Current Affairs
(CONSOLIDATION)

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Polity and Governance

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Equal Benefits for Women in Armed Forces

Why in News?

Recently, the Defence Minister of India has approved a proposal for extending the **rules for maternity, child care and child adoption leave** for women soldiers, sailors and air warriors in the Armed Forces on a par with their officer counterparts.

➢ The decision reflects the vision for inclusive participation, ensuring that **all women in the Armed Forces,** regardless of rank, receive equal benefits.

> **Note:**
> ➢ So far, there were no women air warriors or sailors in the Indian Air Force or Navy. Both started inducting women in their ranks after the government brought in the **Agnipath military recruitment scheme** that was introduced in 2022.
> - ❍ The Army initially inducted women in the **Corps of Military Police (CMP) in 2019,** and now they are included as Agniveers in the CMP.

What are the Benefits of the New Proposal?

➢ Only women among the **25% of Agniveers**, selected based on merit after a four-year term, qualify for the extended maternity and family-related benefits.
- ❍ The Agnipath scheme mandates that these women cannot marry until completing their four-year tenure.

➢ The new proposal will extend the rules for maternity, child care and child adoption leave for women in the military, whether one is an officer or any other rank.

➢ Women officers in the armed Forces currently get **180 days of maternity leave, 360 days of child care leave and 180 days of child adoption leave.**
- ❍ These benefits will now be applicable to women soldiers, sailors and air warriors as well.

➢ The extension of leave rules will help women in the military to **deal with family and social issues** relevant to the Armed Forces.
- ❍ It will also improve their work conditions and help them balance their professional and family life better.

> **What is the Agnipath Military Recruitment Scheme?**
> ➢ **About:**
> - ❍ Agnipath, enables **patriotic youth to serve in the Armed Forces.**
> - ❍ Participants, termed **Agniveers,** undergo a **4-year term** with around 45,000 to 50,000 recruits annually.
>   - ● After four years, only 25% of the batch is selected for a 15-year service extension in their respective services.
> ➢ **Eligibility Criteria:**
> - ❍ The Agnipath scheme exclusively applies to **non-commissioned personnel below officer ranks.**
>   - ● Commissioned officers hold an exclusive rank in the Indian armed forces. They often hold a commission under the president's sovereign power and are officially instructed to protect the country.
> - ❍ Eligibility for aspirants is between 17.5 and 23 years.
> ➢ **Benefits for Agniveers:**
> - ❍ Upon the completion of the 4-years of service, a one-time **'Seva Nidhi' package of Rs 11.71 lakhs**

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- will be paid to the Agniveers that will include their accrued interest thereon.
  - ○ They will also get a Rs 48 lakh life insurance cover for four years.
  - ○ In case of death, the payout will be over Rs 1 crore, including pay for the unserved tenure.
  - ○ The government will help rehabilitate soldiers who leave the services after four years. They will be provided with skill certificates and bridge courses.

Electoral Trusts Scheme, 2013

Why in News?

Recently, **Supreme Court** has reserved its judgment on the challenge to the central government's Electoral Bonds Scheme.

➤ Before the introduction of the **Electoral Bonds (EB) Scheme** in 2018, another scheme for Electoral funding called **Electoral Trusts (ET) Scheme**, was introduced in 2013.

What is Electoral Trusts Scheme?

➤ **About:**
  - ○ Electoral Trusts Scheme, 2013 was notified by the **Central Board of Direct Taxes (CBDT).**
  - ○ An Electoral Trust is a Trust set up by companies with the **sole objective to distribute the contributions received** by it from other Companies and individuals **to the political parties.**
  - ○ Only the **companies registered under Section 25 of the Companies Act, 1956** are eligible to make an application for approval as an Electoral Trust. The electoral trusts have to **apply for renewal every three financial years**.
  - ○ The scheme lays down a procedure for grant of approval to an electoral trust which will receive voluntary contributions and distribute the same to the political parties.
  - ○ The provisions related to the electoral trust are under **Income-tax Act, 1961** and **Income tax rules-1962.**

➤ **Contributions to Electoral Trusts:**
  - ○ They may receive contributions from:
    - An individual who is a citizen of India

- A company registered in India
- A firm or Hindu undivided family or an Association of persons or a body of individuals, resident in India.
  - ○ They shall not accept contributions from:
    - An individual who is not a citizen of India or from any foreign entity whether incorporated or not;
    - Any other electoral trust registered under the scheme.

➤ **Mechanism for Distribution of Funds:**
  - ○ For administrative expenses, the Electoral Trusts are permitted to set aside a maximum of 5% of the total funds collected during a financial year.
    - The remaining 95% of total income of the Trusts is required to be distributed to eligible political parties.
      - ■ Parties registered under the **Representation of the People Act, 1951** are eligible to receive the contributions.
  - ○ Electoral trust are required to keep and **maintain books of account including details of receipts, distribution and list of donors and receivers**.

➤ **Audit of Accounts of Electoral Trusts:**
  - ○ Every electoral trust is required to get its accounts audited by an accountant and furnish the **audit report to the Commissioner of Income-tax** or the Director of Income-tax.

What are Electoral Bonds?

➤ **Electoral Bond** is a financial instrument for making donations to political parties.

➤ The bonds are issued in **multiples of Rs. 1,000, Rs. 10,000, Rs. 1 lakh, Rs. 10 lakh and Rs. 1 crore** without any maximum limit.

➤ **State Bank of India is authorised to issue** and encash these bonds, which are **valid for fifteen days** from the date of issuance.

➤ These bonds are redeemable in the designated account of a registered political party.

➤ The bonds are **available for purchase** by any person (who is a citizen of India or incorporated or established in India) **for a period of ten days each in the months of January, April, July and October** as may be specified by the Central Government.

➤ A person being an individual can buy bonds, either singly or jointly with other individuals.

➤ **Donor's name is not mentioned** on the bond.

How is Electoral Trust Scheme different from Electoral Bonds Scheme?

➢ **Transparency and Accountability:**

○ The functioning of **ETs is marked by transparency**. Contributors and beneficiaries are disclosed.

● Electoral Trusts adhere to a robust reporting system, submitting detailed annual **contribution reports to the Election Commission of India (ECI).** This ensures a comprehensive record of donations and their allocation.

○ On the other hand, the **EB Scheme** introduces a significant **lack of transparency.**

● The **anonymity of donors** creates an opaque environment in the funding process, making it challenging to trace the origins of contributions.

➢ **Funding Trends (2013-14 to 2021-22):**

○ Data from nine financial years (2013-14 to 2021-22) show that political funding through the two government schemes shot up after the introduction of EBs, with the **bulk of donations coming through the EB scheme.**

● Between 2017-18 and 2021-22, political parties got a total Rs 1,631 crore through ETs, while Rs 9,208 crore was donated through EBs.

➢ **Political Party Receipts:**

○ As per a **report by the Association for Democratic Reforms (ADR),** a **single political party has secured 72% of the total donations** facilitated **by ETs** in the year 2021-22 and **57% of the funding through EBs** from 2013-14 to 2021-22.

○ The report also found that more than **55% of the funding** for political parties came **through EBs.**

Status of India's Smart Cities Mission

Why in News?

The Ministry of Housing and Urban Affairs's latest data, as of 3rd November 2023, provides insights into the **status of India's Smart Cities Mission.**

➢ With the mission's deadline approaching in June 2024, the analysis showcases top-performing cities, financial milestones, and regional variations in project completion.

What are the Key Findings Regarding the Status of India's Smart Cities Mission?

➢ **Leading Cities in Completion of Projects:**

○ **Surat (Gujarat) emerges as the top-performing city,** leading in the completion of projects, fund utilization, and overall criteria.

○ **Agra (Uttar Pradesh(UP)), Ahmedabad (Gujarat), Varanasi (UP), and Bhopal (Madhya Pradesh)** secure positions in the top five cities, showcasing commendable progress.

○ The rest of the top 10 include Tumakuru (Karnataka), Udaipur (Rajasthan), Madurai (Tamil Nadu), Kota (Rajasthan) and Shivamogga (Karnataka).

➢ **Regional Disparities:**

○ **Union Territories (UTs)** and cities in **Northeastern states** find themselves in the bottom 10.

● The bottom 10 cities are Kavaratti (Lakshadweep), Puducherry, Port Blair (Andaman and Nicobar Islands), Imphal (Manipur), Shillong (Meghalaya), Diu, Guwahati (Assam), Aizawl (Mizoram), Gangtok (Sikkim) and Pasighat (Arunachal Pradesh).

○ Sources attribute the slower progress in smaller **cities to capacity constraints,** emphasizing the need for tailored strategies to address the unique challenges faced by these urban centers.

➢ **Overall Project Landscape:**

○ About **22% of total projects (1,745 of 7,947)** that account for **33% out of Rs 1.70 lakh crore)** of the total cost are still ongoing. The **majority of projects (6,202) have been completed**, emphasizing the scale and financial investment involved.

Note: The Government has decided to extend the Smart Cities Mission deadline by one year, from June 2023 to June 2024.

SMART CITIES MISSION

About

- **Launched:** 2015
- **Nature:** Centrally Sponsored
- **Nodal Ministry:** Ministry of Housing & Urban Affairs
- **Implemented through:** Special Purpose Vehicles (SPVs) at city level
- **Mission Deadline:** Extended to June 2023
- **Coverage:** Developing 100 selected cities as Smart Cities

Six Fundamental Principles

- Citizen at the core
- More from Less
- Cooperative and competitive federalism
- Integration, innovation & sustainability
- Technology as means, not the goal
- Convergence

SMART SOLUTIONS

E-Governance and Citizen Services
- Public Information, Grievance Redressal
- Electronic Service Delivery
- Citizen Engagement
- Citizens-City's Eyes and Ears
- Video Crime Monitoring

Energy Management
- Smart Meters & Management
- Renewable Sources of Energy
- Energy Efficient & Green Buildings

Waste Management
- Waste to Energy & fuel
- Waste to Compost
- Waste Water Treatment
- Recycling and Reduction of Waste
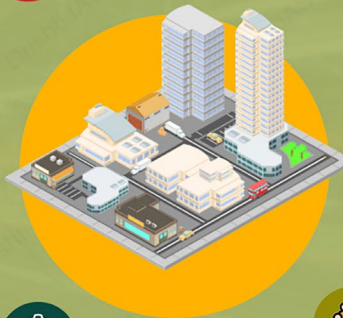
Urban Mobility
- Smart Parking
- Intelligent Traffic Management
- Integrated Multi-Modal Transport

Water Management
- Smart Meters & Management
- Leakage Identification, Preventive Maintenance
- Water Quality Monitoring

Others
- Tele-Medicine & Tele Education
- Incubation/Trade Facilitation Centers
- Skill Development Centers

60% projects have been completed so far

Challenges

- **Managing Finance:** Difficulty in mobilising funds, transferring them to SPVs, and using them efficiently
- **Urban Problems:** Like air pollution, road congestion & decline in public transport
- **Policy Issues:** Like hindrances in getting environment clearances
- **Data privacy and security**
- **Lack of Center-State Co-ordination**

Way Ahead

- **Decentralisation:** Planning at Municipal & state level for better implementation
- **Policy Issues:** Like red-tapism, environmental clearances need to be taken care of
- **PPP Model:** For better administrative & technological capabilities
- **Integrated Approach:** For holistic development of transportation, energy, housing
- **Promote Citizen Engagement**

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Extension of Pradhan Mantri Garib Kalyan Anna Yojana

Why in News?

Recently, the Indian Prime Minister has announced an extension of the **Pradhan Mantri Garib Kalyan Yojana (PMGKAY)** **for an additional five years**.

What is PMGKAY?

➢ The **PMGKAY was first introduced in 2020** during the **Covid-19 pandemic,** and was designed to provide 5kg free foodgrains to eligible ration card holders under the **National Food Security Act, 2013 (NFSA).**

➢ Initially set **to expire in December 2022**, the scheme was extended till **December 2023** and now, it has been **extended for an additional five years.**

Note:

➢ Since its inception, the government has allocated 1,118 lakh metric tonnes of foodgrains from its central procurement pool at a cost of **Rs 3.9 lakh crore.**

What is the National Food Security Act, 2013?

➢ **About:**
  ○ NFSA 2013 marks a paradigm shift in the approach to food security from **welfare to rights based approach.**

➢ **Beneficiaries:**
  ○ The Act legally entitled **upto 75% of the rural population and 50% of the urban population** to receive subsidized food grains under **Targeted Public Distribution System.**
    ● About **two thirds of the population therefore is covered under the Act** to receive highly subsidized foodgrains.
  ○ It encompasses two categories of ration card holders: **Antyodaya Anna Yojana (AAY) and Priority Households (PHH).**
    ● As a step towards **women empowerment**, the eldest woman of the household of **age 18 years or above** is mandated to be the head of the household for the purpose of issuing ration cards under the Act.

➢ **Provision:**
  ○ Under this program, **AAY households are entitled to receive 35 kg of foodgrains every month,** regardless of the number of family members.
  ○ Priority Households receive food grains based on family size, **with each member getting 5 kg per month.**

➢ **Merger of PMGKAY and NFSA:**
  ○ In January 2023, the **PMGKAY was integrated with the NFSA**, resulting in the provision of all rations for AAY and PHH families at **no cost.**
  ○ This merger **eliminated the extra provisions that were introduced during the Covid-19 pandemic** by incorporating the free component of the PMGKAY into the NFSA.

What are the Impacts of the Extension of PMGKAY?

➢ **Positive Impacts:**
  ○ **Addressing Immediate Food Security Needs:** The extension provides **relief to lower-income households,** ensuring continued access to essential food supplies, addressing immediate food security concerns.
    ● In times of economic distress or natural disasters, the **program provides a safety net,** offering immediate relief to those facing sudden hardships, ensuring basic sustenance during crises.
  ○ **Boosting Rural Economy:** The **procurement of foodgrains** for the scheme provides support to local farmers and agricultural communities, **contributing to rural economic growth and stability.**
  ○ **Social Cohesion:** The program fosters a sense of community welfare, where government initiatives ensure **no one goes hungry, promoting social cohesion** and a sense of collective responsibility towards those in need.

➢ **Negative Impacts:**
  ○ **Long-term Fiscal and Economic Concerns:** The program's extension incurs significant fiscal costs.
    ● Over time, the **cost may escalate due to rising procurement expenses**, leading to a burden on the government's budget.
    ● There is a risk of straining the fiscal deficit, especially if accompanied by lack of corresponding revenue increases.
  ○ **Distortion in Market Dynamics:** The extended scheme, by providing free or highly subsidized foodgrains, **might disrupt market dynamics, impacting the agricultural sector and distorting prices.**
  ○ **Dependency and Sustainability Issues**: The perpetuation of free foodgrains could **create dependency among beneficiaries**, reducing the drive for self-sufficiency or alternative livelihood efforts.
    ● Depending on government handouts may not be a sustainable, long-term solution for addressing poverty and hunger.
  ○ **Competitive Populism and Policy Consistency:** This extension might lead to **competitive populist measures** among political parties, which may drive unsustainable policies and put pressure on public finances.

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Universal Basic Income

Why in News?

Recently, the positive outcome **Universal Basic Income (UBI)**, can have on individuals and families has been highlighted through the WorkFREE pilot project, started in 2022 in Telangana.

> **What is a WorkFREE Pilot Project?**
>
> ➢ **About:**
> - ○ The project is a collaborative effort between the University of Bath, Montfort Social Institute, Hyderabad and the India Network for Basic Income, with funding from the European Research Council.
> - ○ Under the pilot, an adult gets Rs 1,000 and a child Rs 500 a month for 18 months.
> - ○ The pilot supports **1,250 residents in five slums in the Hyderabad.**
> - ○ The WorkFREE pilot project is presented as a transformative initiative, highlighting the positive outcomes it has had on individuals and families.
> - ○ Some of the Residents in Telangana were adversely affected by the relocation, and have found financial stability **through the UBI support**. They used the cash support to start a **bangle business and significantly improve her income.**
> - ○ The residents also used the cash to buy food, fuel, clothes and pay utility bills, which usually account for a bulk of monthly expenditure.
>
> ➢ **Other Similar Pilot Project:**
> - ○ The Self-Employed Women's Association (SEWA) pilot was conducted in Delhi and Madhya Pradesh in 2011. In Delhi, about 100 families living below the poverty line received Rs 1,000 a month.

What is Universal Basic Income (UBI)?

➢ **About:**
- ○ UBI is a **social welfare proposal** in which all the beneficiaries regularly receive a **guaranteed income** in the form of an unconditional transfer payment.
- ○ The goals of a basic income system are **to alleviate poverty and replace other need-based social programs** that potentially require greater bureaucratic involvement.

- ○ UBI is typically intended to reach all (or a very large portion of the population) with no (or minimal) conditions.

