields,** triggering a political and economic crisis in the country.
  ○ **Phosphorus Overuse:** Excessive fertilizer application leads to phosphorus runoff into water bodies. Excessive phosphorus **promotes algal blooms, depleting oxygen in water bodies** and causing fish deaths.
    - Algal blooms can also be **toxic to humans, leading to respiratory issues and other health problems.**
  ○ **Energy Intensive Mining:** Extracting and processing phosphate rock is energy-intensive, contributing to **greenhouse gas emissions and environmental degradation.**

What can be Potential Strategies for Managing Phosphorus Usage?

➢ **Smart Agriculture and Precision Fertilization:** Implement **precision agriculture** techniques that utilize sensor networks, **AI, and data analytics** to optimize phosphorus use on farms. This ensures that crops **receive the exact amount of phosphorus they need,** reducing excess runoff into water bodies.
  ○ **Union Budget 2023–24** launched the **PM-PRANAM** scheme to promote the **balanced use of chemical and alternative fertilizers,** generating awareness of **regenerative agriculture (RA).**
➢ **Phosphorus Recovery from Sewage and Waste:** There is a need to develop **advanced technologies for efficient phosphorus recovery from sewage and various waste streams.**
  ○ This could include using **innovative filtration, precipitation, and ion-exchange processes** to extract and recycle phosphorus for use in fertilizers or other applications.
  ○ **Example:** Companies like **EasyMining** are **retrofitting sewage treatment plants** to recover high-quality phosphorus products.
➢ **Circular Phosphorus Economy:** There is a need to **establish a circular economy for phosphorus**, where products containing phosphorus are designed for **easy recovery and recycling,** reducing the need for mining and reducing environmental impact.
➢ **Global Phosphorus Management Framework:** There is a need to **develop an international framework for phosphorus management,** similar to global climate agreements. This would **promote collaboration and coordinated efforts to address phosphorus concerns** on a global scale.

Global Trends in Antimicrobial Use in Animals

Why in News?

Recently, the **World Organisation for Animal Health (WOAH)** has released its 7th report on Antimicrobial use in animals, covering the period from 2017 to 2019.

Note:

➢ 157 participants submitte**d data to WOAH** for the analysis**,** but only 121 provided quantitative data for at least one year. 74 participants reported **specific amounts of antimicrobial products** categorize by type of use and administration route.

➢ The analysis is based on the **data provided by the 80 countries** that consistently updated on antimicrobial use in animals.

What is the World Organisation for Animal Health (WOAH)?

➢ **WOAH (founded as OIE)** is one of the **standard-setting bodies recognized by the Agreement** on the Application of Sanitary and Phytosanitary Measures.

➢ It is an intergovernmental organization responsible for improving animal health worldwide.
   ○ In 2018, it had a total of 182 Member Countries. India is one of the member countries.

➢ WOAH develops **normative documents relating to rules that Member Countrie**s can use to protect themselves from the introduction of diseases and pathogens. One of them is the Terrestrial Animal Health Code.

➢ WOAH standards are recognised by the **World Trade Organization (WTO)** as reference international sanitary rules.

➢ It is **headquartered in Paris, France.**

What are the Findings of the Report?

➢ **Dip in AntiMicrobial Use:**
   ○ There is a **13% decrease in global antimicrobial usage in animals** three years from 2017 to 2019.
   ○ Out of 80 countries, 49 in Asia, Far East, Oceania, and Europe reported an **overall reduction in antimicrobial use.**
      ● Conversely, 31 countries in African and American regions reported an **overall increase in antimicrobial usage** during the same period.

➢ Antimicrobial Growth Promoters:
   ○ 68% of the participants have **discontinued using antimicrobials** as growth promoters.
   ○ 26% of participants continue **to use growth promoters**, often due to a lack of proper legislation or regulations.

● Common **antimicrobial growth promoters included flavomycin, bacitracin, avilamycin, and tylosin.**

● While **flavomycin and avilamycin are currently excluded** from human use, bacitracin is not classified among **WHO's critically important antimicrobials (CIAs).**

● Some of these are classified as **CIAs** or highest priority CIAs (HP-CIAs).

➢ **Recommendations:**
   ○ Despite progress and shifts in usage, continued efforts are **deemed crucial to preserve the efficacy** of antimicrobials.
   ○ Safeguarding existing antibiotic effectiveness is highlighted as a shared responsibility given the challenges in developing new antibiotics.
   ○ It is important to monitor how, when and which antimicrobials are used becomes critical to identify patterns and trends.
   ○ This can facilitate decision-making and **support the implementation of measures to ensure an optimal and sustainable use** of these key medicines.

What are Antimicrobial Drugs?

➢ **About:**
   ○ Antimicrobial drugs, commonly known as Antibiotics, are **substances that either kill or inhibit** the growth of microorganisms such as **bacteria, fungi, viruses,** and parasites.
   ○ They are used to **treat or prevent infections in humans,** animals, and sometimes plants.
   ○ These drugs are a crucial tool in modern medicine for controlling and eradicating various microbial diseases.

➢ **Concerns:**
   ○ Prior to the discovery of penicillin by Alexander Fleming in 1928, infections due to minor cuts could lead to bloodstream infections or death. Yet, today, **these life-saving drugs are losing their efficacy due to their misuse** and overuse in different sectors.
   ○ The phenomenon is known as **'Antimicrobial Resistance (AMR)'**. It can **originate in animal, human or plant populations, and then pose a threat** to all the other species.

Note:

ANTIMICROBIAL RESISTANCE

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The ability of microorganisms to resist the effects of antimicrobial drugs

CAUSES OF ↑AMR

- Poor infection control/sanitation
- Antibiotic overuse
- Genetic mutations of microbe
- Lack of investment in R&D of new antimicrobial drugs

Microbes that develop AMR are called 'Superbugs'

IMPACTS OF AMR

- ↑ Risk of spreading infections
- Makes infections harder to treat; prolonged illness
- ↑ Healthcare costs

EXAMPLE

- Carbapenem antibiotics stop responding due to AMR in K. pneumoniae
- AMR Mycobacterium tuberculosis causing Rifampicin-Resistant TB (RR-TB)
- Drug-resistant HIV (HIVDR) making antiretroviral (ARV) drugs ineffective

RECOGNITION BY WHO

- Identified AMR as **one of the top 10 threats** to global health
- Launched **GLASS** (Global Antimicrobial Resistanceand Use Surveillance System) in 2015

INDIA'S INITIATIVES AGAINST AMR

- Surveillance of AMR in microbes causing **TB, Vector Borne diseases, AIDS etc.**
- **National Action Plan on AMR (2017)** with One Health approach
- **Antibiotic Stewardship Program** by ICMR

New Delhi metallo-β-lactamase-1 (NDM-1) is a bacterial enzyme, emerged from India, that renders all current β-lactam antibiotics inactive

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What are the Initiatives to Tackle Antimicrobial Resistance?

➢ **India:**

○ **National Programme on AMR Containment:** Launched in 2012. Under this programme, AMR Surveillance Network has been strengthened by establishing labs in State Medical College.

○ **National Action Plan on AMR:** It focuses on **One Health approach** and was launched in April 2017 with the aim of involving various stakeholder ministries/departments.

○ **AMR Surveillance and Research Network (AMRSN):** It was launched in 2013, to generate evidence and capture trends and patterns of drug resistant infections in the country.

○ **AMR Research & International Collaboration:** **Indian Council of Medical Research (ICMR)** has taken initiatives to develop new drugs /medicines through international collaborations in order to strengthen medical research in AMR.

Note:

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○ **Antibiotic Stewardship Program:** ICMR has initiated antibiotic stewardship program (AMSP) on a pilot project across India to control misuse and overuse of antibiotics in hospital wards and ICUs.

➢ **Global:**

○ World Antimicrobial Awareness Week (WAAW):

● Held annually since 2015, WAAW is a global campaign that aims to raise awareness of antimicrobial resistance worldwide and encourage best practices among the general public, health workers and policy makers to slow the development and spread of drug-resistant infections.

○ **The Global Antimicrobial Resistance and Use Surveillance System (GLASS):**

● WHO launched the GLASS in 2015 to continue filling knowledge gaps and to inform strategies at all levels.

● GLASS has been conceived to progressively incorporate data from surveillance of AMR in humans, surveillance of the use of antimicrobial medicines, AMR in the food chain and in the environment.

○ **Global Database for ANImalantiMicrobial USE (ANIMUSE):**

● It is an online platform facilitating data **accessibility to support evidence-based decision-making.**

○ **Global High-Level Ministerial Conference:**

● The Third Global High-Level Ministerial Conference on Antimicrobial Resistance in 2022 saw commitments from 47 countries to reduce antimicrobial use in animals and agriculture by 30-50% by 2030.

Geospatial Intelligence

Why in News?

The summer of 2023 has witnessed a series of **unprecedented natural disasters** across the **United States**, including record-breaking temperatures, **Canadian wildfires**, historic flooding, and a powerful hurricane where usage of geospatial intelligence can mitigate such crises.

What is Geospatial Intelligence?

➢ Geospatial technology **uses tools like GIS (Geographic Information System), GPS (Global Positioning System) and Remote Sensing** for geographic mapping and analysis.

➢ These tools **capture spatial information about objects, events and phenomena** (indexed to their geographical location on earth, geotag). The location data **may be Static or Dynamic.**

○ **Static location data** include position of a road, an earthquake event or malnutrition among children in a particular region while **dynamic location data** include data related to a moving vehicle or pedestrian, the spread of an infectious disease etc.

➢ The technology may be used **to create intelligent maps to help identify spatial patterns in large volumes of data.**

➢ The technology **facilitates decision making based on the importance and priority of scarce resources.**

What is the Significance of Geospatial Intelligence?

➢ **Monitoring Tropical Cyclones:**

○ The National Hurricane Center relies on geospatial intelligence to monitor cyclone location, its formation, and trajectory.

○ This information aids in resource allocation, issuing warnings, and managing evacuations.

➢ **Search-and-Rescue Effort:**

○ After the **7.8 magnitude earthquake in Turkey and Syria (February 2023),** geospatial intelligence identified damage and helped locate survivors.

○ It facilitated the establishment of aid stations and emergency supply distribution.

➢ **Environmental Monitoring:**

○ **Predicting Climate-Related Events**

● Temperature, precipitation, snowpack, and polar ice monitoring help anticipate and prepare for disturbances.

● This is crucial in addressing the increasing threats posed by climate change-induced extreme weather events.

➢ **Military and Civilian Applications:**

○ **Geospatial Intelligence in Border Management**

Note:

GEOSPATIAL TECHNOLOGY

GT facilitates the process of capturing/storing/ processing/ displaying/ disseminating information tied to a location (static or dynamic)

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TECHNOLOGIES UNDER GT

- **Remote sensing** – Detecting/monitoring the physical characteristics of an area typically from satellite or aircraft
- **Global Positioning System (GPS)** – A satellite navigation system to determine the ground position of an object
- **Geographic Information System (GIS)** – Computer system for capturing, storing and displaying data related to positions on Earth's surface
- **3-D Modelling** – Creating three-dimensional representations of an object or a surface

APPLICATIONS OF GT

- Climate Change and Disaster Management (Ex - Advance Warnings)
- Earth Observation Capabilities (Ex- Vegetaion, water quality)
- Healthcare (Ex- Monitoring contact tracing)
- Societal Problems (Ex-Education, livelihood, financial inclusion)
- Logistics (Ex- Tracking goods)
- Real estate (Ex- Analyzing real estate objects remotely)

INDIA'S GEOSPATIAL SECTOR

- *GEOSPATIAL ECONOMY*
  - ◆ Expected to cross ₹63,000 crore by 2025
  - ◆ Growth rate of 12.8%
- *National Geospatial Policy 2022*
  - ◆ **Geospatial Data Promotion and Development Committee** (apex body to be formed)
  - ◆ **DST to be the nodal dept.** of GT; GDPDC will recommend DST
  - ◆ **Milestones to Achieve:**
    - • By 2030 - High resolution topographical survey and mapping
    - • By 2035 - National Digital Twin (virtual replica) of major cities/towns

The Digital India vision areas has a specific focus on leveraging Geospatial Information Systems (GIS) for decision support systems & development

The Smart Cities and **AMRUT (500 cities)** both have a prospective centralised information system based on GIS that would integrate every aspect from conceptualisation, planning and development to maintenance.

National Afforestation Programme clearly mandates use of Remote Sensing and Geographic Information Systems for planning and subsequent project monitoring

The National Mission for clean Ganga deals with extensive spatial data and analysis for the Ganga basin

Geospatial Technologies provide a holistic approach to **interlinking of rivers** based on existing geoinformatics tools and techniques

North Eastern Region Urban Development Programme talks about extensive use of Geospatial Technologies for planning & management of water supply, sewerage and sanitation as well as solid waste management.

Delhi Mumbai Industrial Corridor Project is implementing Remote Sensing, GIS and ITES for perspective planning and nodal planning of the Corridor.

- Satellite images play a vital role in reporting critical information, such as Russian ground forces' movements in the Ukrainian conflict and infiltration into India from Pakistan.
  - ○ **Transportation and Logistics**
    - • GPS technology and geospatial data enable efficient management of global supply chains.
    - • It provides governments and businesses with essential information on cargo movement.
- ➢ **Urban Planning and Autonomous Vehicles:**
  - ○ **Enhancing Urban Development**
    - • High-resolution imagery aids city planners in designing safer and more efficient communities.
    - • Features like bicycle lanes and traffic directions are easily detectable.
  - ○ **Role in Autonomous Vehicles**

- Geospatial intelligence supports the development of autonomous vehicles by providing ground-level details.
- Safer and smarter transportation systems are being built.
- ➢ **Digital Twins for Decision Making:**
  - ○ **Concept and Applications**
    - • Digital twins are virtual replicas of real systems, used for modeling and predicting outcomes.
    - • They have proven effective in conflict settings for simulating weather and terrain.

Why is there a Growing Need for Geospatial Intelligence?

- ➢ **Addressing Future Challenges:**
  - ○ Rising temperatures and urbanization increase the demand for geospatial intelligence.

Note:

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○ It aids in safeguarding communities and adapting to evolving conditions.

➢ **Industry Growth**
  ○ The geospatial intelligence industry is projected to grow **from $61 billion in 2020 to over $209 billion by 2030.**
  ○ It plays an essential role in shaping a safe and informed future.

➢ **Precision Agriculture:**
  ○ Agriculture is becoming increasingly data-driven. Geospatial Intelligence helps farmers make informed decisions about crop management, soil quality, irrigation, and pest control.
  ○ This becomes important for India, given around **18% of GDP** is contributed by agriculture and **48% of the workforce** is employed in it.

What are Government's Initiatives to Promote Geospatial Technology in India?

➢ Government introduced the **"Geospatial Information Regulation Bill, 2021."** This bill aimed to regulate the acquisition, dissemination, and use of geospatial information in India.
  ○ It proposed to set guidelines for mapping and geospatial data collection, with a focus on national security concerns.

➢ **National Geospatial Policy, 2022** was launched to streamline the utilization of geospatial intelligence.

What are the Challenges in Geospatial Intelligence?

➢ There is **no demand for geospatial services and products on a scale** linked to India's potential and size.
  ○ This is mainly due to the lack of awareness among potential users in government and private.
  ○ The other hurdle has been the lack of skilled manpower across the entire pyramid.

➢ The **unavailability of foundation data**, especially at high-resolution, is also a constraint.
  ○ Essentially, foundation data can be seen as common data tables which are shared between multiple applications or processes which are supposed to create a sturdy foundation for good service automation and management.

➢ The **lack of clarity on data sharing and collaboration** prevents co-creation and asset maximization.

➢ There are still **no ready-to-use solutions** especially built to solve the problems of India.

First Green Hydrogen Fuel Cell Bus

Why in News?

Recently, the Union Minister of Petroleum & Natural Gas flagged off the **country's first Green Hydrogen Fuel Cell Bus in New Delhi,** marking a revolutionary step in the transition to clean energy.

What is a Green Hydrogen Fuel Cell?

➢ **About:**
  ○ Green Hydrogen Fuel Cells are a clean, reliable, quiet, and efficient source of high-quality electric power.
  ○ They use Green Hydrogen as a fuel to drive an **electrochemical process** that produces electricity, with water and heat as the only by-products.

➢ **Green Hydrogen:**
  ○ Green hydrogen is a type of hydrogen produced through a process called **electrolysis,** using **renewable energy** sources like **wind** or **solar power.**
    • It involves splitting water (H_2O) into its constituent elements, hydrogen (H_2) and oxygen (O_2), with **zero greenhouse gas emissions.**

➢ **Fuel Cell:**
  ○ A fuel cell is an electrochemical device that **converts chemical energy (in this case, hydrogen) into electrical energy.**
    • It consists of two electrodes (**anode and cathode**) separated by an electrolyte.

➢ **The Process of Generating Electricity:**
  ○ Green hydrogen is supplied to the anode side of the fuel cell.
  ○ At the anode, hydrogen molecules release electrons and become positively charged hydrogen ions (protons).
    • Electrons flow from the anode to the cathode through an external circuit, generating an electric current.
  ○ Oxygen from the air is supplied to the cathode.
  ○ At the cathode, oxygen molecules combine with electrons and protons to **produce water vapor (H_2O) as a byproduct.**

Note:

Fuel Cell Electrochemistry
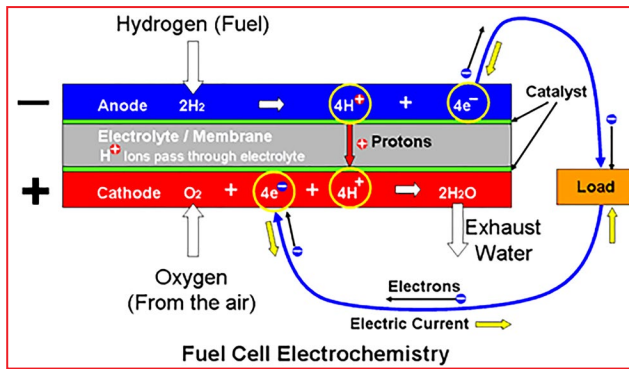
➢ **Advantages:**
  ○ The only byproduct of green hydrogen fuel cells is **water,** making them a **zero-emission energy source.**
  ○ Hydrogen fuel cell vehicles can be refueled in a matter of minutes, similar to traditional vehicles.

➢ **Challenges:**
  ○ Currently, the production of green hydrogen can be **expensive, but ongoing research aims to reduce costs.**
  ○ The development of a hydrogen infrastructure, including production, storage, and distribution, is essential for widespread adoption.

What is the Significance of the Green Hydrogen Fuel Cell Bus?

➢ The bus uses hydrogen and air to generate electricity, emitting only water as a by-product, making it an **eco-friendly mode of transportation**.
  ○ Hydrogen **boasts three times the energy density of conventional fuels and zero harmful emissions,** making it a cleaner and more efficient choice.

➢ **Further Plans:**
  ○ IndianOil plans to introduce 15 more hydrogen fuel cell buses in Delhi NCR by the end of 2023.
    ● These buses will help gather performance data under Indian operating conditions, assessing efficiency and sustainability.

How Does Green Hydrogen Transform India's Energy Landscape?

➢ Hydrogen and biofuels will account for **25% of global incremental energy demand growth over the next two decades.**

➢ India aims to become a global champion in the production and export of hydrogen and emerge as a **hub for green hydrogen.**

➢ The success of the **Green Hydrogen Mission** can shoot India from being a net importer of fossil energy to becoming a **net exporter of clean hydrogen energy.**

➢ Hydrogen is poised to be a game changer in India's ambitious quest to achieve **Net-Zero emissions** by the year 2070.

What are India's Initiatives to Promote Green Energy?

➢ **Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME)**

➢ **International Solar Alliance (ISA)**

➢ **National Green Hydrogen Mission**

Hybrid Seeds

Why in News?

Popularity of Hybrid Seeds has been increasing among farmers in India over a decades due to their quicker harvesting as compared to traditional or **Open-Pollinated Variety (OPV)** seeds.

➢ OPV are usually **more genetically diverse, causing** an amazing variation within plant populations, which ultimately allows them to **adapt to local growing conditions and climates every year.**

What are the Hybrid Seeds?

➢ **About:**
  ○ A hybrid seed is produced by **controlled Cross-Pollination** between **different varieties** of the same plant.
    ● The transfer of pollen grains from the anther of one plant to the stigma of another different plant is called cross-pollination.
  ○ These are **chosen to enhance the characteristics** of the resulting plants including – better yield, greater uniformity, and disease resistance.
  ○ Since all hybrid seeds in a packet have the same parent plants, which means they will all grow into uniform plants.
  ○ These are **often easier and faster to grow** than Heirloom Seeds.
    ● **Heirloom Seeds** come from **open-pollinated plants**, meaning the plants were pollinated by natural mechanisms like wind, insects, or birds, rather than through controlled cross-breeding or hybridization.

Note:

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- ➤ **Benefits:**
  - ○ Farmers can improve their yields and predict fruit maturity through its various benefits, such as **drought resilience, pests resistance**, and rapid improvement in breeding.
  - ○ The advent of hybrid seeds, use of quality seeds, mechanization, and advanced technology have entirely reshaped the **agriculture scenario altogether**, which resulted in **enhanced farmers' income as well as the production of all sown crops,** leading the government to promote hybrid and high yielding varieties of seeds.
- ➤ Need:
  - ○ The rapid increase in population is impelling farmers to **adopt hybrid seeds and enhance production.**
  - ○ Hybridisation aims to improve the grain qualities, reduce pests incidence and increase the overall crop productivity, contributing to sustainable development goals of food security and nutrition.
  - ○ This potential for adaptation and genetic improvement, driven by plant breeding, **can help in addressing the current challenges.**
- ➤ **Origin:**
  - ○ The origin of hybrids can be traced to **India's Green Revolution in the 1960s**, when the government's effort was primarily to increase agricultural productivity. For this, the **National Seed Corporation** was set up in 1963 to develop, store and distribute high yield variety seeds.
- ➤ **Market Status in India:**
  - ○ According to a report of the Standing Committee on Agriculture in 2021, the **share of the private sector in India's seed market increased from 57.3% in 2017-18 to 64.5% in 2020-21.**
  - ○ A 2019 report by Indian Council of Food and Agriculture, the Indian seed market reached a value of USD 4.1 billion in 2018 and is expected to grow at a rate of 13.6% from 2019-24, reaching a value of USD 9.1 billion by 2024.
  - ○ Hybrid seeds **occupy about 6% of India's 44 million hectares** under rice cultivation.
  - ○ Hybrid seeds for paddy (rice) are the primary type of hybrid seeds available in India, occupying about 6% of the rice cultivation area.
  - ○ The majority of India's seed market is **occupied by wheat and paddy (rice), accounting for about 85%** of the seed market.

What are the Concerns of Adopting Hybrid Seeds?

- ➤ **Impact on Crop Diversity:**
  - ○ Hybrid seeds are **sensitive to temperature and rain**, posing a threat to India's crop diversity.
  - ○ Unlike traditional varieties that adapt to local climates, **hybrids require specific conditions** for optimal growth.
    - For instance, a hybrid variety of paddy requires rainfall within 15-20 of sowing.
- ➤ **Concerns and Crop Failures:**
  - ○ Farmers have reported **cases of crop failure and reduced yield** with hybrid varieties, particularly in maize. Hybrid seeds are also more susceptible to infections, affecting the yield.
    - In 2022, a farmer in Haryana, experienced a significant **drop in rice yield due to a Fiji virus infection.**
- ➤ **Price Hikes and Availability:**
  - ○ Manufacturers tend to increase prices of hybrid seeds with rising demand. Farmers sometimes feel **forced to buy hybrids due to limited availability** of traditional seeds, especially from government seed banks.
  - ○ Manufacturers of hybrid seeds also tend to **hike prices when the demand rises.**
- ➤ **Decline in Traditional Varieties:**
  - ○ The dominance of hybrid seeds has **led to a decline in traditional and local varieties** of crops. This decline threatens the diversity of crops and their resilience to adverse conditions.
- ➤ **Genetic Erosion and Crop Replacement:**
  - ○ The shift towards hybrid seeds and modern uniform varieties has led to genetic erosion, **replacing indigenous crop varieties.** This narrow genetic range is focused on profit rather than preserving the extensive diversity of local species.

Gravitational Instabilities and Galaxy Evolution

Why in News?

Recently, a study has been conducted by the **Indian Institute of Astrophysics (IIA)**, aiming to comprehend the **relationship between Gravitational Instabilities and Galaxy Evolution**.

Note:

Note:
➤ Gravitational Instabilities refer to a **fundamental physical phenomenon that occurs in astrophysical systems**, particularly in celestial bodies like **galaxies, stars,** and **planetary systems**.
➤ These instabilities are driven by the force of **gravity** and play a crucial role in **shaping the structure, evolution, and dynamics of these cosmic entities.**

What is the Methodology of the Study?

➤ Researchers compared **star formation rates, gas fractions,** and time scales for gravitational instability growth in nearby galaxies by analysing the **stability levels of a sample of 175 galaxies** from the **Spitzer Photometry and Accurate Rotation Curves (SPARC) database.**
➤ The study investigated **how stability levels in galaxies are regulated,** including the potential role of **dark matter**. It sought to **determine whether stars and gas can self-regulate stability levels**.
➤ They compared **stability levels in nearby galaxies with those observed at high redshifts**, which are considered precursors to galaxies in the local universe.

Redshift:
➤ Scientists **measure cosmic distances via redshift**, the extent to which light is shifted towards the **red (lower energy) part of the electromagnetic spectrum** during its long journey across the universe.
  ○ **The greater the distance, the higher the redshift.**

What are the Key Highlights of the Study?

➤ **Spiral Galaxies:**
  ○ **Spiral galaxies**, such as the **Milky Way**, exhibited specific characteristics.
    ● They had **a higher median star formation rate**, lower stability, reduced gas fraction, and **a smaller time scale** for the growth of gravitational instabilities.
➤ **Conversion of Gas to Stars:**
  ○ In spiral galaxies with lower stability, **gravitational instabilities efficiently convert a significant amount** of gas into stars.
    ● This process led to the depletion of gas reservoirs in these galaxies.
➤ **Star Formation Mechanism:**

○ The galaxies with marginal stability **levels undergo intense star formation** activity for a short time scale, depleting gas reserves.
○ In contrast, **highly stable galaxies exhibit slower and gradual star formation** processes over longer time scales, converting available gas into stars.