➢ **Pros:**
- ○ **Poverty Alleviation:** Reduces poverty and **income inequality by providing a minimum income floor** for everyone, especially the most vulnerable and marginalized groups. It can also help people afford basic needs such as food, health, education, and housing.
- ○ **A Health Stimulus:** Improves **physical and mental health** by reducing stress, anxiety, and depression associated with poverty and financial insecurity. It can also enable people to access better health care, sanitation, and nutrition.
- ○ **Simplified Welfare System:** Can streamline the existing welfare system by replacing **various targeted social assistance** programs. This reduces administrative costs and eliminates the complexities associated with means-testing, eligibility requirements, and benefit cliffs.
- ○ **Enhancing Individual Freedom:** UBI provides individuals with financial security and greater freedom to make choices about their work, education, and personal lives.
- ○ **Economic Stimulus:** Injects money **directly into the hands of individuals, stimulating consumer spending** and driving economic growth. It can boost local businesses, create demand for goods and services, and generate employment opportunities.
  - It can empower people to pursue entrepreneurship, take risks, and engage in creative or socially beneficial activities that may not be economically viable otherwise.

➢ **Cons:**
- ○ **Cost and Fiscal Sustainability:** UBI is very expensive and would require h**igher taxes, spending cuts**, or debt to finance it. It could also create inflation, distort the labor market, and reduce economic growth.
- ○ **Creates Perverse Incentives:** Decreases motivation to work and r**educes productivity and efficiency.** It could also create a culture of dependency, entitlement, and laziness. It could also discourage people from acquiring skills, education, and training.
- ○ **Inflationary Pressures:** It could contribute to **inflationary pressures**. If everyone receives a

Note:

fixed amount of money, it may drive up prices for goods and services as businesses adjust their pricing strategies to capture the additional income available in the market.

○ **Potential for Dependency:** UBI may create a reliance on government support, and there is a risk that some individuals **might become complacent or dependent on the basic income**, leading to reduced motivation for personal and professional growth.

What are the other Alternatives of Universal Basic Income?

➢ **Quasi UBRI:** QUBRI is a variant of UBI, which is defined as a transfer that is provided universally, unconditionally, and in cash. The idea was proposed by former Chief Economic Adviser to provide a direct cash transfer of Rs 18,000 per year to each rural household in India, except those which are "demonstrably well-off" to tackle agrarian distress.

➢ **Direct Benefits Transfers (DBT):** This is a scheme that transfers subsidies or cash directly to the bank accounts of the beneficiaries, **instead of through intermediaries or in-kind transfers**. DBT aims to improve the efficiency, transparency, and accountability of welfare delivery, as well as to reduce leakages and corruption.

○ Schemes like **PM Kisan, Pradhanmantri Jan Dhan Yojana** etc are fine examples of success of DBT.

➢ **Conditional Cash Transfers (CCT):** This is a scheme that provides cash to poor households on the condition that they **fulfil certain requirements, such as sending their children to school,** immunizing them, or attending health check-ups. CCT aims to improve the human capital and long-term outcomes of the poor, as well as to incentivize behavioural change.

➢ **Other Income Support Schemes:** These are schemes that provide cash or in-kind assistance to specific groups of people who are in need, such as farmers, women, elderly, disabled, etc. These schemes aim to address the specific vulnerabilities and challenges faced by these groups, as well as to promote their empowerment and inclusion.

➢ **Employment Guarantee Schemes:** India already has a successful example of this with the **MGNREGA.** Such schemes provide a legal guarantee of employment to rural households for a certain number of days in a year. Expanding and strengthening such programs can ensure that individuals have access to job opportunities and can earn a livelihood.

➢ **Universal Basic Services:** Instead of focusing on providing a universal basic income, India can prioritize the provision of essential services such as education, healthcare, clean water, and sanitation. By ensuring access to these services for all citizens, the government can improve the overall standard of living and reduce inequality.

Tightening Regulations for Appointing State DGPs

Why in News?

Recently, the **Union Public Service Commission (UPSC)** has issued amended guidelines emphasizing specific criteria for the **appointment of State Directors General of Police (DGPs).**

What are the Key Amendments in UPSC Guidelines for DGP Selection?

➢ **Clarity in Selection Norms:**

○ The amendments introduced by the **UPSC aim to bring transparency** to the previously implicit norms governing the selection process for **State Directors General of Police (DGPs).**

○ The guidelines now explicitly state criteria to **prevent favoritism** and **unfair appointments.**

➢ **Service Tenure Requirement:**

○ The guidelines stipulate that **only officers with a minimum of six months of service** left before retirement will be considered for the position of State DGP.

● This move aims to **discourage the practice of extending tenures by appointing "favorite officers"** on the verge of retirement, thereby promoting a fair and unbiased selection.

○ Previously, several states had appointed DGPs who were about to retire, and **some had resorted to appointing acting DGPs** to avoid the UPSC selection process.

➢ **Revised Experience Criteria:**

○ Previously set at a minimum of **30 years of service,** the guidelines now allow officers with **25 years** of experience to qualify for the DGP position. This alteration broadens the pool of eligible candidates.

Note:

- ➤ **Limit on Shortlisted Officers:**
  - ❍ The guidelines set a **cap of three shortlisted officers** for the DGP position, allowing exceptions only under specific circumstances.
  - ❍ It emphasizes **voluntary participation**, requiring officers to express their willingness to be considered for the position.
- ➤ **Specified Areas of Expertise:**
  - ❍ The new guidelines **define essential areas of experience necessary for an IPS officer** aspiring to **lead a State Police Department.**
  - ❍ These areas include a **minimum of ten years of experience in crucial domains** such as law and order, crime branch, economic offenses wing, or intelligence wing.
  - ❍ Alongside specific areas, the guidelines also stress the **need for deputation to central bodies such as the Intelligence Bureau, Research and Analysis Wing, or Central Bureau of Investigation.**
    - The goal is to ensure a comprehensive and varied range of experience among candidates vying for the DGP position.
- ➤ **Empanelment Committee's Limits on Assessment:**
  - ❍ Empanelment Committee established by the UPSC for the appointment of State DGP will **refrain from assessing IPS officers on central deputation for the State DGP position** if the Union Ministry of Home Affairs informs the State government that releasing the officers is not feasible.

What are the Supreme Court's Directives on Police Reforms?

- ➤ In the **Prakash Singh Case 2006**, the Supreme Court issued **seven directives** to drive **police reforms in India,** acknowledging widespread issues such as **politicization, lack of accountability, and systemic weaknesses** impacting overall police performance.
- ➤ The directives include:
  - ❍ Establish a **State Security Commission (SSC)** with the objectives of preventing undue government influence on the police, outlining policy guidelines, and assessing state police performance.
  - ❍ Ensure the **appointment of the DGP through a transparent, merit-based process,** ensuring a **minimum tenure of two years.**
    - Committee to Appoint State DGP:
      - ■ The committee to appoint the State DGP is headed by the **UPSC Chairman** and includes the **Union Home Secretary,** the **State's Chief Secretary and DGP**, and one of the heads of the **Central Armed Police Forces** nominated by the **Ministry of Home Affairs** who is **not from the same State cadre.**
    - Procedure of Selection:
      - ■ The State governments concerned have to **send UPSC the names of the probables** three months before the incumbent DGPs are to retire.
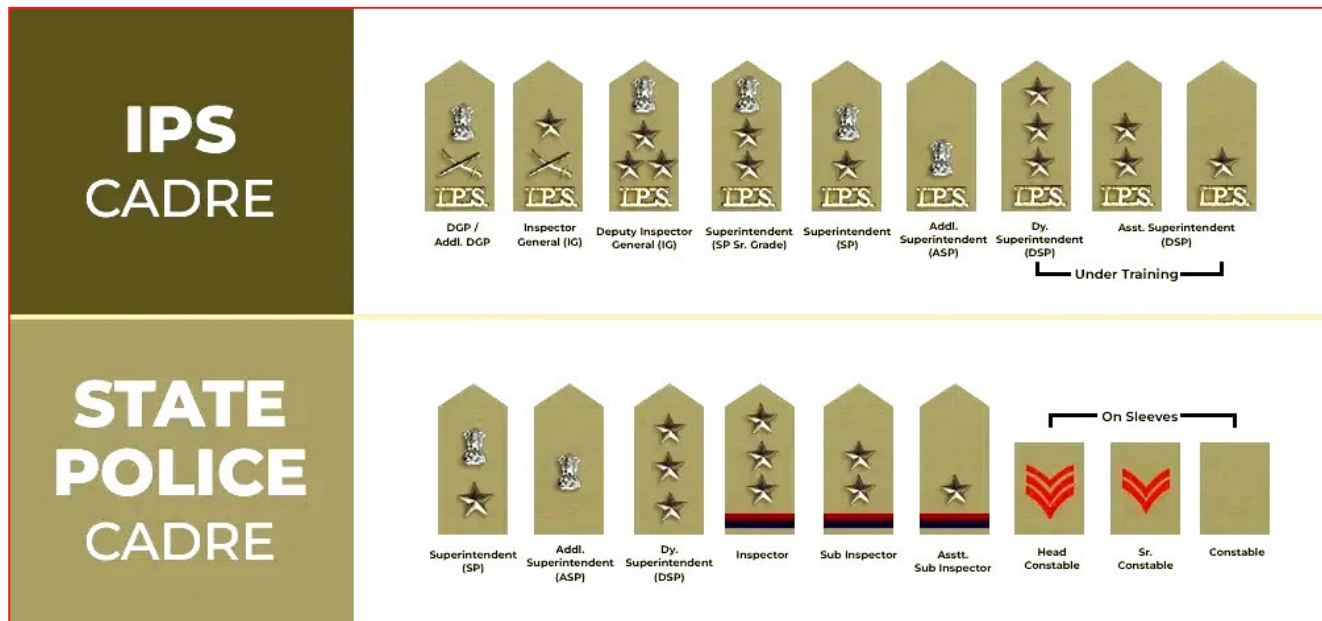
Note:

Police Reforms in India

CONSTITUTIONAL STATUS

- **Police and Public Order:** State subjects (7th Schedule)

NEED FOR REFORM

- Colonial Law
- Custodial Death
- Lack of Accountability
- Political Interference
- Poor Gender Sensitivity
- Communal/Caste Bias
- No Anti-Torture Law

RELATED DATA

- **Police-People Ratio:** 153 police/100,000 people (Global benchmark: 222 police /100,000 people)
- **Custodial Deaths:** 175 in 2021-2022 (as per MHA)
- **Women's Share:** 10.5% of entire force (India Justice Report 2021)
- **Infrastructure:** 1 in 3 police stations is equipped with CCTV (India Justice Report 2021)

IMPORTANT COMMITTEES/COMMISSION

National Police Commission		Padmanabhalah Committee		Police Act Drafting Committee		Second Administrative Reforms Commission		Police Act Drafting Committee II
1977–81	1998	2000	2002–03	2005	2006	2007	2012-13	2015
	Ribeiro Committee		Malimath Committee		Supreme Court Directions in Pakash Singh vs Unionof India		Justice J.S. Verma committee	

RELATED INITIATIVES

- SMART Policing (pan-India)
- Automated Multimodal Biometric Identification System (AMBIS) (Maharashtra)
- Real Time Visitor Monitoring System (uses AI and blockchain) (Andhra Pradesh)
- CyberDome (Tech R&D Centre) (Kerala)

CHALLENGES WITH POLICING

- Low Police-Population Ratio
- Political Superimposition
- Unsatisfactory Police-Public Relations
- Infra Deficit
- Corruption
- Understaffed/Overburdened

WAY FORWARD

- ↑Police Budget, Resources
- ↑Recruitment Process
- Implement Measures to Reduce Corruption
- ↑Skills of Policemen
- Better Representation (Women, Minorities)

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- The UPSC will prepare a panel of three officers fit to be DGP and send it back.
- The State, in turn, shall appoint one of the persons shortlisted by the UPSC.
- Ensure a **minimum two-year tenure for other** **operational police officers**, including District Superintendents and Station House Officers.
- Implement the **segregation of investigative and law enforcement duties** within the police force.

Note:

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○ Create a **Police Establishment Board (PEB)** to handle transfers, postings, promotions, and other service-related matters for officers below the rank of Deputy Superintendent of Police, while also making recommendations for higher-ranking transfers.

○ Establish a **State-level Police Complaints Authority (PCA)** to investigate public complaints against senior police officers for serious misconduct, and district-level PCAs to address complaints against lower-ranking officers involved in significant misconduct.

○ Form a **National Security Commission (NSC)** at the union level to create a panel for selecting and placing Central Police Organizations' (CPO) Chiefs, ensuring a minimum tenure of two years.

State Food Safety Index 2022- 2023

Why in News?

The **State Food Safety Index (SFSI) 2022- 2023** released by the **Food Safety and Standards Authority of India (FSSAI)** sheds light on the performance of Indian states in ensuring food safety.

➢ The 2022- 2023 index introduced a new parameter, **'Improvement in SFSI Rank',** which assessed a state's progress from the previous year. To accommodate this change, weights of other parameters were adjusted.

What is the State Food Safety Index (SFSI)?

➢ It is an annual evaluation that measures the performance of states and union territories on food safety.

➢ The Index is a dynamic quantitative and qualitative benchmarking model that provides an objective framework for evaluating food safety across all States/UTs.

➢ SFSI was started in 2018-19 to create a competitive and positive change in the food safety ecosystem in the country.

What are the Key Findings of the State Food Safety Index 2022- 2023?

➢ **General Decline in State Food Safety Scores:**

○ Over the past five years, **19 out of 20 large Indian states,** including Maharashtra, Bihar, Gujarat, and Andhra Pradesh, have **experienced a decline** in their 2022 - 2023 SFSI scores compared to 2019.

STATES WITH STEEPEST INDEX FALL

State	2019	2023
Maharashtra	74	45
Bihar	46	20.5
Gujarat	73	48.5
Andhra Pradesh	47	24
Chhattisgarh	46	27

Source: SFSI reports; all scores out of 100

SAFETY MEASURE

Parameter	Weight
Compliance	28
Consumer Empowerment	19
Human Resources and Institutional Data	18
Food Testing Infrastructure	17
Improvement in SFSI Rank *(added in 2023)*	10
Training and Capacity Building	8
TOTAL	**100**

➢ **Impact of the 2023 Index Parameter Adjustment:**

○ After adjusting for a new parameter introduced in the 2022- 2023 index, 15 out of 20 states recorded lower SFSI scores in 2022 - 2023 compared to 2019.

➢ **States' Overall Rankings in their Respective Categories:**

Category- Union Territories	
Name	Rank
Jammu & Kashmir	1
Delhi	2
Chandigarh	3

Category- Small States	
Small State	Rank
Goa	1
Manipur	2
Sikkim	3

Category- Large States	
Large State	Rank
Kerala	1
Punjab	2
Tamil Nadu	3

➢ **Decline in 'Food Testing Infrastructure':**

○ The 'Food Testing Infrastructure' parameter measures the availability of adequate testing infrastructure with trained personnel in each state for testing food samples.

○ This parameter **experienced the steepest fall,** with the average score for all large states dropping from 13 out of 20 in 2019 to 7 out of 17 in 2022 - 2023.

● **Gujarat and Kerala were the best performers** in this parameter in 2022 - 2023 while **Andhra Pradesh performed the worst.**

➢ **Compliance Scores Decreased:**

○ This parameter measures licensing and registration of food businesses, inspections conducted, special

Note:

drives and camps organized, and other such compliance-related tasks carried out by each state's food safety authority.

○ Scores for the 'Compliance' parameter also declined.

● **Punjab and Himachal Pradesh received the highest scores** in this parameter and Jharkhand received the lowest score.

○ The 2022 - 2023 average compliance score for all large states **stood at 11 out of 28 compared to 16 out of 30 in 2019.**

➤ **Varied Consumer Empowerment:**

○ The 'Consumer Empowerment' parameter, measures a state's performance in various consumer empowering initiatives of FSSAI including participation in **Food Fortification, Eat Right Campus, BHOG (Blissful Hygienic Offering to God), Hygiene Rating of Restaurants, and Clean Street Food Hubs.**

● **Tamil Nadu emerged as the top performer** followed by Kerala and Madhya Pradesh.

○ Overall, the average score in 2022 - 2023 being **8 points out of 19** compared to 2019 when it was 7.6 points out of 20.

➤ **Decline in Human Resources and Institutional Data Scores:**

○ The 'Human Resources and Institutional Data' parameter measures the availability of human resources including number of Food Safety Officers, Designated Officers, and facility of adjudications and appellate tribunals in each state.

● The average score for this parameter dropped to 7 points out of 18 in 2022- 2023 from 11 points out of 20 in 2019.

● Even top performers in 2019 like Tamil Nadu and Uttar Pradesh received lower scores, in 2022 - 2023.

➤ **Improvement in 'Training and Capacity Building':**

○ The average score increased from 3.5 out of 10 in 2019 to 5 out of 8 in 2022- 2023.

➤ **Improvement in SFSI Rank:**

○ In the new parameter 'Improvement in SFSI Rank,' only **Punjab showed significant improvement**.

○ Improvement in the SFSI Rank parameter, which carried a weightage of 10% in 2022 - 2023, 14 out of 20 large states received 0 points.

Annual Survey of India's City-Systems 2023

Why in News?

The **Annual Survey of India's City-Systems (ASICS) 2023**, published by the Janaagraha Centre for Citizenship and Democracy, a non-profit institution, highlights the challenges and constraints faced by the **Local Governments** in Indian Cities.

What are the Key Highlights of the ASICS Report?

➤ **Eastern States have better Urban Legislations:**

○ Eastern states, comprising Bihar, Chhattisgarh, Jharkhand, Odisha and West Bengal, have **relatively better urban legislations** followed by southern states.

➤ **Lack of Transparency:**

○ Urban legislations are not available in the public domain in accessible formats. Only 49% of states/UTs have put out municipal legislations on websites of respective state urban departments.

➤ **Lack an Active Master Plan:**

○ At least 39% of India's capital cities lack an active master plan.

➤ **Local Governments' Limited Control over Finances:**

○ A majority of **Local Governments** in Indian cities are financially dependent on their respective state governments, limiting their financial autonomy.

○ Local governments in Indian cities **have limited control over key financial matters**, including taxation, borrowing, and budget approval, with the need for state government approval in most cases.

● Only Assam empowers **its city governments to collect all key taxes**. Except five States — **Bihar, Jharkhand, Odisha, Meghalaya, and Rajasthan** — all the others have to get **approval from the State** before borrowing money.

➤ **Asymmetry in City Categories.:**

○ There are disparities in the level of influence and control over finances across different city categories, including megacities (>4 million (mn) population), large cities (1-4 mn), medium cities (0.5 mn-1 mn), small cities (<0.5 mn).

Note:

○ Mayors in megacities are no**t directly elected and do not have a five-year tenure**, whereas mayors in smaller cities are directly elected but have limited authority over city finances.

Limitless cities, limited power

The charts and tables were sourced from the Annual Survey of India's City-Systems (ASICS) 2023 published by Janaagraha, a Bengaluru-based non-profit

City lights: A view of the Brihanmumbai Municipal Corporation building. ARUNANGSU ROY CHOWDHURY

Table 1 | The table shows asymmetry of mayor/council powers across various city categories

Percentage of cities...	Mega	Large	Medium	Small	Total
with a five-year mayoral tenure	38%	69%	67%	84%	83%
with a directly elected Mayor	0%	39%	33%	36%	36%
that can approve the city budget	75%	34%	40%	11%	12%
that can borrow without the prior sanction of the State	13%	16%	12%	15%	15%
that can invest without the prior sanction of the State	75%	63%	40%	42%	42%
that have complete power over their staff	0%	0%	0%	0%	0%
that can levy all key taxes	0%	0%	2%	0%	2%
Average no. of functions devolved by law (number)	11	8	13	11	9
Total population (in mn)	57.84	57.88	28.93	173.9	318.5

Mega cities (>4 million population), large cities (1-4 million), medium cities (5,00,000-1 million), small cities (<5,00,000)

Table 3 | The table shows the asymmetry of financial transparency in the capital cities of India. Figures denote % of capital cities

Type of data	Mega	Large	Medium	Small	Total
Annual audited financial statement	17%	50%	29%	23%	28%
Quarterly audited financial statement	0%	0%	0%	0%	0%
City budget	100%	100%	57%	38%	66%
Ward budget	17%	0%	0%	0%	3%
Internal audit	0%	0%	0%	8%	3%

Chart 2 | The chart shows the availability of civic data in capital cities

Type	Number
Internal audit report	1
Annual audited financial statements	9
City budget	23
Decision-making process	17
Rules and regulations	28
Minutes of council meeting	11
Data on civic works	6
Annual report	2

Figure in the bar denotes the number of capital cities

Chart 4 | The chart shows the vacancy (in %) in local governance

Municipal Corporation	33%
Municipalities	41%
Town Panchayats	58%
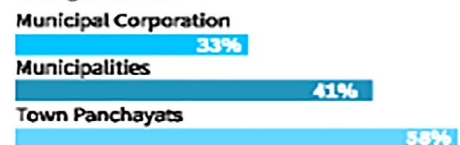
Chart 5 | The chart shows municipal staff per lakh population in Indian and global cities

City	Staff
New York	5,906
London	2,938
Johannesburg	659
Mumbai	938
Hyderabad	486
Bengaluru	317
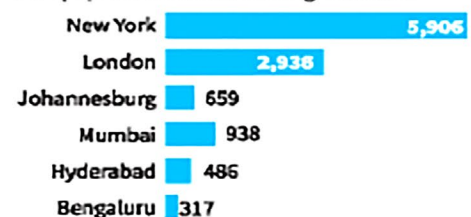
Note:

➢ **Limited Power Over Staff Appointments:**
  ○ Mayors and city councils have limited authority in appointing and promoting staff, including senior management teams, leading to challenges in accountability and efficient administration.

➢ **Financial Transparency Challenges:**
  ○ Indian cities face challenges in financial transparency, with a lack of quarterly financial audited statements and limited dissemination of annual audited financial statements. This issue is more pronounced in larger cities.
  ○ Only 28% of the cities disseminate their annual audited financial statements. The number goes down further to **17% if only the mega cities are considered.**
  ○ While bigger cities do publish their city budgets, **smaller cities lag there with just 40%-65% of them publishing** that information.

➢ **Staff Shortages:**
  ○ **35% of posts in India's municipal corporations are vacant.** The vacancy progressively worsens with 41% posts being vacant among municipalities and 58% being vacant in town panchayats.

➢ **Comparison with Global Metropolises:**
  ○ A comparison with global metropolises such as New York, London, and Johannesburg shows significant differences in the number of city staff per one lakh population and the administrative powers granted to these cities.
  ○ There are 5,906 city workers in New York and 2,936 in London for every one lakh population compared to **just 317 in Bengaluru, 586 in Hyderabad**, and 938 in Mumbai. Cities such as New York have also been **empowered to impose taxes, approve their own budget**, invest and borrow without approval.

What is Local Government?

➢ **About:**
  ○ Local Self Government is the **management of local affairs by such local bodies** who have been elected by the local people.
  ○ The local self-Government includes **both rural and urban government.**
  ○ It is the third level of the government.
  ○ There are 2 types of local government in operation – **panchayatas in rural areas and Municipalities in urban areas.**

➢ **Rural Local Governments:**
  ○ **Panchayati Raj Institution (PRI)** is a system of rural local self-government in India.
  ○ PRI was constitutionalized through the **73rd Constitutional Amendment** Act, 1992 to build democracy at the grass roots level and was entrusted with the task of rural development in the country.

➢ **Urban Local Governments:**
  ○ **Urban Local Governments** were established with the purpose of democratic decentralization.
  ○ There are **eight types of urban local governments in India** - Municipal Corporation, Municipality, Notified Area Committee, Town Area Committee, Cantonment Board, township, port trust, special purpose agency.
  ○ The 74th Amendment Act pertaining to urban local government was passed during the regime of P.V. Narsimha Rao's government in 1992. It came into force on 1st June, 1993.
    ● Added Part IX -A and consists of provisions from articles 243-P to 243-ZG.
    ● Added 12th Schedule to the Constitution. It contains 18 functional items of Municipalities and deals with Article 243 W.

What can be done to Enhance Local Governance in Indian Cities?

➢ **Strengthen Fiscal Autonomy:**
  ○ Empower local governments to collect a broader range of taxes, enabling them to **generate revenue independently.** Reduce the need for state government approval for borrowing, especially for well-managed municipalities.

➢ **Decentralization of Administrative Powers:**
  ○ Devolve administrative powers to local governments to make key staff appointments and promotions, particularly for municipal commissioners and senior management teams. This will e**nable cities to build strong, accountable organizations.**

➢ **Transparency and Civic Engagement:**
  ○ Enforce the Public Disclosure Law uniformly across all states and union territories to ensure the regular publication of civic information, including internal audit reports, annual reports, minutes of meetings, and decision-making processes. Establish online platforms for easy citizen access to such information.

Note:

➢ **Benchmarking and Learning from Global Metropolises:**
- ❍ Establish a mechanism for benchmarking Indian cities against global metropolises, **identifying best practices in urban governance**, staffing levels, and financial management. Encourage the adoption of successful strategies from global peers.

➢ **Citizen Participation and Feedback:**
- ❍ Promote citizen engagement through public consultations, feedback mechanisms, and participatory budgeting. Create platforms for citizens to voice their concerns and suggestions, ensuring a more responsive government.

➢ **Use of Technology:**
- ❍ Embrace digital governance tools and platforms to streamline administrative processes, improve transparency, and provide **online services to citizens.** Implement e-governance initiatives to reduce bureaucratic hurdles.

Road Accidents in India-2022

Why in News?

Recently, the Ministry of Road Transport and Highways has published a Report titled- **'Road Accidents in India-2022',** shedding light on the **concerning trends in road accidents and fatalities.**

➢ The report is based on the data/information received from police departments of States/UTs on calendar year basis in standardized formats as provided by the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) under the **Asia Pacific Road Accident Data (APRAD)** base project.

➢ APRAD is a software tool developed specifically for the UNESCAP and its member countries to help member countries in the Asia-Pacific region develop, update, maintain, and manage road accident databases.

What are the Key Highlights of the Report?

➢ **Number of Road Accidents:**
- ❍ In 2022, a total of 4,61,312 road accidents occurred in India, leading to 1,68,491 fatalities and 4,43,366 people injured.
  - These figures represent an 11.9% year-on-year increase in accidents, a 9.4% rise in fatalities,

and a substantial **15.3% surge in the number of people injured** compared to the previous year.

➢ **Road Accident Distribution:**
- ❍ 32.9% of accidents took place on **National Highways and Expressways**, 23.1% on State Highways, and the remaining **43.9% on other roads.**
- ❍ 36.2% of fatalities occurred on National Highways, 24.3% on State Highways, and 39.4% on other roads.

➢ **Demographic Impact:**
- ❍ Young adults in the age group of 18 - 45 years accounted for **66.5% of the victims in 2022.**
- ❍ Additionally, people in the working age group of **18 – 60 years constituted 83.4% of the total road accident fatalities**.

➢ **Rural vs. Urban Accidents:**
- ❍ About 68% of road accident deaths **occurred in rural areas**, with urban areas contributing 32% to the total accident deaths in the country.

➢ **Vehicle Categories:**
- ❍ Two-wheelers, for the second consecutive year, accounted for the **highest share in both total accidents and fatalities** in 2022.
- ❍ Light vehicles, including cars, jeeps, and taxis, ranked a distant second.

➢ **Road-User Categories:**
- ❍ Among road-user categories, two-wheeler riders had the **highest share in total fatalities,** representing 44.5% of persons killed in road accidents in 2022.
- ❍ Pedestrian road-users were the second-largest group, with 19.5% of fatalities.

➢ **State-Specific Data:**
- ❍ Tamil Nadu recorded the highest number of road accidents in 2022, with 13.9% of the total accidents, followed by **Madhya Pradesh with 11.8%.**
- ❍ **Uttar Pradesh had the highest number of fatalities** due to road accidents (13.4%), followed by Tamil Nadu (10.6%). Understanding state-specific trends is essential for targeted interventions.

➢ **International Comparison:**
- ❍ India has the highest number of total persons killed **due to road accidents, followed by China and the United States.**
- ❍ Venezuela has the highest rate of persons killed per 1,00,000 population.

Note:

Chart: 5.1 State/UT- wise distribution of number of accidents during 2021 and 2022

■ 2021   ■ 2022
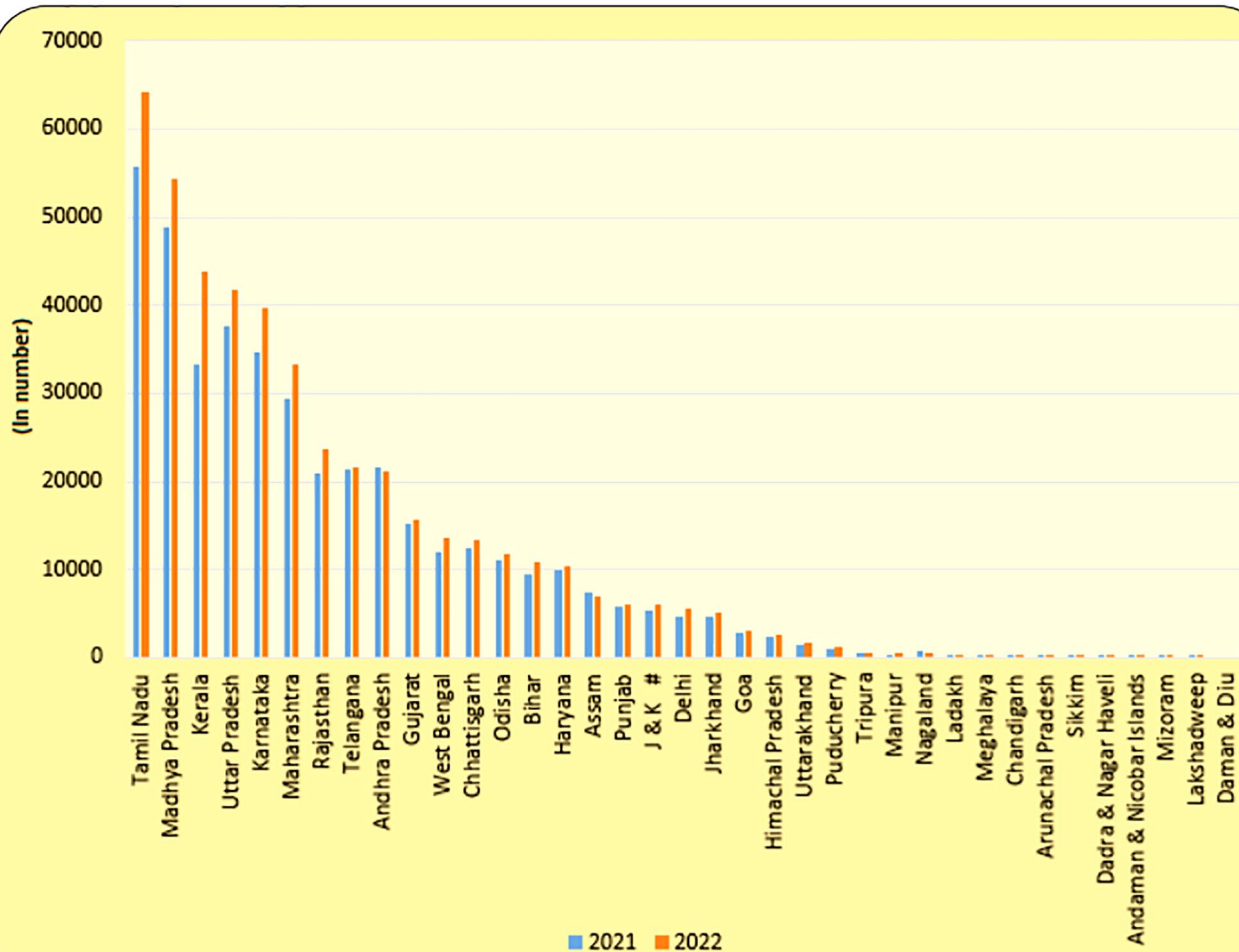
What is the Status of the Indian Road Network?

➢ India's road density at 1,926.02 per 1,000 sq.km of area in 2018-19 was higher than that of many developed countries though surfaced/paved road constituting 64.7 % of the total road length is **comparatively lower than that of developed countries**.

➢ National Highways constituted 2.09% of the total road length of the country in 2019.

➢ The balance road networks comprise of State Highways (2.9%), District Roads (9.6%), Rural Roads (7.1%), Urban Roads (8.5%) and Project Roads (5.4%).

What are the Road Accident Mitigation Measures Taken by the Ministry of Road Transport and Highways?

➢ **Education Measures:**

○ To create effective public awareness about road safety, the Ministry undertakes various publicity measures and awareness campaigns through social media, electronic media and print media.

○ Further, Ministry implements a scheme to provide financial assistance to various agencies for administering Road Safety Advocacy.

➢ **Engineering Measures:**

○ Road safety has been made an integral part of road design at planning stage. Road Safety Audit (RSA) of all highway projects has been **made mandatory at all stages.**

○ The Ministry has notified the **mandatory provision of an airbag for the passenger seated on the front seat of a vehicle**, next to the driver.

➢ **Enforcement Measures:**

○ The Motor Vehicles (Amendment) Act, 2019.

Note:

○ Electronic Monitoring and Enforcement of Road Safety rules (specify the detailed provisions for placement of electronic enforcement devices (speed camera, body wearable camera, dashboard camera, etc)).

What are the Initiatives Related to Road Safety?