➤ **Future & Significance:**
  ○ There is a **need for future investigations into the impact of gravitational instabilities** on the morphological evolution of galaxies across different redshifts.
  ○ These insights are **crucial for understanding fundamental processes in galaxy formation and evolution**.
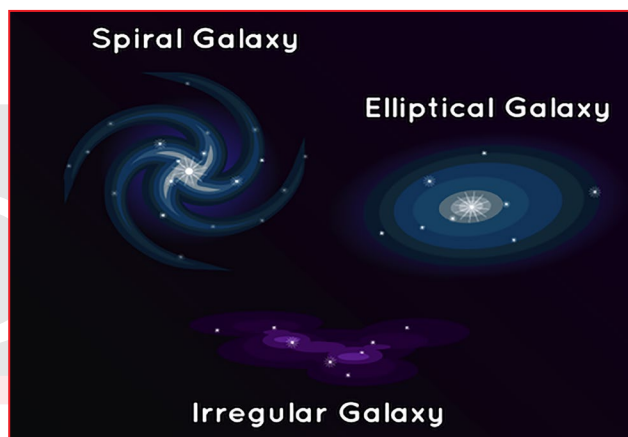
Announcement of New Science Awards

Why in News?

The Central Government has decided to introduce **56 prizes under the category of Rashtriya Vigyan Puraskar** (3 Vigyan Ratna, 25 Vigyan Shri, 25 **Yuva Vigyan Shanti Swarup Bhatnagar**, 3 Vigyan Team Awards) to felicitate scientists.

➤ The **awards will be announced annually on National Technology Day**, May 11 and will be **awarded on National Space Day**, August 23 in 2024.

Note:
➤ Akin to prestigious **Padma awards, these awards will not include any cash componen**t.
➤ The **Rashtriya Vigyan Puraskar shall be given in the 13 science-related domains**.

What are the Key Highlights About these Awards?

➢ **Included Awards:**

○ **Vigyan Ratna Awards:**

● These awards will **recognise lifetime achievements & contributions made** in any field of science and technology.

○ **Vigyan Shri Awards:**

● These awards will **recognise distinguished contributions** to any field of science and technology.

○ **Vigyan Team Awards:**

● These awards are to be **given to a team comprising of three or more scientists/ researchers/innovators** who have made an exceptional contribution working in a team in any field of science and technology.

○ **Vigyan Yuva-Shanti Swarup Bhatnagar (VY-SSB):**

● These awards are the **highest multidisciplinary science awards in India for the young scientists** (maximum 45 years).

● They are named after **Shanti Swarup Bhatnagar**, the founder and director of the **Council of Scientific & Industrial Research (CSIR)**, who was also a renowned chemist and visionary.

➢ **Awards Open to PIOs:**

○ **Persons of Indian origin (PIOs) will now be eligible for the new awards**, but only one PIO may receive the Vigyan Ratna.

○ Three PIOs each can be selected for the Vigyan Shri and the VY-SSB.

● However, **PIOs will not be eligible for the Vigyan Team awards**.

What is National Technology Day?

➢ **About:**

○ The day, which was first observed in **1999,** aims to commemorate the scientific and technological achievements of Indian scientists, engineers.

● The **day was named by the former Prime Minister Atal Bihari Vajpayee**.

○ Every year, the **Technology Development Board of India** under the Ministry of Science and Technology celebrates the day by **awarding individuals with the National Award for their contribution to science** and technology.

➢ **Significance:**

○ It is the day India successfully tested nuclear bombs in **Pokhran** on 11th May, 1998.

○ India successfully test-fired its **Shakti-1 nuclear missile in operation called Pokhran-II**, also codenamed as **Operation Shakti.**

NavIC Integration in Smartphones

Why in News?

The Ministry of Electronics and Information Technology, Government of India, is planning on making it mandatory for all devices to support the homegrown Navigation System **NavIC (Navigation with Indian Constellation)**.

➢ This comes at a time when the newly launched **Apple iPhone 15 has integrated the navigation system** developed by the **Indian Space Research Organisation (ISRO)** into its hardware.

➢ India's NavIC is not intended to replace **other global navigation systems** but rather complement them.

What are the Government's Plans for NavIc Integration on Smartphones?

➢ The Union government is considering mandating NavIC integration in all smartphones sold in India by 2025, particularly targeting **5G phones.**

➢ Manufacturers could receive additional incentives through **Production-Linked Incentive (PLI)** schemes for using chips that support NavIC technology, fostering domestic chip design and production.

What are the Roadmap and Future Prospects for NavIC Adoption?

➢ To bolster NavIC's adoption, ISRO had launched **second-generation Navigation satellites in May 2023** that will **enhance interoperability** with other satellite-based navigation systems **and expand usage**.

○ The second-generation satellites will **send signals in a third frequency,** L1, besides the L5 and S frequency signals that the existing satellites provide.

○ T**he L1 frequency is among the most commonly used** in the Global Positioning System (GPS) and will increase the use of the regional navigation system **in wearable devices and personal trackers that use low-power, single-frequency chips.**

Note:

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➢ This strategic move aligns with **India's aspirations to establish technological sovereignty** and emerge as a dominant space-faring nation.

What is Navigation with Indian Constellation (NavIC)?

NAVIGATION WITH INDIAN CONSTELLATION (NavIC)

Navigation with Indian Constellation, also known as NavIC, is a stand-alone satellite navigation system, which is similar to GPS.

DEVELOPED BY
- Indian Space Research Organisation **(ISRO)**

NUMBER AND POSITIONING OF SATELLITES
- 8 (only 7 active): 3 in geostationary and 4 in geosynchronous orbits

PREVIOUSLY KNOWN AS
- Indian Regional Navigation Satellite System **(IRNSS)**

NavIC is recognised by IMO as a part of World-Wide Radio Navigation System (WWRNS) for operation in the Indian Ocean Region.

APPLICATIONS
- **Navigation -** Terrestrial, aerial and marine
- **Tracking and Mapping -** Vehicle and fleet management
- **Location Based -** Precise timing for ATMs and power grids
- **Resource Monitoring -** Surveying and geodesy, scientific research
- Safety-of-life **alert dissemination**
- **Time dissemination** and synchronization
- **Integration with mobile phones**

SIGNIFICANCE
- **Real time information** for civilian as well as strategic users
- **India's reduced dependence** on other countries
- Scientific & technological **advancement**
- Regional integration and India's diplomatic goodwill gesture

ISSUES
- Constellation satellites **exceeding their operational lifespan**
- Mobile phones **lacking compatibility** with NavIC
- **Limited coverage** of NavIC (extends only 1,500 km beyond India)

OTHER NAVIGATION SYSTEMS

Global Systems
- **GPS** (US), **GLONASS** (Russia), **Galileo** (European Union) and **BeiDou** (China)

Regional Systems
- **Quasi-Zenith Satellite System** (QZSS) from Japan

Geosynchronous Orbit

Geostationary Orbit

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Note:

What is the Significance of Integrating NavIC in Smartphones for India?

➤ **Strategic Technological Autonomy:**

○ NavIC reduces **dependence on foreign global navigation systems** like **GPS (Global Positioning System)**, showcasing **India's ability to develop and deploy critical technology** independently.

○ Ensures that the nation can control and secure its vital navigation infrastructure, which is **crucial for national security and defense applications**.

➤ **Enhanced Accuracy and Reliability:**

○ NavIC provides **highly accurate and reliable positioning** and timing information, especially in the **Indian subcontinent** and the surrounding region.

○ Better accuracy is essential **for a range of applications**, from **Disaster Management** and agriculture to urban planning and transportation, improving overall efficiency and decision-making.

➤ **Tailored Solutions for Indian Terrain:**

○ NavIC is designed to offer **superior performance in the specific geographical** and topographical conditions of India, where conventional global navigation systems may have limitations.

○ Tailoring the navigation system to suit **India's diverse landscape ensures a more precise** and efficient location-based service.

➤ **Broadening Use Cases and Innovation:**

○ NavIC's integration opens up opportunities for a plethora of **location-based services**, navigation apps, and other innovative solutions that can be tailored to specific local needs and preferences.

○ This spurs entrepreneurship and supports a thriving app development ecosystem, encouraging creativity and innovation in technology.

What are the other Navigation Systems operational in the world?

➤ **Four Global Systems:**

○ GPS from the U.S.

○ GLONASS from Russia.

○ Galileo from European Union

○ BeiDou from China.

➤ **Two Regional Systems:**

○ NavIC from India

○ QZSS from Japan.

Reciprocity and Non Reciprocity

Why in News?

Scientists have developed devices which break the Principles of Reciprocity tackling the challenges that arise out of the **Reciprocity Phenomenon.**

What is Reciprocity?

➤ **About:**

○ Reciprocity means that **if a signal is sent** from one point to another, it is sent back from the second point to the first.

● For Example: It's like when you shine a flashlight at a friend, they can shine it back at you because the light can go both ways through the air.

○ However, there are **situations where reciprocity doesn't work as expected**.

● For example, in some movies, a person being questioned can't see the police officers through a window, but the officers can see them.

● Also, in the dark, one can see someone **under a streetlight,** but they can't see that person.

Note: Non-reciprocity: The physics of letting waves go one way but not the other.

➤ **Applications:**

○ **Antenna Testing**: Reciprocity simplifies antenna testing. Instead of using multiple signal sources in various directions, one can send one signal into the antenna and observe how it transmits it back.

● This helps determine the antenna's ability to receive signals from different directions, known as its far-field pattern.

○ **Radar Systems:** Engineers use reciprocity to test and operate radar systems. By studying how radar antennas send and receive signals, they can improve the system's performance and accuracy.

● **Radar is an electromagnetic sensor** used for detecting, locating, tracking, and recognizing objects of various kinds at considerable distances.

○ **Sonar Systems:** In sonar technology, which is used for underwater detection and navigation, **reciprocity aids in testing and optimizing the performance of sonar devices.**

Note:

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- **Seismic Surveys:** Reciprocity simplifies the testing and operation of seismic survey equipment used in geology and oil exploration **to study subsurface structures.**
- **Medical Imaging (MRI):** MRI scanners utilize reciprocity principles to send and receive signals for creating detailed medical images of the human body.

What are the Challenges of Reciprocity?

- **Spying and Information Security:**
  - Reciprocity means that while one can receive signals from the target, his own equipment may **unintentionally transmit signals, potentially exposing his location or intentions.**
- **Back Reflections:**
  - When designing high-power lasers for signal transmission, imperfections in the transmission line can **lead to harmful backreflections.** Reciprocity dictates that these backreflections could re-enter the **laser, potentially causing damage or interference.**
  - In communication systems, strong back-reflections can occur due to reciprocity, **leading to interference and signal degradation.**
    - Managing these back-reflections is essential for maintaining the quality and reliability of communication networks.
- **Signal Amplification for Quantum Computing:**
  - **Quantum computers** use extremely sensitive **qubits** that need to be maintained at very low temperatures.
  - To sense their quantum states, the **signals must be amplified significantly.**
  - However, reciprocity can **introduce challenges in achieving efficient and controlled signal amplification** without introducing noise or unwanted interactions.

- **Miniaturization:**
  - As technology moves toward miniaturization at nanometer and micrometer scales, ensuring signal efficiency and control becomes increasingly challenging. In self-driving cars, where monitoring various signals is crucial for safety, managing the **complexities of reciprocal signal interactions presents a significant challenge.**

What are the Methods Devised to Overcome Challenges Related to Reciprocity?

- **Magnet-Based Non-Reciprocity:**
  - Scientists have developed **magnet-based Non-Reciprocal Devices, consisting** of components like **wave plates and Faraday rotators.**
    - The Faraday rotator, using a magnetic material, **allows waves to pass in one direction but blocks them in the reverse** direction, breaking the principle of reciprocity.
- **Modulation:**
  - Modulation involves continuously changing some parameter of the medium, either in time or in space.
  - By altering the properties of the medium, scientists can c**ontrol wave transmission** and address challenges related to signal routing, communication, and interference.
  - This method provides **flexibility in managing signals under different conditions.**
- **Nonlinearity:**
  - Nonlinearity involves making the **properties of the medium depend on the strength** of the incoming signal, which, in turn, depends on the signal's propagation direction.
  - This approach allows scientists to control signal transmission by manipulating the nonlinear response of the medium. It offers a way to achieve non-reciprocity and control signal interactions.

■■■

Note:

Environment & Ecology

Highlights

- *Climate Change and Food Security*
- *Climate Change and Indian Dairy Sector*
- *Vibrio Vulnificus Infection*
- *Climate Ambition Summit 2023*
- *State of the Rhino 2023*
- *Elephant Corridors*
- *Planetary Boundaries*

- *29th World Ozone Day*
- *Deoxygenation in Riverine Ecosystems*
- *Samudra Prahari's Deployment to ASEAN*
- *Marine Light Pollution*
- *Leopard Sterilisation*
- *Global Stocktake Report*

Climate Change and Food Security

Why in News?

In 2023, India experienced a series of disruptive weather and climate phenomena, highlighting the intricacies of its precipitation system, impacting the **Food Security.**

How have been the Weather and Climate Phenomena?

➢ **Western Disturbance:**
  ❍ The **Western Disturbance** traditionally brings vital moisture from European seas to the western Himalayas and parts of northern India in the winter and spring.
  ❍ In 2023, the Western disturbance **persisted late into the summer**, complicating the transition to the Southwest Monsoon season. This unusual behavior raised concerns about its effects on precipitation patterns.
  ❍ Climate-linked warming is likely to weaken winter precipitation from the Western disturbance and shift it to more intense rain events.

➢ **El Niño and IOD:**
  ❍ An El Niño phase of the **El Niño Southern Oscillation (ENSO)** was intensifying, which can **adversely affect the southwest monsoon.**

- While **not all El Niño events negatively impact the monsoon** due to its complexity, the dynamics between El Niño and the **monsoon are evolving.**
- The **Indian Ocean Dipole (IOD)** can balance the **adverse impact of the El Nino on the South West Monsoon**.
- Dynamic regression models indicate that 65% of the inter-annual variability in the southwest monsoon is attributed to the **combined effects of ENSO and the IOD.**
- Some Studies have **found that 43% of heavy rainfall events** in the Northeast Monsoon coincided with **an El Niño.**

How Can Such Climate Phenomena Impact Agriculture and Water Resources?

➢ **El Niño's Effects on Green Water:**
  ❍ Agriculture relies on two types of **water - green water from rain-fed soil moisture and blue water from rivers, lakes, reservoirs, and groundwater** for irrigation. Both are vital for food security.
  ❍ Climate phenomena like **El Niño can disrupt rainfed agriculture**, affecting sowing, plant growth, and soil moisture.
  ❍ Despite investments in irrigation infrastructure, around **half of India's cultivated area depends on green water**, underscoring the significance of rainfed agriculture for food security.
  ❍ **Contributions of green water from the monsoon and the Western disturbance** play significant roles in **preserving blue water stock** and groundwater

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to determine the **fate of the Rabi Crops sown in winter** and the overall water security.

➢ **El Niño's Effects on Crop Vulnerability:**
 ○ Even in irrigated areas, **crops like rice paddy, soybean, tur dal, groundnut, and maize rely on green water**, making them vulnerable to climate variability. For instance, **soybean production saw a 28% decline during the 2015-2016 El Niño year.**

How are the Emerging Climate Hotspots in India Impacted by Declining Monsoon Precipitation?

➢ **Water Stress in Central India:**
 ○ Certain regions in **Central India are emerging as climate change hotspots** with critical implications for water, food, and ecological security.
 ○ Persistent water stress and urban centers facing water shortages pose challenges.

➢ **Declining Monsoon Precipitation:**
 ○ Monsoon precipitation has been declining since the 1950s, potentially due to **reduced land-sea thermal gradients** due to the warming of the seas**.**
 ○ However, increasing intensity of rain events and heat stress are observed, adding complexity.

➢ **Model Uncertainties:**
 ○ Global climate models struggle to simulate observed precipitation trends, creating uncertainties in future projections. Climate scientists are working to improve these models.

What can be the Adaptation and Mitigation Strategies?

➢ **Shift to Less Water-Intensive Crops:**
 ○ Reducing dependence on water-intensive crops in favor of **less water-intensive crops like millets can enhance food system resilience** to phenomena like El Niño.
 ○ Shifting crops may **save 30% of blue water,** but policies are needed to prevent new demands for the saved water.

➢ **Alternative Crop Strategies:**
 ○ Encouraging farmers to adopt shorter-growing-cycle crops and diversify agricultural practices.

➢ **Improved Forecasting:**
 ○ Utilizing forecasts of climate phenomena like El Niño for informed decision-making.

➢ **Water Storage Management:**
 ○ Effective management of dams and reservoirs is crucial to reduce **flood risks and ecological damage.**

Climate Change and Indian Dairy Sector

Why in News?

In 2022, a study published in **'Lancet'** estimated that increasing temperatures could reduce **milk production** in India's arid and semi-arid regions **by 25% by end century in 2085.**

➢ This estimation for arid and semi-areas is the **second highest in India**, after Pakistan (at 28.7%). In humid and sub-humid areas, this reduction was estimated at 10%.

What is the Impact of Heat Stress on Cattles?

➢ Elevated temperatures affect the cow's ability to display **natural mating behaviour,** as it **reduces both the duration and intensity of oestrus** (female animal's readiness to mate) **expression.**
 ○ The decrease in conception rates during summer seasons can range between 20 and 30%, as per the study.

➢ Lancet Study also shows that **lactating dairy cows have an increased sensitivity** to heat stress compared with nonlactating (dry) cows.
 ○ Moreover, because of the **positive relationship between milk yield and heat production**, higher yielding cows are more challenged by heat stress than lower yielding animals.

➢ The country's milk production has been steadily increasing. However, the impact of rising temperatures, especially on cross-bred cows will **make the task of meeting domestic demand difficult** and could eventually lead to a decline in per capita consumption.

➢ The dairy sector is likely to be affected both **directly and indirectly by climate change**.
 ○ **Direct Impact:**
  ● Stress to animals caused by changes in temperature-humidity index would directly affect milk production.

Note:

○ **Indirect Impact:**
  ● Indirect effects include **feed and water availability** being impacted by adverse climate events.

Heat distress
Impact of elevated environmental temperatures on cattle health

Affective states
⬆ Hunger and thirst
⬆ Frustration
⬆ Aggression
⬆ Malaise

Biological functioning and health
⬆ Panting
⬇ Estrus behaviour
⬇ Milk yield

Natural living
⬆ Evolutionary adaptations
⬆ Grouping behaviour
⬆ Shade seeking

Source:"Effects of heat stress on dairy cattle welfare", *Journal of Dairy Science*, November 2017

What is the Status of Milk Production in India?
➢ According to '**Basic Animal Husbandry Statistics 2022,** total milk production in India was **221.06 million** tonnes in 2021-2022, keeping it the **largest milk producing country** in the world.
  ○ The **Indigenous cattle contribute 10.35% of the total milk production in the country** whereas non-descript cattle contribute 9.82% and **non-descript buffaloes contribute 13.49%** of the total milk production in the country.
➢ Top five major milk producing States are **Rajasthan (15.05%), Uttar Pradesh (14.93%), Madhya Pradesh (8.06%),** Gujarat (7.56%) and Andhra Pradesh (6.97%).
➢ India's milk production is contributing around 23% of global milk production.

What are the Issues Being Faced by Dairy Farmers?
➢ **Issues Faced:**
  ○ Farmers allege that the government, instead of addressing the core issues, has introduced policies that further threaten to bring down milk productivity of the country.
  ○ One such policy is **sex-sorted semen production,which aims to produce only female calves up to "90% accuracy"**. This has been done to enhance milk production and limit stray cattle population.

○ Over the **next five years**, **5.1 million** pregnancies will be established under the programme that **offers a subsidy of Rs 750 or 50%** of the cost of sex-sorted semen on assured pregnancy.
  ● This policy has the **repercussions of overlooking and eliminating male cattle slowly.**
➢ **Growth in Female Cattle Population:**
  ○ In artificial insemination and natural service, 50% of the calves are male and 50% are female calves. Under this policy, **female cattle are going to grow**.
  ○ The government has ignored that male cattle can be used in farming as an energy source.
  ○ There is also the issue of utility of female animals after they become unproductive, because it has become difficult to sell cows **due to the anti-slaughter rules across many States**.

What is Artificial Insemination?
➢ **About:**
  ○ Artificial insemination is a novel method of bringing about impregnation in female breeds.
  ○ It prevents the spread of certain diseases which are genital in nature, thereby enhancing the efficiency of the breed.
➢ **Shortcomings:**
  ○ Bypassing and preventing natural mating, and artificially reproducing as a principle/policy is cruel, not to mention the cruelty or pain inflicted by the artificial insemination process.

Vibrio Vulnificus Infection

Why in News?
In recent years, India has been grappling with a growing concern related to *Vibrio vulnificus* infections, a deadly **bacteria** found in **marine environments.**
➢ Despite its potential threat, this **pathogen remains largely underreported in India.**

What is Vibrio Vulnificus?
➢ **About:**
  ○ *Vibrio vulnificus* **is a bacterium** that can cause severe infections in humans. It can result from **eating undercooked seafood, especially oysters, which may contain the bacteria.**

Note:

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- ➢ **Carriers:**
  - ❍ It is typically contracted through two main routes: **consuming infected raw shellfish and exposing wounds to contaminated waters.**
    - ● It spreads through marine organisms like **fish like eel, derbio, tilapia, trout, and shrimp**.
    - ● The first case in marine organisms was **documented in Japanese eel in 1975**. The **first case of *V vulnificus* in humans** was recorded **in 1976 in the US.**
      - ■ The pathogen **arrived in Spain through imported eels in 1985.**
    - ● In 2018, India documented an outbreak of **V vulnificus in a tilapia farm in Kerala.**
      - ■ Originally from Africa and West Asia, **tilapia** is one of the **most traded food fish globally.**
- ➢ **Symptoms:**
  - ❍ Symptoms of V. vulnificus infection include **diarrhea, vomiting, fever,** and, in severe cases, flesh-eating diseases that can be fatal within days.

- ➢ **Environmental Factors Favoring *V. vulnificus* in India:**
  - ❍ This **bacterium thrives in warm waters above 20°C**. India's average sea surface temperature of **28°C** provides a perfect habitat.
    - ● **Climate change**, with increased rainfall and reduced coastal salinity, further supports the growth of V. vulnificus.
- ➢ **Consequences:**
  - ❍ V. vulnificus infections have a **high mortality rate, ranging from 15% to 50%,** even with prompt diagnosis and treatment.
  - ❍ Vulnerable populations, such as **those with chronic liver disease, cancer, chronic kidney disease, and diabetes,** are at increased risk.
  - ❍ Infections can lead to **limb amputations (surgical removal of part of the body, such as an arm or leg)**, making them a significant health concern.
- ➢ **The Global Spread:**

Marine threat
Incidence of *Vibrio vulnificus* infections across the world in the past few decades

People can get infected with *Vibrio vulnificus* by eating raw shellfish (resulting in diarrhoea, vomiting, fever) or by exposing wounds to waters where the bacteria live (which can cause life-threatening flesh-eating disease that kills about 20 per cent of the infected in one or two days)

NORTHERN EUROPE
45 cases
(2018)

SPAIN
3 cases
(1970-2002)
2 cases
(2015-2021)

FRANCE
6 cases
(2001–2019)

DENMARK
11 cases
(1994)

GERMANY
5 cases
(2003-2006)
24 cases
(2018-2019)

TÜRKIYE
2 cases
(1998-2008)

INDIA
7 cases
(1986-2023)

CHINA
530 cases
(2010-22)

JAPAN
94 cases
(1999-2003)

US
100 cases
(per year)

ISRAEL
62 cases
(1996–97)

KOREA
913 cases
(2001-2016)

TAIWAN
84 cases
(1995-2000)

Subtropics

Tropic of Cancer (23°27')

Tropic of Capricon (23°27')

Subtropics

SOUTH AMERICA
18 cases
(1997-2015)

MALAYSIA
45 cases
(2017-2020)

AUSTRALIA
16 cases
(2010-2011)

Note: Data unavailable or zero cases reported in Mexico, Canada and Africa; Source: Research papers

Vibrio vulnificus thrive in the tropics or subtropics, where sea or brackish water temperatures reach 20°C and higher, and prefer waters with low salinity. In India, the sea surface temperatures average 28°C, making the waters conducive to the growth and proliferation of *Vibrio vulnificus*

» As climate change increases frequency and intensity of cyclones and rainfall, leading to storm surges and flooding, coastal communities could face a higher risk of exposure to *Vibrio vulnificus*. High rainfall also reduces salt levels in the sea, which suits the bacteria

» Wound infections due to *V vulnificus* have increased eightfold in eastern US between 1988 and 2018. The species is also moving northwards. In 1980s, infections were rare above Georgia, but by 2018, they were regularly reported further north in Philadelphia. By 2041-60, the bacteria may reach New York

» Northern European countries have seen a spike in the number of human infections, which were associated with swimming or bathing in coastal waters. The Baltic Sea in northern Europe has been identified as a high-risk environment since it has low salinity and high warming rates

Note:

➢ **Measures to Mitigate *V. vulnificus* Risk:**
  ○ **Healthcare Awareness:** Ensure that healthcare professionals in coastal areas are aware of *V. vulnificus* **risks and test patients with relevant symptoms**.
  ○ **Predictive Tools:** Researchers are developing **risk-warning tools using satellite-based sensors to monitor** sea surface temperature **and** phytoplankton **levels,** which are associated with increased V. vulnificus infections.
  ○ **Learning from Seasonal Consumption in Japan:** In Japan, bivalves like **oysters and mussels are consumed only in winter,** avoiding the summer when bacteria levels are high. This practice significantly reduces infection risk.

Climate Ambition Summit 2023

Why in News?

The **United Nations Climate Ambition Summit (CAS)** held in United Nations Headquarters, New York on 20th September 2023, aimed to **accelerate climate action** as a prelude to the **28th Conference of Parties (COP28) to the United Nations Framework Convention on Climate Change(UNFCCC).**

➢ However, **China, the US and India** , who collectively **account for about 42% of global** greenhouse gas emissions and are the **top three emitters** in that order were all absent from the CAS.