➢ **Global:**
  ○ **Brasilia Declaration on Road Safety (2015):**
    ● The declaration was signed at the second Global High-Level Conference on Road Safety held in Brazil. India is a signatory to the Declaration.
    ● The countries plan to achieve **Sustainable Development Goal** 3.6 i.e., to halve the number of global deaths and injuries from road traffic accidents by 2030.
  ○ **Decade of Action for Road Safety 2021-2030:**
    ● The **UN General Assembly** adopted resolution "Improving global road safety " with the ambitious target of preventing at least 50% of road traffic deaths and injuries by 2030.
    ● The Global Plan aligns with the **Stockholm Declaration,** by emphasizing the importance of a holistic approach to road safety.
  ○ The International Road Assessment Programme (iRAP) :
    ● It is a registered charity dedicated to saving lives through safer roads.
➢ **India:**
  ○ **Motor Vehicles Amendment Act, 2019:**
    ● The Act hikes the penalties for traffic violations, defective vehicles, juvenile driving, etc.
    ● It provides for a M**otor Vehicle Accident Fund,** which would provide compulsory insurance cover to all road users in India for certain types of accidents.
    ● It also provides for a National Road Safety Board, to be created by the Central Government.
  ○ **The Carriage by Road Act, 2007:**
    ● The Act provides for the regulation of common carriers, limiting their liability and declaration of the value of goods delivered to them to determine their liability for loss of, or damage to, such goods occasioned by the negligence or criminal acts of themselves, their servants or agents and for matters connected therewith or incidental thereto.
  ○ The Control of **National Highways (Land and Traffic) Act, 2000:**

● The Act provides for the control of land within the National Highways, right of way and traffic moving on the National Highways and also for removal of unauthorized occupation thereon.
  ○ **National Highways Authority of India Act,** 1998:
    ● The Act provides for the constitution of an authority for the development, maintenance and management of NHs and for matters connected therewith or incidental thereto.

Multilingualism in India

Why in News?

In today's interconnected world, multilingualism has garnered increasing recognition for its multifaceted significance. This includes not only its **cognitive** advantages but also its potential to **enrich diverse cultures.**

➢ A prime example of the importance of **embracing multilingualism is India,** with its abundance of languages and scripts.

What is India's Multilingual Landscape?

➢ **Multilingual Landscape:**
  ○ India is one of the most linguistically diverse countries in the world, with **over 19,500 languages spoken throughout the nation.**
    ● This diversity offers a unique opportunity for Indians to be multilingual, which means being able to **use more than one language in communication.**
  ○ According to the 2011 Census of India, **more than 25% of the population speaks two languages,** while about **7% speak three languages.**
    ● Studies state that young Indians are **more multilingual** than their elder generation with about half the **urban population aged 15 to 49 years speaking two languages.**
➢ **Contribution of Multilingualism to India's Diversity:**
  ○ India's multilingualism is not only a matter of numbers, but also of culture, identity, and history.
    ● India's languages reflect its diverse and **pluralistic society**, where people from **different religions, ethnicities, castes, and classes coexist and interact.**
➢ **Benefits of Multilingualism:**
  ○ Multilingualism can enhance cognitive abilities, such as **memory, attention, problem-solving, and creativity.**

Note:

- Research has shown that **bilinguals and multilinguals have better executive functions,** which are responsible for planning, organizing, and controlling mental processes.
  - Multilingualism can also improve **social and emotional skills,** such as empathy, perspective-taking, and intercultural competence.
    - By learning different languages, people can access **different cultures, values, and worldviews,** which can help them understand and appreciate diversity.
  - Multilingualism can also offer practical advantages, such as career opportunities, travel experiences, and access to information and entertainment.
    - By knowing more than one language, people can communicate with more people, explore more places, and enjoy more resources.

What are the Constitutional Provisions Related to Languages in India?

- **Article 29:**
  - It protects the **interests of minorities.** It ensures that all citizens have the right to **preserve their distinct language**, **script, or culture**.
  - It also prohibits discrimination based on race, caste, creed, religion, or language.
- **Eighth Schedule:**
  - It lists the official languages of the republic of India. **Part XVII of the Indian constitution** deals with the official languages in **Articles 343 to 351.**
    - The **Eighth Schedule of the Indian Constitution** recognizes **22 official languages:**
      - Assamese, Bengali, Gujarati, Hindi, Kannada, Kashmiri, Konkani, Malayalam, Manipuri, Marathi, Nepali, Oriya, Punjabi,Sanskrit, Sindhi, Tamil, Telugu, Urdu, Bodo, Santhali, Maithili and Dogri.
  - All the **Classical Languages** are listed in the Eighth Schedule of the Constitution.
    - Six languages in India currently have 'Classical' status listed in the Eighth Schedule of the Constitution.
      - Tamil (declared in 2004), Sanskrit (2005), Kannada (2008), Telugu (2008), Malayalam (2013), and Odia (2014).
- **Article 343:**
  - It states that the official language of the Union government is **Hindi in Devanagari script,** and

numerals should follow the international form of Indian numerals.
  - This Article also states that English will continue to be used as an official language for 15 years from the commencement of the Constitution.
- **Article 345:**
  - The legislature of a State may by law adopt any **one or more of the languages in use in the State** or Hindi as the Language or Languages to be used for all or any of the official purposes of that State.
- **Article 346:**
  - It recognizes India's linguistic diversity by allowing **multiple languages to be used in official communications.** It also provides a mechanism to ensure effective communication between states and between a State and the Union.
- **Article 347:**
  - It gives the President the power to **recognise a language as an official language of a given state,** provided that the **President** is satisfied that a substantial proportion of that state desires that the language be recognised. Such recognition can be for a part of the state or the whole state.
- **Article 348(1):**
  - It provides that all proceedings in the **Supreme Court** and in every High Court shall be in **English language** until Parliament by law otherwise provides.
- **Article 348(2):**
  - Provides further that notwithstanding the provisions of Article 348(1), the **Governor** of a state may, with the previous consent of the President, authorise the use of Hindi or any other language used for any official purpose, in proceedings in the High Court.
- **Article 350:**
  - Every person shall be entitled to submit a representation for the redress of any grievance to any officer or authority of the Union or a State in any of the languages used in the Union or in the State, as the case may be.
  - **Article 350A** of the Indian Constitution provides that every state must **provide primary education in a mother tongue.**
  - **Article 350B** provides for the appointment of a **"Special Officer"** for linguistic minorities.
- **Article 351:**
  - It gives power to the union government to issue a directive for the **development of the Hindi language.**

Note:

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Economic Scenario

Highlights

- Shift From Physical to Digital Gold
- CAFRAL Raises Concerns Over NBFC and Digital Lending Practices
- India's Steel Sector
- India's Falling Farm Exports
- The State of Food and Agriculture 2023
- Direct Listing on Foreign Exchanges
- Aquaculture Crop Insurance
- Worker Productivity and Economic Growth
- World Food India 2023
- QCI hosts 3rd International Convention on Sustainable Trade and Standards
- Impact of Export Restriction of Rice
- The Indian Railways' Revenue Problems
- India's Widening Tax Base
- OECD Report Highlights Taxation of Indian Farmers
- The Lewis Model and India
- Minimum Wage Policy and Gig Workers
- QR Codes for Food Labels

Shift From Physical to Digital Gold

Why in News?

In recent years, **Gold Exchange-Traded Funds (ETFs)**, Gold Mutual Funds and **Sovereign Gold Bonds** have become very popular over Physical gold, which comes with its own challenges, especially regarding its storage and safety.

How is Gold Linked With Indian Households?

➢ **Weightage of Gold with Indian Households:**
  ❍ As per **Jefferies report,** 15.5% of Total Indian Household Assets as of March 2023 are in Gold.
    ● **Jefferies**, a US based investment banking and capital markets firm, **provides insight, expertise and execution to investors, companies and governments** in the Americas, Europe and the Middle East and Asia.
  ❍ Gold's share is **second only to Real Estate** which accounts for 50.7%.
    ● Bank deposits (14%), Insurance funds (5.9%), Provident & Pension funds (5.8%), Equities (4.7%) and Cash (3.4%) make up the rest.
  ❍ With a Quantum Mutual Fund study concluding that a 10-15% portfolio allocation to gold is ideal from a risk-return perspective, it seems that Indians, with their affinity for gold, have got it right.

  ● The 10-15% allocation allows **investors to lower risk without impacting overall portfolio returns.**

GOLD ACTS AS AN ASSET ALLOCATOR

Portfolio	100% Equity, 0% Gold	95% Equity, 5% Gold	90% Equity, 10% Gold	85% Equity, 15% Gold	80% Equity, 20% Gold	75% Equity, 25% Gold	70% Equity, 30% Gold
Returns (CAGR)	14.02%	14.04%	14.04%	14.01%	13.95%	13.87%	13.76%
Risk (Standard Deviation)	20.44%	19.40%	18.39%	17.42%	16.47%	15.57%	14.72%

Calculations based on domestic gold prices and Sensex data from Jan 1990 to Sep 2023
Source: Quantum Mutual Fund

➢ **Shift from Physical to Digital Avenues:**
  ❍ Traditionally Indians have saved in gold by buying small jewellery or gold bars and coins which are later converted to **larger wearables at opportune times like weddings or liquidated** in times of financial needs.
    ● While bars and coins are very liquid, their purity is not always guaranteed. They have storage **costs and come with issues of retailer mark-ups** and lower resale value.
  ❍ But with changing demographics, greater access to banking facilities, explosion of the digital economy, and increasing awareness about financial investment avenues, **consumer preference is slowly moving away from physical gold to digital avenues.**

Note:

○ Due to which Gold ETFs and SGBs as digital gold investment avenues in the country **today are seeing growing acceptance.**

What are Digital Avenues for Gold Investment?

➢ **Gold ETF:**
  ○ **About:** Gold ETF, which aims to track the domestic physical gold price, are passive investment instruments that are based on gold prices and invest in gold bullion.
    ● Gold ETFs are units representing physical gold which may be in paper or dematerialised form.
      ■ One gold ETF unit is equal to 1 gram of gold and is backed by physical gold of very high purity.
      ■ They combine the flexibility of stock investment and the simplicity of gold investments.
  ○ **Advantages:** There is complete transparency on the holdings of an ETF.
    ● Gold ETFs have much lower expenses as compared to physical gold investments.
    ● No wealth tax, no security transaction tax, no VAT and no sales tax is levied on ETFs.
    ● There is no fear of theft as ETFs are safe and secure as u**nits held in the Demat Account of the holder.**
  ○ **The Shift to Digital Gold:** The number of investors in Gold ETFs has increased from close to 4.61 lakh in January 2020 to 48.06 lakh in September 2023.
➢ **Gold Mutual Funds:**
  ○ Gold mutual funds are **professionally managed funds** that function by pooling money from multiple investors to invest in a variety of gold-related assets, such as gold **mining stocks, bullion, and mining companies.**
  ○ Like Gold ETFs, they allow investors' exposure to the gold market without having to invest in physical gold.
➢ **Sovereign Gold Bonds:**
  ○ **About:** The first SGB scheme was launched by the Government in November 2015, under **Gold Monetisation Scheme** with an objective to reduce the demand for physical gold and shift a part of the domestic savings - used for the purchase of gold - into financial savings.
  ○ **Key Details:**

Item	Details
Issuance	Issued by the Reserve Bank of India on behalf of the Government of India.
Eligibility	SGBs will be restricted for sale to resident individuals, HUFs (Hindu Undivided Family), Trusts, Universities and Charitable Institutions.
Tenor	The tenor of the SGB will be for a period of eight years with an option of premature redemption after 5th year.
Minimum size	Minimum permissible investment will be One gram of gold.
Maximum limit	The maximum limit of subscription shall be 4 Kg for individuals, 4 Kg for HUF and 20 Kg for trusts and similar entities per fiscal year (April-March) notified by the Government from time to time.
Joint holder	In case of joint holding, the investment limit of 4 Kg will be applied to the first applicant only.
Issue price	Price of SGB will be fixed in Indian Rupees on the basis of a simple average of the closing price of gold of 999 purity, published by the India Bullion and Jewellers Association Limited.
Interest rate	The investors will be compensated at a fixed rate of 2.50% per annum payable semi-annually on the nominal value (face value or stated value).

Note:

Collateral	The SGBs can be used as collateral for loans.
Tax treatment	The interest on SGBs shall be taxable as per the provision of the Income Tax Act, 1961. The capital gains tax arising on redemption of SGB to an individual is exempted.
Tradability	SGBs shall be eligible for trading.
SLR eligibility	SGBs obtained by banks through the pledge process will be considered as part of their **Statutory Liquidity Ratio** requirements.

➢ **Digital Gold:**
- ❍ This is one of the types of Digital Gold investment where one can **buy gold in small denominations** online.
- ❍ It allows investors to own a portion of physical **gold that is stored in secure vaults.**
- ❍ This investment also allows an investor exposure to the gold market without having to **worry about the challenges that accompany physical gold investments.**
- ❍ Many digital payment platforms and investment **apps facilitate investments in Digital Gold.**

What is an Exchange Traded Fund (ETF)?
➢ An **Exchange-Traded Fund (ETF)** is a basket of securities that trade on an exchange, just like a stock.
➢ ETF reflects the composition of an Index, like BSE Sensex. Its trading value is based on the Net Asset Value (NAV) of the underlying stocks (such as shares) that it represents.
➢ ETF share prices fluctuate all day as it is bought and sold. This is different from **Mutual Funds** that only trade once a day after the market closes.
➢ An ETF can own hundreds or thousands of stocks across various industries, or it could be isolated to one particular industry or sector.
➢ **Bond ETFs are a type of ETFs** which may include government bonds, corporate bonds, and state and local bonds—called municipal bonds.
- ❍ A bond is an instrument that represents a loan made by an investor to a borrower (typically corporate or governmental).
➢ Besides being cost efficient, ETFs offer a diversified investment portfolio to investors.

CAFRAL Raises Concerns Over NBFC and Digital Lending Practices

Why in News?

The **Centre for Advanced Financial Research and Learning (CAFRAL),** a research body set up by the **Reserve Bank of India (RBI),** has highlighted a growing risk in **bank financing for Non-Banking Finance Companies (NBFCs)** and identifies potential dangers in the digital lending landscape.

➢ Also, CAFRAL also warned about **fake/illegitimate lending apps** gathering personal data, posing potential misuse and safety risks for users.

What are the Major Concerns Raised by CAFRAL?

➢ **Interdependency Risks in NBFC Sector:**
- ❍ **CAFRAL** observed that **banks mostly lend to bigger NBFCs, leading to increased cross-lending** within the NBFC sector.
  - This creates a network of inter-dependencies and contagion channels that can amplify shocks and transmit them across the system.
- ❍ For example, the **default of IL&FS in 2018 and DHFL collapse in June 2019, triggered a liquidity crisis and a loss of confidence in the NBFC sector,** affecting the asset quality and profitability of banks that had lent to them.

➢ **Impact of Contractionary Monetary Policy on NBFCs:**
- ❍ CAFRAL also found that **contractionary monetary policy** leads to risk build-up in NBFCs' portfolios.
- ❍ When the **RBI tightens the policy rate,** NBFCs face higher borrowing costs and lower profitability.
  - To maintain their margins, **they tend to shift their lending to riskier segments such as unsecured loans,** subprime borrowers, etc. They also increase their **exposure to capital markets by investing in equities and mutual funds.**
  - These strategies expose them to **higher credit risk, market risk, and liquidity risk,** which can affect their solvency and stability.

➢ **Warnings About Illicit Lending Apps and Fintech Impact:**

○ It also warns about **fake/illegal digital lending apps,** pretending to be **legitimate** and gathering personal data for potential misuse.

○ Users can not easily verify the legality of these apps. There are concerns about **potential losses from online lending** affecting traditional banking if linkages between these sectors grow stronger.

● These apps often **request extensive personal information**, posing risks to consumer safety and privacy, although some data may be genuinely necessary.

● FinTech has increased product diversity, with **around 1100 lending apps available** for Indian Android users across 80 app stores.

Note: Digital lending refers to the **process of providing loans or credit to individuals or businesses through online platforms or digital channels** without the need for traditional physical documentation or in-person interactions.

What are NBFCs?

➤ **About:**

○ An **NBFC, registered under the Companies Act, 1956,** engages in various financial activities such as loans, investments in securities, leasing, insurance.

○ It excludes institutions whose **primary business falls under agriculture, industry, goods trading, services, or immovable property trading**.

➤ **Criteria:**

○ When over **50% of a company's assets are financial assets** and **more than 50% of its income is derived from these financial assets,** it indicates the company's primary involvement in financial activities.

● Companies meeting both criteria are registered as NBFCs by the RBI.

● The **Reserve Bank has been given the powers under the RBI Act 1934** to register, lay down policy, issue directions, inspect, regulate, supervise and exercise surveillance over these NBFCs.

Note: Companies primarily engaged in areas like **agriculture, industry, goods trading, services, or real estate** would not be regulated by the RBI, even if they conduct some financial activities. **This exclusion is determined using the '50-50 test'.**

➤ **Exemptions From Registration with RBI:**

○ Under **Section 45-IA of the RBI Act, 1934**, an NBFC must obtain a registration certificate from the RBI and maintain Net Owned Funds of ₹25 lakhs (₹Two crore since April 1999) to operate as a non-banking financial institution.

○ However, certain categories of NBFCs regulated by other authorities, such as **SEBI-registered Venture Capital Funds, Merchant Banking, and Stock broking companies,** are exempt from RBI registration.

➤ **Difference in NBFC and Banks:**

○ **NBFCs are restricted from accepting demand deposits** from the public, unlike banks, which commonly accept these types of deposits that can be withdrawn on demand without prior notice.

○ Unlike banks, **NBFCs do not form part of the payment and settlement system.** They are unable to issue cheques drawn on themselves, a standard practice offered by banks.

○ Unlike banks, the **deposit insurance facility provided by institutions like the Deposit Insurance and Credit Guarantee Corporation** is **not available to depositors of NBFCs**.

● In case of bank failures, this insurance offers protection to depositors, but it does not extend to NBFC depositors.

➤ **Funding:**

○ NBFCs primarily finance their operations through a **mix of market borrowing and bank loans**.

India's Steel Sector

Why in News?

Recently, the 4th edition of **'ISA Steel Conclave 2023'** was held, nudging **Steel Firms** to ramp up their capacities so that India's output of the **critical infrastructure input doubles to 300 million tonnes a year by 2030.**

➤ The event was marked by discussions on the theme, **'Steel Shaping The Sustainable Future,'** underscoring the multifaceted role of the steel industry in India's growth and development.

What is the State of Steel Sector in India?

➤ **Present Scenario:**

○ India is the world's second-largest producer of crude steel, with an output of **125.32 million**

tonnes (MT) of crude steel and 121.29 MT of finished steel production in FY23.

- ○ The steel industry in India has experienced substantial growth in the **past decade, with a 75% increase in production since 2008.**
- ○ The **per-capita consumption** of steel in India stood at 86.7 kilograms in FY23.
- ○ The Indian steel industry has been driven by the **availability of raw materials, such as iron ore, and cost-effective labor.**
- ○ As per the **National Steel policy**, launched in 2017, India projects crude steel capacity of 300 million tonnes (MT), production of 255 MT and a robust finished steel per capita **consumption of 158 Kgs by 2030-31.**

➢ **Significance:**
- ○ Steel is **one of the widely used materials** all over the world. The iron and steel industry is the bottom line producer industry.
  - The steel industry plays a pivotal role in crucial sectors such as construction, infrastructure, automobile, engineering, and defense.
- ○ Steel is a key sector for the Indian economy (responsible for **2% of the country's GDP in FY 21-22).**

➢ **Challenges Faced by the Steel Sector:**
- ○ Barriers to Setting up Modern Steel Plants:
  - One major hindrance is the significant investment required for establishing modern steel-making plants.
    - The high cost, around Rs 7000.00 crores for a 1-tonne capacity plant, poses **challenges for many Indian entities**.
  - Reliance on debt financing, coupled with expensive finances in India compared to other countries, **inflates product costs, making the final steel product less competitive globally.**
- ○ **Cyclical Demand and Monsoon Challenges:**
  - The cyclical demand for steel in India, influenced by factors like monsoons that slow down construction, creates financial challenges for steel plants.
  - During low-demand periods, steel plants must operate with minimal income, leading to financial strain and, in severe cases, closures.

- ○ **Low Per Capita Consumption:**
  - India's low per capita consumption of steel, at 86.7 kgs compared to the world average of 233 kgs, **reflects economic disparities.**
  - With low per-capita income and consumption, the incentive to establish **large-scale steel plants for economies of scale diminishes.**
  - China, with significantly higher per capita income, demonstrates a more robust demand for steel.
- ○ **Low Investment in Technology and Research:**
  - India historically **lags in investing in technology, research**, and development for the steel sector.
  - This results in dependence on international research and technology, incurring additional costs. Outdated and polluting technologies further contribute to the sector's unattractiveness.
- ○ **Slow Adoption of Steel in Construction:**
  - India's adherence to **traditional concrete-based construction methods,** rather than embracing steel, hinders the steel industry's growth.
  - Unlike the west, where steel is e**xtensively used in construction for its efficiency, strength,** and speed, India is yet to fully leverage steel in its construction practices.
- ○ **Environmental Concerns:**
  - The steel industry is among the three biggest **producers of carbon dioxide.** Consequently, steel players across the globe are increasingly facing a **Decarbonisation Challenge** to reduce its carbon footprint from both environmental and economic perspectives.
- ○ **Impact of EU's CBAM:**
  - From 1th January 2026, the EU will start collecting the **Carbon Tax (Carbon Border Adjustment Mechanism)** on each **consignment of steel, aluminum, cement, fertilizer**, hydrogen and electricity. It will have an ad**verse impact on India's exports of metals such as Iron,** Steel and aluminum products to the EU, because these will face extra scrutiny under the mechanism.
  - CBAM is part of the **"Fit for 55 in 2030 package",** which is the EU's plan to reduce greenhouse gas emissions by at least 55% by 2030 compared to 1990 levels in line with the European Climate Law.

Note:

Government Initiatives for Steel Industry
- ➢ **National Steel Policy (NSP) 2017**
- ➢ **Steel Scrap Recycling Policy**
- ➢ **Adoption of the Fourth Industrial Revolution (Industry 4.0)**
- ➢ Steel Research and Technology Mission of India
- ➢ Draft Framework Policy
- ➢ **PLI Scheme For Specialty Steel**

India's Falling Farm Exports

Why in News?

According to recent Department of Commerce data, exports of farm commodities, at **USD 23.6** billion in April-September 2023, were below the **USD 26.7** billion for April-September 2022.

- ➢ There has been **a drop in imports as well,** from **USD 19.3 billion to USD 16.2 billion** resulting in a marginal dip in the agricultural trade surplus.

What are the Reasons Behind Falling Farm Exports?

- ➢ **Government's Restrictions on Exports:**
  - ○ In the April-September 2023 period, India's agricultural exports declined by 11.6% compared to the previous year. This drop can be **attributed to the government's implementation of bans and restrictions** on the export of several commodities, including **wheat, rice,** and **sugar**.
    - ● In September 2022, **exports of broken rice were prohibited and a 20% duty levied on all white (non-parboiled) non-basmati grain shipments**. In July 2023, exports of white non-basmati rice were banned altogether. **Henceforth, only exports of parboiled non-basmati and basmati rice were allowed.**
    - ● The government of India , in May 2022, moved sugar exports from the **"free" to "restricted" category and capped the** total quantity of the sweetener that could go out during any year.
- ➢ **Easing Global Prices:**
  - ○ Additionally, global prices have **softened after reaching their highest levels** in the aftermath of Russia's invasion of Ukraine.

INDIA'S FARM EXPORTS AND IMPORTS ($ billion)

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	Apr-Sep 22	Apr-Sep 23
Exports	43.25	39.08	32.81	33.70	38.90	39.20	35.60	41.90	50.24	53.15	26.74	23.62
Imports	15.53	21.15	22.58	25.64	24.89	20.92	21.86	21.65	32.42	35.69	19.31	16.44
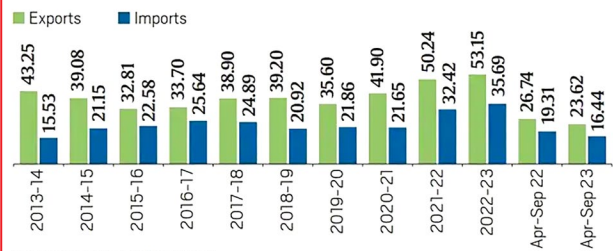
Source: Department of Commerce.

What is the Impact of Global Prices on Declining Food Export?

- ➢ **India's Farm Trade and Its Connection to World Prices:**
  - ○ India's agricultural trade, particularly its exports, exhibits a strong correlation with global price trends. This relationship is closely tied to the fluctuations in the **UN Food and Agriculture Organization's Food Price Index (FFPI).**
- ➢ **FFPI Trends Impacting India's Agricultural Exports:**
  - ○ The FFPI, reflecting international prices for a range of food commodities, has seen notable changes in recent years. India's agricultural exports tend to follow the FFPI's movements, **declining from USD 43.3 billion in 2013-14 to USD 35.6 billion in 2019-20,** along with the FFPI (from 119.1 to 96.5 points), and subsequently rising as the index reached unprecedented levels in **2022-23.**
- ➢ **Impact of Decreasing World Prices on India's Farm Trade:**
  - ○ As global prices have receded, the value of **both agricultural exports and imports in India is expected to decrease in 2023-24.** This trend occurs despite the easing of supply disruptions resulting from the **Russia-Ukraine conflict.** The latest supply and demand brief from the **Food and Agriculture Organisation (FAO)** projects global ending cereal stocks for 2023-24.

INDIA'S TOP AGRI EXPORT ITEMS ($ million)

	2021-22	2022-23	Apr-Sep 22	Apr-Sep 23
Marine products	7772.36	8077.98	4119.63	3803.88
Non-basmati rice	6133.63	6356.71	3199.18	2706.58
Sugar	4602.65	5770.83	2636.25	1302.06
Basmati rice	3537.49	4787.65	2278.35	2589.98
Spices	3896.03	3785.36	1926.90	1949.78
Buffalo meat	3303.78	3193.69	1636.10	1734.40
Raw cotton	2816.24	781.43	435.87	393.82
TOTAL*	50240.21	53153.55	26736.48	23621.71

Note:

What are the Consequences of Declining International Prices for Indian Agriculture?

➢ **Reduces Farmers' Incomes:**

○ Declining international prices **not only lower the cost competitiveness of the country's agricultural exports, but also make its farmers more vulnerable to imports.** This is being witnessed in cotton and edible oils.

● The price crash has led to India's cotton exports not only plummeting, but also imports surging **2.5 times** between 2021-22 to 2022-23.

➢ **Impact on Edible Oil:**

○ The value of India's edible oil imports more than doubled between 2019-20 and 2022-23. This was primarily **due to skyrocketing global prices, particularly post the war in Ukraine.**

● What is more concerning is prices have since collapsed, but imports of crude palm, soybean and sunflower oil are **still coming in at a low 5.5% duty.**

➢ **Procedural Concerns:**

○ The government's focus on controlling food inflation ahead of national elections – and prioritizing the interests of consumers over producers – **means that imports of edible oil and pulses will continue unhindered,** alongside restrictions on exports of cereals, sugar and even onion.

● This amounts to neglecting concerns of manufacturers and producers, **which will impact GDP growth negatively**.

The State of Food and Agriculture 2023

Why in News?

A new report titled **'The State of Food and Agriculture 2023'**, by the **Food and Agriculture Organization (FAO)** reveals the staggering hidden costs of unhealthy diets and **ultra-processed foods,** impacting both our health and the environment.

➢ These costs reach over USD 7 trillion annually and have far-reaching consequences.

Note:

➢ Hidden costs in the context of agrifood systems include **environmental expenses** from emissions and land use, **health costs related to dietary patterns, undernourishment** and **social costs associated with poverty** among agrifood workers.

What are the Key Findings of the State of Food and Agriculture 2023?

➢ **Hidden Costs of Unhealthy Diets:**

○ Unhealthy diets, characterized by the consumption of ultra-processed foods, fats, and sugars, lead to substantial hidden costs.

○ These costs exceed USD 7 trillion annually, reflecting the economic burden of **health-related issues like obesity and non-communicable diseases.**

● Additionally, these diets result in **decreased labour productivity,** contributing to the overall hidden costs.

➢ **Global Impact and Economic Burden:**

○ The majority of hidden costs were generated in **upper-middle-income (39%)** and **high-income countries (36%)**, with **lower-middle-income countries at 22%** and **low-income countries at 3%.**

● The report estimates that unhealthy diets result in hidden costs equivalent to at least USD 10 trillion annually, which accounts for nearly **10% of the global gross domestic product (GDP).**

● The analysis encompasses 154 countries, emphasizing the widespread implications of these dietary patterns.

➢ **Impact on India:**

○ India's total hidden costs in agrifood systems were approximately USD 1.1 trillion, ranking as **the third-largest globally after China and the United States.**

○ **Major Contributors in India:**

● The burden of disease **(productivity losses from dietary patterns) accounted for the largest share (60%)** of hidden costs in India, followed by **social costs of poverty (14%)** and **environmental costs from nitrogen emissions (13%).**

➢ **Rapid Spread of Processed Foods:**

○ The consumption of highly processed foods is on the rise in **peri-urban and rural areas worldwide.**

- Factors driving this trend include **urbanization, shifts in lifestyles,** and **changes in employment profiles** for both women and men.
- Longer commuting times also contribute to the increased consumption of processed foods in these areas.

➤ **Urban vs. Rural Consumption Patterns:**
  ○ The report challenges the conventional notion that consumption patterns differ significantly between urban and rural areas.
    - Findings indicate that the diffusion of processed foods is extensive and similar across the rural-urban continuum.
    - In both **high and low-food-budget countries**, processed foods make up a **substantial share of overall consumption**, with urbanization not being the sole driver.

➤ **Global Food Insecurity:**
  ○ **Food insecurity**, particularly moderate or severe food insecurity, remained largely unchanged globally for the second consecutive year.
    - These levels are, however, significantly higher than **Pre-Covid-19 pandemic** figures.
  ○ The report highlights that **approximately 29.6% of the global population, corresponding to 2.4 billion people,** experienced moderate or severe food insecurity in 2022.
    - Among them, roughly 900 million individuals (**11.3% of the global population**) faced **severe food insecurity.**
  ○ Among the nine South Asian countries, **India had the third highest prevalence of undernourishment (233.9 million)** in the total population, after Afghanistan and Pakistan, the analysis showed.
    - The share of undernourished people in India, however, had **come down from 21.4% of the population in 2004-06 to 16.6% in 2020-22.**
  ○ **Low-income countries were the hardest hit** by hidden costs of agrifood systems, which **represent more than a quarter of their GDP,** as opposed to less than 12% in middle-income countries and less than 8% in high-income countries.

➤ **Future Projections and Undernourishment:**
  ○ The report projects that by 2030, **nearly 600 million people** are expected to suffer from **chronic undernourishment.**

How can the Burden of Ultra-processed Foods be Reduced?

➤ The burden of ultra-processed foods can be reduced by **transforming current agrifood systems** to make them **more sustainable, healthy, and inclusive.**
  ○ Promoting the **production and consumption of more diverse**, nutritious, and less processed foods, such as fruits, vegetables, legumes, nuts, seeds, and whole grains.

➤ **Regulating** the marketing, labelling, and taxation of **ultra-processed foods,** and providing **subsidies and incentives for healthier foods.**

➤ Improving the **access and affordability of healthy foods**, especially for low-income and vulnerable groups, through social protection, food assistance, and public procurement.

➤ Educating and empowering consumers to **make informed and healthy food choices,** through nutrition education, behaviour change communication, and digital technologies.

➤ Enhancing the **efficiency and circularity of the agrifood systems,** by reducing **food losses and waste,** improving resource use efficiency, and adopting cleaner and renewable energy sources.

➤ **Strengthening the governance and coordination** of the agrifood systems, by engaging multiple stakeholders, fostering innovation and research, and monitoring and evaluating the impacts and outcomes.

What are the Government Initiatives to Promote Healthy Lifestyle?

➤ **The National Food Security Act (NFSA), 2013.**
➤ **PM-POSHAN Scheme.**
➤ **Fit India Movement.**
➤ **Eat Right Movement.**
  ○ **Eat Right Station Certification**.
  ○ **Eat Right Mela**

What is the Food and Agriculture Organization?

➤ **About:**
  ○ FAO is a specialised agency of the **United Nations** that leads international efforts to defeat hunger.
  ○ **World Food Day** is celebrated every year around the world on 16th October. The day is celebrated to mark the anniversary of the founding of the FAO in 1945.

Note:

drishti

- ❍ With 194 member countries and the **European Union** including India, FAO works in over 130 countries worldwide.
- ❍ It is one of the UN food aid organisations based in Rome (Italy). Its sister bodies are the **World Food Programme** and the International Fund for Agricultural Development (IFAD).
- ➢ **Flagship Publications:**
  - ❍ The State of World Fisheries and Aquaculture (SOFIA).
  - ❍ The State of the World's Forests (SOFO).
  - ❍ **The State of Food Security and Nutrition in the World (SOFI).**
  - ❍ The State of Food and Agriculture (SOFA).
  - ❍ The State of Agricultural Commodity Markets (SOCO).

Direct Listing on Foreign Exchanges

Why in News?

The Indian government has permitted certain **Indian companies to directly list on foreign stock exchanges** to access global capital.

- ➢ This provision, effective since 30th October 2023, was introduced through the **Companies (Amendment) Act, 2020**.
- ➢ It allows certain classes of domestic public companies to list their securities on foreign stock exchanges, including the **GIFT International Financial Services Centre (IFSC)** in Ahmedabad, Gujrat, with exemptions from certain procedural requirements (such as prospectus, share capital, beneficial ownership requirements, and failure to distribute dividends).

Note:
- ➢ An IFSC is a financial centre that caters to customers outside the jurisdiction of the domestic economy.
- ➢ The IFSC in India is regulated by the **International Financial Services Centres Authority (IFSCA),** a statutory authority that was established under the **International Financial Services Centres Authority Act, 2019.**
  - ❍ It is headquartered at GIFT City, Gandhinagar in Gujarat.

- ➢ At present, the GIFT IFSC is the maiden IFSC in India.
- ➢ In IFSC, all transactions must be in **foreign currency (except INR)**. However, administrative and statutory expenses can be conducted in INR.