What is the Climate Ambition Summit (CAS)?

➢ **About:**
  ○ The CAS is a prominent international event aimed at addressing the pressing issue of climate change.
  ○ The CAS is designed to showcase **"first mover and doer"** leaders from government, business, finance, local authorities, and civil society who came with **credible actions, policies and plans** – and not just pledges – to accelerate the **decarbonization of the global economy and deliver climate justice**
  ○ The central aim of the CAS is to uphold the **Paris Agreement's 1.5°C temperature limit,** which seeks to prevent severe climate consequences by capping global warming at 1.5°C above preindustrial levels.

➢ **Participants at the Summit:**
  ○ A total of 34 states and 7 institutions had speaking slots, including India's neighbouring countries Sri Lanka, Nepal, and Pakistan, as well as emerging economies like South Africa and Brazil.
  ○ Key players such as the **European Union,** Germany, France, and Canada also addressed the audience.

➢ **Criteria for Participation:**
  ○ Countries were required to present **updated pre-2030** Nationally Determined Contributions (NDCs)**, net-zero targets, and energy transition plans.**
  ○ Commitments to no **new coal, oil, and gas projects,** fossil fuel **phase-out plans, and ambitious renewable energy targets were expected.**
  ○ Countries were urged to **pledge to the Green Climate Fund** and provide economy-wide plans for adaptation and resilience.

➢ **Highlights of the Summit:**
  ○ **Updated Climate Goals:**
    ● Brazil pledged to reinstate its original 2015 climate goals, emphasizing the need for more ambitious measures and a transition away from fossil fuels.
    ● **Nepal aimed for Net Zero emissions by 2045 instead of 2050**, while **Thailand targeted Net Zero by 2050,** and Portugal set a carbon-neutral goal for 2045.
    ● All G-20 governments were asked to commit to presenting more ambitious **NDCs featuring absolute emissions cuts by 2025.**
    ● The summit emphasized the need to **deliver climate justice**, particularly to communities on the front lines of the **climate crisis who are disproportionately affected.**
  ○ **Other Announcements:**
    ● Canada, which was one of the largest expanders of fossil fuels in 2022, announced **the development of an emissions cap framework for the oil** and gas sector.
    ● The EU and Canada call for global carbon **pricing to cover at least 60% of emissions.**
    ● Current carbon pricing mechanisms **cover only 23% of emissions, generating USD 95 billion.**
    ● In another development, Germany announced the **launch of the International Climate Club,** which it will **co-chair with Chile**, aiming to **decarbonise industrial sectors and scale up green growth.**
    ● The CAS highlighted the importance of comprehensive plans addressing adaptation and resilience across entire economies.

Note:

What is the Paris Climate Accord?

➢ **Legal status:** It is a **legally binding international treaty** on **climate change.**

➢ **Adoption:** It was adopted by **196 countries at the Conference of the Parties COP 21** in Paris in December 2015.

➢ **Goal:** To limit global warming to **well below 2° Celsius, and preferably limit it to 1.5° Celsius,** compared to pre-industrial levels.

➢ **Objective:** To achieve the **long-term temperature goal,** countries aim to reach global peaking of greenhouse gas emissions as soon as possible to achieve a climate-neutral world by mid-century.

➢ India is a **signatory to the Paris Agreement.** India reaffirmed its commitment to the agreement in August 2022 by submitting an **updated NDC to the UNFCCC**. **The NDC outlines India's goals for 2021–2030.**

What are India's Climate Commitments?

➢ In 2022, India updated its climate pledges to **reduce emissions intensity by 45% from 2005 levels by 2030.**

This is a **10% increase from its previous 2016 pledge.** The updated pledge is part of India's NDCs.

➢ India sets 2030 target to produce 50% of its energy need through non-fossil fuels.

➢ India aimed to **create an additional carbon sink of 2.5 to 3 billion tonnes of CO2-equivalent by 2030.**

➢ India pledged to achieve **net-zero emissions** by 2070.

State of the Rhino 2023

Why in News?

Recently, the **International Rhino Foundation (IRF)** published the report, **State of the Rhino, 2023** which documents **current population estimates and trends** for the **five surviving rhino species** in **Africa and Asia.**

➢ Every year, **World Rhino Day** is observed on **22th September** to spread awareness for all five species of rhino and work being done to save them.

➢ It was first announced by the **World Wildlife Fund (WWF)** - South Africa in 2010.

WHITE RHINO	GREATER ONE-HORNED RHINO	BLACK RHINO	JAVAN RHINO	SUMATRAN RHINO
Ceratotherium simum	*Rhinoceros unicornis*	*Diceros bicornis*	*Rhinoceros sondaicus*	*Dicerorhinus sumatrensis*
IUCN Estimated Population:	IUCN Estimated Population:	IUCN Estimated Population:	IUCN Estimated Population:	IUCN Estimated Population:
16,803	**4,014**	**6,487**	**76***	**34-47**
DECREASING	INCREASING	INCREASING	STABLE	DECREASING
			*Indonesia's Ministry of Environment and Forestry has reported that 12 of these individuals may be missing.	
IUCN Status:	IUCN Status:	IUCN Status:	IUCN Status:	IUCN Status:
NEAR THREATENED	VULNERABLE	CRITICALLY ENDANGERED	CRITICALLY ENDANGERED	CRITICALLY ENDANGERED

Note:

RHINOCEROS

World Rhino Day - 22nd September (declared by WWF in 2010)

5 Main Species of Rhino			
Species	**Found in**	**IUCN Red List Status**	**Habitat**
African White	Africa	NT	Long/short grass Savannah
African Black	Africa	CE	Semi-Desert Savannah
Greater one-horned	Asia	Vu (CITES - Appendix I, WPA - Schedule I	Tropical grassland
Javan	Asia	CE	Tropical, subtropical forests
Sumatran	Asia	CE	Same as Javan

Ujung Kulon National Park (a UNESCO WHS) is home to the last remaining wild Javan rhinos on Earth

Greater One-Horned Rhino

Only species found in India (aka Indian Rhino)

CHARACTERISTICS

- Largest of the 5 species
- Identified by a single black horn and a grey-brown hide with skin folds

Threats

- Poaching for horns
- Habitat loss
- Decreasing Genetic diversity

Protected Areas (India)

- **UP**
  - Dudhwa TR
- **West Bengal**
  - Jaldapara NP
  - Gorumara NP
- **Assam**
  - Pabitora WLS
  - Orang NP
  - Kaziranga NP **(max no. of Rhinos: ~2400)**
  - Manas NP

Conservation Efforts (India)

- National Rhino Conservation Strategy
- Indian Rhino Vision 2020 (launched in 2005)

New Delhi Declaration on Asian Rhinos 2019
Signed by 5 rhino range nations (India, Bhutan, Nepal, Indonesia and Malaysia)

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Note:

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What are the Key Findings of the Report?

➤ **Major Threats:**
- ○ **Poaching, Habitat Loss:** Poaching still threatens **all five rhino species** and has increased in several regions that had not previously been targeted.
  - ● **South Africa** continues to **battle devastating poaching losses** of its white rhinos.
  - ● **Black rhino** populations are increasing despite constant poaching pressure.
- ○ **Climate Change:**
  - ● **In Africa**, **climate change**-induced **drought** is causing myriad detrimental impacts .
  - ● **In Asia** dramatically increased precipitation and longer **monsoon** periods could cause more direct deaths of rhinos and humans alike.
  - ● **Changing weather conditions** and landscapes can also trigger an increase in **invasive plant species,** crowding out or overtaking native rhino food plants and causing general habitat degradation.

➤ **Status of Rhino:**
- ○ **Javan Rhinos:**The status and whereabouts of 12 of the approximately 76 remaining Javan rhinos is **unknown**.
- ○ **Sumatran Rhinos**: Signs of Sumatran rhinos are increasingly **hard to find**, creating more uncertainty about their population in the wild.
- ○ **White Rhinos**: 2,000 white rhinos from "**World's Largest Rhino Farm**" will now be rewilded throughout Africa.

➤ **Bright Spots:**
- ○ **Greater one-horned rhinos in India and Nepal** continue to thrive due to strong protection .
- ○ **Black rhinos in Africa** are rebounding in the past few decades at a strong growth rate despite still significant poaching losses.
- ○ With the right interventions, all five rhino species can rebound and thrive in our ever changing world.

➤ **Recommendations:**
- ○ Implement a holistic strategy to safeguard rhinos by **addressing poaching, habitat protection, community involvement, capacity building**, demand reduction, advocacy, and wildlife trafficking disruption.

What are the Conservation Efforts by India ?

➤ **Translocation:** Rhino translocations to **Manas National Park** set for the beginning of 2023 were rescheduled for 2024 while security measures were reinforced after a poached rhino was discovered in January.

➤ **Rhino Corridor:** In 2022, the Assam government finalized the addition of approximately 200 sq km to **Orang National Park** in north-central Assam, more than doubling the size of this protected area and key rhino habitat.
- ○ With this added land, Orang National Park is now connected to **Burhachapori Wildlife Sanctuary** in the east, completing the creation of a linked corridor between all the protected areas in Assam that hold rhinos: **Manas National Park, Pobitora Wildlife Sanctuary, Orang National Park, the Laokhowa and Burhachapori Wildlife Sanctuaries and Kaziranga National Park.**

➤ **New Delhi Declaration on Asian Rhinos**: **India, Bhutan, Nepal, Indonesia and Malaysia** have **signed a declaration** for the conservation and protection of the species.

➤ **DNA Profiles of all Rhinos**:The project will help in **curbing poaching** and gathering evidence in wildlife crimes involving rhinos

➤ **National Rhino Conservation Strategy:** It was **launched in 2019** to conserve the greater one-horned rhinoceros.

➤ **Indian Rhino Vision 2020**:It was an ambitious effort to attain a wild population of at least 3,000 greater one-horned rhinos spread over seven protected areas in the Indian state of Assam by the year 2020.

Elephant Corridors

Why in News?

Recently, the Indian government **identified 62 new elephant corridors**, marking a significant milestone in the nation's commitment to **wildlife conservation.** This brings the total **number of such corridors to 150, a remarkable increase from the 88 registered in 2010.**

What are the Key Highlights About Elephant Corridors?

➤ **About:**
- ○ Elephant corridors can be described as a **strip of land that enables elephant movement between two or more friendly habitats.**

Note:

Elephant Reserves

33 Elephant Reserves
(as of November 2022)

Kaziranga – Karbi Anglong ER

South Arunachal ER

Kameng ER

Chirang-Ripu ER

Dhansiri-Lungding ER

Shivalik ER

Eastern Dooars ER

South Arunachal ER

Terai ER

Mayurjharna ER

Dihing-Patkai ER

Uttar Pradesh ER

Singphan ER

Badalkhol-Tamorpingla

Intanki ER

Lemru ER

Garo Hills ER

Singhbhum ER

Mayurbhanj ER

Sambalpur ER

Mahanadi ER

Dandeli ER

Mysore ER

Rayala ER

Nilgiri ER

Wayanad ER

Anamalai ER

Nilambur ER

Coimbatore ER

Anamudi ER

Srivilliputtur ER

Periyar

Agsthyamalai ER

FACTS

- Tamil Nadu and Assam have the highest number (5) of elephant reserves in India.
- The Indian *elephant Elephas maximus* is included in Schedule I of the Indian Wildlife (Protection) Act, 1972 and in Appendix I of CITES.
- Indian Elephant has also been listed in the Appendix I of the Convention of the Migratory Species and as 'Endangered' in the IUCN Red List.
- The elephant was declared the National Heritage Animal of India in 2010.
- MoEFCC provides financial and technical support to major elephant range states in the country through Project Elephant. Project Elephant was launched by the Government of India in the year 1992 as a Centrally Sponsored Scheme.

- The corridors were reported by **respective state governments** and ground validation methods were used to verify them.

➤ **State Wise Distribution:**

- According to the report, **West Bengal leads with 26 corridors, constituting 17% of the total.**

- East central India contributes 35% (52 corridors), while the North East region has 32% (48 corridors).

- Southern India has 21% (32 corridors), and **northern India has the lowest with 12% (18 corridors).**

➤ **Status of Corridor Use:**

Note:

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○ **Elephant corridor report released by the central government** showed a **40% increase in elephant corridors across 15 elephant range states in India.**

○ **19% of corridors (29) show a decrease in use**, and 10 require restoration due to impairment.

● Decreased use is attributed to **habitat fragmentation and destruction.**

➤ **Reasons for Increase in Corridors:**

○ Elephants have **expanded their ranges in the Vidarbha region of Maharashtra and southern Maharashtra bordering Karnataka.**

● Elephant corridors have increased in these areas.

○ Elephants have also been seen in **increased numbers in Madhya Pradesh and northern Andhra Pradesh.**

Elephants

➤ **Elephants in India:**

○ Elephants are **keystone species** as well as the **Natural Heritage** Animal of India.

○ India has the **largest number of wild Asian Elephants.** The elephant population in the country is estimated to be over 30,000.

● Karnataka has the highest elephant population in India.

➤ **Conservation Status:**

○ **Convention of the Migratory Species (CMS):** Appendix I

○ **Wildlife (Protection) Act, 1972:** Schedule I

○ **International Union for Conservation of Nature (IUCN) Red List** of threatened species:

● **Asian Elephant:** Endangered

● **African Forest Elephant:** Critically Endangered

● **African Savanna Elephant:** Endangered

➤ **Conservative Efforts:**

○ India:

● **Gaj Yatra**

● **Project Elephant**

○ Worldwide:

● **Monitoring of Illegal Killing of Elephants (MIKE) Programme.**

● **World Elephant Day**

Planetary Boundaries

Why in News?

According to a new study, published in the journal *Science Advances*. The world has **breached six out of nine planetary boundaries** necessary to maintain Earth's stability and resilience.

➤ Scientists have investigated the processes within Earth's ecosystem that have played a crucial role in maintaining favorable conditions for human existence over the last 12,000 years.
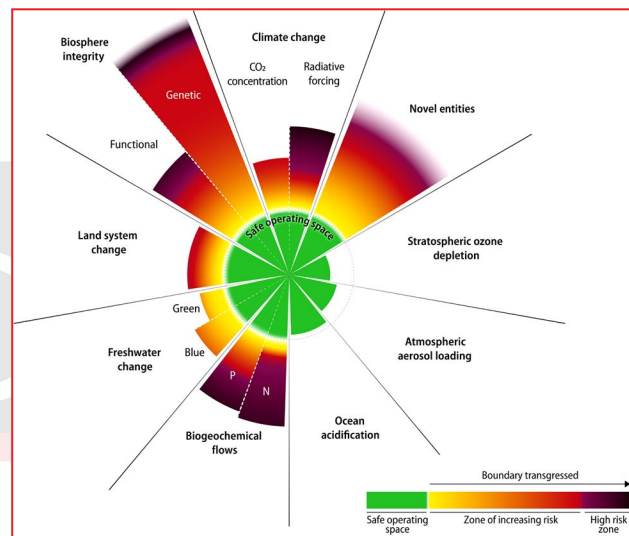
What Are Planetary Boundaries?

➤ **About:**

○ The planetary boundaries framework was first proposed by Johan Rockström and a group of 28 internationally renowned scientists in 2009 to define the **environmental limits within which humanity can safely operate to maintain Earth's stability and biodiversity.**

➤ **Nine Planetary Boundaries:**

○ **Climate change.**

○ **Change in biosphere integrity** (biodiversity loss and species extinction)

○ Stratospheric **ozone depletion.**

○ **Ocean acidification.**

○ **Biogeochemical flows** (phosphorus and nitrogen cycles).

○ **Land-system change** (for example deforestation).

Note:

○ **Freshwater use**((alterations across the entire water cycle over land).

○ **Atmospheric aerosol loading** (microscopic particles in the atmosphere that affect climate and living organisms).

○ Introduction of novel entities(consisting of microplastics, endocrine disruptors, and organic pollutants).

➤ **Breaching Planetary Boundaries:**

○ Breaching of these boundaries doesn't indicate an immediate catastrophe but **raises the risk of irreversible environmental changes.**

● This situation could lead to conditions on **Earth that no longer support our current way of life.**

What are the Key Highlights of the Study?

➤ **Impacted Boundaries:**

○ **Climate Change:**

● The researchers set the planetary boundary for atmospheric carbon dioxide concentration and radiative forcing (represents the size of the energy imbalance in the atmosphere) contributing to climate change at 350 parts per million (ppm) and 1 Watts per square meter (Wm−2), respectively. **Currently, this has reached 417 ppm and is 2.91 W m−2.**

○ **Biosphere Integrity:**

● As for biosphere integrity, the researchers kept a limit of less than 10 extinctions per million species-years. Human-induced **species extinctions have far exceeded the safe limit.**

● The study estimated the extinction rate was **greater than 100 extinctions per million species-years.**

■ It is estimated that around **one million of the 8 million plant and animal species are threatened with extinction.**

● Over **10% of the genetic diversity of plants and animals may have been wiped out over the last 150 years**.

○ **Land System Change:**

● The global forested land area has dropped below the safe limit of 75%, **currently standing at only 60%.**

○ **Freshwater Change:**

● Both **blue water** (surface and groundwater) **and green water** (available water for plants) have experienced impacts beyond their safe **thresholds of 10.2% and 11.1%, respectively in 1905 and 1929, currently at 18.2 % and 15.8 %, respectively.**

○ **Biogeochemical Flows:**

● Flows of nutrients like **phosphorus** and **nitrogen** in the environment have surged beyond safe limits.

■ The boundary was fixed at 11 teragrams (Tg) for Phosphorus and 62 Tg for Nitrogen. This is now 22.6 Tg and 190 Tg, respectively.

○ **Novel Entities:**

● The planetary boundary of novel entities was calculated to be zero.

● Human influence on novel entities, including microplastics, endocrine disruptors, and organic pollutants, **has transgressed the zero boundary.** This means humans have transgressed this limit as well.

➤ **Safe Boundaries:**

○ **Stratospheric ozone depletion, aerosol loading** and **ocean acidification** were found to be within the planetary boundary.

29ᵗʰ World Ozone Day

Why in News?

The **Ministry of Environment, Forest and Climate Change (MoEF&CC)** recently marked the **29ᵗʰ World Ozone Day**, an annual event dedicated to raising awareness about the c**ritical issue of ozone layer depletion and the global efforts to combat it.**

What is World Ozone Day?

➤ **About Ozone and Related Convention:**

○ The **ozone layer,** located in the **stratosphere between 10 and 40 kilometers above Earth's surface**, shields us from harmful UV radiation.

● This protective layer, known as **stratospheric ozone or good ozone** , **prevents adverse health effects like cataracts and skin cancer** and safeguards agriculture, forestry, and marine life.

● However, **man-made Ozone Depleting Substances** have caused **ozone depletion in the stratosphere**.

Note:

○ The international community recognized the need for action, **leading to the Vienna Convention in 1985** and the **subsequent Montreal Protocol in 1987**.

➢ **World Ozone Day:**

○ **World Ozone Day** is observed on the **16th of September** each year, commemorates the signing of the **Montreal Protocol** in **1987,** a significant international treaty aimed at phasing out the production and consumption of **Ozone Depleting Substances** (ODS).

● **Theme 2023:** "Montreal Protocol: Fixing the Ozone Layer and Reducing Climate Change".

What are India's Achievements in Montreal Protocol Implementation?

➢ **India, a signatory since June 1992**, has made significant strides in implementing the Montreal Protocol:

○ **Phase-out Success**: India successfully phased out **ODS like Chlorofluorocarbons, Carbon Tetrachloride, Halons, Methyl Bromide, and Methyl Chloroform** for controlled uses by **1st January, 2010.**

○ **Hydrochlorofluorocarbons (HCFCs) Phase-out:** HCFCs are currently being phased out, with Stage-I completed from 2012 to 2016 and **Stage-II in progress until the end of 2024.**

○ **Achieving Reduction Targets:** India exceeded its target, achieving a **44% reduction in HCFCs by 1st January, 2020**, compared to the baseline's 35%.

○ **The India Cooling Action Plan (ICAP):** Launched in **March 2019**, **ICAP** focuses on **reducing cooling demand, transitioning to alternative refrigerants**, enhancing energy efficiency, and technological advancement.

● It aims to maximize socio-economic and environmental benefits through synergies with existing government programs.

> **Note:** Th**e inclusion of Hydrofluorocarbons (HFCs) in the Montreal Protocol led to the Kigali Amendment**, with India ratifying it in September 2021. India's phasedown of HFC production and consumption, **starting from 2032**, aligns with the amendment's goals.

What is Tropospheric Ozone?

➢ **Tropospheric (or ground-level) ozone** or **bad ozone** is a **short-lived climate pollutant** that remains in the **atmosphere for only hours to weeks.**

○ It **does not have any direct emissions sources,** rather it is a compound formed by the interaction of sunlight with **volatile organic compounds (VOCs)** – including **methane – and nitrogen oxides (NOX)** emitted largely by human activities.

➢ Strategies to prevent the formation of tropospheric ozone are primarily based on **methane reductions and cutting the levels of atmospheric pollution arising from cars, power plants and other sources.**

○ The **Gothenburg Protocol was established in 1999 to address pollutants that cause acidification and ground-level ozone**.

● It sets limits on air pollutants including **sulfur dioxide, nitrogen oxide, ammonia and volatile organic compounds** that are hazardous to human health and the environment.

● It was updated in **2012 to include particulate matter (PM) and black carbon** (as a component of PM) and to **include new commitments for 2020.**

Deoxygenation in Riverine Ecosystems

Why in News?

Recently, in a study published in **Nature Climate Change** by Pennsylvania State University, the US, has highlighted the issue of **Deoxygenation in Riverine Ecosystems.**

➢ The team of Researchers utilized **Artificial Intelligence (AI)** to analyze water quality data from nearly 800 rivers across the United States and Central Europe.

➢ **Riverine water temperature and dissolved oxygen levels** are essential measures of water quality and ecosystem health.

What is Deoxygenation in Water Bodies?

➢ **About:**

○ Deoxygenation in water bodies **refers to the reduction or depletion of dissolved oxygen levels** in aquatic environments, such as rivers, lakes, oceans, and other bodies of water.

○ This decrease in oxygen availability can occur due to **various natural and anthropogenic factors**, disrupting the delicate balance necessary for the survival of aquatic organisms.

➢ **Impacts of Deoxygenation:**
  ○ **Aquatic Life:** Deoxygenation can **result in "dead zones"** where fish and marine life struggle to survive due to lack of oxygen. In severe cases, it can lead to mass fish kills and other marine organism die-offs.
    ● Excessive nutrient runoff and pollution from industrial and urban sources have caused **oxygen depletion in the Baltic Sea**. The resulting **dead zones** have impacted fisheries and biodiversity.
    ● Coastal areas, like the **Gulf of Mexico, often have dead zones** in the summer.
  ○ **Shifts in Species Distribution:** Some species may **move to other areas with higher oxygen levels**, disrupting the ecosystem's balance and potentially leading to the dominance of invasive species.
  ○ **Human Health:** Deoxygenation affects drinking water quality, potentially making it unsafe for human consumption if pollutants and contaminants are present in low-oxygen waters.
  ○ **Economic Impact:** Reduced fish populations impact fisheries, leading to **economic losses for fishing industries.** Additionally, diminished aesthetics and recreational opportunities due to impacted water quality **can negatively affect tourism.**

What are the Key Highlights of the Study?

➢ **Warming and Oxygen Loss:**
  ○ Rivers are **warming up and deoxygenating faster** than oceans, which could have serious **implications for aquatic life** -- and the lives of humans.
  ○ A significant portion of rivers, approximately 87%, experienced **warming, while 70% suffered from oxygen loss.** This indicates a pervasive issue affecting river ecosystems.
➢ **Urban vs. Rural Impact:**
  ○ Urban rivers demonstrated rapid warming, contrasting with rural rivers that showed slower warming but faster deoxygenation.
  ○ This differentiation **emphasizes the varying impacts in different environments.**
➢ **Greenhouse Gas Emissions and Toxic Metal Release:**
  ○ Deoxygenation is a driver for **Greenhouse Gas Emissions (GHG)** and the release of toxic metals, amplifying the multifaceted consequences of this phenomenon.

➢ **Future Projections:**
  ○ Within the next 70 years, river systems, especially in the **American South, are likely** to experience periods with **such low levels of oxygen** that the rivers could "induce acute death" for **certain species of fish** and **threaten aquatic diversity** at large.
  ○ Future deoxygenation rates are estimated to be 1.6 to 2.5 times higher than historical **rates across all studied rivers.**

Samudra Prahari's Deployment to ASEAN

Why in News?

The **Indian Coast Guard** Ship Samudra Prahari, a specialized **Pollution Control Vessel,** has embarked on an **overseas deployment to ASEAN countries** from 11th September 2023 to 14th October, 2023.

➢ The initiative was announced during the ASEAN Defence Minister Meeting Plus meeting in **Cambodia** in **November 2022.**
➢ During this deployment, the ship is scheduled to make **port calls in Bangkok(Thailand), Ho Chi Minh (Vietnam), and Jakarta(Indonesia).**

What are the Key Features of Samudra Prahari?

➢ **About**:
  ○ The Indian Coast Guard Ship Samudra Prahari boasts **state-of-the-art pollution response.** It was **commissioned at Mumbai on October 9, 2010.**
➢ **Major Features:**
  ○ The vessel is outfitted with **advanced pollution control gear**, including containment tools like **Hi-Sprint Booms and river booms to contain oil spills**, as well as oil recovery devices like **skimmers and side sweeping arms**, along with storage facilities within the **Indian Exclusive Economic Zone**.
    ● The ship is also equipped with a **Chetak Helicopter in Pollution Response configuration.**
  ○ It also possesses the **ability for unmanned machinery operation.**

Note:

![drishti logo]

Note: An **oil spill is the release of a liquid petroleum hydrocarbon** into the environment, especially marine areas, due to human activity. The term is usually applied to marine oil spills, where oil is released into the ocean or coastal waters, but spills may also occur on land.

➢ **Activities:**
  ○ As part of an overseas exchange program, the **ship has embarked 13 National Cadet Corps cadets to participate in** "Puneet Sagar Abhiyan," an **international outreach program** focused on beach clean-ups and similar activities in coordination with partner nations.

What are the International Initiatives Related to Marine Pollution?

➢ **UN Convention on the Law of the Sea, 1982** calls signatory states to develop a legal framework to **prevent, reduce and control pollution of the marine environment by dumping.**
  ○ **India** is a signatory to UNCLOS.
➢ The **International Convention for the Prevention of Pollution from Ships (MARPOL)** calls for **prevention of pollution of the marine environment** by ships from operational or accidental causes.
  ○ **India** is a signatory to MARPOL.
➢ The **London Convention** and **London Protocol** aims to protect the marine environment from pollution caused by the **dumping of wastes and other matter into the ocean.**
  ○ The **London Convention was adopted in 1972** and entered into force in 1975. The **London Protocol was adopted in 1996** and entered into force in 2006.
  ○ **India is not a participant in either of them.**
➢ **The India-Norway Marine Pollution Initiative:** India and Norway are committed to share experiences and competence, and **collaborate on efforts to develop clean and healthy oceans,** sustainable use of ocean resources and growth in the blue economy.

Marine Light Pollution

Why in News?

The impact of **artificial lighting** on land-based life (humans, fireflies, and birds) has been known for quite some time.

➢ However, a recent US-based study has argued to consider light pollution's influence on coastal **marine organisms** as well which affects everything from **whales to fish, corals,** and **plankton.**

What is Artificial Lighting in the Marine Environment?

➢ **About:**
  ○ Artificial lighting refers to the light that is produced from **artificial sources such as candles, fire, electricity, etc.**
    ● Ecologists and biologists have long recognized that artificial light at night can have adverse effects on the health of humans and terrestrial wildlife.
  ○ Recent research is showing that **marine life is also sensitive to artificial light,** including extremely low levels and certain wavelengths, **particularly blue and green light.**
➢ **Marine Light Pollution:** When this **artificial light is used excessively or poorly**, it becomes **light pollution** and disrupts the natural patterns of wildlife, contributing to the **increase in carbon dioxide (CO_2)** in the atmosphere.
  ○ The scientists found that 1.9 million km^2 of the ocean experience biologically significant amounts of artificial light pollution to a depth of 1 metre.
    ● This represents about **3% of the world's Exclusive Economic Zones (EEZs).**
  ○ Significant areas of the ocean are seeing **light exposures to depths of 10 metres, 20 metres, or more.**
    ● In areas with very clear water, the light at night can reach depths of more than 40 metres.
➢ **Sources:**
  ○ **Coastal development** (e.g., buildings, streetlights, billboards, ports, piers, docks and, light house).
  ○ **Vessels** (e.g., fishing and merchant marine vessels), harbours and offshore infrastructure such as oil rigs.
  ○ Some of the common types of artificial lights in the marine environment are **LED, fluorescent, metal halide, and plasma lamps**.
    ● **White LEDs produce broad spectrum light that is sensed by a wide range of organisms** and have a peak at short wavelengths (blue and green light) to which many marine organisms are particularly sensitive.

Note:
➤ The **Earth is getting artificially brighter, at a rate of 2.2% per year.** As a result of these brighter nights, the impacts of **artificial light at night (ALAN)** have become an increasing focus in terrestrial ecology.
   ○ As per studies, **non-natural light increased the brightness of Skyglow**, by 9.2-10% every year between 2011 and 2022
➤ Research has shown that **ALAN is a major form of anthropogenic pollution** that can affect a wide range of biotic processes, including physiology, behaviour, animal movements, species interactions, community structure and reproduction.

LIGHT POLLUTION DEVASTATES WILDLIFE.
Plants and animals depend on Earth's daily light and dark cycle to govern life-sustaining behaviors. Research shows that artificial light at night has adverse and even deadly effects on many species.

LIGHT POLLUTION CAN MAKE YOU LESS SAFE.
There is no clear scientific evidence that increased outdoor lighting deters crime. Poor outdoor lighting can decrease personal safety by making victims and property more visible to criminals.

LIGHT POLLUTION WASTES ENERGY AND MONEY.
As much as 50% of outdoor lighting is wasted, which increases greenhouse gas emissions, contributes to climate change, and renders us all more energy-dependent.

LIGHT POLLUTION MAY HARM YOUR HEALTH.
Studies suggest that artificial light at night negatively affects human health by increasing our risks for obesity, sleep disorders, depression, diabetes, breast cancer, and more.

LIGHT POLLUTION ROBS US OF OUR HERITAGE.
Our ancestors experienced a night sky that inspired science, religion, philosophy, art, and literature. Now, millions of children across the globe will never know the wonder of the Milky Way.

How does Artificial Lightning Affect the Marine Ecosystem?

➤ **Disruption of Normal Cycles:** As per the study, it already took marine organisms an **evolution of over millions of years to adapt to natural light** and now the threat of ever-increasing anthropogenic light pollution has been posing several threats to them.
   ○ Artificial light can easily **wash out the glow of moonlight and starlight** consequently **disrupting their hormonal cycles, inter-species behaviour, and reproduction cycles.**
➤ **Illustration:** For instance, to lay their eggs, **female sea turtles** try to find a quiet, dark spot and avoid light. However, due to artificial lightning, they may end up not coming ashore at all.
   ○ Moreover, their hatchlings head toward inland lights instead of moonlight on the water and then die of dehydration or starvation.
➤ **LEDs Worsening the Impact:** The ever-growing usage of LED lighting is also altering the very nature of artificial light.
➤ **Suggestion:**
   ○ Encouraging land-based **Lights Out efforts** (local, state, and regional campaigns to darken skies) to help **migrating birds** that are drawn to light at night. It will also benefit marine systems near coastal cities.
   ○ **Increasing the usage of red light in coastal areas** as much as possible and **putting up barriers to shield the coastline from artificial light.**
     ● Red light, having the longest wavelength in the visible spectrum, doesn't penetrate as far into the water.

Note:

Leopard Sterilisation

Why in News?

Recently, the Maharashtra Government has decided **to sterilize Leopards for the sustainable management of population for leopards** in the State.

➤ Gujarat's forest department has also proposed sterilisation of leopards, especially in and around **Gir National Park.**

What is the Need for Sterilizing Leopards and Concerns?

➤ **Need:**
  ○ In 2019-20 alone, Maharashtra saw **58 human deaths due to leopards**—over half the 97 casualties in 2010-18.
  ○ Maharashtra has decided to sterilize leopards as a response to the increasing **leopard-human conflicts**, rising leopard population, and the need to protect both leopards and human communities.
  ○ The proposed sterilisation program aims to address these challenges while complying with environmental conservation laws and regulations.

➤ **Concerns:**
  ○ Concerns about the sterilisation of leopards include **doubts about its effectiveness,** the need for comprehensive scientific research, veterinary skill development, potential stress on leopards, challenges with traditional methods, and alternative contraception options.
  ○ There is also an emphasis on **addressing conflicts and gaining community support for conservation efforts**.

What are the Key Points Related to Leopards?

➤ **Scientific Name:**
  ○ *Panthera pardus*

➤ **About:**
  ○ The leopard is the smallest of the Big Cats (Of genus Panthera namely the **Tiger, Lion, Jaguar, Leopard, and Snow Leopard),** and known for its ability to adapt in a variety of habitats.
  ○ A nocturnal animal, the leopard hunts by night.
  ○ It feeds on smaller species of herbivores found in its range, such as the chital, hog deer and wild boar.
  ○ Melanism is a common occurrence in leopards, wherein the entire skin of the animal is black in colour, including its spots.
    ● A melanistic leopard is often called **black panther** and mistakenly thought to be a different species.

➤ **Habitat:**
  ○ It occurs in a wide range in sub-Saharan Africa, in small parts of Western and Central Asia, on the Indian subcontinent to Southeast and East Asia.
    ● The Indian leopard (*Panthera pardus fusca*) is a leopard widely distributed on the Indian subcontinent.

➤ **Population in India:**
  ○ As per a recent report **'Status of leopards in India, 2018**' released by the Ministry of Environment, Forest and Climate Change, there has been a "60% increase in the population count of leopards in India from 2014 estimates''.
    ● The 2014 estimates placed the population of leopards at nearly 8,000 which has increased to 12,852.
  ○ The largest number of leopards have been estimated in **Madhya Pradesh (3,421) followed by Karnataka (1,783) and Maharashtra (1,690).**

➤ **Threats:**
  ○ Poaching for the illegal trade of skins and body parts.
  ○ Habitat loss and fragmentation
  ○ Human-Leopard conflict

➤ **Conservation Status:**
  ○ **IUCN Red List:** Vulnerable
  ○ **CITES:** Appendix-I
  ○ **Indian Wildlife (Protection) Act, 1972:** Schedule-I

Global Stocktake Report

Why in News?

Recently, the synthesis report of the first **Global Stocktake** released by the **United Nations Framework Convention on Climate Change (UNFCCC)** ahead of the **18ᵗʰG-20 summit** in New Delhi.

➤ The synthesis report presents **17 key findings**, painting a concerning picture of the world's progress towards **Paris Agreement targets**. While there is a limited

Note:

window for corrective action, the report echoes **previous warnings that global efforts** are falling short.

What is Global Stocktake?

➤ The Global Stocktake is a **periodic review mechanism** established under the **Paris Agreement in 2015.**
  ○ The stocktake **takes place every five years,** with the first-ever stocktake scheduled to conclude at the UN Climate Change Conference (COP28) at the end of 2023.

➤ Its primary objectives **are to assess individual countries' efforts** to reduce **Greenhouse Gas (GHG)** emissions and transition to renewable energy sources.

➤ The stocktake is **designed to keep countries accountable and encourage** them to increase their climate ambitions over time.
  ○ In 2015, when countries committed in Paris **to keep global temperatures from rising beyond 2 degrees Celsius by the end of the century** and "as far as possible" below 1.5 degrees Celsius, they also agreed to **periodically review, or take stock of efforts,** made by individual countries in containing greenhouse gasses.

➤ While countries have laid out their **Nationally Determined Contributions (NDC)**, they are expected to — but not obliged to — increase their ambitions every five years.

➤ While the latest NDC were submitted in 2020, a stocktake also aims to push countries to set higher targets before the next **NDCs are published in 2025.**

What are the Key Recommendations of the Report?

➤ **Galvanizing Effect of Paris Agreement:**
  ○ The Paris Agreement has galvanised countries into **setting goals and signalling the urgency of the climate crisis**.
  ○ Governments need to support ways to transition their economies away from fossil fuel businesses and that states and communities must strengthen efforts.

➤ **Equitable Economic Transition:**
  ○ While rapid change could be "disruptive," countries should work on ensuring that the **economic transition is equitable** and **inclusive.**
  ○ Much more ambition is needed to reduce global GHG emissions by **43% by 2030 and further by**

60% in 2035 and reach net zero CO_2 emissions by 2050 globally.
  ○ Rapid change should prioritize equitable and inclusive economic transitions.

➤ Scaling Up Renewable Energy and Halting Deforestation:
  ○ Renewable energy has to be scaled up and all 'unabated fossil fuels are to be **rapidly eliminated.**
  ○ Deforestation and land-degradation **have to be halted and reversed and agricultural practices** critical to reducing emissions and conserving and enhancing carbon sinks have to be encouraged.

➤ **Fragmented Adaptation Efforts:**
  ○ While the world, as a whole, has committed to scale up **steps to help adapt to the unfolding and future impacts of climate change**, most efforts were "fragmented, incremental, sector-specific and unequally distributed across regions."
  ○ Transparent reporting on **adaptation could facilitate and enhance understanding**, implementation and international cooperation.

➤ **Addressing Loss and Damage:**
  ○ Averting, **minimising and addressing 'loss and damage,'** requires urgent action across climate and development policies to manage risks comprehensively and provide support to impacted communities.
  ○ Support for adaptation and funding **arrangements for averting, minimising and addressing loss and damage**, from the impact of climate change, needed to be rapidly scaled up from expanded and innovative sources.

➤ **Enhancing Climate Finance Access:**
  ○ Financial flows **needed to be made consistent** with climate-resilient development to meet urgent and increasing needs.
  ○ A substantial shift in financial flows is **essential to support low greenhouse gas emission**s and climate-resilient development.

What is the Impact of Global Stocktake Report?

➤ The global stocktake report influenced the **G20 Leaders Declaration**, a significant outcome of the summit. For the first time, the declaration formally recognized the substantial financial requirements for transitioning to renewable energy.

➤ It noted the need for USD 5.8-5.9 trillion in the pre-2030 period for developing countries and USD 4 trillion per year for clean energy technologies by 2030 to achieve **Net-Zero emissions by 2050.**

Note:

Art and Culture

Highlights

- *Statue of Adi Shankaracharya*
- *Hoysala Temples Now India's 42nd World Heritage Site*
- *Santiniketan Becomes India's 41st World Heritage Site*

Statue of Adi Shankaracharya

Why in News?

Chief Minister of Madhya Pradesh (M.P) unveiled the 108 feet high **'Statue of Oneness' of Adi Shankaracharya** on **Mandhata mountain** at Omkareshwar in Khandwa district, M.P and laid the foundation stone of Advaita Lok.

Why is the Mandhata Considered Significant?

➢ The Mandhata island, **nestled on the Narmada River,** is home to **two of the 12 Jyotirlingas** – Omkareshwara (located on the south side of the island) and Amareshwara.

➢ The island is dotted **with Shaivite, Vaisnavite, and Jain temples** dating back to the 14th and 18th centuries.

➢ The name '**Omkareshwar' is derived from the shape of the island,** which resembles the sacred syllable 'Om', and its name means 'the Lord of Omkara'.

Who was Adi Shankaracharya?

➢ **About:**
  ○ Known as **Adi Shankara(788–820 CE)**, born at **Kaladi near Kochi, Kerala.**
    ● Took Samadhi at the age of 33, at **Kedar tirth.**
  ○ He was a **devotee of Shiva**.
  ○ He is said to have arrived at Omkareshwar as a young monk, where he encountered his **Guru Govind Bhagwadpad.**
  ○ Resided in the sacred city for four years, and received his education **.**

○ He departed Omkareshwar at the age of 12 and embarked on a journey across the nation, **disseminating** the **teachings of Advaita Vedanta philosophy** and elucidating its principles to the people.

○ Propounded the **Doctrine of Advaita (Monism)** and wrote many commentaries on the **Vedic canon** (Upanishads, Brahma Sutras and Bhagavad Gita) in Sanskrit.

○ He was **opposed** to **Buddhist philosophers**.

➢ **Major Work:**
  ○ Brahmasutrabhasya (Bhashya or commentary on the Brahma Sutra).
  ○ Bhajagovinda Stotra.
  ○ Nirvana Shatakam.
  ○ **Prakaran Granths**.

➢ **Other Contributions:**
  ○ Was responsible for **reviving Hinduism** in India to a great extent when Buddhism was gaining popularity.
  ○ Established **four Mathas** in the four corners of India at **Sringeri, Puri, Dwaraka and Badrinath**– for propagation of Sanathana Dharma

What is Advaita Vedanta?

➢ It articulates a philosophical position of **radical nondualism,** a revisionary worldview which it derives from the ancient Upanishadic texts.

➢ According to Advaita Vedantins, the Upanishads revea**l a fundamental principle of nonduality termed 'brahman', which is the reality of all things.**

➢ Advaitins understand brahman as transcending individuality and empirical plurality.

➢ They seek **to establish that the essential core of one's self (atman) is brahman.**

Note:

drishti

➢ The fundamental thrust of Advaita Vedanta is that the atman is pure non-intentional consciousness.

➢ It is **one without a second, nondual, infinite existence, and numerically identical with brahman.**

Other Famous Statue

➢ Previously, Prime Minister (PM) of India inaugurated the **Statue of Equality** on the outskirts of Hyderabad to commemorate the **11th-century Bhakti saint Sri Ramanujacharya** on his **1,000th birth anniversary.**

➢ In 2018, PM inaugurated the **Statue of Unity** in **Gujarat's Kevadia** in memory of former deputy Prime Minister **Sardar Vallabhbhai Patel.**

Hoysala Temples Now India's 42ⁿᵈ World Heritage Site

Why in News?

The Sacred Ensembles of the Hoysala, the famed **Hoysala temples of Belur, Halebid and Somanathapur in Karnataka** have been added to the **United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage list.** This inclusion marks the **42ⁿᵈ UNESCO World Heritage Site in India**

➢ Recently, **Santiniketan,** which is a town located in the **Birbhum district of West Bengal,** was also included in **UNESCO's World Heritage List.**

Note:

➢ The 'Sacred Ensembles of the Hoysala' have been on UNESCO's **Tentative list since April 15, 2014.** The other heritage sites in Karnataka which got into the UNESCO list are **Hampi (1986)** and **Pattadakal (1987).**

What are the Key Facts About the Hoysala Temples?

➢ **Chennakeshava Temple in Belur:**

○ It was built by **Hoysala King Vishnuvardhana** to commemorate his victory over the **Cholas** in 1116 AD.

● Beluru (also known earlier as Velapuri, Velur and Belapur in olden times) is situated on the banks of the Yagachi River and was one of the capitals of the Hoysala Empire.

○ It is a **star-shaped temple,** dedicated to **Lord Vishnu,** and is the main temple in the temple complex at Belur.

➢ **Hoysaleshwara Temple in Halebid:**

○ This twin-shrined temple is perhaps the **largest Shiva temple built by the Hoysalas.**

○ The sculptures depict various aspects of Shiva, as well as scenes from the Ramayana, the Mahabharata, and the Bhagavata Purana.

○ Halebid has a walled complex containing three **Jaina basadi (temples) of the Hoysala period as well as a stepped well.**
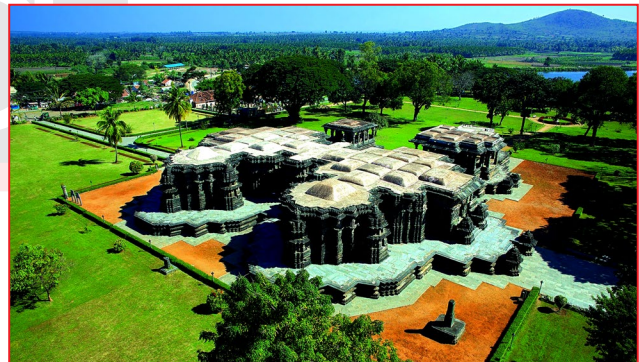
➢ **Keshava Temple of Somanathapur:**

○ It is a beautiful Trikuta Temple dedicated to **Lord Krishna in three forms-Janardhana, Keshava and Venugopala.**

● The main Keshava idol is missing, and the Janardhana and Venugopala idols are damaged.

Note:

Temples in India

Kandariya Mahadev Temple (11th Century)
Lakshmana Temple (10th Century)

Dashavatara Temple (5th Century)
Chausath Yogini Temple (9-11th Century)
Dilwara Temple (12th Century)
Modhera Sun Temple (11th Century)

Kamakhya Temple (8th-17th Century)

Lingaraj Temple (10th-11th Century)
Mukteswara Temple (10th Century)
Konark Sun Temple (13th Century)
Jagannath Temple (12th Century)
Rajarani Temple (11th Century)

Kailasa Temple (8-10th Century)

Arasavalli Sun Temple (7th Century)

Lad Khan Temple (5th Century)
Badami Cave Temple (6-7th Century)
Doddabasappa Temple (12th Century)
Virupaksha Temple (7th Century)
Hoysaleswara Temple (11-14th Century)
Chennakeshwara Temple (11-14th Century)

Vittalaswami Temple Complex (15th Century)
Venkateswara Temple (4th Century)
Kailashnath Temple (7-8th Century)
Shore Temple (8th Century)
Gangaikondacholapuram Temple (11th Century)
Brihadisvara Temple (11th Century)
Meenakshi Temple (16th Century)

Nagara Style   *Dravidian Style*   *Vesara Style*

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Note:

What are the Key Facts about Hoysala Architecture?

➤ **About:**
  ○ The Hoysala Temples were **built during the 12th and 13th centuries CE**, showcasing the unique architectural and artistic brilliance of the Hoysala dynasty.
    ● All these three Hoysala temples are protected monuments of the **Archaeological Survey of India (ASI).**

➤ **Key Elements:**
  ○ Mantapa   ○ Vimana   ○ Sculpture

➤ **Characteristics:**
  ○ These temples are not just architectural wonders but also repositories of the **cultural and historical heritage of the Hoysala dynasty.**
  ○ Hoysala temples are sometimes called **hybrid or vesara** as their unique style seems neither completely **dravida nor nagara**, but somewhere in between. They are easily distinguishable from other medieval temples.
    ● **Hoysala architecture** is known for its distinctive blend of **Bhumija style prevalent in Central India**, the **Nagara traditions of northern and western India,** and the **Karnataka Dravida** modes favored by the **Kalyani Chalukyas.**
  ○ Contain **multiple shrines grouped around a central pillared hall** and laid out in the shape of an intricately-designed star.
  ○ They are made out of **soapstone** which is a relatively soft stone, the artists were able to carve their sculptures intricately. This **can be seen particularly in the jewellery of the gods** that adorn their temple walls.

Hoysala Dynasty

➤ **Origin and Rise:**
  ○ The Hoysalas governed areas spanning **Karnataka and Tamil Nadu** for over three centuries, with **Sala serving as the dynasty's founder.**
  ○ The first kings came from the hills **northwest of Dorasamudra (present-day Halebid), which became their capital in about 1060.**

➤ **Political History:**
  ○ The Hoysalas were feudatories of the **Chalukyas of Kalyana, also known as the Western Chalukya Empire.**

  ○ The most notable rulers of the **Hoysala dynasty were Vishnuvardhana, Veera Ballala II, and Veera Ballala III.**
    ● Vishnuvardhana (also known as Bittideva) was the greatest king of the Hoysala dynasty.

➤ **Religion and Culture:**
  ○ The Hoysala dynasty was a tolerant and pluralistic society that patronized various religions, such as **Hinduism, Jainism, and Buddhism.**
  ○ King **Vishnuvardhana was initially a Jain but later converted to Vaishnavism under the influence of the saint Ramanuja.**

Santiniketan Becomes India's 41st World Heritage Site

Why In News?

Recently, **Santiniketan,** which is a town located in **Birbhum district of West Bengal**, was included in the **UNESCO's World Heritage List**.

➤ The efforts to have **Santiniketan** recognized as a **UNESCO World Heritage Site** have been ongoing since **2010. Santiniketan** has been recognized by **UNESCO** as India's **41st World Heritage Site.**

Why is Santiniketan Well Known?

➤ **Historical Significance:** In **1862, Rabindranath Tagore's father**, **Debendranath Tagore**, spotted this scenic landscape and decided to establish an **ashram**, building a house called **Santiniketan**, meaning **"abode of peace".**

➤ **Name Change:** The area, originally called *Bhubadanga,* was renamed **Santiniketan** by **Debendranath Tagore** due to its conducive environment for **meditation.**

➤ **Educational Legacy:** In **1901, Rabindranath Tagore** chose a significant portion of land and established a school based on the *Brahmachary Ashram* model. This school later evolved into **Visva Bharati University.**

➤ **UNESCO World Heritage Site:** The **Ministry of Culture** proposed **Santiniketan** for inclusion in the **UNESCO World Heritage List**, emphasising its importance in **human values, architecture, arts, town planning,** and **landscape design.**

➤ **Archaeological Preservation:** The **Archaeological Survey of India (ASI)** has been involved in the **restoration** of several structures in **Santiniketan**, preserving its **historical and cultural heritage**.

Note:

UNESCO World Heritage Sites

UTTARAKHAND
- Nanda Devi and Valley of Flowers National Parks

HIMACHAL PRADESH
- Great Himalayan National Park Conservation Area

DELHI
- Humayun's Tomb
- Qutb Minar and its Monuments
- Red Fort Complex

BIHAR
- Archaeological Site of Nalanda Mahavihara at Nalanda
- Mahabodhi Temple Complex at Bodh Gaya

CHANDIGARH
- The Architectural Work of Le Corbusier, an Outstanding Contribution to the Modern Movement

SIKKIM
- Khangchendzonga National Park

ASSAM
- Kaziranga National Park
- Manas Wildlife Sanctuary

RAJASTHAN
- Hill Forts of Rajasthan
  1. Jaisalmer Fort, 2. Chittorgarh Fort,
  3. Kumbhalgarh Fort, 4. Gagron Fort,
  5. Ranthambore Fort, 6. Amber Fort
- Keoladeo National Park
- The Jantar Mantar, Jaipur
- Jaipur City, Rajasthan

GUJARAT
- Dholavira: a Harappan City
- Historic City of Ahmadabad
- Champaner-Pavagadh Archaeological Park
- Rani-ki-Vav (the Queen's Stepwell) at Patan

WEST BENGAL
- Sundarbans National Park
- Santiniketan

ODISHA
- Sun Temple, Konark

MAHARASHTRA
- Ellora Caves
- Ajanta Caves
- Elephanta Caves
- Chhatrapati Shivaji Terminus (formerly Victoria Terminus)
- Victorian Gothic and Art Deco Ensembles of Mumbai

UTTAR PRADESH
- Agra Fort
- Taj Mahal
- Fatehpur Sikri

MADHYA PRADESH
- Buddhist Monuments at Sanchi
- Rock Shelters of Bhimbetka
- Khajuraho Group of Monuments

GOA
- Churches and Convents of Goa

KARNATAKA
- Group of Monuments at Pattadakal
- Group of Monuments at Hampi
- Hoysala Temples of Belur, Halebid and Somnathpur

TELANGANA
- Kakatiya Rudreshwara (Ramappa) Temple

TAMIL NADU
- Group of Monuments at Mahabalipuram
- Great Living Chola Temples

■ Western Ghats

Mountain Railways of India
- Darjeeling Himalayan Railway – West Bengal
- Nilgiri Mountain Railways – Tamil Nadu
- Kalka Shimla Railway – Himachal Pradesh

FACTS

○ **Total Number of World Heritage Sites in India:** 42

○ **Total Cultural Heritage Sites:** 34

○ **Total Natural Sites:** 7 (Kaziranga National Park, Manas Wildlife Sanctuary, Western Ghats, Sundarbans National Park, Nanda Devi and Valley of Flowers National Parks, Great Himalayan National Park Conservation Area, Keoladeo National Park)

○ **Mixed Site:** 1 (Khangchendzonga National Park)

○ **World Heritage Sites Listed First:** Taj Mahal, Agra Fort, Ajanta Caves and Ellora Caves (all in 1983)

○ **Latest Addition (2023):** Hoysala Temples (42nd site) and Santiniketan (41st site)

○ **Countries With the Most UNESCO World Heritage Sites:** Italy (58), China (56), Germany (51), France (49), Spain (49)

○ **India is 6th in number of World Heritage Sites in the World**

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Who was Rabindranath Tagore?