What is Direct Listing?

- ➢ Direct listing is a process by which a company can **list its shares on a foreign stock exchange** without issuing new shares or raising capital from investors.
- ➢ Direct listing is different from the **traditional initial public offering (IPO)**, where a company sells a portion of its shares to the public and raises funds from investors.
- ➢ Direct listing is also different from the **depository receipt (DR) route**, where a company issues its shares to a custodian bank, which then issues DRs to foreign investors.
  - ❍ DRs are negotiable certificates that represent the **underlying shares of the company and trade on a foreign exchange.**
- ➢ Direct listing allows a company to access a larger and more diverse pool of investors, enhance its visibility and brand value, and improve its corporate governance and compliance standards.

How do Indian Companies Currently List on Foreign Exchanges?

- ➢ Currently, Indian companies list on foreign bourses using depository receipts, including **American Depository Receipts (ADRs)** and **Global Depository Receipts (GDRs).**
  - ❍ To list on foreign stock exchanges, Indian companies entrust their shares to an **Indian custodian, who then issues depository receipts (DRs)** to foreign investors.
- ➢ Between **2008 and 2018, 109 companies raised over Rs 51,000 crore** through ADRs/GDRs.
- ➢ However, after 2018, no Indian companies pursued overseas listings through this route.

Note:
- ➢ ADR refers to a negotiable certificate issued by a **U.S. depositary bank** representing a specified number of shares, usually one share of a foreign company's stock.
- ➢ GDRs is a certificate issued by a depository bank that represents shares in a **foreign company** and deposits them in an account. GDRs are mostly traded on the European markets.

What are the Benefits of Direct Foreign Listing?

➢ Access to a **larger and more liquid market,** which can increase the demand and valuation of their shares.

➢ Ability to reach out to a wider and more sophisticated **investor base,** which can enhance their reputation and credibility.

  ❍ **Startups and unicorns may benefit** from this avenue of raising funds and increasing their global profile.

➢ Savings on the **costs and time involved in the IPO or DR process**, such as underwriting fees, listing fees, legal fees, etc.

➢ Avoidance of the **dilution of ownership and control** that comes with issuing new shares or DRs.

➢ Exposure to the best practices and regulations of the foreign jurisdiction can improve their governance and transparency.

What are the Challenges Involved in Direct Foreign Listing?

➢ **Compliance** with the laws and rules of the **foreign jurisdiction,** which may be different from or more stringent than those in India.

➢ Challenges in direct foreign listings include **valuation issues**, as global investors may **not offer the same valuations as in India**, potentially impacting the company's market perception and pricing.

➢ Exposure to the **currency fluctuations and market volatility** of the foreign exchange can affect their share price and returns.

  ❍ Potential conflicts or disputes with the existing shareholders, regulators, or tax authorities in India or abroad.

➢ Clarity is needed on which classes of public companies can use this route, the classes of securities that can be listed, the foreign jurisdictions and permitted stock exchanges for listing, and the exemptions offered to such companies in terms of procedural compliances.

Aquaculture Crop Insurance

Why in the News?

Recently, the Ministry of Fisheries, Animal Husbandry & Dairying has discussed the technical challenges in the implementation of the **Aquaculture Crop Insurance scheme for Shrimp and Fish** farming under the **Pradhan Mantri Matsya Sampada Yojana (PMMSY) scheme.**

➢ To mitigate the risks faced by aqua farmers, **NFDB (National Fisheries Development Board)**, which is the nodal agency for implementation of PMMSY, proposeed to implement the Aquaculture Crop Insurance scheme.

➢ The Scheme aims to provide basic cover for brackish water shrimp and fish on pilot basis for one year in the selected **States of Andhra Pradesh, Bihar, Gujarat,** Madhya Pradesh and Odisha.

What is Aquaculture?

➢ **About:**

  ❍ The term aquaculture **broadly refers to the cultivation of aquatic organisms** in controlled aquatic environments for any commercial, recreational or public purpose.

  ❍ The breeding, rearing and harvesting of plants and animals takes place in all **types of water environments** including ponds, rivers, lakes, the ocean and man-made "closed" systems on land.

➢ **Purposes:**

  ❍ Food production for human consumption,

  ❍ Rebuilding of populations of threatened and endangered species,

  ❍ Habitat restoration,

  ❍ Wild stock enhancement,

  ❍ Production of baitfish, and

  ❍ Fish culture for zoos and aquariums.

> **Note:** Shrimp farming is an aquaculture-based activity in marine or freshwater environments to produce **shrimp for human consumption.**
>
> ➢ The estimated brackish water area suitable for undertaking shrimp cultivation in India is around 11.91 lakhs hectare (ha) spread over 10 states and union territories viz; West Bengal, Orissa, Andhra Pradesh, Tamil Nadu, Pondicherry, Kerala, Karnataka, Goa, Maharashtra and Gujarat.
>
> ➢ Of this only around 1.2 lakhs ha are under shrimp farming now and hence a lot of scope exists for entrepreneurs to venture into this field of activity.

What is the Need for Aquaculture Insurance?

➢ **Aquaculture Insurance:**

○ Aquaculture insurance is a type of insurance specifically **designed to provide coverage and financial protection** to individuals or entities involved in aquaculture, which is the **farming of aquatic organisms**, such as fish, shrimp, and other aquatic species, for commercial purposes.

○ This type o**f insurance is tailored to address the unique risks and challenges** faced by aquaculture operations.

➢ **Need for Aquaculture Insurance:**

○ **Risk Management:**

● Aquaculture is susceptible to various risks, including diseases, adverse weather conditions, water quality issues, and natural disasters.

● These risks can **lead to significant financial losses for aquaculture farmers**. Insurance helps manage and mitigate these risks by providing financial compensation in the event of such adverse events.

○ **Investment Protection:**

● Insurance s**afeguards substantial investments in infrastructure,** ensuring that the financial resources **put into the operation are protected** against unforeseen events.

○ **Market Confidence:**

● The availability of aquaculture insurance **can boost investor and farmer confidence** in the industry and encourage individuals to **invest in aquaculture and expand their operations**.

○ **Sustainability:**

● Insurance can promote the sustainability of aquaculture operations by providing a **means to recover from unexpected setbacks,** this, in turn, can **encourage responsible and sustainable practices** in aquaculture to reduce risks and insurance premiums.

What are the Challenges in Implementing the Aquaculture Crop Insurance Scheme?

➢ **Data Collection and Assessment:**

○ Assessing the risks and setting appropriate insurance premiums require accurate and up-to-date data.

○ Gathering such data for aquaculture can be challenging, as it involves **complex environmental and biological factors.**

➢ **Awareness and Education:**

○ Many fishers and farmers may not fully understand the concept of insurance. Raising awareness and providing education on the benefits and processes of the insurance scheme **is essential for its successful implementation.**

➢ **Adverse Selection:**

○ There is a risk of adverse selection, where only those at high risk choose to participate in the insurance scheme, leading to unsustainable premium levels. Balancing the participant pool to include a diverse range of risk levels is a challenge.

○ The administration of the insurance scheme, including the timely processing of claims and premium payments, can be operationally complex.

What are the Government Initiatives Related to Aquaculture?

➢ **Fisheries and Aquaculture Infrastructure Development Fund (FIDF)**

➢ **Blue Revolution**

➢ **Extension of Kisan Credit Card (KCC)**

➢ **Marine Products Export Development Authority.**

➢ **Seaweed Park**

Worker Productivity and Economic Growth

Why in News?

Recently, one of the Industry Leaders, has sparked a debate over **Worker Productivity and Economic Growth** by urging young Indians to **work 70 hours per week.**

➢ He cited Japan and Germany as examples of countries that grew because their citizens worked harder and for longer hours to rebuild their nations in the aftermath of the **Second World War.**

What is Worker Productivity?

➢ **About:**

○ The only conceptual difference between the Worker Productivity and Labor Productivity is that the 'work' in worker productivity describes **mental activities while the 'work' in labour productivity is mostly associated with manual activities.**

Note:

○ Productivity of an activity is usually measured as the quantum of **output value per unit of labour (time) cost** at a **micro level**.

○ At a **macro level**, it is measured in terms of the labor-output ratio or change in Net Domestic Product (NDP) per worker in each sector (where working hours are assumed to be 8 hours per day).

➢ **Measuring Intellectual Worker Productivity:**

○ In certain sectors, particularly those involving intellectual labor, evaluating the value of output can be inherently challenging.

● As a result, **worker productivity is often approximated** based on worker income, which can create **complications when attempting to correlate increased working hours** with higher productivity, particularly if workers don't receive fair compensation for their additional efforts.

➢ **Role of Skill in Productivity:**

○ Productivity is not just about time, **it's about skill.** By investing in education**, training, health**, and other aspects of **Human Capital**, workers can become **more efficient and create more value** in the same amount of time.

○ So, working fewer hours **doesn't necessarily reduce output**; it can actually **improve workers' quality of life.**

● The economy can still grow, even if **nominal wages remain the same**, as long as workers become more skilled and productive.

Is There a Link Between Worker Productivity and Economic Growth?

➢ While an increase in productivity made through any sector is likely to affect the value added and the accumulation or growth in the economy, the **relationship between the two is quite complex.**

➢ During the period 1980 to 2015, India's **Gross Domestic Product (GDP)** expanded significantly, indicating **robust economic growth.** However, this economic growth did not uniformly benefit all segments of society.

○ In 1980, India's GDP was about USD 200 billion, which by 2015 exceeded USD 2,000 billion.

○ However, when looking at income distribution, the **middle-income group's share in the national income decreased from 48% to 29%**, and the **low-income group's** share dropped **from 23% to 14%, during 1980-2015.**

○ In contrast, the **top 10% income group saw their share increase from 30% to 58%,** indicating **a growing Income Gap** in the country during this period.

➢ This income inequality and skewed **distribution of prosperity among different income groups** is not explained by productivity but by poor labor laws, hereditary transfer of wealth, and exorbitant pay packages**.**

What are the Government Schemes to Improve Productivity and Efficiency in India?

➢ **Skill Development Initiatives:** The government has launched various skill development programs like **Pradhan Mantri Kaushal Vikas Yojana (PMKVY), National Skills Qualifications Framework (NSQF)** and **Recognition of Prior Learning(RPL)** to enhance the employability of the workforce.

➢ **Digital India:** The **Digital India** initiative aims to boost efficiency through digitalization and increased access to online services, reducing bureaucracy and enhancing productivity.

➢ **Make in India: Make in India** campaign encourages investment in manufacturing and promotes economic growth, creating job opportunities and enhancing productivity.

➢ **Startup India: Startup India** fosters entrepreneurship, the government introduced Startup India, offering support and incentives to startups and small businesses.

➢ **Ease of Doing Business Reforms: EoDB** reforms aim to simplify regulations, streamline business processes, and make it easier for businesses to operate, thereby increasing productivity.

➢ **National Industrial Corridor Development:** Developing **Industrial Corridors** across the country helps attract investment, create jobs, and stimulate economic growth.

➢ **Incentives for Research and Innovation:** Programs like **Atal Innovation Mission and Biotechnology Industry Research Assistance Council (BIRAC)** provide support and incentives for research and innovation.

➢ **Tax Reforms:** Implementation of the **Goods and Services Tax (GST)** simplifies taxation and boosts efficiency for businesses.

Note:

Does India have Low Worker Productivity?

➤ India's worker productivity isn't necessarily low, despite income-based misconceptions. The decline in **wage shares and the rise in profits since the 1980s can be attributed to various factors**, including informal employment, labor laws, and unfavorable regulations for workers.

➤ Kronos, a global workforce management company, has recognized Indian employees as one of the most hardworking employees in the world.

  ○ On the contrary, India ranks low in terms of average monthly wages.

World Food India 2023

Why in News?

The second edition of 'World Food India 2023' was inaugurated recently in New Delhi, where the Prime Minister of India provided **Seed Capital Assistance** to over **one lakh Self Help Group (SHG)** members.

➤ The Ministry of Food Processing Industries launched the first edition of World Food India in 2017.

What is World Food India 2023?

➤ **About:**

  ○ World Food India 2023 is a gateway to the **Indian food economy**, facilitating partnerships between Indian and foreign investors.

  ○ It will be a one-of-a-kind gathering of manufacturers, producers, food processors, investors, policymakers, and organisations **from across the global food ecosystem.**

➤ **Mascot:**

  ○ MillInd (a probot) is the Mascot for World Food India 2023.

➤ **Focus Pillars:**

  ○ **Shree Anna (Millets):** Leveraging India's Super Food for the World

    ● Millets can enhance **food security, nutrition security, and sustainability in the face of global challenges** such as climate change, population growth, and malnutrition.

● The **United Nations** has declared 2023 as the **International Year of Millets (IYM 2023)**.

○ **Exponential Food Processing: Positioning India as the Global Hub**

  ● To achieve this vision, India intends to boost its enablers that can **support and accelerate its food processing industry.**

  ● One of the key enablers is Financing Agri Food Value Chains and also Providing adequate and affordable credit to the food processing sector, especially to the **micro, small and medium enterprises (MSMEs)**.

What is the Current Status of the Food Processing Sector?

➤ **Sunrise Sector:**

  ○ The Food Processing Sector received recognition, owing to the outcomes of World Food India, often referred to as the **'sunrise sector'.**

  ○ In the past nine years, the sector has attracted foreign direct investments exceeding **Rs 50,000 crores,** thanks to the government's industry-friendly and farmer-centric policies.

Indian Food Processing Industry

INVESTMENTS	EXPORTS	GOVERNMENT INITIATIVES	CAPACITY BUILDING	GROSS VALUE
India's food processing sector has attracted foreign direct investment of more than Rs 50,000 crores in last 9 years	Share of processed foods in India's agricultural exports has grown from 13% in 2013-14 to 23% in 2023	• Seed capital to over 1.25 lakh self-help groups in last 9 years • Government projects and initiatives have impacted approximately 32 lakh farmers and generated 9.75 lakh direct and indirect employment opportunities	India's food processing capacity increasing from 12 lakh metric tonnes to more than 200 lakh metric tonnes in last 9 years	Gross value addition of the food processing sector has surged from ₹1.34 lakh crores in 2014-15 to ₹2.08 lakh crores in 2021-22.

➤ **Production Linked Incentive:**

  ○ The progress made under the **Production-Linked Incentive (PLI)** scheme in the food processing sector, has opened other dimensions.

    ● Different ongoing projects under the **Agri-Infra Fund,** focusing on post-harvest infrastructure, with an investment exceeding **Rs 50,000 crores,** also hold massive potential for the sector.

Note:

- Investments in **processing infrastructure** in the **fisheries** and **animal husbandry sector**, amounting to thousands of crores, are encouraged.

➤ **Other Government Initiatives:**
  ○ Creation of the **Agri-Export Policy**
  ○ Development of **nationwide logistics and infrastructure**
  ○ Establishment of **district-level hubs**
  ○ Expansion of **Mega Food Parks**
  ○ **Pradhan Mantri Kisan Sampada Yojana**
  ○ **Pradhan Mantri Formalisation of Micro Food Processing Enterprises Scheme**

QCI hosts 3rd International Convention on Sustainable Trade and Standards

Why in News?

The **Quality Council of India (QCI)**, an autonomous organization of the **Department for Promotion of Industry and Internal Trade (DPIIT)**, Ministry of Commerce and Industry hosted the 3rd **International Convention on Sustainable Trade and Standards (ICSTS)** in New Delhi.

➤ ICSTS, a two-day event, has been organized by the **India National Platform on Private Sustainability Standards (India PSS Platform)** and hosted by QCI in collaboration with the **United Nations Forum on Sustainability Standards (UNFSS).**

➤ The ICSTS aims to raise awareness and foster dialogue on the challenges and opportunities of **voluntary sustainability standards (VSS),** which are tools to improve the environmental and social aspects of global value chains**.**

What are the Key Highlights of ICSTS?

➤ QCI and the **African Organisation for Standardisation (ARSO)** signed a bilateral agreement to strengthen trade relations and harmonize standards, promoting global trade landscape.

➤ India has forged partnerships with Brazil and Mexico and has now extended cooperation with the **ARSO** regarding Voluntary Sustainability Standards.

○ Sustainability Standards are special rules that guarantee the products you buy **do not hurt the environment and the people who make them.**

➤ The **Open Network for Digital Commerce (ONDC)** initiative was highlighted as it is driving the digitalization initiative, revolutionizing e-commerce in India and making trade more accessible and efficient in the digital age.
  ○ This initiative aligns with international standards, ensuring data confidentiality and trustworthiness.
  ○ ONDC identified QCI to assess the digital Readiness of entities to smoothly join the ONDC Network's Seller App.

➤ At ICSTS, India Good Agricultural Practices(IndG.AP.) standards were compared to GLOBAL Good Agricultural Practices(GLOBALG.A.P.) standards through the **National Technical Working Group (NTWG)** mechanism and creation of **National Interpretation Guidelines (NIG)** also took place at the ICSTS.
  ○ This helps align Indian agricultural practices with global standards. The creation of **NIG provides guidelines for applying these standards in India.**
  ○ These efforts will **benefit around 12,000 farmers** by ensuring they meet international quality and sustainability standards.