➢ **Early Life:**

○ **Rabindranath Tagore** was born on **May 7, 1861,** in **Calcutta**, **India**, into a prominent **Bengali family**. He was the **youngest of thirteen children**.

○ **Tagore** was a **polymath** and **excelled** in various fields. He was not only a **poet** but also a **philosopher, musician, playwright, painter, educator,** and **social reformer.**

➢ **Nobel Laureate:**

Note:

○ In **1913**, **Rabindranath Tagore** became the first Asian to be awarded the **Nobel Prize in Literature** for his collection of poems titled **"Gitanjali" (Song Offerings).**

➢ **Knighthood:**
  ○ **Rabindranath Tagore** was awarded with **Knighthood** for **Services to Literature** by **King George V** in **1915.**
  ○ **Tagore** renounced his **title of Knighthood** after the **1919** Jallianwala Bagh Massacre.

➢ **Composer of National Anthems:**
  ○ He wrote the **national anthems of two countries,** "Jana Gana Mana" (the Indian national anthem) and **"Amar Shonar Bangla" (the Bangladesh national anthem).**

➢ **Literary Works:**
  ○ His literary works include **poems, short stories, novels, essays,** and **plays**. Some of his notable works include **"The Home and the World", "Gora",** Gitanjali, Ghare-Baire, Manasi, Balaka, Sonar Tori, and **"Kabuliwala".**
  ○ He is also remembered for his song **'Ekla Chalo Re'.**

➢ **Social Reformer:**
  ○ He was an advocate for **social reform**, **promoting ideas of unity, harmony**, and **tolerance**. He criticised British colonial rule and worked for **Indian independence**.

➢ **Tagore's Philosophy:**
  ○ His **philosophy** emphasised the **importance of humanism, spirituality,** and the **connection between nature and humanity.**

➢ **Literary Style:**
  ○ **Tagore's writing style** was marked by its **lyrical** and **philosophical qualities,** often exploring themes of **love, nature,** and **spirituality**.

➢ **Death:**
  ○ He passed away on **August 7, 1941,** leaving behind a rich legacy of **literature** and a lasting impact on **Indian** and **world culture.**

What are UNESCO's World Heritage Sites?

➢ A **World Heritage Site** is a place that is listed by **UNESCO** for its special **cultural or physical significance.**

➢ The list of **World Heritage Sites** is maintained by the international **'World Heritage Programme',** administered by the **UNESCO World Heritage Committee.**

➢ This is embodied in an **international treaty** called the Convention concerning the **Protection of the World Cultural and Natural Heritage,** adopted by **UNESCO** in **1972**.

■■■

History

Highlights

- *India's Maritime History*

India's Maritime History

Why in News?

A **21-meter-long ship, constructed using ancient stitched shipbuilding method (Tankai method**) is set to **embark on a voyage from Odisha to Bali in Indonesia in November 2025.**

➢ Manned by a crew from the **Indian Navy**, this project **not only showcases India's maritime tradition** but also **sheds light on its seafaring history.**

➢ This initiative is also in **harmony with the Ministry of Culture's Project Mausam**, which seeks to **reestablish maritime cultural ties** and foster cultural understanding among the **39 countries bordering the Indian Ocean.**

What is India's History of Maritime Trade?

➢ **Early Evidence of Maritime Trade:**
  ○ **Indus Valley and Mesopotamia**: The earliest known instances of people from the Indian subcontinent engaging in sea trade date back to **around 3300-1300 BCE.**
    - The dock at **Lothal (in present-day Gujarat)**, shows the civilisation's deep understanding of the **workings of tides and winds.**
  ○ **Vedic and Buddhist References:** The Vedas, composed between 1500-500 BCE, contain **vivid tales of seafaring**.
    - Additionally, the **Jataka Tales** and Tamil **Sangam literature,** spanning from 300 BCE to 400 CE, offer further insights into ancient Indian seafaring activities.

➢ **Intensification of Maritime Activity**: By the **1st century BCE**, movement through the deep seas intensified, partly driven by the **Roman Empire's demand for Eastern commodities**.

  ○ Harnessing the **power of monsoon winds** became crucial for completing long journeys, and **Roman commerce** played a significant role in promoting such voyages.
  ○ Romans acquired products from the **Coromandel Coast** – such as **horses, pearls, and spices.**

➢ **Diverse Boat-Building Traditions:** Ancient Indian boat-building traditions were **diverse and included the coir-sewn tradition of the Arabian Sea,** the **jong tradition of Southeast Asia,** and the **Austronesian tradition of outrigger boats.**
  ○ These traditions often employed stitching instead of nails for construction.
  ○ Different types of wood were used for shipbuilding, with **mangrove wood being ideal for dowels and teak for planks**, keels, stem, and stern posts.
    - Evidence of these wood usages can be found in coastal communities and archaeological sites across the Indian Ocean.

➢ **India as the Center of Trade:** By the Common Era, the Indian Ocean had become a vibrant **"trade lake,"** with India at its heart:
  ○ **Western Trade Route: India connected to Europe through the Middle East** and Africa, with ports like **Bharuch and Muziris** serving as vital trade hubs.
  ○ **Eastern Trade Route**: Evidence of Indian artifacts in **Hepu, China,** dating back to the 3rd century BCE, suggests a **maritime route linking India to China and Malaysia.**
    - **Tamralipti in Bengal** played a significant role in this trade.
  ○ These maritime networks **facilitated the movement of people from various backgrounds,** fostering cultural exchanges.
    - Artifacts of Indian origin have been discovered as far as **Berenike in Egypt, including Hindu gods' representations** and inscriptions in Sanskrit.

Note:

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India at the centre of a 'trade lake'
from Alexandria to Hepu
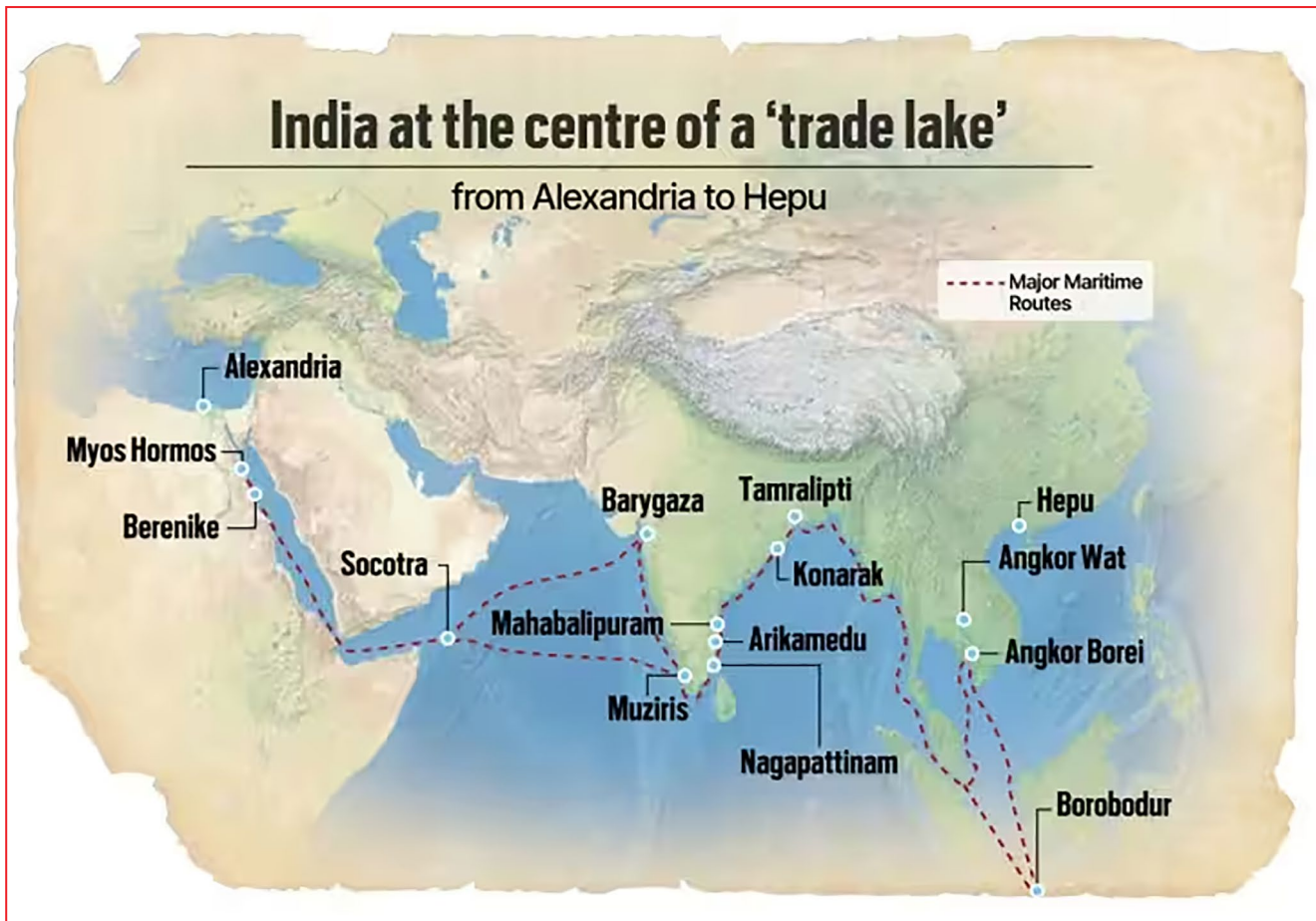
**What is the Current
Status of Maritime Transport in India?**

➢ India is the **16ᵗʰ largest maritime country** in the world. Currently, Maritime transport in India handles **95% of the trade by volume and 68% by value.**

  ❍ **India is one of the world's top 5 ship recycling countries** and holds **30% share in the global ship recycling market**.

  ❍ India also owns over **30% global market share in the ship-breaking industry** and is home to the largest ship-breaking facility in the world at **Alang, Gujarat.**

➢ As of December 2021, India had a fleet strength with a **Gross tonnage (GT) of 13,011** thousand**.** However, the **Indian fleet is just 1.2% of the world's fleet in terms of capacity** and carries only 7.8% (for 2018-19) of India's EXIM trade **(Economic Survey 2021-2022).**

➢ In 2017, the government launched the ambitious **Sagar Mala Program** with the vision of port-led development and growth of logistics-intensive industries.

  ❍ India has currently **12 major and 200 non-major/intermediate ports (under state government administration)**.

  ❍ **Jawaharlal Nehru Port Trust** is the largest major port in India, while **Mudra is the largest private port.**

➢ The **Maritime India Vision 2030** has identified over **150 initiatives to boost the Indian maritime sector.**

■■■

Note:

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Geography

Study on Joshimath Sinking

Why in News?

Recently, separate studies were conducted by eight premier institutions of India including the **Indian Space Research Organisation (ISRO)** to know the cause of land subsidence in Joshimath town of Uttarakhand and provided independent reasons for the sinking of the Himalayan town.

What are the Reports by Institutions about Joshimath Sinking?

➢ **Central Building Research Institute (CBRI):**
   ○ In its report, the CBRI stated that Joshimath town has 44%, 42%, 14% of masonry, RCC and other (traditional, hybrid) construction typologies, respectively, among which 99% are non-engineered.
      • These structures are not in compliance with the **National Building Code of India, 2016.**
   ○ **Other Findings:**
      • Joshimath town is situated on **Vaikrita groups of rocks (made up of coarse mica-garnet-kyanite and sillimanite-bearing psammitic metamorphics)** overlain by morainic deposits which are composed of irregular boulders and clay of varying thicknesses.
      • Such deposits are **less cohesive and susceptible to slow subsidence** and landslide subsidence.
➢ **National Institute of Hydrology (NIH) Report:**
   ○ It mapped **various springs, drainage networks and areas of subsidence** inferring that land subsidence and subsurface water in Joshimath might have some connections.
   ○ The institution recommended the **safe disposal** of the water coming from the upper reaches and waste disposal as the top priority.

➢ **Wadia Institute of Himalayan Geology (WIHG) Report:**
   ○ Institution mentioned **earthquakes as a reason** for slow and gradual land subsidence.
   ○ The main reason for the subsidence appears to be internal erosion caused by the subsurface drainage, which may be due to infiltration of rainwater/melting of ice/wastewater discharge from households and hotels.
➢ **ISRO's stand:**
   ○ The subsidence in the Joshimath region may be due to the **toe-cutting phenomenon.**
   ○ Also due to slope instability as a result of seepage of local drainage water in the soil.
   ○ **Terrain and edaphic characteristics** are also responsible for subsidence.
   ○ **Loose and unconsolidated moraine materials** of the slope (due to old landslides) and flash flood events in and around the area in the recent past, also contributed to land sinking.

Where is Joshimath Located?
➢ Joshimath is a hilly town located on the **Rishikesh-Badrinath National Highway (NH-7) in Chamoli district of Uttarakhand.**
➢ The city serves as a **tourist town as it acts as an overnight rest stop for people** visiting Badrinath, Auli, Valley of Flowers, and Hemkund Sahib, among other important religious and tourist locations in the state.
➢ Joshimath is also of great strategic importance to **the Indian armed forces and is home to one of the Army's** most important cantonments.
➢ The town (falls in **high-risk seismic Zone-V**) is traversed by running streams with a high **gradient from Vishnuprayag, a confluence of the Dhauliganga and the Alaknanda rivers.**

Note:

➢ It is home to one of the **four cardinal Maths or monasteries established by Adi Shankara - Sringeri in Karnataka,** Dwarka in Gujarat, Puri in Odisha and Joshimath near Badrinath in Uttarakhand.

Geographical Location of Joshimath

What Can be Done to Save Joshimath?

➢ Experts recommend a **complete shutdown of development and hydroelectric projects in the region.** But the urgent need is to relocate the **residents to a safer place and then reimagine the town's planning** to accommodate the new variables and the changing geographical factors.

➢ Drainage planning is one of the biggest factors **that needs to be studied and redeveloped.** The city is suffering from poor drainage and sewer management as more and more waste is seeping into the soil, loosening it from within. The irrigation department has been asked by the state government to look into the issue and create a new plan for the drainage system.

➢ Experts have also suggested **replantation in the region, especially at the vulnerable sites to retain soil capacity.** There is a need for a coordinated effort between the government and civil bodies with the aid of military organizations like the **Border Roads Organisation (BRO)** to save Joshimath.

➢ While the state already has weather forecasting technology that can warn people of local events, **its coverage needs to be improved.**

➢ The state government also **needs to take scientific studies more seriously, which clearly spells out the reasons for the current crisis.**

What is Landslide?

➢ A landslide is defined as the **movement of a mass of rock, debris, or earth down a slope.**

➢ They are a type of **mass wasting,** which denotes any downward movement of soil and rock under the direct influence of gravity.

➢ The term **landslide encompasses five modes of slope movement:** falls, topples, slides, spreads, and flows.

Hunga Tonga-Hunga Ha'apai Volcano

Why in News?

The Year 2023 has recorded unprecedented temperatures. Scientists believe one of the reasons for this may be an underwater volcanic eruption of **Hunga Tonga-Hunga Ha'apai in the South Pacific** in 2022.

What are the Key Points About Hunga Tonga-Hunga Ha'apai Volcano?

➢ The Hunga Tonga-Hunga Ha'apai volcano is in the **western South Pacific Ocean**, west of the main inhabited islands in the Kingdom of Tonga.

➢ It is one of 12 confirmed **submarine volcanoes along the Tofua Arc**, a segment of the larger Tonga-Kermadec volcanic arc.

○ The Tonga-Kermadec arc formed as a **result of subduction of the Pacific Plate beneath the Indo-Australian Plate.**

➢ It is an **undersea Volcano** consisting of two small uninhabited islands, Hunga-Ha'apai and Hunga-Tonga.
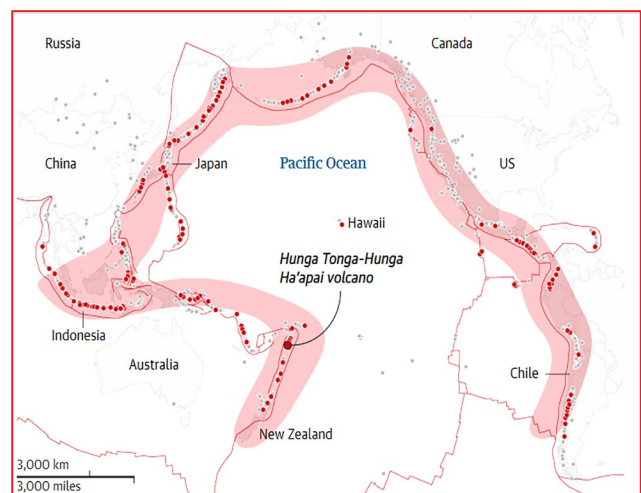
Note:

How will the Earth's Temperature be Affected by the Hunga Tonga Volcano?

➢ Generally, massive volcanic eruptions usually **reduce temperatures** because they spit out vast amounts of **sulfur dioxide**, which form **sulfate aerosols** that can reflect sunlight back into space and **cool Earth's surface** temporarily, generally referred as **Sun dimming.**

➢ However, the Tonga eruption had another effect because it occurred **underwater**. The eruption of Hunga Tonga-Hunga Ha'apai in 2022 **produced a plume 58 km high, and produced the biggest atmospheric explosion ever recorded.**

➢ The Hunga Tonga-Hunga Ha'apai eruption is peculiar because, in addition to causing the largest increase in **stratospheric aerosol** in decades, it also injected vast amounts of **water vapor** into the stratosphere.

➢ Water vapor is a **natural greenhouse gas** that absorbs solar radiation and **traps heat in the atmosphere.**

   ○ The aerosol and water vapor impact the climate system in opposing ways, but several studies have proposed that, **due to its larger and more persistent water vapor plume,** the eruption could have a **temporary net surface warming effect.**

How have Previous Volcanic Eruptions Impacted the Climate Globally?

➢ In the past 2,500 years, there have been about eight even bigger eruptions, according to the **Intergovernmental Panel on Climate Change (IPCC),**

➢ Among them, **Tambora in Indonesia** in 1815 led to a "year without a summer" - with failed harvests from France to the United States.

➢ Even worse, the eruption of **Samalas in Indonesia** around 1257 led to famines and may have kicked off the **Little Ice Age**, an unusually cool period that lasted until the 19th century.

What are the Different Types of Volcanoes?

➢ In general, Volcanoes can be divided on the basis of **Type of Eruption** & **Periodicity of Eruption.**

   ○ **Based on Type of Eruption:** The nature of the eruption mainly depends on the viscosity of the magma and are of two types:
      ● **Basic**: The basic magma are dark coloured like basalt, rich in iron and magnesium but poor in silica. They travel far and generate broad shield volcanoes.

      ● **Acidic**: These are light-coloured, of low density, and have a high percentage of silica and therefore it makes a familiar cone volcano shape.

   ○ **Based on frequency of Eruption:**
      ● **Active volcanoes**: They erupt frequently and are mostly located around the Ring of Fire.

➢ E.g.: **Mount Stromboli** is an active volcano and it produces so many gas clouds that it is called the Lighthouse of the Mediterranean.

      ● **Dormant Volcano**: These are not extinct but have not erupted in recent history. The dormant volcanoes may erupt in future.

➢ E.g: **Mount Kilimanjaro**, located in **Tanzania, also** the highest mountain in **Africa, is known** to be a dormant Volcano.

      ● **Extinct or inactive volcanoes** have not worked in the distant geological past.

➢ In most cases the crater of the Volcano is filled with water making it a lake. E.g.: **Deccan Traps,** India.

Narmada River

Why in News?

Narmada and other rivers have caused widespread **flooding** in Gujarat and cut off various villages from the mainstream in the southern and central regions of the State.

➢ The water level of the Narmada is beyond the danger mark and the **India Meteorological Department (IMD)** issued red and orange alerts in parts of Gujarat.

➢ Narmada River's major dam is Sardar Sarovar Dam, which is one of the important reasons behind the rising levels.

What is the Sardar Sarovar Project?

➢ **About:**

   ○ The **Sardar Sarovar project** is the Gravity dam on Narmada River crossing Gujarat.

      ● **Gravity dam** is constructed of concrete or stone designed to transfer the entire water load downward.

   ○ It is primarily meant for large scale irrigation and Hydroelectric multi-purpose projects.

Note:

➢ **Features:**
  ○ The Project was conceived in 1979 majorly for the purposes of Agricultural and Mitigating power Crisis in the state.
  ○ The Hydro electric Power generated would be **shared between the states of Gujarat, Madhya Pradesh, and Maharashtra,** whereas **the irrigation benefits can be utilized by Gujarat and Rajasthan.**

What are Key Facts of Narmada River?

➢ **About:**
  ○ The Narmada River (also known as Rewa) serves as a traditional boundary between North and South India.
  ○ It is 1,312 km west of its origin from the Amarkantak peak of Maikal mountain. It flows into the Gulf of Khambhat.
  ○ It drains a large area in Madhya Pradesh besides some areas in the states of Maharashtra and Gujarat.
  ○ **It is a West flowing river of the peninsular region** flowing through a rift valley between the Vindhya Range on the north and the Satpura Range on the south.

➢ **Tributaries:**
  ○ The **predominant tributaries from the right** are – Hiran, Tendori, Barna, Kolar, Man, Uri, Hatni, and Orsang.
  ○ The **predominant left tributaries are** – Burner, Banjar, Sher, Shakkar, Dudhi, Tawa, Ganjal, Chhota Tawa, Kundi, Goi, and Karjan.

➢ **Dams:**
  ○ The Major dams on the river include Omkareshwar and Maheshwar dams.

What are the Dferent Color-coded Alerts Issued by the IMD?

➢ The IMD uses 4 colour codes are:
  ○ **Green (All is well):** No advisory is issued.
  ○ **Yellow (Be Aware):** Yellow indicates severely bad weather spanning across several days. It also suggests that the weather could change for the worse, causing disruption in day-to-day activities.
  ○ **Orange/Amber (Be prepared):** The orange alert is issued as a warning of extremely bad weather with the potential of disruption in commute with road and rail closures, and interruption of power supply.
  ○ **Red (Take Action):** When the extremely bad weather conditions are certainly going to disrupt travel and power and have significant risk to life, the red alert is issued.

Strongest Earthquakes in History

Why in News?

➢ Recently, a powerful 6.8 magnitude **earthquake struck Morocco** killing over 2,900 people.
  ○ According to the **Significant Earthquake Events (SEE) database**, this is the strongest quake to hit Morocco.
  ○ The SEE database maintains some of the oldest earthquake records that fulfil certain criteria.

Note:
➢ The Significant Earthquake Database is maintained by the **National Centers for Environmental Information (NCEI)**, a US government agency.
➢ It contains information on earthquakes **from 2150 BCE to the present** that meet at least one of the following criteria:
  ○ **Moderate damage** (approximately USD 1 million or more)
  ○ **10 or more deaths**
  ○ **Magnitude of 7.5 or more**
  ○ **An earthquake that generated a tsunami**

EARTHQUAKE

ABOUT

➡ Shaking of the earth; caused due to release of energy, generating seismic waves in all directions

EARTHQUAKE WAVES

➡ **Body Waves:** Move in all directions travelling through the body of the earth
  ➤ **P Waves:** Move faster, First to arrive at surface, Similar to sound waves, Travel through gaseous, liquid and solid materials
  ➤ **S Waves:** Arrive at surface with some time lag, Travel only through solid materials
➡ **Surface Waves:** Last to report on seismographs, More destructive, Cause displacement of rocks
  ➤ **Love Waves:** Same motion as S-waves (horizontal) without vertical displacement, Sideways motion perpendicular to the direction of propagation, Faster than Rayleigh waves
  ➤ **Rayleigh Waves:** Cause the ground to shake in an elliptical pattern, Spread out the most of all seismic waves, Move vertically and horizontally in a vertical plane

CAUSES OF EARTHQUAKES

➡ **Release of energy along a Fault**/Fault Zones (break in the crustal rocks)
➡ Movement of **tectonic plates (most common)**
➡ **Volcanic eruption** (stress changes in rock-injection/withdrawal of magma)
➡ **Human activities** (mining, explosion of chemical/nuclear devices etc.)

MEASURING EARTHQUAKE

➡ **Seismometers** - Measures seismic waves
➡ **Richter Scale** - Measures magnitude (energy released; range: 0-10)
➡ **Mercalli** - Measures intensity (visible damage; range: 1-12)

DISTRIBUTION

➡ **Circum-Pacific Belt** - 81% of earthquakes
➡ **Alpide Earthquake Belt** - 17% of the largest earthquakes
➡ **Mid-Atlantic Ridge** - Mostly submerged underwater

HYPOCENTER

➡ Location where the earthquake starts (below earth's surface)

EPICENTER

➡ Location right above the Hypocenter (on the earth's surface)

P-wave patterns

Epi-centre
P-wave shadow zone
P-wave shadow zone
103°
103°
150°
150°
P-waves that passed through the core

S-wave patterns

Epi-centre
Core
Mantle
103°
103°
S-wave shadow zone
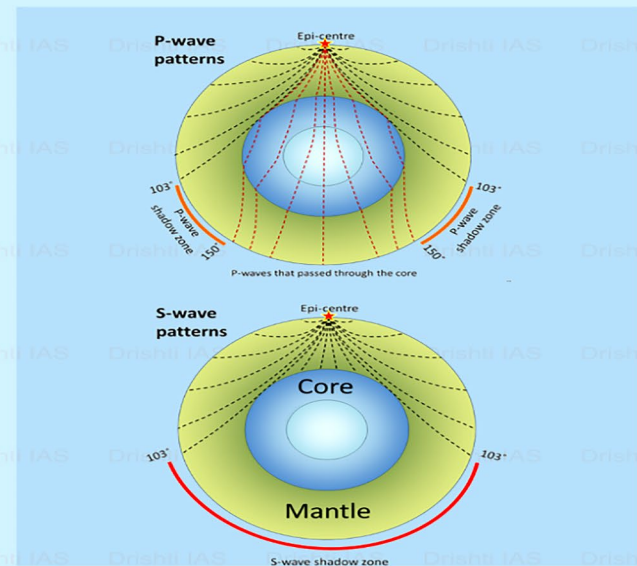
EARTHQUAKE IN INDIA

➡ India is **one of the highly earthquake affected countries** due to the presence of technically active mountains - the Himalayas.
➡ India has been divided into **4 seismic zones (II, III, IV, and V)**

INDIA SEISMIC ZONE

LEGEND
- - - International Boundary
—— State Boundary
★ Country Capital
Zone - II (Least Active)
Zone - III (Moderate)
Zone - IV (High)
Zone - V (Highest)

Map not to Scale
Copyright © 2022 www.mapsofindia.com

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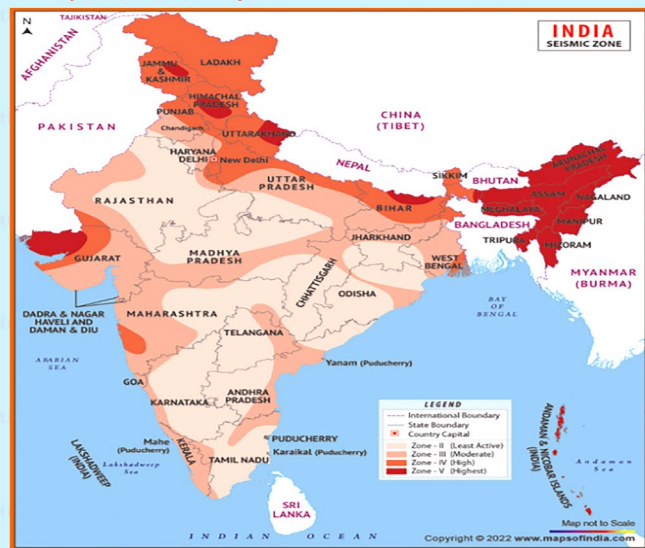
What is the NCEI's Data on Earthquakes?

The map plots the death toll from significant earthquake events in the last 200 years. The bigger the circle, the higher the number of deaths related to those quakes. The earthquakes marked are the deadliest in the past 200 years

China : Gansu & Shaanxi, 1920 (2 lakh)

China :Tangshan, 1976 (2.42 lakh)

Haiti, 2010 (3.16 lakh deaths)

Japan :Tokyo, 1923 (1.43 lakh)

Turkmenistan : Ashkhabad, 1948 (1.1 lakh)

Deadliest earthquakes since 2150 BCE

Location	Year	Deaths
China: Shaanxi	1556	8.3 lakh
Haiti	2010	3.16 lakh
Turkey: Antakya	115	2.6 lakh
Turkey: Antakya	525	2.5 lakh
China: Tangshan	1976	2.4 lakh

Deaths due to earthquake (past 200 years)   1 ———— 3,16,000

➢ **Global Highest Earthquakes:** As per NCEI, in the last 200 years, **China has suffered the highest number of quakes — 428.**
  ○ It is followed by **Indonesia** (366 quakes), **Iran** (272), **Japan** (256), and **Turkey** (209).
➢ **Most Severe Earthquakes:** In the past 200 years, there have been **four quakes with a magnitude of 9+.**
  ○ The most severe quake struck the **Chilean city of Puerto Montt in 1960** (9.5).
    ● This is followed by **Alaska** in 1964 (9.2), **Honshu** (Japan) in 2011 (9.1), and **Sumatra** (Indonesia) in 2004 (9.1).
  ○ Of the **10 most severe** earthquakes since 2150 BCE, **seven have occurred in the last 200 years.**
➢ **Morocco:** The recent one that occurred is the strongest that hit Morocco. The **deadliest ever to hit the country occurred in 1960** and killed about 13,100 people (Magnitude at 5.9).
➢ **India:** As per NCEI, India has recorded 85 quakes in the last 200 years and ranks 16 on the list of countries with highest earthquakes.
  ○ The deadliest earthquake to hit India (either in the last 200 years or since 2150 BCE), occurred in 2001 in Gujarat.

● The **Bhuj earthquake (magnitude - 7.6)**, as it is commonly known, is considered to be the deadliest as it killed over 20,000 people.
  ○ However, the Bhuj earthquake was not the strongest; the **1941 earthquake in Andaman** (poorly recorded due to **WW-II**), and the **1897 earthquake in Assam,** were both considered the strongest with a magnitude of 8.

Major Earthquakes in and around India

Number	Place	# of Deaths	Date, Time, and Year	Magnitude	Epicenter
1	Indian Ocean	> 283,106	08:50, December 26th, 2004	9.1–9.3	West coast of Sumatra, Indonesia
2	Kashmir	130,000	08:50:38, October 8th, 2005	7.6	Muzaffarabad, Pakistan-administered Kashmir
3	Bihar and Nepal	> 30,000	14:13, January 15th, 1934	8.7	South of Mount Everest
4	Gujarat	20,000	08:50, January 26th, 2001	7.7	Kutch, Gujarat
5	Kangra	> 20,000	06:10, April 4th, 1905	7.8	Himalayas
6	Latur	> 9,748	22:25, September	6.4	Killari, Latur

Note:

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Ethics

Highlights

- *Fostering Ethical AI*

Fostering Ethical AI

Why in News?

Recently, some business leaders emphasized the Imperative of collaboration among governments, industry, and ecosystem players to develop **Ethical Artificial Intelligence (AI).**

What is Artificial Intelligence (AI)?

➢ **About:**

○ AI is the **ability of a computer, or a robot controlled** by a computer to do tasks that are usually done by humans because they require human intelligence and discernment.

● Although there is no AI that can perform the wide variety of tasks an ordinary human can do, some AI can match humans in specific tasks.

➢ **Characteristics & Components:**

○ The ideal characteristic of AI is its ability to rationalize and take actions that have the best chance of achieving a specific goal. A subset of **AI is Machine Learning (ML).**

● **ML** is a method of teaching computers to learn from data, without being **explicitly programmed**. It involves using algorithms to analyze and draw insights from data, and then using those insights to make predictions or decisions.

● Deep Learning (DL) techniques enable this automatic learning through the absorption of huge amounts of unstructured data such as text, images, or video.

What is Ethical AI?

➢ **About:**

○ Ethical AI, also known as Moral or Responsible AI, refers to the **development and deployment** of AI systems in a manner that aligns with **ethical principles, societal values**, and human rights.

○ It emphasizes the **responsible use of AI technology** to ensure that it benefits individuals, communities, and society as a whole, while minimizing potential harms and biases.

➢ **Key Aspects of Ethical AI:**

○ **Transparency and Explainability:** AI systems should be designed and implemented in a way that **their operations and decision-making processes are understandable and explainable** to users and stakeholders. This promotes trust and accountability.

○ **Fairness and Bias Mitigation:** Ethical AI aims to **mitigate biases and ensure fairness in AI algorithms** and models to prevent discrimination against certain individuals or groups based on factors like race, gender, ethnicity, or socioeconomic status.

○ **Privacy and Data Protection:** Ethical AI u**pholds individuals' right to privacy and advocates for the secure and responsible** handling of personal data, ensuring consent and compliance with relevant privacy laws and regulations.

○ **Accountability and Responsibility:** Developers and organizations deploying AI systems **should be accountable** for the outcomes of their AI technologies. Clear lines of responsibility and mechanisms for addressing and **rectifying errors or harmful impacts are essential.**

○ **Robustness and Reliability:** AI systems should be **robust, reliable, and perform consistently** across different situations and conditions. Measures should be in place to handle adversarial attempts to manipulate or subvert the AI system.

○ **Benefit to Humanity:** AI should be **developed and used to enhance human well-being**, solve societal challenges, and contribute positively to society, economies, and the environment.

Note:

What are the Ethical Concerns related to Artificial Intelligence?

➢ **Risk of Unemployment:**
  ○ The hierarchy of labor is concerned **primarily with automation.** Robotics and AI companies are building **intelligent machines** that perform tasks typically carried out by **low-income workers: self-service kiosks** to replace cashiers, fruit-picking robots to replace field workers, etc.
  ○ Moreover, the **day is not far when many desk jobs will also be edged** out by AI, such as accountants, financial traders, and middle managers.

➢ **Exacerbating Inequalities:**
  ○ Using artificial intelligence, a company can drastically cut down on relying on the human workforce, and this means that revenues will go to fewer people.
  ○ Consequently, individuals who have ownership in AI-driven companies will make all the money. Also, AI could compound digital exclusion.
  ○ Further, **investment is likely to shift to countries where AI-related work is already established**, widening gaps among and within countries.

➢ **Tech Addiction:**
  ○ Technological addiction is the **new frontier of human dependency.** AI has already become effective at directing human attention and triggering certain actions.
  ○ When used right, this **could evolve into an opportunity to nudge society** towards more beneficial behavior.
  ○ However, in the wrong hands, it could prove detrimental.

➢ **Discriminating Robots:**
  ○ We shouldn't **forget that AI systems are created by humans,** who can be biased and judgemental.
  ○ It can lead to **AI facial recognition** and surveillance technology to discriminate against people of color and minorities.

➢ **AI Turning against Humans:**
  ○ What if artificial intelligence itself turned against humans, imagine an AI system that is asked to eradicate cancer in the world.
  ○ After a lot of computing, **it spits out a formula that does,** in fact, bring about the end of cancer – by killing everyone on the planet.

What are the Global Standards for Artificial Intelligence Ethics?

➢ **In 2021, the Recommendation on the Ethics of Artificial Intelligence** was adopted by UNESCO.
  ○ It aims to fundamentally shift the balance of power between people, and the businesses and governments developing AI.

➢ **UNESCO** members have agreed to use affirmative action to make sure that women and minority groups are fairly represented on AI design teams.

➢ The recommendation also underscores the importance of the proper management of data, privacy and access to information.

➢ It calls on **member states to ensure that appropriate safeguards** are devised for the processing of sensitive data and effective accountability and redress mechanisms are provided.

➢ The **Recommendation takes a strong stance that**
  ○ AI systems should not be used for social scoring or mass surveillance purposes
  ○ Attention must be paid to the psychological and cognitive impact that these systems can have on children.
  ○ Member states should invest and promote not only digital, media and information literacy skills, but also socio-emotional and AI ethics skills.

➢ UNESCO is **also in the process of developing tools to help assess** the readiness in the implementation of the recommendations.

■■■

Note:

Miscellaneous

Highlights

- *Norman E. Borlaug Award*
- *World Coffee Conference 2023*
- *National Medical Commission*
- *Hangzhou 2022 Asian Games*

Times Higher Education World University Rankings 2024

Why in News?

Recently, 20th Edition of the Times Higher Education (THE) **World University Rankings 2024** have been released, in which as many as **91 Indian institutes have secured a place.**

➢ The 2024 rankings include **1,904 universities from 108 countries and regions.**

> **Note:**
> ➢ THE, formerly known as The **Times Higher Education Supplement (THES)**, is a magazine reporting specifically on news and issues related to higher education.

What are the Key Highlights of THE World University Rankings 2024?

➢ **Parameters:**
  - ❍ The 2024 Rankings comprehensively assess research-intensive universities worldwide based on **18 key indicators across five areas:** teaching (29.5%), research environment (29%), research quality (30%), industry (4%), and international outlook (7.5%).

➢ **Indian Universities' Performance:**
  - ❍ **Ranking Details:**
    - The top university in India, the Indian Institute of Science (IISC), has returned to the **global top 250,** coming in the 201-250 band, for the first time since 2017.
    - The second highest ranked universities in India are Anna University, Jamia Millia Islamia, Mahatma Gandhi University, Shoolini University of Biotechnology and Management Sciences, which are all in the 501-600 band.

- Indian universities made significant **gains this year,** including **five of the countries' top universities.**

Institutions	Rank 2024	Rank 2023
Indian Institute of Science	201–250	251–300
Anna University	501–600	801–1000
Jamia Millia Islamia	501–600	501–600
Mahatma Gandhi University	501–600	401–500
Shoolini University of Biotechnology and Management Sciences	501–600	351–400
Alagappa University	601–800	401–500
Aligarh Muslim University	601–800	801–1000
Banaras Hindu University	601–800	601–800
Bharathiar University	601–800	801–1000
Indian Institute of Technology Guwahati	601–800	1001–1200
Indian Institute of Technology (Indian School of Mines) Dhanbad	601–800	1001–1200
Indian Institute of Technology Patna	601–800	801–1000
International Institute of Information Technology, Hyderabad	601–800	501–600
Jamia Hamdard University	601–800	601–800
Jawaharlal Nehru University	601–800	601–800
KIIT University	601–800	601–800
Malaviya National Institute of Technology	601–800	NR
Manipal Academy of Higher Education	601–800	801–1000
National Institute of Technology Rourkela	601–800	1001–1200
National Institute of Technology Silchar	601–800	601–800

- ❍ **Fourth Best-Represented Nation:**
  - India is now the **fourth best-represented nation** in the THE World University Rankings, with a **record-breaking 91 Indian institution**s included in the list.

➢ **Global Universities:**
  - ❍ **Top Universities:**
    - University of Oxford (UK) secured **the highest rank**, followed by Stanford University (USA) and the Massachusetts Institute of Technology (MIT, USA).

THE's top 10 universities in the world

Institution	Country/Region	2024 Rank
University of Oxford	United Kingdom	1
Stanford University	United States	2
Massachusetts Institute of Technology	United States	3
Harvard University	United States	4
University of Cambridge	United Kingdom	5
Princeton University	United States	6
California Institute of Technology	United States	7
Imperial College London	United Kingdom	8
University of California, Berkeley	United States	9
Yale University	United States	10

Note:

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○ **Asian Universities' Representation:**

● Asia is the **most represented continent in the rankings**, with 737 universities participating. China and Japan have notably improved their rankings, contributing to the increase in Asian universities in the top 200.

> **What are the Indian Initiatives Related to Education?**
> ➢ **Institutions of Eminence (IoE) Scheme**
> ➢ **National Education Policy, 2020**
> ➢ **Impacting Research Innovation and Technology (IMPRINT)**
> ➢ **Uchhatar Avishkar Yojana (UAY)**

Norman E. Borlaug Award

Why in News?

Indian agriculture scientist **Dr. Swati Nayak**, affectionately known as **"Bihana Didi" or "Seed Lady"** by local communities in Odisha, has been honored with the **Norman E. Borlaug** Award for 2023.
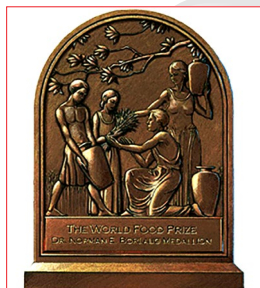
➢ She became the third Indian to receive this prestigious award after **Aditi Mukherji (2012) and Mahalingam Govindaraj (2022)**, recognizing her remarkable contributions to agriculture, **particularly in the realm of drought-tolerant rice varieties.**

What is the Norman E. Borlaug Award?

➢ The award is endowed by the **Rockefeller Foundation**, the award is presented every **October in Des Moines, Iowa, US by the World Food Prize Foundation** to honor **individuals under the age of 40** who have achieved remarkable, science-based accomplishments in **international agriculture and food production.**

➢ The award is named after **Norman E. Borlaug**, the **father of the Green Revolution** and the **1970 Nobel Peace Prize** laureate.

➢ The award diploma incorporates the **image of Dr. Norman E. Borlaug at work in the fields of Mexico** and a **cash prize of USD 10,000.**

What are the Contributions of Swati Nayak?

➢ Dr. Swati Nayak Introduced **drought-tolerant Shahabhagi Dhan rice variety** in Odisha. It brought about a major change in rainfed areas. The variety became an integral element of **every farmer family's diet and crop rotation.**

○ Many climate-resilient rice varieties have been successfully deployed in India, Bangladesh, and Nepal through her diligent strategy, partnerships, and unique positioning models.

➢ She is recognised for her innovative approach to **engaging smallholder farmers** in demand-driven rice seed systems, from testing and deployment to equitable access and adoption of climate-resilient and nutritious rice varieties.

➢ Pioneered a comprehensive blueprint for the **first-ever dedicated Indian government initiative for women farmers**, benefitting four million women farmers.

World Coffee Conference 2023

Why in News?

The **World Coffee Conference(WCC) & Expo 2023** arrived for the **first time in Asia** in the Indian city of Bengaluru.

➢ The 5th edition of the WCC was organized by the **International Coffee Organization (ICO)** in collaboration with the **Coffee Board of India**, the Ministry of Commerce and Industry, the Government of India, and the Government of Karnataka.

What are the Highlights of the World Coffee Conference 2023?

➢ **About:**

○ The WCC is a biennial event organized by the ICO, a United Nation-affiliated body that represents the global **coffee** sector.

○ The WCC unites coffee stakeholders worldwide for dialogue, knowledge exchange, networking, and collaboration on industry challenges and opportunities.
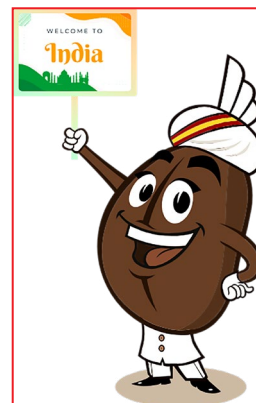
Note:

➢ **Theme for 2023:**
  ❍ Sustainability through Circular Economy and Regenerative Agriculture.
➢ **Biodiversity Ambassadors of the WCC 2023:**
  ❍ From the coffee farms of India, **5 flora and 5 fauna ambassadors** for the conference and expo.

Bee + Cassia Fistula   Elephant + Bird of Paradise   Indian Hare + Marigold   Peacock + Neelkurunji   Civet + Dahlia

➢ **The Mascot for WCC 2023:**
  ❍ **Coffee Swami**, the official mascot of the 5th WCC, seamlessly connects Indian tradition with contemporary appeal.

International Coffee Organization (ICO)

➢ The ICO, founded in 1963 with the support of the **United Nations** and following the approval of the **first International Coffee Agreement in 1962,** serves as a pivotal intergovernmental entity for coffee exporting and importing.
  ❍ The ICO proudly represents **93% of the world's coffee production and 63% of its consumption**.
  ❍ The organisation seeks to fortify and foster the **global coffee sector's sustainable growth** within a market-based framework, ensuring benefits for all stakeholders along the **Global Coffee Value Chain (G-CVC).**
➢ **The Coffee Board of India:**
  ❍ It is a **statutory organization that was constituted under the Coffee Act, 1942.**
  ❍ It functions under the administrative control of the **Ministry of Commerce and Industry, Government of India.**
  ❍ The Board comprises 33 Members including the Chairperson, who is the Chief Executive and it **functions from Bangalore.**
  ❍ The Board mainly focuses its activities in the areas of research, extension, development, market intelligence, external & internal promotion for coffee.

National Medical Commission

Why in News?

The **National Medical Commission (NMC), India** has been awarded **the World Federation for Medical Education (WFME) Recognition Status for 10 years**, the highest standards in medical education and accreditation.

➢ This recognition is a testament to NMC's unwavering commitment to **the highest standards in medical education and accreditation.**
➢ WFME's accreditation program plays a pivotal role **in ensuring that medical institutes meet and uphold the highest international standards** of education and training.

What is the World Federation for Medical Education (WFME)?

➢ WFME was founded in 1972 by the World Medical Association, the **World Health Organization**, the regional organizations of medical schools and academic teachers, and the International Federation of Medical Students Associations.
➢ WFME is a global organization **dedicated to enhancing the quality of medical education worldwide.**
➢ WFME has developed and published **global standards for basic, postgraduate, and continuing medical education**, as well as guidelines for distributed and distance learning in medical education.

What are the Benefits of WFME Accreditation?

➢ **All** the **706 existing medical colleges** in India will become WFME accredited.
➢ The **new medical colleges** that will be set up in the coming 10 years will **automatically** become WFME accredited.
➢ It will also **enable Indian medical graduates to pursue postgraduate training** and practice in other countries that require WFME recognition, such as the US, Canada, Australia, and New Zealand.
➢ It will **increase the international recognition** and reputation of Indian medical schools and professionals.
➢ It **facilitates academic collaborations** and **exchanges** and promotes continuous improvement and innovation in medical education.

Note:

➤ It will also **make India an attractive destination** for international students due to our globally recognized standards.

What is the National Medical Commission (NMC)?

➤ The NMC has been constituted by an act of Parliament known as **National Medical Commission Act, 2019.**

➤ The NMC acts as India's **top regulator of medical education and practice.**

➤ Committed to upholding the highest standards in healthcare education, NMC ensures the delivery of quality medical education and training across the nation.

Hangzhou 2022 Asian Games

Why in News?

In a year that witnessed **India's national football team** achieving remarkable success in the **SAFF Cup 2023,** the sport finds itself caught in a **contentious club versus country-debate.**

➤ The dispute between **Indian Super League (ISL) clubs and the All India Football Federation (AIFF)** has escalated regarding player availability, and a cloud of uncertainty looms over the composition of the upcoming **Asian Games squad.**

➤ The **19ᵗʰ Asian Games** will take place in **Hangzhou, China,** from **23ʳᵈ September 2023 to 8ᵗʰ October 2023,** which was originally scheduled to be held in 2022 and was postponed due to the **Covid-19 pandemic.**

What are the Asian Games?

➤ **About:**
  ❍ The Asian Games is the **biggest sports competition in Asia,** held once every **four years.** They are organized by the **Olympic Council of Asia (OCA).**
    ● The symbol for the Asian Games is the **rising sun with interlocking rings.**
  ❍ It is recognised by the **International Olympic Committee.**

➤ **Background and Inauguration:**
  ❍ After the **Second World War,** many Asian countries gained independence and **Guru Dutt Sondhi,** a member of the **Indian International Olympic Committee,** proposed the idea of Asian Games

as a sporting event, where all Asian nations can be represented.
  ● The first-ever Asian Games were held in **New Delhi in 1951.**

➤ **Regulation:**
  ❍ Asian Games were regulated by the **Asian Games Federation from 1951 to 1978.** Since 1982, **Olympic Council of Asia** regulates the Asian Games.

➤ **India as a Host:**
  ❍ **India is a founder member of Asian Games** and also the **host of the first Asian Games.**
  ❍ The 9ᵗʰ edition of the Asian Games was also **held in New Delhi in November and December 1982.**
    ● **Appu, the Indian elephant,** was the first mascot to be used for the Asian Games.

➤ **19ᵗʰ Asian Games Hangzhou, China:**
  ❍ A total of **40 sports and 61 disciplines** will take center stage across 54 competition venues in **Hangzhou and five co-host cities.**
  ❍ Competitions in **archery, artistic swimming, boxing, breaking, hockey, modern pentathlon, sailing, tennis, and water polo** will also serve as **Olympic qualifiers,** with **Paris 2024** quota spots available in those nine sports.
  ❍ The mascots of the 19th Asian Games are a group of robots named: **Chenchen, Congcong, Lianlaian.**
  ❍ The torch of the 19th Asian Games is named **"Eternal Flame".** The design was inspired by the Liangzhu Culture of ancient Chinese Civilisation
  ❍ **Esports and Breaking (Breakdance)** are **scheduled to make their inaugural appearances** as recognized and official sporting events.

What are e-Sports and Breaking?

➤ **Esports (Electronic Sports)** is a competitive sport where gamers use their physical and mental abilities to compete in various games in a virtual, electronic environment.
  ❍ **Example**: League of Legends, Overwatch, Fortnite, DOTA 2.

➤ **Breaking:** Breaking is a **style of street dancing** that incorporates coordination, acrobatic and intricate body movements, style, and aesthetics.
  ❍ It evolved from the hip hop movement during the early 1970s and **is the most widely known of all hip hop dance styles.**

Note: The **20th Asian Games** are to be held in **Nagoya, Japan in 2026.**

What is AIFF?

➢ AIFF is the governing body for the **football associations in India.**

➢ It was formed on **23th June 1937** after representatives from six regional football associations met at the **Army Headquarters in Shimla, India.**

    ○ In 1948, one year after independence the **AIFF gained affiliation with FIFA.**

➢ AIFF **runs both the national teams as well as the various league** and club level competitions throughout the country.

■■■

Rapid Fire Current Affairs

Highlights

- Green Ammonia Import through VOC Port
- Sarna Code
- Monoclonal Antibodies
- FSSAI Prohibits Use of Newspapers for Food Storing
- 2018 - Everyone is a Hero
- Gujarat Bans Conocarpus Plants
- UrbanShift Asia Forum
- Pangolin's Hidden Diversity
- Shaheed Bhagat Singh Birth Anniversary
- Leander Paes in International Hall of Fame
- Ministry of Tourism Launched 'Travel for Life'
- Dadasaheb Phalke Award Conferred on Waheeda Rehman
- DNA Nanoball Strategy
- NASA's First Asteroid Samples Land on Earth
- Philippine Officials Challenge China's South China Sea Barrier
- Maharashtra's Ephemerals
- Monsoon Withdrawal from India Delayed
- Combing Operations held in Mukurthi National Park
- Maiden India, Indonesia, and Australia Trilateral Maritime Exercise
- Kaobal Gali-Mushkoh Valley
- Joint Call to Action for Forests Towards 2030
- Agumbe's Rainfall Dominance Wanes as New Rain Gauges Emerge
- Juno
- Omega Blocking

- Indian Visa Service Suspended in Canada
- SIMBEX 2023
- Mobile Application and Web Portal for General Crop Estimation Survey (GCES)
- Three years of the Abraham Accords
- Paryushan Parv - A Jain Festival
- Truenat Test to Detect Nipah
- India-Malaysia Defence Cooperation Committee Meeting
- Biohacking
- String Technology and its Impact on Lithium Production
- Azerbaijan's Interference in Nagorno-Karabakh
- Operation Sajag
- Mali,Niger and Burkina Faso Signed a Mutual Defence Pact
- Funding Challenges for Indian Space Start-Ups
- Yashobhoomi
- CJI Unveils Transparent Approach for SC Judge Appointments
- Hyderabad Liberation Day
- Ponzi Scheme
- RBI Directs Banks to Return Documents Within 30 Days of Loan Repayment
- President of India Inaugurates NeVA
- Bhoj Wetland
- Foreigners' Tribunals
- South Korea and Quad
- Expansion of PM Ujjawala Yojana

Green Ammonia Import through VOC Port

Recently**, V.O. Chidambaranar Port** inTamil Nadu imported **Green Ammonia for the first time**,as part of its **'Go Green' initiative.**

➢ Green Ammonia will be used to produce green soda ash on a trial basis, moving away from conventional **Grey Ammonia** usage.