Key Terms

➤ **India National Platform on Private Sustainability Standards (INPPSS):**
  ○ It was initiated under the Secretarial oversight of the **QCI**. It is a first-of-its-kind initiative in the world for addressing **PSS issues** in a national context.
  ○ It aims to facilitate dialogue between core public and private stakeholders on how to maximize the sustainable development benefits and market access opportunities.

➤ **United Nations Forum on Sustainability Standards (UNFSS):**
  ○ UNFSS, is a platform that aims to promote the use of **voluntary sustainability standards (VSS)** for achieving **sustainable development goals (SDGs).**
  ○ **UNFSS is coordinated by five UN agencies:**
    • **Food and Agriculture Organization (FAO)**, **International Trade Centre (ITC), United Nations Conference on Trade and Development (UNCTAD), United Nations Environment Programme (UN Environment)**, **United Nations Industrial Development Organization (UNIDO).**

Note:

- UNFSS produces reports, organizes events, and provides technical assistance on VSS-related issues.

➢ **India Good Agricultural Practices (IndG.AP.):**
  ○ IndG.AP, is a **certification scheme developed by the QCI** to promote the production of safe and quality agricultural products in India.
  ○ IndG.AP. covers various aspects of farming such as soil, water, crop health, environmental protection, worker welfare, and food safety.

➢ **GLOBAL Good Agricultural Practices (GLOBALG.A.P.):**
  ○ It is an internationally recognized standard that ensures quality management, safety, and traceability in the field of growing plants, vegetables, tubers, fruits, poultry, cattle, and aquatic products.

➢ **National Technical Working Group (NTWG)**:
  ○ The NTWG is a group that bridges the **gap between global and local issues.** They identify adaptation and application challenges at a national level and develop national interpretation guidelines (NIGs). NIGs support cost-effective audit processes around the world.

What is the Quality Council of India (QCI)?

➢ **About:**
  ○ QCI is a **non-profit organization** registered under the **Societies Registration Act XXI of 1860.**
  ○ It was jointly established by the **Government of India** and the **Indian Industry** represented by the three premier industry associations, Associated Chambers of Commerce and Industry of India (ASSOCHAM), Confederation of Indian Industry (CII) and Federation of Indian Chambers of Commerce and Industry (FICCI) in 1997.
  ○ QCI was established to **promote and enhance quality standards across various sectors in India.**
  ○ It is responsible for accreditation, certification, and quality promotion in India.
  ○ The **DPIIT, Ministry of Commerce and Industry** was designated as the **nodal point** for all matters connected with quality and QCI to structure and help implement the Cabinet decision.

➢ **Members:**
  ○ QCI is governed by a Council of **39 members including the Chairperson and Secretary General**.
    - Chairperson (Nominated by the Prime Minister of India).

○ The Council has an equal representation of Government, Industry and other Stakeholders.

Impact of Export Restriction of Rice

Why in News?

In July 2023, India banned the export of non-basmati white rice amid depleting public stock in the Central pool, elevated cereal prices, and the looming threat of the uneven **Monsoon**, which **has impacted prices globally and domestically.**

Why did India Pose Restrictions on the Export of Rice?

➢ **Domestic Food Security:**
  ○ Restricting rice exports helps maintain **sufficient stocks in the country, especially in the Central pool,** to meet the **Food Security** needs of India's large population.
  ○ According to the first advance estimates for the production of major **Kharif Crops** in the 2023-24 season by the Ministry of Agriculture and Farmers Welfare, Rice production is estimated to be **3.7% lower than the previous year.**

➢ **Rising Domestic Prices:**
  ○ The government imposed export restrictions to control the surge in domestic rice prices. When there is a shortage of rice in the domestic market, prices tend to rise, and **restrictions can help stabilize prices** and protect consumers from inflation.

➢ **Uncertainty Related to Monsoons:**
  ○ India heavily relies on the **monsoon** season for agricultural production. Unpredictable or uneven monsoons can affect crop yields.
  ○ Export restrictions were presumed **as a precautionary measure** to conserve rice stocks in case of a poor monsoon season.

What is the Impact of Export Restriction of Non-Basmati RIce?

➢ **Global Rice Price Fluctuations:**
  ○ India's rice restrictions have made an impact on supply, availability and prices in domestic as **well as global markets over the months.**

Note:

○ After India imposed the ban on the export of non-basmati white rice, there was an **immediate and substantial increase in global rice prices.**

○ While prices have **slightly moderated in the following months**, they still remain elevated compared to the pre-ban period.

➢ **Domestic Price Escalation:**

○ Despite the export ban, domestic rice prices in India have continued to surge.

○ The average wholesale price of rice per quintal, as of October 2023, was significantly higher compared to previous periods, marking a 27.43% increase over the past month.

○ Retail prices have increased compared to 2022, with the **average price of rice per kilogram being 12.59%** higher in October 2023 than a year ago and 11.72% higher than when export regulations were implemented by the government.

➢ **Overall Economic Impact:**

○ The restrictions on rice exports have had far-reaching economic consequences, affecting both domestic and international markets.

○ These consequences include price fluctuations, disruptions in global trade, and implications for **food security in importing countries.**

What are the Key Facts About Rice?

➢ Rice is a **staple food for most of the population** in India.

➢ It is a **kharif crop** which requires high temperature (above 25°C) and high humidity with annual rainfall above 100 cm.

○ In the areas of less rainfall, it is grown with the help of irrigation.

➢ In southern states and West Bengal, the climatic conditions allow the cultivation of two or three crops of rice in an agricultural year.

○ In West Bengal farmers grow three crops of **rice called 'aus', 'aman' and 'boro'.**

➢ About one-fourth of the total cropped area in India is under rice cultivation.

○ **Leading Producer States:** West Bengal, Uttar Pradesh, and Punjab.

○ **High Yielding States:** Punjab, Tamil Nadu, Haryana, Andhra Pradesh, Telangana, West Bengal and Kerala.

➢ India is **the second-largest producer of rice after China.**

How Does India Export Rice?

➢ India is the biggest exporter of rice in the world. As per the United States Department of Agriculture (USDA), India accounted for about 40% of the total rice exports (56 million tonnes) in the world during 2022.

➢ India's rice exports are broadly categorised into **Basmati** and **Non-basmati rice.**

○ **Basmati Rice:** In 2022-23, India exported 45.61 lakh metric tonnes of basmati rice.

● Top destinations for Indian basmati rice included **Iran, Saudi Arabia, Iraq, UAE, and Yemen.**

○ **Non-Basmati Rice:** In the 2022-23 fiscal year, India exported 177.91 lakh metric tonnes of non-basmati rice.

● The non-basmati rice includes varieties like Sona Masuri and Jeera rice.

➢ **Top Destination of Non-basmati White Rice:** Benin, Madagascar, Kenya, Cote D' Ivoire, Mozambique, Vietnam.

○ The non-basmati rice category includes **6 sub-categories**— rice in husk of seed quality; other rice in husk; husked (brown) rice; rice parboiled; non-basmati white rice; and broken rice.

The Indian Railways' Revenue Problems

Why in News?

The **Indian Railways (IR)** has increased its **capital expenditure (capex)** significantly since merging its rail budget with the main budget. However, its **operating ratio,** which measures expenses against revenue, hasn't improved.

What are the Present Concerns with Indian Railways?

➢ **Debt Trap Concerns:**

○ The Indian Railways (IR) is facing a **growing concern related to rising debt.** In the absence of surplus funds, the IR has been relying on increased funding through **Gross Budgetary Support (GBS) and Extra Budgetary Resources (EBS).**

● However, this reliance on EBS comes with a significant cost. The IR's spending on repayment of principal and interest make 17% of revenue receipts, a sharp rise from less than 10% till 2015-16.

Note:

- ➤ **Concerns Related to Economic Growth vis-a-vis Unproductive Investments:**
  - ○ Despite the mounting debt, the significant increase in capex is underpinned by the belief that investments in the railway sector have a **positive ripple effect on manufacturing, services, government tax revenue, and employment opportunities.**
    - ● However, **it is imperative that the IR, as a vital organization, avoids following the path of financial instability seen in entities like Air India.**
- ➤ **The Lessening Share:**
  - ○ The Indian Railways (IR) faces a significant challenge with its **share in transporting key commodities declining over the years.**
    - ● For instance, **in 2011**, coal transportation was 602 million tonnes (MT), with the rail share at 70%, but by 2020, coal consumption increased to 978 MT, while the rail share **decreased to 60%.**
    - ● Similarly, **the share of exim (Export-Import) containers moving to and from ports has fluctuated between 10% and 18% since 2009-10,** with the 2021-22 figure at 13%.
- ➤ **Concerns with Net Tonne Kilometers (NTKM):**
  - ○ There was an unprecedented decline in NTKM in 2015-16 and 2016-17 by 4% and 5% respectively.
    - ● In the **seven-year period ending in 2021-22,** NTKM showed an annual growth rate of 3.5%, **significantly lower** than the growth rate in road transport.

What are the Long-Term Issues in the Indian Railway System?

- ➤ **Challenges in Financial Performance:**
  - ○ The IR **faces a significant problem** with its financial performance, particularly the stark contrast between its profitable freight segment and the loss-making passenger segment.
    - ● A 2023 report from the Comptroller and Auditor General of India(CAG) highlighted a massive loss of Rs. 68,269 crore in passenger services which had to be covered by profits from freight traffic.
- ➤ **Challenges in Freight Business:**
  - ○ From April to July 2023, the annual growth in **freight volume and revenue stands at just 1% and 3%,** respectively, **whereas the Indian economy is growing at 7%**.
    - ● The modal share of the IR in India's freight business has drastically **decreased to approximately 27%, a significant decline from the over 80% share** it had at the time of India's independence.
- ➤ **Artificial Division of Cargo:**
  - ○ The **artificial division of cargo into goods and parcels is hindering efficiency.** These divisions, driven by tariff rules, handling procedures, and monitoring practices, **do not align with the concerns of shippers.**
    - ● It is **essential for the IR to abandon this artificial divide and categorize cargo based on**
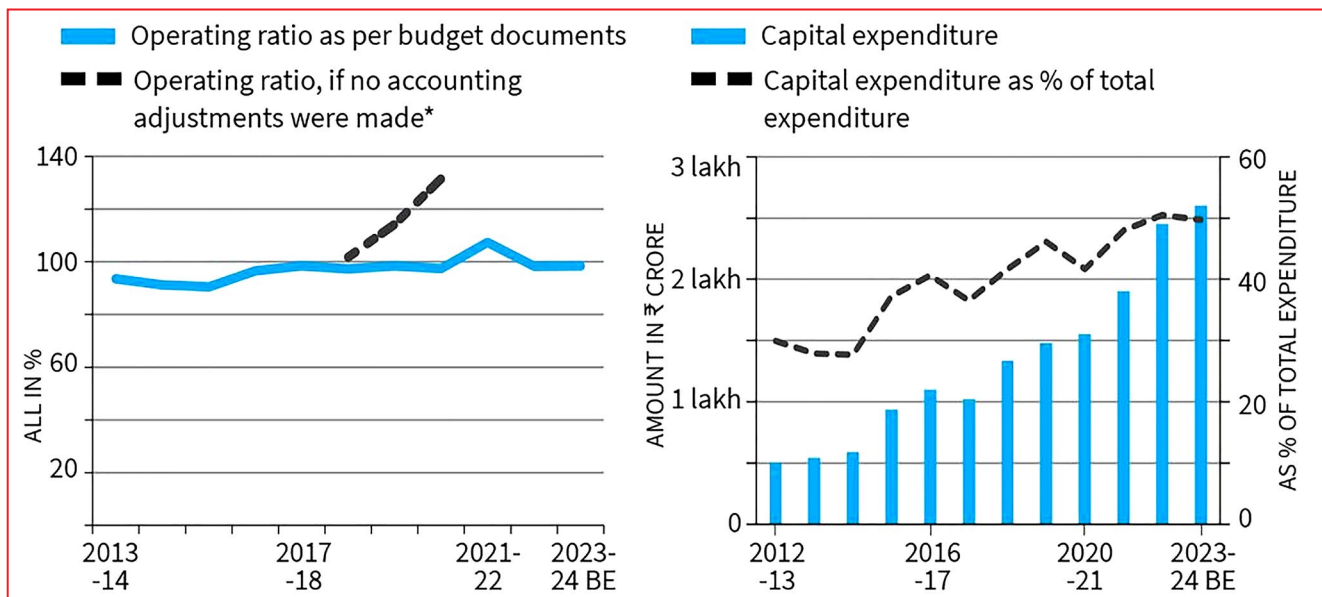
Note:

its characteristics as either bulk or non-bulk, which could be referred to as **value-added.**

➤ **Challenges in Competing with Road Transport:**
  ❍ The Indian Railways also faces competition from road transport, which has been growing at a faster rate than rail transport. This competition, **combined with the fluctuating Net Tonne Kilometres (NTKM)**, has made it challenging for the IR to maintain and expand its share in freight transportation, where overhaul in railway transportation is required.

➤ **Inadequacy of Containerization:**
  ❍ After 15 years of privatization, containerized domestic cargo **accounts for only 1% of IR's loading and 0.3% of the country's total freight.**
    ● High haulage rates and the risk of market development with potential losses are contributing to this underperformance.

What are the Ways to Ease and Improve the Transport of Cargo by Indian Railways?

➤ **Need to Phase Out Parcel Trains:**
  ❍ The IR is facing **challenges in moving general cargo using parcel trains and special heavy parcel van (VPH) trains**.
    ● One of the key reasons for these challenges is the **high tariff, which is often higher than truck rates.**
  ❍ The VPH parcel trains are found to be counterproductive, **and there is a better alternative in the form of covered wagons that can carry more cargo efficiently.**

➤ **Need of Flexibility for Shippers:**
  ❍ A significant issue for the IR is that **shippers can only send a few tonnes under parcel tariff or thousands of tonnes under freight tariff, making it unsuitable for the needs of general cargo.**
    ● Shippers require a more flexible and suitable option that aligns with their cargo sizes, akin to **asking passengers to come with a load of passengers** before booking a berth on a passenger train.

➤ **Overcoming Challenges in Cargo Transportation:**
  ❍ The declining share of the IR in bulk cargo is partly **due to the high cost and capital-intensive nature of railway sidings,** which discourages smaller industries from using them.

    ● To address this, **common-user facilities at cargo aggregation and dispersal points are needed,** especially in mining clusters, industrial areas, and large cities.

➤ **Ensuring a Level Playing Field Between Rail and Road Transportation:**
  ❍ Environmental clearance for rail loading/unloading facilities has been made mandatory but the same has not been imposed on road loading/unloading facilities. There is a need for consistent Environmental regulations.

➤ **Optimization of Tarrifs:**
  ❍ To incentivize **volumetric loading**, tariff structures can be adjusted based on the quantity loaded. The IR should also encourage **cargo aggregators and optimize payload** and speed for better efficiency in the long run.

➤ **Modernization of Infrastructure:**
  ❍ Urgent need for infrastructure modernization in railways, including **high-speed rail, station redevelopment, track doubling, coach refurbishing, GPS tracking**, and **digitalization** for safety, efficiency, and cost reduction.

➤ **Reduction in operational costs:**
  ❍ Indian Railways has achieved an Operating Ratio of 98.14% which can be further improved by **focusing on energy conservation, optimizing manpower, and enhancing procurement practices.**

What are the Different Initiatives of Railways for Increasing Bulk Cargo?

➤ The Indian Railways (IR) has undertaken several initiatives in the **bulk cargo sector, including relaxing block rake movement rules, allowing mini rakes, and introducing private freight terminals (PFTs).**

➤ The **Gati Shakti Terminal (GCT) policy** simplifies the operation of these terminals, and private sidings are being converted into GCTs.

➤ Government of India has introduced **two key policies**: The **PM GatiShakti (PMGS) policy,** aimed at creating a seamless multi-modal transport network, and the **National Logistics Policy (NLP),** focusing on building a **national logistics portal** and integrating platforms across various ministries

➤ **Investment in railway infrastructure:** The government has also introduced schemes such as **'Sagarmala' and 'Bharatmala'** for port-led development and road

Note:

development respectively **which must be integrated with Indian Railways.**

➢ **Dedicated Freight Corridors:** The government has also introduced schemes such as **'Dedicated Freight Corridors'** which should be leveraged to increase freight transportation.

India's Widening Tax Base

Why in News?

The recent release of **income tax returns statistics** by the **Income Tax Department,** spanning assessment years from **2019-20 to 2021-22,** offers insights into **changing tax compliance patterns**.

➢ The data unveils a transformation in the profile of taxpayers**, particularly a movement towards higher-income brackets**, while highlighting persistent challenges in **ensuring all eligible taxpayers file their returns.**

What is an Income Tax Return?

➢ **Income Tax:**
  ○ Income tax is a tax charged on the **annual income of an individual or business earned in a financial year.**
    ● The Income Tax system in India is governed by **The Income Tax Act, 1961** and it is a direct tax.