➢ The port has been a **leader in 'Green Port' initiatives,** promoting eco-friendly practices.

➢ Green ammonia production is where the process of making **ammonia is 100% renewable and carbon-free**.

➢ Green Ammonia is produced by using hydrogen from water electrolysis and nitrogen separated from the air. These are then fed into the **Haber process** (Also known as Haber-Bosch), all powered by sustainable electricity.

➢ The **V. O. Chidambaranar Port Trust**, formerly known as the **Tuticorin Port Trust**, is one of the major ports in India. It is located in Thoothukudi, Tamil Nadu. The port was declared a major port in 1974.

Note:

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❍ **It is the second-largest port in Tamil Nadu and the fourth-largest container terminal in India**. The port offers various facilities such as berthing, navigation, storage, and port security.

Read More: Green Hydrogen, Draft Indian Ports Bill,2022

Sarna Code

Recently, Jharkhand Chief Minister wrote a letter to Prime Minister, requesting the recognition of the Sarna religious code for tribals.

➢ Concerns have been raised regarding the neglect of Sarna Code, which could adversely affect tribal development policies under **Fifth Schedule** and **Sixth Schedule** of the Constitution.

➢ Sarna religion, followed by a significant tribal population in Jharkhand, is unique, based on nature worship, and distinct from mainstream religions.

➢ There is need to protect the cultural and religious identity of tribals who worship nature.

❍ **Fifth Schedule** lays out provisions for the Administration and Control of Scheduled Areas and STs in states other than 6th Schedule States.

❍ **Sixth Schedule** deals with the administration of the tribal areas in Assam, Meghalaya, Tripura and Mizoram.

Read More: Tribes in India, National Commission for Scheduled Tribes

Monoclonal Antibodies

In recent times, **Monoclonal antibodies** being considered for compassionate use in India amidst the **Nipah virus** outbreak in Kerala's Kozhikode district.

➢ This option is being explored due to the absence of effective treatments for **Nipah, a virus** with a high mortality rate and also far more severe than **Covid-19.**

➢ The **antibody binds to a part of the viral envelope, neutralizing the Nipah virus.**

➢ The monoclonal antibody has also been used against the **Hendra virus**, a related virus from the same family.

➢ Antibodies are proteins produced naturally by the immune system that target a specific foreign object (antigen). They are called **monoclonal Antibodies (mAbs)** when they are produced by clones derived from a single parent cell.

➢ Monoclonal Antibodies are **man-made proteins** that act like a human antibody in the immune system. They are **made by cloning a unique white blood cell.**

Read More: ELISA Antibody kits, Indian Council of Medical Research (ICMR)

FSSAI Prohibits Use of Newspapers for Food Storing

Food Safety and Standards Authority of India (FSSAI) has notified the **Food Safety and Standards (Packaging) Regulations, 2018** which strictly prohibits the use of newspapers or similar materials for storing and wrapping food.

➢ The ink used in newspapers **contains various bioactive materials** with known negative health effects, which can contaminate food and lead to health issues when ingested.

➢ Additionally, printing inks may contain chemicals **including lead and heavy metal** that can leach into the food, posing serious health risks over time.

➢ **FSSAI** is an **autonomous statutory body** established under the **Food Safety and Standards Act, 2006 (FSS Act) under the Ministry of Health and Family Welfare.**

Read More: State Food Safety Index, Eat Right Station

2018 - Everyone is a Hero

2018- Everyone is a Hero is a Malayalam survival drama that is **India's official entry for the 96th Academy Awards**. The film is based on the devastating **Kerala floods of 2018.**

➢ In August 2018, Kerala experienced its worst floods since 1924 due to **torrential rainfall** environmental factors like **encroachment, sand mining, and deforestation** in the **Western Ghats** contributed to the disaster.

➢ The Academy Awards, also known as the Oscars, are given annually by the **Academy of Motion Picture Arts and Sciences (AMPAS).**

❍ The awards recognize and celebrate all aspects of the film industry and the diverse, talented people who make movies.

➢ India won two Oscars at the **95th Academy Awards in 2023**. **"Naatu Naatu" from RRR won Best Original Song**, and **"The Elephant Whisperers" secured Best Documentary Short.**

Read more: Flood Situation in Kerala

Note:

Gujarat Bans Conocarpus Plants

➢ The Gujarat government has banned **the planting of Conocarpus trees, a non-indigenous species**, in both forested and non-forested areas. The government cited the trees' adverse impacts on the environment and human health. Earlier, Telangana too had banned the plant species.

➢ Conocarpus trees, **a fast-growing mangrove shrub found in tropical and subtropical coastal areas** globally, have been planted to boost green cover in certain regions.

○ However, their small winter flowers produce pollen that can **cause health issues like colds, coughs, asthma, and allergies.** Moreover, their deep root systems can harm infrastructure, particularly drainage systems.

UrbanShift Asia Forum

Recently, the first UrbanShift Forum (Asia) was held in New Delhi.

➢ The primary objective was to provide training and capacity-building to regional cities for integrated and sustainable urban development.

➢ UrbanShift is a **Global Environment Facility(GEF)**-funded program within Urban Development and the WRI Ross Center for Sustainable Cities. It is led by **United Nations Environment Programme (UNEP)** and implemented in partnership with C40 Cities, International Council for Local Environmental Initiatives (ICLEI), **UNDP, Asian Development Bank (ADB)** and the World Bank.

Read more: National Institute of Urban Affairs

Pangolin's Hidden Diversity

The **Pangolin, an elusive** and highly **endangered creature often touted as the world's most trafficked mammal**, has unveiled a hidden secret.

➢ Previously thought to consist o**f eight species**—four Asian and four African varieties—research has revealed the **existence of a ninth pangolin species, provisionally named** *Manis mysteria.*

○ This discovery was made through the analysis of scales confiscated from traffickers in China's Yunnan province in 2015 and 2019.

➢ Despite **a ban on international trade since 2016**, the newly discovered pangolin species is already under pressure, **showing signs of declining population, low genetic diversity, inbreeding, and genetic load**.

Read more: Pangolin

Shaheed Bhagat Singh Birth Anniversary

Recently, the Prime Minister of India has paid tributes to **Shaheed Bhagat Singh** on his birth anniversary

➢ Bhagat Singh, born on **September 26, 1907** in the Jullundur Doab district of Punjab, played a crucial role in **India's freedom struggle**.

➢ He was a member of the **Hindustan Republican Association (HRA)**, later renamed the **Hindustan Socialist Republican Association (HSRA).**

➢ He started a militant youth organization called the **Naujawan Bharat Sabha.**

➢ In their quest for revenge for **Lala Lajpat Rai's death**, Bhagat Singh and his comrades mistakenly killed Police Officer J.P. Saunders, leading to their involvement in the **Lahore Conspiracy Case**.

○ Bhagat Singh was later re-arrested, found guilty, and hanged on **March 23, 1931,** for Saunders' murder and a **Central Legislative Assembly bombing protest.**

➢ **March 23 is observed as Martyrs' Day** in their honor.

➢ **Notable Works: "Why I Am an Atheist: An Autobiographical Discourse"** and **"The Jail Notebook and Other Writings."**

Read more: Bhagat Singh's Birth Anniversary

Leander Paes in International Hall of Fame

Recently**, Leander Paes,** a multiple **Grand Slam winner**, is the **first Asian man** nominated for the **International Tennis Hall of Fame (ITHF)** in the player category for the Class of 2024.

➢ **Li Na**, a Chinese player, was the first Asian player nominated to the **ITHF in 2019**.

➢ Vijay Amritraj, a former Indian player, was also nominated in the contributor category.

➢ **Leander Paes has won 18 Grand Slam titles in doubles and mixed doubles and was a former doubles world No. 1.**

➢ **The International Tennis Hall of Fame (ITHF)** is a prestigious institution and museum dedicated to the sport of tennis. **Located in Newport, Rhode Island, United States**, it serves as the official hall of fame for tennis and **celebrates the history, achievements, and contributions** of outstanding individuals and organizations to the sport of tennis.

Read More: Grand Slam, Laureus World Sports Awards

Ministry of Tourism Launched 'Travel for Life'

Ministry of Tourism, Government of India, organized the **Global Launch of 'Travel for LiFE'** program on **World Tourism Day 2023 (27th September)**. The program is a part of **Mission LiFE** and aims to promote **sustainable tourism**.

➢ Partners include the **Ministry of Environment, Forest and Climate Change (MoEFCC),United Nations World Tourism Organisation(UNWTO), and United Nations Environment Program(UNEP).**

➢ The program includes two verticals: **Travel for LiFE for Cleanliness and Travel for LiFE for Rural Tourism.**

➢ It aligns with **Sustainable Development Goals (SDGs)** related to economic growth, sustainable cities, responsible consumption, climate action, and life below water.

Read More: Tourism In India, National Tourism Day

Dadasaheb Phalke Award Conferred on Waheeda Rehman

Renowned Indian veteran actor **Waheeda Rehman**, celebrated for her legendary roles in Indian cinema classics, has been bestowed with the prestigious **Dadasaheb Phalke Lifetime Achievement Award for 2021.**

➢ The award will be presented during the **69th National Film Awards ceremony.**

   ○ The Dadasaheb Phalke Lifetime Achievement Award is **India's highest recognition in cinema**. The award is presented annually at the National Films Awards ceremony by the Directorate of Film Festivals.

   ○ The award is named after **Dadasaheb Phalke**, an Indian filmmaker who directed India's first full-length feature film, Raja Harishchandra (1913).

➢ She also received accolades such as the **National Award for Best Female Actor**, Padma Shri, and Padma Bhushan for her unwavering dedication, commitment, and professional excellence.

Read more: Dadasaheb Phalke Award

DNA Nanoball Strategy

In a remarkable scientific development, the **Deoxyribonucleic Acid (DNA) nanoball strategy** has emerged as a groundbreaking, cost-effective technology for the **rapid detection of pathogens in the field.**

   ○ Pathogens are microorganisms that can **cause disease in their host.** They can be **viruses**, bacteria, **protozoans**, or **fungi.**

➢ The DNA nanoball strategy combines **nucleic acids-based diagnostics** and **loop-mediated isothermal amplification (LAMP) technology** for rapid pathogen detection.

   ○ LAMP is a process that **amplifies circular DNA molecules into long strands** that contain multiple copies of DNA. These strands then fold into spherical structures called **DNA nanoballs**, which can be easily observed by a microscope or an electrical device.

➢ The design does not need laboratory techniques to support diagnosis. It is a low-cost technology that can be widely deployed and scalable.

Read more: Chitra GeneLAMP-N for Covid-19 Test

Note:

NASA's First Asteroid Samples Land on Earth

➤ The **NASA's Origins, Spectral Interpretation, Resource Identification, and Security-Regolith Explorer (OSIRIS-REx) spacecraft,** launched on 8th September 2016, has successfully delivered the **first asteroid samples** from the near-Earth asteroid **Bennu (formerly 1999 RQ36)** to Earth after a seven-year journey, bringing valuable **4.5 billion-year-old samples.**

  ○ The Osiris-Rex sample capsule was released during an Earth flyby, landing safely in the **Utah desert, United States** preserving the asteroid samples.

  ○ Scientists estimate the capsule has at least a cupful of debris from the **carbon-rich asteroid Bennu.**

  ○ The samples are expected to provide insights into the **formation of Earth and life 4.5 billion years ago.**

➤ Osiris-Rex will continue its mission by studying another asteroid, **Apophis**, which it will reach in 2029.

  Read more: NASA's OSIRIS-REx Mission

Philippine Officials Challenge China's South China Sea Barrier

➤ Philippine officials vowed to remove China's coast guard-installed 300-meter-long floating barrier in the disputed **Scarborough Shoal of the South China Sea**. They called it **"illegal and illegitimate,"** highlighting the **violation of Filipino fishermen's rights.**

  ○ The Philippines asserts that Scarborough Shoal **lies within its United Nations Convention on the Law of the Sea(UNCLOS)-defined exclusive economic zone, a claim upheld in a 2016 arbitration decision** that China rejected.

  ○ This dispute adds to long-standing territorial tensions in the South China Sea, a potential **Asian geopolitical hotspot.**

➤ The South China Sea, an arm of the **Western Pacific Ocean,** is bordered by Brunei, Cambodia, China, Indonesia, Malaysia, the Philippines, Singapore, Taiwan, Thailand, and Vietnam.

  ○ It connects to the **East China Sea via the Taiwan Strait** and the **Philippine Sea through the Luzon Strait.**

  ○ It encompasses the Spratly Islands, Paracel Islands, Pratas Islands, Macclesfield Bank, and Scarborough Shoal.
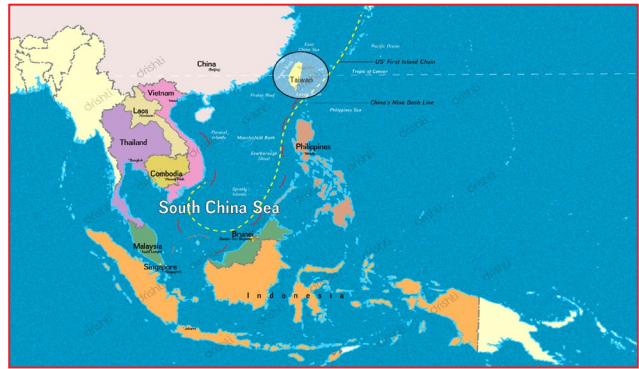
Read more: South China Sea

Maharashtra's Ephemerals

In parts of **Maharashtra**, a fascinating botanical phenomenon unfolds as **certain plant species, known as ephemerals**, patiently **await the monsoon season to burst into bloom**.

➤ These **ephemerals come in two forms: annual and perennial**.

  ○ Annual ephemerals create new individuals each year, showcasing their beauty for a brief period before **forming seeds and lying dormant until the next monsoon.**

  ○ Perennials, on the other hand, have a **continuous presence underground**, with tubers or bulbs supporting their existence.

➤ From ground orchids to lilies, wild yam, and Indian squill, these ephemerals play a crucial role as **nectar and pollen sources** for native pollinators while also preserving essential soil and water dynamics.
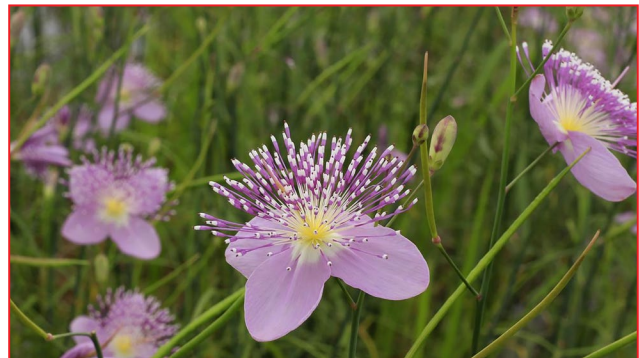
Monsoon Withdrawal from India Delayed

The **southwest monsoon** in India has **started to withdraw,** eight days later than the normal date, according to the **India Meteorological Department.** 2023 marks the **13th consecutive delayed withdrawal of the monsoon.**

➢ The **southwest monsoon typically starts over Kerala** **by 1st June** and covers the entire country by 8th July.

○ It begins **retreating from northwest India around September 17** and withdraws completely by October 15.

➢ A **delayed monsoon retreat leads to a longer rainy season,** which can have a significant impact on agricultural production, especially for northwest India where **monsoon rainfall is crucial for Rabi crop production.**

Combing Operations held in Mukurthi National Park

In recent times, the Forest Department has been conducting combing operations in the **Mukurthi National Park in Tamil Nadu** and adjoining forest areas to ensure that there was no illegal movement of people and poachers.

➢ Mukurthi National Park is located in the northwest corner of Tamil Nadu in the **Western Ghats.**

➢ It is a part of **Nilgiri Biosphere Reserve (UNESCO World Heritage Site)** along with **Mudumalai Wildlife Sanctuary**, Bandipur National Park, Nagarhole National Park, Wayanad Wildlife Sanctuary and Silent Valley.

➢ **Keystone Species :** The park was created to protect its **keystone species**, the **Nilgiri Tahr**.

➢ **Forest Type:** The park is characterized by **montane grasslands and shrublands** interspersed with sholas in a high altitude area of high rainfall, near-freezing temperatures and high winds.

➢ **Peaks:** The Park is also home to **Mukurthi Peak,** one of the highest peaks in the Nilgiri Hills.

➢ **Tribes Living Inside: Todas (a** pastoral tribe of the Nilgiri Hills).
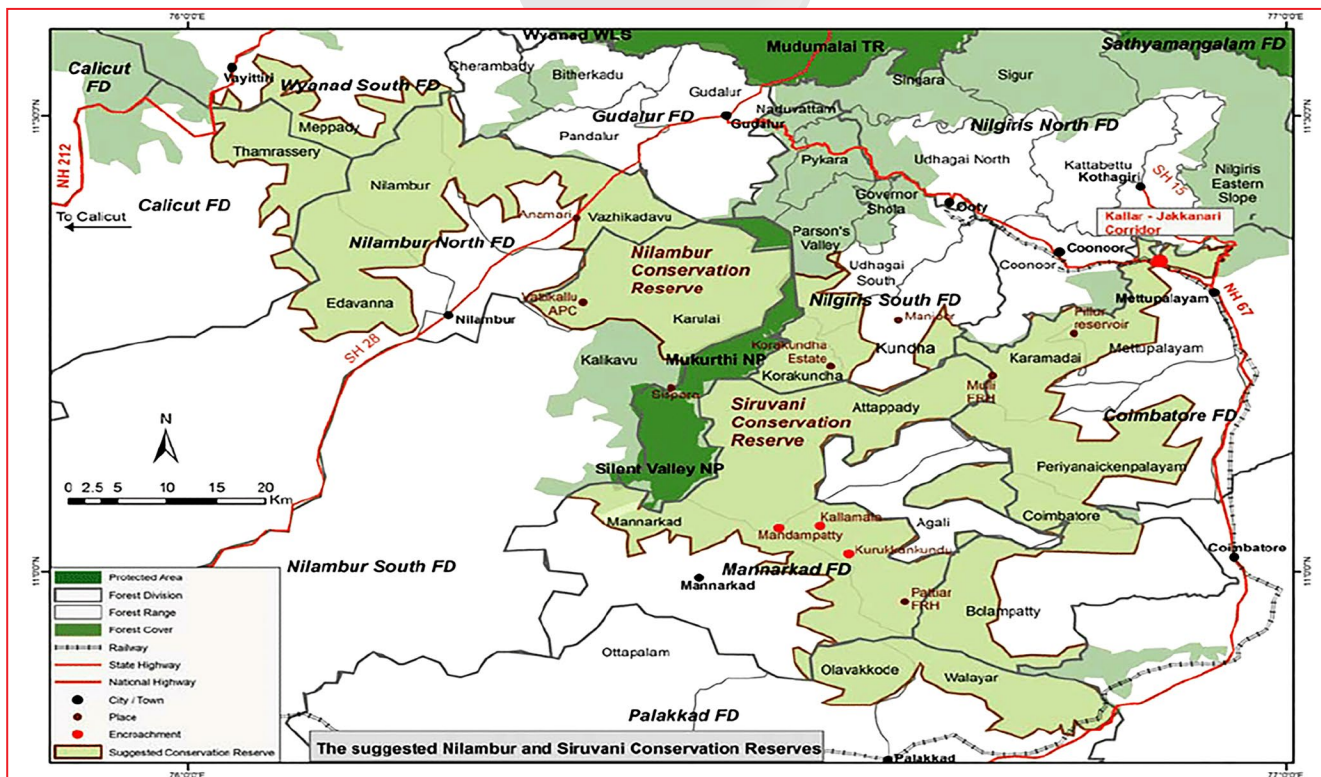
Read More:- **National Parks**, **Wayanad Wildlife Sanctuary**

Note:

Maiden India, Indonesia, and Australia Trilateral Maritime Exercise

➤ The **Indian Navy's warship, INS Sahyadri,** participated in the **first trilateral Maritime Partnership Exercise** with the **Royal Australian Navy (RAN) and Indonesian Navy** from September 20-21, 2023.

  ❍ The exercise allowed the three nations to **strengthen their partnership** and improve their collective capability to support a stable, peaceful, and **secure Indo-Pacific region.**

➤ INS Sahyadri, the **third ship of the indigenously designed and built Project-17 class** multirole stealth **frigates** was built at Mazagon Dock Ltd, Mumbai.

  ❍ The Project 17 class, also known as the **Shivalik class**. These frigates were the **first stealth warships built in India**.

  ❍ Shivalik is fitted with a mix of indigenous **Russian, Indian, and Western weaponry and sensor systems.**

  Read more: Indo-Pacific region

Kaobal Gali-Mushkoh Valley

➤ **Kaobal Gali-Mushkoh Valley**, once a battleground during the **Kargil war**, is now welcoming tourists. This transformation is attributed to the **enduring ceasefire between India and Pakistan** sparking hope that **tourism-driven commerce** will thrive in the region.

➤ The **Gurez valley in north Kashmir**, which was once prone to frequent shelling from Pakistan, is now all set to connect with the **Mushkoh valley in Kargil's Drass Sector, Ladakh.**

  ❍ The 130-km road has been opened up for tourists and **Kaobal Gali, the highest pass at a height of 4,166.9 meters in Gurez,** connects the two valleys.

  ❍ The Gurez Valley is close to the **Line of Control (LoC)** with the **Kishanganga River** demarcating the line in several parts.

  ❍ The Gurez valley is one of few habitations in Kashmir where villages with only log houses exist, with no intervention of urban concrete materials.

Joint Call to Action for Forests Towards 2030

The **Collaborative Partnership on Forests (CPF),** consisting of **16 global organisations chaired by the United Nations Food and Agriculture Organization (FAO)**, has introduced the Joint Call to Action for Forests towards 2030.

➤ Their objective is to emphasise the urgent need for increased action and political commitment in implementing forest solutions to align with the **UN mandated Sustainable Development Goals (SDGs).**

➤ The initiative encompasses four key areas: **Implementation and action; data, science, and innovation; finance for forests; and communication and awareness-raising**.

  Read more: Sustainable Development Goals

Agumbe's Rainfall Dominance Wanes as New Rain Gauges Emerge

Agumbe Rainforest Complex (ARC), in Karnataka long renowned for its exceptional **rainfall** and often referred to as the **'Cherrapunji of the South,'** is losing its historical status due to the **installation of new rain gauges in the region.**

➤ While Agumbe has been a rain gauge site for over a century, **recent installations in areas like Nadpal and Mudradi** have revealed **higher rainfall levels,** pushing Agumbe down the ranking.

  ❍ A **rain gauge is a meteorological instrument** used to **measure the amount of precipitation,** typically rainfall, that falls over a specific period of time in a particular location

➤ These new gauges, operational since 2022, show that **Agumbe received 6,251.5 mm of rain in 2022-2023**, making it the third-highest in Karnataka.

➤ Despite these changes, Agumbe's rainfall data remains valuable for researchers studying biodiversity, hydrology, and the **unique habitat of the King Cobra.**

Note:

Juno

Juno is a **solar-powered NASA spacecraft** that makes **long, looping orbits around giant planet Jupiter.**

➢ Juno was launched on **5th August, 2011**.The spacecraft traveled roughly 3 billion kilometers before **arriving at Jupiter in 2016.**

➢ Juno conducted its **53rd close flyby of Jupiter,** capturing a remarkable image of Jupiter and its **volcanic moon Io,** on 31st July 31, 2023.

   ❍ **Io** is known for its **intense volcanic activity**, with hundreds of erupting volcanoes spewing molten lava and sulfurous gasses.

   ❍ **It is slightly larger than Earth's Moon,** and is tidally locked to Jupiter and completes both its rotation on its axis and orbit around Jupiter in **approximately 1.8 Earth days.**
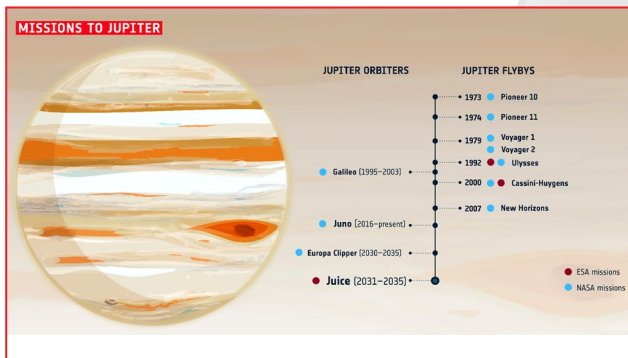
Read more: Juno, Jupiter

Omega Blocking

The recent devastating **floods in Libya** can be attributed to the occurrence of an Omega atmospheric blocking event.

➢ Omega blocking is a **meteorological phenomenon** that occurs when a **high-pressure system gets trapped between two low-pressure systems**, creating a pattern that resembles the **Greek letter omega (Ω).**

   ❍ It can cause extreme **weather events, such as heat waves, droughts, and floods,** depending on the location and season.

   ❍ These events are **difficult to predict** and can cause significant damage and loss of life.

   ❍ They have been linked to past extreme weather events, including the **Pakistan floods** in 2011,

extreme **rainfall in northwestern Iran** in 2008, and **heatwaves in France** and **Germany** in 2019.

Read More: Climate Change: A Roadblock to Economic Growth

Indian Visa Service Suspended in Canada

As **diplomatic tensions between India and Canada** escalate, the **Indian government has suspended visa services in Canada**, affecting a range of travelers and sparking questions about the future of diplomatic relations.

➢ **Indian-origin Canadians** with valid **Overseas Citizen of India (OCI) cards** or **valid long-term Indian visas** are not affected by the visa service suspension.

   ❍ OCI cardholders have **lifetime entry privileges into India,** allowing them to live and work in the country indefinitely.

➢ **Canadians who possess valid Indian visas will not be impacted** by the suspension. Their visas remain valid until further notice.

➢ Canada **has not yet imposed restrictions on Indian visa applicants** but may consider reciprocal measures in response to the current situation.

Read More: India and Canada Ties at a Downturn, The Khalistan Shadow on India-Canada Ties, Overseas Citizen of India (OCI)

SIMBEX 2023

Indian Naval Ships **Ranvijay** and **Kavaratti** and submarine **INS Sindhukesari** arrived in Singapore to participate in the **Singapore-India Maritime Bilateral Exercise (SIMBEX), 2023.**

➢ This exercise has been conducted **since 1994** and holds the distinction of being the longest naval exercise that the **Indian Navy** has conducted with another country.

➢ In addition to naval vessels, **the exercise also includes the participation of the Long-Range Maritime Patrol Aircraft P8I.**

➢ **Other Exercises between the two countries include** exercise **Bold Kurukshetra, Trilateral Maritime Exercise SIMTEX** (With Thailand) and **exercise Agni Warrior** (Army).

Read More: Singapore-India Maritime Bilateral Exercise, India-Singapore Relations

Mobile Application and Web Portal for General Crop Estimation Survey (GCES)

Recently, the Mobile Application and the Web Portal for GCES, **developed by the Department of Agriculture and Farmers' Welfare, Ministry of Agriculture and Farmers Welfare** was launched.

➢ The **aim is to transform agricultural practices across the nation**.

➢ The portal and the app provide a comprehensive repository of yield estimation including **village wise GCES plan** and plot details where the crop cutting experiments are conducted.

➢ **Geo referencing is one of the key features of the mobile application**, which **enables the primary worker to draw the boundary of the experimental plot** and upload photos of the plot as well as of the crops through it.

Read More: Ministry of Agriculture and Farmers Welfare, Digital India

Three years of the Abraham Accords

➢ The **Abraham Accords** are a series of agreements to **normalize relations between Israel and normalize relations between Israel and several Arab countries, including the UAE, Bahrain, Morocco, and Sudan**, mediated by the United States.

➢ The accords were signed in 2020 and marked a historic breakthrough in the Arab-Israeli conflict.

   ○ The Accords fostered **normalisation and peace by bridging cultural, religious, and linguistic differences**, connecting people beyond borders.

➢ The Accords laid the foundation for expanded **regional and multinational cooperation, leading to economic opportunities for India.**

   ○ Following the Abraham Accords, **I2U2 Group was formed, comprising Israel, India, UAE, and the U.S**., focusing on critical areas such as water, energy, transportation, space, health, and food security.

Read more: Israel, UAE and Bahrain Abraham Accord

Paryushan Parv - A Jain Festival

Paryushan 2023, a significant festival for the Jain community. It is a time for spiritual growth, with fasting, meditation, and **purification rituals.** Devotees attend speeches, **practice non-violence**, and seek forgiveness for their sins.

➢ The festival is believed to have originated in the **6th century BC** when the Jain teacher **Mahavira** taught his followers to abstain from violence and to focus on spiritual purity.

➢ For both Shvetambara, who observe the ritual over eight days, and Digambars, for whom the festival lasts 10 days, this is a time for introspection, reflection and purification. It takes place in the middle of the rainy season.

➢ They also do **svadhyaya, self-study**. Paryushan makes one stay close to one's soul, reflect on one's shortcomings, seek punishment for wrong-doings and vow to minimize one's mistakes.

Read More: Jainism

Note:

Truenat Test to Detect Nipah

Kerala has been accorded sanction by the **Indian Council for Medical Research (ICMR)** to use Truenat test to diagnose Nipah.

➢ Truenat test uses a portable, smart chip-based, battery-operated **RT-PCR (Reverse Transcriptase-Polymerase Chain reaction)** kit to detect the presence of the virus in a sample.

➢ Truenat is the **first kit in India to receive Emergency Use Authorization (EUA) by the Drug Controller General of India (DCGI)** for conducting Nipah virus tests.

➢ Truenat can be used in hospitals that have level **2 biosafety facilities, where there are certain strict protocols in place to prevent contamination of samples.** Truenat can help conduct tests faster, detect if there is an outbreak, and set preventive measures faster.

Read More: Nipah Virus

India-Malaysia Defence Cooperation Committee Meeting

➢ The **12th meeting of the Malaysia-India Defence Cooperation Committee (MIDCOM)** took place in New Delhi on 19th September 2023.

➢ The meeting reviewed the outcomes of two sub-committee meetings, namely the **Sub-Committee on Military Cooperation (27th July 2023)** and the **Joint Sub-Committee on Defence Science Technology and Industry Cooperation (18th September 2023).**

➢ The Defence Secretary of India shared an **8-point proposal** with the Malaysian side to expand cooperation between India and Malaysia on a wide range of areas such as **Government to government-level engagement, Tri-Service cooperation, Training, UN Peacekeeping, Bilateral Services Engagement, Defence Industrial Cooperation, Research & Development and Regional/Sub-Regional Engagements.**

➢ Both countries reaffirmed their commitment to **fully implement the Enhanced Strategic Partnership**, emphasizing mutual trust, common interests, and shared values of democracy and the **rule of law.**

Read more: India-Malaysia Defence Cooperation

Biohacking

Biohacking has gained more attention and popularity in recent years, it is the practice of **modifying or enhancing one's own body** or **biology** using various methods, such as diet, supplements, devices, implants, or genetic engineering.

➢ Biohacking can have different goals, such as **improving health, performance, well-being, or appearance**, or **exploring the limits and possibilities of human nature.**

➢ The most well-known type of **biohacking is genetic engineering,** where individuals experiment with new technologies to **enhance their physical appearance or capabilities.**

➢ However, biohacking also raises ethical and safety concerns, particularly when individuals engage in risky or unproven procedures.

String Technology and its Impact on Lithium Production

A new technology called **"String" has emerged, with the potential to streamline the extraction of lithium**, a crucial component in batteries used in smartphones and electric vehicles.

➢ Lithium production is a **resource intensive and time-consuming process** as most of the Lithium produced in the world is extracted from Brine Reservoirs,located in Salt flats.

➢ String Technology **involves the use of porous fibres twisted into strings**, which have been meticulously engineered.

Note:

➢ These **strings possess a water-loving (hydrophilic) core** and a water-repelling surface.

➢ When one end of the string is immersed in a saltwater solution, **capillary action is initiated,** mimicking the way trees transport water from their roots to their leaves.

➢ As the water evaporates from the string's surface, it leaves behind salt ions, including sodium and lithium. Over time, as the **salts become increasingly concentrated, they form sodium chloride and lithium chloride crystals**, which can be easily harvested.

➢ Thus, completing the process of Lithium production by String Technology.

Read More:- Lithium Metal and Its Production and **Battery Electric Vehicles**

Azerbaijan's Interference in Nagorno-Karabakh

Azerbaijan launched an anti-terrorist operation in the **Armenia-backed breakaway enclave of Nagorno-Karabakh.**

➢ The region has long been at the centre of tensions between Azerbaijan and Armenia, leading to two wars for its control. The last large-scale conflict in Nagorno-Karabakh lasted for six weeks in 2020 before a Russian-brokered truce. The ceasefire saw Armenia cede swathes of territory it had controlled since the 1990s.

➢ Nagorno-Karabakh is a **mountainous and heavily forested region** that under international law is recognised as part of Azerbaijan.

➢ However, **ethnic Armenians who constitute the vast majority** of the population there reject Azeri rule (the legal system of Azerbaijan).

➢ After **Azerbaijan's troops were pushed out of the region** following a war in the 1990s, these ethnic Armenians have been in administrative control of Nagorno-Karabakh, with support from Armenia.

➢ The self-declaration of independence by Nagorno-Karabakh in September 1991 in the backdrop of an imminent collapse of the USSR resulted in a war between Azerbaijan and Nagorno-Karabakh — supported by Armenia.

GEORGIA — RUSSIA — CASPIAN SEA

ARMENIA — AZERBAIJAN

Berkacer

Yerevan — LAKE SEVAN

TURKEY

Stepanakert/Xankandi
Shushi/Susa
Berdzor/Latin

Naxcivan

Agdam

Nagorno-Karabakh

Baku

IRAN

■ Nagorno-Karabakh Region
■ Armenian-Occupied Territories
– – – Line of Contact that separates northern and eastern most of area controlled by de-facto Nagorno-Karabakh governments

**Read More:- Nagorno-Karabakh region**

Note:

Operation Sajag

➢ **'Operation Sajag'** was conducted on September 18, 2023, by the **Indian Coast Guard (ICG)** along the west coast.

○ 'Operation Sajag' is a monthly, day-long drill that serves as a continuous feedback loop. The drill's primary goals are to revalidate coastal security mechanisms and raise awareness among sea-going fishermen.

○ The drill involved extensive document verification and crew pass checks for all fishing boats, barges, and crafts at sea.

➢ ICG was established in **August 1978 by the Coast Guard Act, 1978** as an **independent Armed force of India.**

○ ICG is the **fourth largest Coast Guard in the world,** it has played a significant role in securing the Indian coasts and enforcing regulations in the **maritime zones of India.**

➢ To fortify coastal security, the ICG has introduced various measures, including the issuance of **biometric cards for fishermen, implementation of colour coding for fishing boats based on state**, **coastal mapping,** and training of marine police personnel.

Read more: Indian Coast Guard

Mali,Niger and Burkina Faso Signed a Mutual Defence Pact

Recently, ministerial delegations from three **Sahel Countries, i.e., Mali, Niger and Burkina Faso** announced a mutual defense pact at Mali's Capital Bamako.

➢ It aims at establishing an architecture of Collective Defence and Mutual Assistance among the three countries.

➢ The Pact has been signed **under the provisions of Liptako-Gourma Chater,** which established the alliance of Sahel states.

➢ The region of **Liptako-Gourma includes the border areas of Mali, Burkina Faso, and Niger,** where these countries meet.

➢ The Alliance will be a combination of Military and Economic efforts of the three countries, which is largely targeted towards fighting terrorism and Jihadism.

➢ The pact also assumes significance in the wake of West African Regional Grouping **ECOWAS** threatening to attack Niger over the **coup** that happened in the country.
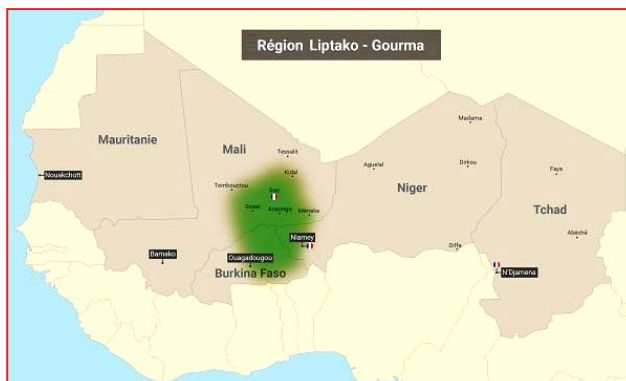
Read More :- ECOWAS

Funding Challenges for Indian Space Start-Ups

There have been rising concerns and issues with respect to funding mechanisms of space start-ups, marring the growth of a prospective sector.

➢ **The Space sector** can grow up to 44 Billion dollars over the next 10 years from the current value of 8 billion dollars, as per the Director of **INSPACe**.

➢ Government **should consider setting up soft funds and additional incentives** to propel the growth of the space sector, along the lines of **Start Up India Scheme** etc.

➢ Another concern that arises is that **95% of the equipment required for space sector manufacturing needs to be imported** and it may take India another 10 years to attain self-sufficiency.

➢ India's Space Sector has already been witnessing **rapid growth as the IN-SPACe portal has registered around 420 start-ups until now.**

➢ India's Draft Space Activities Bill, 2017 and Indian Space Policy,2023 is slated to provide much needed push and vigour to the burgeoning sector in the near time, if implemented effectively.

Read More:- Draft Space Activities Bill,2017 and **Indian Space Policy,2023**

Yashobhoomi

The Indian Prime Minister recently inaugurated the first phase of the **India International Convention and Expo Centre (IICC)** called **'Yashobhoomi',** at **Dwarka, New Delhi.**

Note:

➢ With a total project area of over **8.9 lakh square metres** and total built up area of more than 1.8 lakh square metres, **'Yashobhoomi' will find its place among the world's largest MICE** (Meetings, Incentives, Conferences, and Exhibitions) facilities.

➢ It also demonstrates a strong commitment to sustainability as it is equipped with a **state-of-the-art wastewater treatment system with 100% wastewater reuse**, provisions of rainwater harvesting, and its campus has received **Platinum certification from Confederation of Indian Industry's Indian Green Building Council (IGBC).**

     Read more: Indian Green Building Council (IGBC)

CJI Unveils Transparent Approach for SC Judge Appointments

Recently, the **Chief Justice of India (CJI)** disclosed an initiative to **enhance transparency in the appointment of judges to the Supreme Court.**

➢ In addressing the imperative for objective assessments of potential judicial appointees, the CJI, has introduced a **team comprising scholars, interns, and law researchers.**

    ○ Their core responsibility revolves around conducting a **comprehensive evaluation of the top 50 judges in India** who are being considered for appointments to the SC.

➢ This initiative, under the **auspices of the Centre for Research and Planning**, has been devised to establish transparent selection criteria while safeguarding the confidentiality of the process.

➢ Although the **specific criteria for identifying the top 50 judges have not been explicitly elucidated yet.**

    ○ As of now, the appointments are made on the basis of several criteria, which include **seniority, regional representation and merit while following a Memorandum of Procedure** moulded through the **Three Judges Cases.**

     Read more: Appointment of Judges in Supreme Court

Hyderabad Liberation Day

In 2022, **17th September was declared to be celebrated annually as the Hyderabad Liberation Day**. The day signifies the **merger of the erstwhile Hyderabad State under Nizam rule with the Indian Union**.

➢ Hyderabad, a significant princely state ruled by the Nizams, acknowledged British sovereignty.

    ○ Like **Junagadh and Kashmir, Hyderabad did not join India before or even after gaining independence** on August 15, 1947; its **Nizam aimed to remain independent and bolster his military.**

    ○ However, **internal turmoil led to the Indian Army's entry into Hyderabad** on September 13, 1948, under **Operation Polo to prevent regional instability and integrate Hyderabad into India**.

➢ After integration, the **Nizam retained his position as head of state, similar to other princely rulers who joined India**.

    ○ He withdrew complaints to the UN, despite protests from Pakistan and international criticism, **resulting in Hyderabad becoming part of India without further UN involvement**.

     Read More: Hyderabad Liberation Day

Ponzi Scheme

➢ An actor faces scrutiny over his alleged involvement in a Rs.1,000 crore **Ponzi scheme** with 2 lakh investors.

➢ A Ponzi scheme is a type of **investment fraud** that **promises high returns with little or no risk to investors.**

    ○ These are investment operations that **pay returns to old investors from the money garnered from new investors.**

➢ It is named after **Charles Ponzi,** an Italian businessman who ran such a scheme in the 1920s.

➢ Ponzi schemes do not fall under the regulatory purview of **Securities and Exchange Board of India (SEBI).**

➢ In India, Ponzi schemes are banned under the **Banning of Unregulated Deposit Schemes Act, 2019** and **Prize Chit and Money Circulation Schemes (Banning) Act, 1978.**

RBI Directs Banks to Return Documents Within 30 Days of Loan Repayment

➢ The **Reserve Bank of India (RBI)** has issued new directives to **Regulated Entities (banks and non-banking financial companies)** regarding the **return of original property documents after the full repayment or settlement of loans.**

Note:

- ➤ These norms will apply to all cases in which the return of original documents becomes **due on or after 1st December 2023.**
  - ❍ In cases where borrowers are no longer alive, lenders must establish a clear procedure for returning the **original property documents to the legal heirs.**
  - ❍ Applicable to **personal loans, including consumer credit, education loans, housing loans, and financial asset loans.**
  - ❍ **If original property documents are lost or damaged**, the lender will help the borrower get duplicate or certified copies, covering the costs and compensating at **Rs 5,000 per day for delays exceeding 30 days.**
- ➤ The aim is to standardise document release practices and **promote responsible lending conduct.**

President of India Inaugurates NeVA

Recently, the **President of India** inaugurated the **'National e-Vidhan Application' (NeVA)** and addressed the **Gujarat Legislative Assembly in Gandhinagar**.

- ➤ The President highlighted the significance of the **E-Assembly,** which transforms the **legislative house into a digital entity,** promoting speed and transparency.
- ➤ NeVA is one of the **44 Mission Mode Projects (MMPs)** under the "**Digital India Programme**" which aims to make the **functioning of all the State Legislatures paperless by transforming them into 'Digital House'.**

   Read more: Digital India Programme

Foreigners' Tribunals

Recently, the Assam state government disclosed that since 2001, a total of 3,100 people have been declared and convicted as foreigners by tribunals in Assam and have been deported. These people were **declared non-citizens by Foreigners' Tribunals (FTs).**

- ➤ Steps against people with doubtful citizenship are taken according to the **Foreigners' Act of 1946**, the **Foreigners (Tribunal) Order of 1964** and **notifications issued by the Centre** from time to time.
- ➤ FTs are **quasi-judicial bodies** to whom an individual can represent his/her case if their name does not figure in the final **National Register of Citizens (NRC)**. **Only FTs are empowered to declare a person as a foreigner.**

- ❍ The FTs judge their citizenship on the basis of documents provided or the lack of them.

   Read More: Foreigners Tribunals, Citizenship of India

South Korea and Quad

South Korea has expressed its will to join the **Quad grouping** and now the decision of expansion rests with the latter.

- ➤ Currently, Quad is a grouping of **India, Australia, the US, and Japan** formed on a common ground of democratic values of the countries. It aims to ensure and support a **"free, open and prosperous" Indo-Pacific region**.
- ➤ On the bilateral front, India and South Korea are negotiating expansion of the **Comprehensive Economic Partnership Agreement (CEPA)** (in place since 2010).

   Read More: Quad, India-South Korea Relations

Expansion of PM Ujjawala Yojana

The Union Cabinet has recently approved the extension of **Pradhan Mantri Ujjwala Yojana (PMUY)** for release of 75 lakh LPG connections **over 3 years from FY 23-24 to FY 25-26** increasing the total number of beneficiaries to 10.35 crore.

Initiatives to expand LPG coverage:

- ➤ **PAHAL (Pratyaksh Hastantarit Labh):** To reduce "ghost" accounts and illegal use of household cylinders for commercial purposes, the LPG cylinders were not sold at subsidised price and rather at market price.

Note:

○ The applicable subsidy was directly transferred to the individual's bank account electronically.

➢ **GIVE IT UP:** Instead of removing subsidies forcefully, people were encouraged to voluntarily surrender their subsidies which helped redirect the funds to those who genuinely needed assistance in acquiring LPG cylinders.
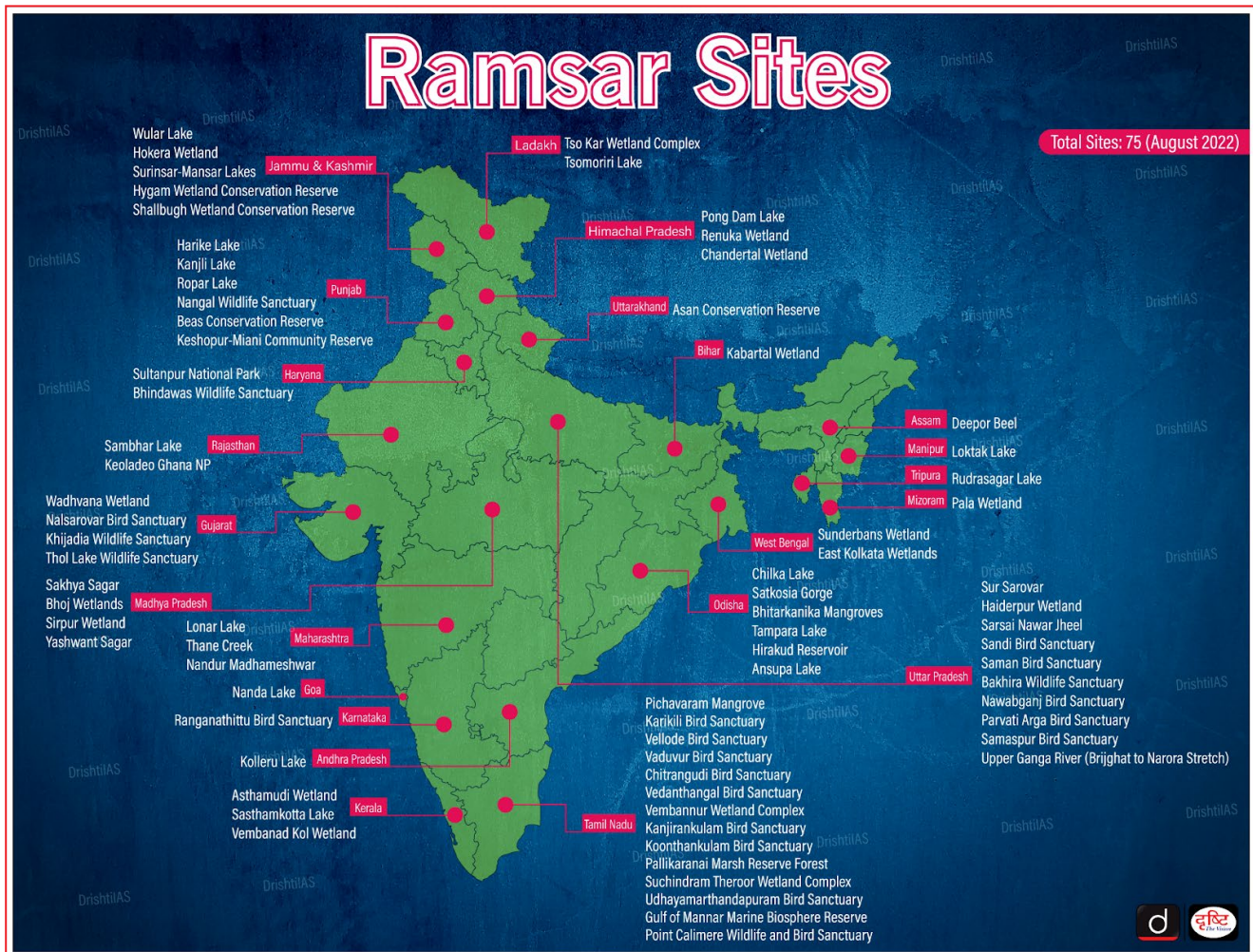
Read More: Pradhan Mantri Ujjwala Yojana

Bhoj Wetland

The **National Green Tribunal (NGT)** recently ordered the MP state govt to stop the **operation of cruise vessels** as well as **other motor-propelled boats in the Bhoj wetland** on account of the drastic damage being done to water bodies.

➢ The Bhoj Wetland, also known as **Bhopal Lake** is a **designated Ramsar site** and hence, **a wetland of international importance** (**Ramsar Convention 1971**).

➢ It consists of two contiguous human-made reservoirs -
  ○ **"Upper Lake"** - created in the 11th century by construction of an earthen dam across the Kolans River.
  ○ **"Lower Lake"** - constructed ~200 years ago, largely from leakage from the Upper lake. It is surrounded by the city of Bhopal.

Ramsar Sites

Total Sites: 75 (August 2022)

Jammu & Kashmir
Wular Lake
Hokera Wetland
Surinsar-Mansar Lakes
Hygam Wetland Conservation Reserve
Shallbugh Wetland Conservation Reserve

Ladakh
Tso Kar Wetland Complex
Tsomoriri Lake

Himachal Pradesh
Pong Dam Lake
Renuka Wetland
Chandertal Wetland

Punjab
Harike Lake
Kanjli Lake
Ropar Lake
Nangal Wildlife Sanctuary
Beas Conservation Reserve
Keshopur-Miani Community Reserve

Uttarakhand
Asan Conservation Reserve

Bihar
Kabartal Wetland

Haryana
Sultanpur National Park
Bhindawas Wildlife Sanctuary

Rajasthan
Sambhar Lake
Keoladeo Ghana NP

Assam
Deepor Beel

Manipur
Loktak Lake

Tripura
Rudrasagar Lake

Mizoram
Pala Wetland

Gujarat
Wadhvana Wetland
Nalsarovar Bird Sanctuary
Khijadia Wildlife Sanctuary
Thol Lake Wildlife Sanctuary

West Bengal
Sunderbans Wetland
East Kolkata Wetlands

Madhya Pradesh
Sakhya Sagar
Bhoj Wetlands
Sirpur Wetland
Yashwant Sagar

Odisha
Chilka Lake
Satkosia Gorge
Bhitarkanika Mangroves
Tampara Lake
Hirakud Reservoir
Ansupa Lake

Uttar Pradesh
Sur Sarovar
Haiderpur Wetland
Sarsai Nawar Jheel
Sandi Bird Sanctuary
Saman Bird Sanctuary
Bakhira Wildlife Sanctuary
Nawabganj Bird Sanctuary
Parvati Arga Bird Sanctuary
Samaspur Bird Sanctuary
Upper Ganga River (Brijghat to Narora Stretch)

Maharashtra
Lonar Lake
Thane Creek
Nandur Madhameshwar

Goa
Nanda Lake

Karnataka
Ranganathittu Bird Sanctuary

Andhra Pradesh
Kolleru Lake

Kerala
Asthamudi Wetland
Sasthamkotta Lake
Vembanad Kol Wetland

Tamil Nadu
Pichavaram Mangrove
Karikili Bird Sanctuary
Vellode Bird Sanctuary
Vaduvur Bird Sanctuary
Chitrangudi Bird Sanctuary
Vedanthangal Bird Sanctuary
Vembannur Wetland Complex
Kanjirankulam Bird Sanctuary
Koonthankulam Bird Sanctuary
Pallikaranai Marsh Reserve Forest
Suchindram Theroor Wetland Complex
Udhayamarthandapuram Bird Sanctuary
Gulf of Mannar Marine Biosphere Reserve
Point Calimere Wildlife and Bird Sanctuary

Read More: National Green Tribunal (NGT), Wetlands in India, Ramsar Convention 1971 (Infographic)

Note:

Key Points

Details

Summary

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Details

Summary