➢ **Income Tax Return:**
  ○ It is a designated document used to **convey details about an individual's earnings in a financial year** and the **taxes paid on that income to the Income-tax Department.**
    ● This form also facilitates the carrying forward of losses and **enables individuals to claim refunds from the income tax department.**

What are the Major Takeaways from Recent Income Tax Returns Statistics?

➢ **Overall Tax Filings:**
  ○ In the **assessment year(AY) 2021-22** (financial year 2020-21), a total of **6.75 crore taxpayers submitted income tax returns,** marking a **5.6% increase from the previous year's 6.39 crore filings.**
    ● However, approximately 2.1 crore taxpayers paid taxes but **did not file returns.**

➢ **Evolution of Taxpayer Base:**
  ○ The **number of taxpayers** has **progressively increased** in recent years: **from 5.87 crore in AY 2018-19 to 6.75 crore in AY 2021-22.**
    ● However, the percentage of taxpayers paying nil tax has also risen from **40.3% in AY 2018-19 to 66% in AY 2021-22.**

➢ **Income Trends:**
  ○ The department highlighted a **migration of individual taxpayers towards higher income brackets over the years.**
  ○ According to the **Central Board of Direct Taxes (CBDT)**, the proportionate contribution of **income from the top 1% earners decreased,** while the share from the **bottom 25% increased over the years.**

➢ **Criticism:**
  ○ Critics highlight a **widening wealth gap between the ultra-rich and the middle class in India**, as the **top 1% of income earners saw their income share rise from 17% to 23%** from 2013-14 to 2021-22.
  ○ Meanwhile, the income growth for the **bottom 25% lagged**, leading to a decline in their real income when adjusted for inflation.
  ○ This income **gap raises concerns about economic fairness** and the struggles of the middle class in achieving sustainable financial progress.

Note: The **assessment year** is the period during which the income earned in a particular financial year is assessed or evaluated for tax purposes. It is the **year immediately following the financial year** for which the income is being assessed.

What is the Central Board of Direct Taxes?

➢ The **Central Board of Direct Taxes** is a **statutory authority** functioning under the **Central Board of Revenue Act, 1963.**
  ○ It operates within the **Department of Revenue Ministry of Finance**.

➢ It plays a dual role by contributing **crucial insights for shaping direct tax policies and strategies in India,** while simultaneously overseeing the **implementation and execution of direct tax regulations via the Income Tax Department.**
  ○ It is led by a Chairman and consists of six members.

OECD Report Highlights Taxation of Indian Farmers

Why in News?

The latest report titled **Agricultural Policy Monitoring and Evaluation 2023** by the **Organisation for Economic Co-operation and Development (OECD)** has shed light on the implicit taxation of Indian farmers in 2022.

➢ According to a report Indian farmers were taxed USD 169 billion in 2022.

What are the Key Highlights of the Report?

➢ **India's Negative MPS Dominance:**
  ○ In 2022, India's **negative Market Price Support (MPS) accounted for over 80%** of such taxes globally among 54 countries analyzed in the OECD report.
    ● Total implicit taxation for farmers across the 54 countries was approximately USD 200 billion. The implicit taxation imposed on Indian farmers reached a staggering USD 169 billion, making India a major player in this scenario.

Market Price Support (MPS)

➢ It is defined as the "**annual monetary value of gross transfers** from consumers and taxpayers **to agricultural producers"** due to policy measures that create a price gap between domestic and international markets.

➢ It is the measure of benefits or losses experienced by farmers when domestic prices deviate from world prices.

➢ **Offset Attempts in Emerging Economies:**
  ○ Many emerging economies with negative MPS managed to offset it through budgetary support.
    ● However, in India's case, different budgetary transfers to farmers in the form of large subsidies for variable input use, such as fertilizers, electricity, and irrigation water, **Pradhan Mantri Kisan Samman Nidhi (PM-KISAN)**, did not offset the price-depressing effect of domestic marketing regulations and trade policy measures.

➢ **Impact on Indian Farmers:**
  ○ While budgetary transfers **constituted 11% of gross farm receipts,** the negative **MPS amounted to 27.5% for different commodities.**

  ● This discrepancy resulted in an overall negative net support of 15% of gross farm receipts, a concerning situation for Indian farmers.

➢ **Export Policies in 2022:**
  ○ In 2022, **India introduced export bans,** duties, and permits on several commodities, primarily as a response to the **war in Ukraine** and the 2022 **heatwave.**
    ● These policies aimed to prevent fluctuations in **domestic prices but, in doing so, lowered farmers' receipts.**
  ○ Commodities affected by these export policies included various types of rice, **wheat, sugar, onions, and related products, such as wheat flour**.
    ● Export restrictions directly **affected India's reliability as a supplie**r and exacerbated the persistent challenge of low farm incomes.
    ● These policies not only impacted domestic markets but also the country's position as a global agricultural producer.

➢ **Global Perspective:**
  ○ The OECD report highlighted that producer support to the agriculture sector across 54 countries averaged USD 851 billion annually during 2020-2022, a substantial increase attributed to responses to the **Covid-19 pandemic,** inflationary pressures, and the Ukraine war fallout.

➢ **Potential for Distortion:**
  ○ Two-thirds of the positive support to producers across the 54 countries was in forms considered to be 'potentially most distorting' to production and trade.
  ○ These forms include payments based on output and unconstrained use of variable inputs, which can lead to inefficiency and lack of targeted support.

➢ **International Disparities:**
  ○ Emerging economies had potentially more distorting policies, generating both positive support to producers (10% of gross farm receipts) and implicit taxation (6% of gross farm receipts) during 2020-2022.
  ○ In contrast, OECD countries had a lower level of potentially distorting policies but did not implicitly tax producers.

Note:

What are India's Initiatives Related to Farmers?

➤ **The Pradhan Mantri Kisan Samman Nidhi (PM-KISAN)**
➤ **Kisan Credit Cards (KCC)**
➤ **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**

What is the Organization for Economic Co-operation and Development (OECD)?

➤ **About:**
   ○ The OECD is an **intergovernmental economic organization**, founded to stimulate economic progress and world trade.
   ○ Most OECD members are high-income economies with a very high **Human Development Index (HDI)** and are regarded as developed countries.
➤ **Foundation:**
   ○ It was founded in 1961 with its **Headquarters at Paris, France and total membership is 38 countries.**
   ○ The most recent countries to join the OECD were Colombia, in April 2020, and Costa Rica, in May 2021.
   ○ **India is not a member, but a key economic partner.**
➤ **Reports and Indices by OECD:**
   ○ Government at a Glance.
   ○ OECD Better Life Index.

The Lewis Model and India

Why in News?

While the **Lewis Model has proved successful for China,** India grapples with its implementation, encountering challenges in the transition from agriculture to **industrialization**.

➤ Also, as manufacturing trends towards higher capital intensity, India contemplates shifting to a **'farm-as-factory' labor model in response.**

What is the Lewis Model?

➤ **About:**
   ○ In **1954**, economist **William Arthur Lewis** put forth the **"Economic Development with Unlimited Supplies of Labor"**.
      • For this work Lewis won **Nobel Prize in Economics in 1979.**
   ○ The crux of the model suggested that **surplus labor in agriculture could be redirected to the manufacturing sector** by offering wages just high enough to attract workers away from the farm.
      • This shift, in theory, **would stimulate industrial growth,** enhance productivity, and lead to **economic development**.
➤ **Lewis Model and China:**
   ○ The **model's application in China was successful**. Leveraging **surplus rural labor and demographic advantages**, China employed a **dual-track system merging market forces with state planning**.
      • This strategy attracted **foreign investment, boosted exports, and nurtured domestic industries.**
   ○ Extensive investments in infrastructure, education, and research and development enhanced **China's productivity and competitiveness,** resulting in **rapid industrialization, poverty reduction, and a substantial transformation** of the economy.
➤ **Lewis Model and India:**
   ○ **Agriculture,** historically employing the majority of India's workforce, has seen a **gradual decline in its share of employment.**
   ○ Contrary to expectations, **this shift has not predominantly benefited the manufacturing sector,** which has only experienced marginal growth in its share of employment.
➤ **Employment in the manufacturing sector** has decreased to **11.4% in 2022-23** from its peak of 12.6% in 2011-12.
   ○ The **decrease in manufacturing employment** shows a trend of labor moving predominantly into **services and construction,** which contrasts the expected structural transformation outlined by economists Lewis.

AGRICULTURE VS MANUFACTURING

■ Agriculture   ■ Manufacturing   *% share of workforce*

Year	Agriculture	Manufacturing
1993-94	64.6	10.4
1999-20	61.7	10.7
2004-05	58.5	11.7
2011-12	48.9	12.6
2017-18	44.1	12.1
2018-19	42.5	12.1
2019-20	45.6	11.2
2020-21	46.5	10.9
2021-22	45.5	11.6
2022-23	45.8	11.4
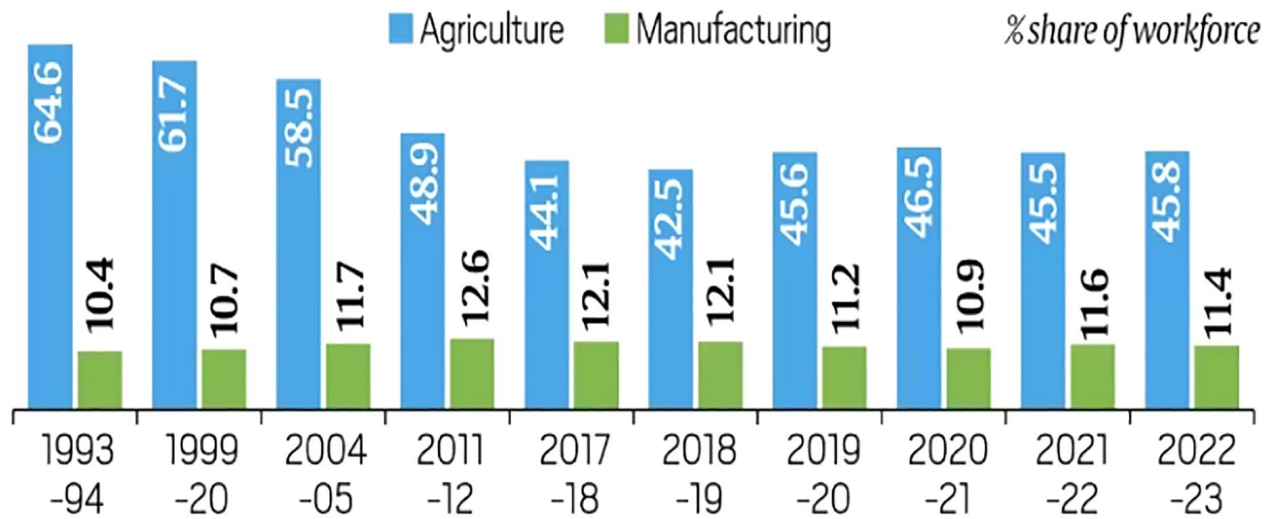
Source: NSSO Employment & Unemployment Survey (till 2011-12) and Periodic Labour Force Surveys (from 2017-18)

What are the Challenges in Implementation of Lewis Model in India?

➤ **Obstacles of Low Wages:** Low wages and inadequate social security in urban manufacturing facilities fails to entice **rural agricultural laborers to relocate, given the high costs of urban living**, posing a hurdle to the implementation of the Lewis model.

➤ **Technological Shift in Manufacturing**: Manufacturing industries are **increasingly capital-intensive,** relying on **labor-displacing technologies** like **robotics and artificial intelligence.**

  ❍ This transition **restricts the absorptive capacity** of labor-intensive sectors to accommodate surplus agricultural workers.

➤ **Disguised Unemployment:** India faces a scenario of **disguised unemployment** in the agricultural sector, where a surplus of workers is engaged in activities that do not significantly contribute to increased productivity or income.

  ❍ This surplus labor situation **complicates the transition of workers to other sectors.**

➤ **Skill Mismatch**: There exists a **mismatch between the skills demanded by the industries and the skills possessed by the workforce**.

  ❍ The education system might not adequately prepare individuals for the demands of the modern job market, resulting in a skill gap that impedes labor absorption in industries.

➤ **Overemphasis on White-Collar Jobs:** Societal perceptions often **prioritize white-collar jobs over vocational or technical skills**.

  ❍ This bias against **blue-collar work** can limit the workforce available for skilled trade positions and technical jobs, affecting industrial growth.

What are the Recent Government Initiatives for Growth of the Industrial Sector in India?

➤ **Production-Linked Incentive (PLI)** - To scale up domestic manufacturing capability.

➤ **PM Gati Shakti- National Master Plan** - Multimodal connectivity infrastructure project.

➤ **Bharatmala Project** - To Improve connectivity with North East India

➤ **Start-up India** - To catalyze Startup culture in India

➤ **Make in India 2.0** - To transform India into a global design and manufacturing hub

  Note: As India pursues the advancement of its industrial sector, it should **concurrently seek complementary alternatives** to augment its growth trajectory.

Note:

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What are the Alternatives to the Lewis Model for India?

➢ **Farm-as-Factory Model:** This model suggests a focus on **elevating the value addition and productivity within India's agricultural secto**r rather than transferring workers from agriculture to manufacturing.

○ By emphasizing the promotion of **agribusiness, bio-fuels, and food processing** this approach aims to enhance employment opportunities, income generation, and innovation for rural workers.

➢ **Services-led Model:** This model proposes that **India should leverage its comparative advantage in services** to drive its economic growth.

○ India has a strong presence in sectors such as **information technology, business process outsourcing, tourism, health care and entertainment.**

○ These sectors can create high-skilled jobs, boost exports, and attract foreign investment.

➢ **Amartya Sen's Capability Approach:** Instead of focusing solely on economic growth, **Amartya Sen's Capability Approach** emphasizes enhancing individuals' capabilities and freedoms.

○ By prioritizing **education, healthcare, and social support**, this approach aims to empower individuals to pursue their own choices and opportunities.

Minimum Wage Policy and Gig Workers

Why in News?

The **fifth annual study** conducted across **12 e-commerce platforms by Fairwork India,** presents a grim picture of working conditions for **India's gig workers.**

➢ Fairwork is a **team of researchers part of International Institute of Information Technology,** Bangalore's Centre for IT and Public Policy.

➢ Five Fairwork principles such as Fair Pay, Fair Conditions, Fair Contracts, Fair Management and Fair Representation were examined in the study.

What are the Key Highlights of the Study?

➢ **Minimum Wage and Worker Alienation:**

○ The study highlights that **only three platforms, including Bigbasket, Flipkart, and Urban Company,** have minimum wage policies to ensure workers earn at least the local minimum wage.

○ However, no platform guarantees that workers earn a living wage. This year's study **explores how working conditions contribute to alienation, often linked to discrimination** based on factors like caste, class, gender, and religion.

➢ **Safety, Contract Clarity, and Worker Protections:**

○ Some platforms also **offer accident insurance coverage and compensation for income loss due to accidents or medical reasons.**

● Additionally, companies have **taken measures to ensure contract clarity, data protection, and processes for handling worker issues,** such as appealing disciplinary actions.

○ Unfortunately, **no platform received points for Fair Representation, indicating a lack of recognition for collective worker bodies** despite increased worker collectivization in recent years.

What is the Scenario of the Gig Economy in India?

➢ **Definition:**

○ The gig economy refers to a labor market characterized by the prevalence of **short-term contracts, freelance work, and temporary positions, as opposed to permanent employment.**

○ In the gig economy, individuals often **work on a project-by-project basis, taking on various "gigs" or tasks,** rather than being traditional full-time employees of a single company.

➢ **Growth Scenario:**

○ As per the **Economic Survey 2020–21,** India has emerged as one of the world's largest countries for flexi staffing, or gig workers.

○ As per **Niti Aayog**'s report on **Gig Economy,** the latter employs **approximately 7.7 million workers,** with the number **expected to rise to 23.5 million by 2029-30,** comprising around **4% of overall livelihood** in the country.

○ Currently, about **31% of gig work is in low skilled jobs** such as cab driving and food delivery, **47% in medium-skilled jobs** such as plumbing and beauty services, and **22% in high skilled jobs such** as graphic design and tutoring.

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➢ **Major Issues Faced by Gig Workers:**
○ Gig workers are often **excluded from social security and labor legislation** due to their **ambiguous employment status.**
○ Social security and other basic labor rights like minimum wage, limits on working hours, etc. **hinge on "employee" status,** the independent contractor status of gig workers excludes them from getting such benefits and legal protections.
○ In the event of disability or a worker's death, Social Security provides benefits to eligible individuals and their families. **Gig workers may have lower**

coverage for these benefits, which can affect their financial security in challenging circumstances.

➢ **Government's Initiatives:**
○ The **Code on Social Security (2020)** contains a separate section on 'gig economy' and **imposes an obligation on gig employers** to contribute to a Social Security Fund to be handled by a government-led board.
○ The **Code on Wages, 2019,** provides for universal minimum wage and floor wage across organized and unorganized sectors, including gig workers.

THE GIG ECONOMY: EFFECTS
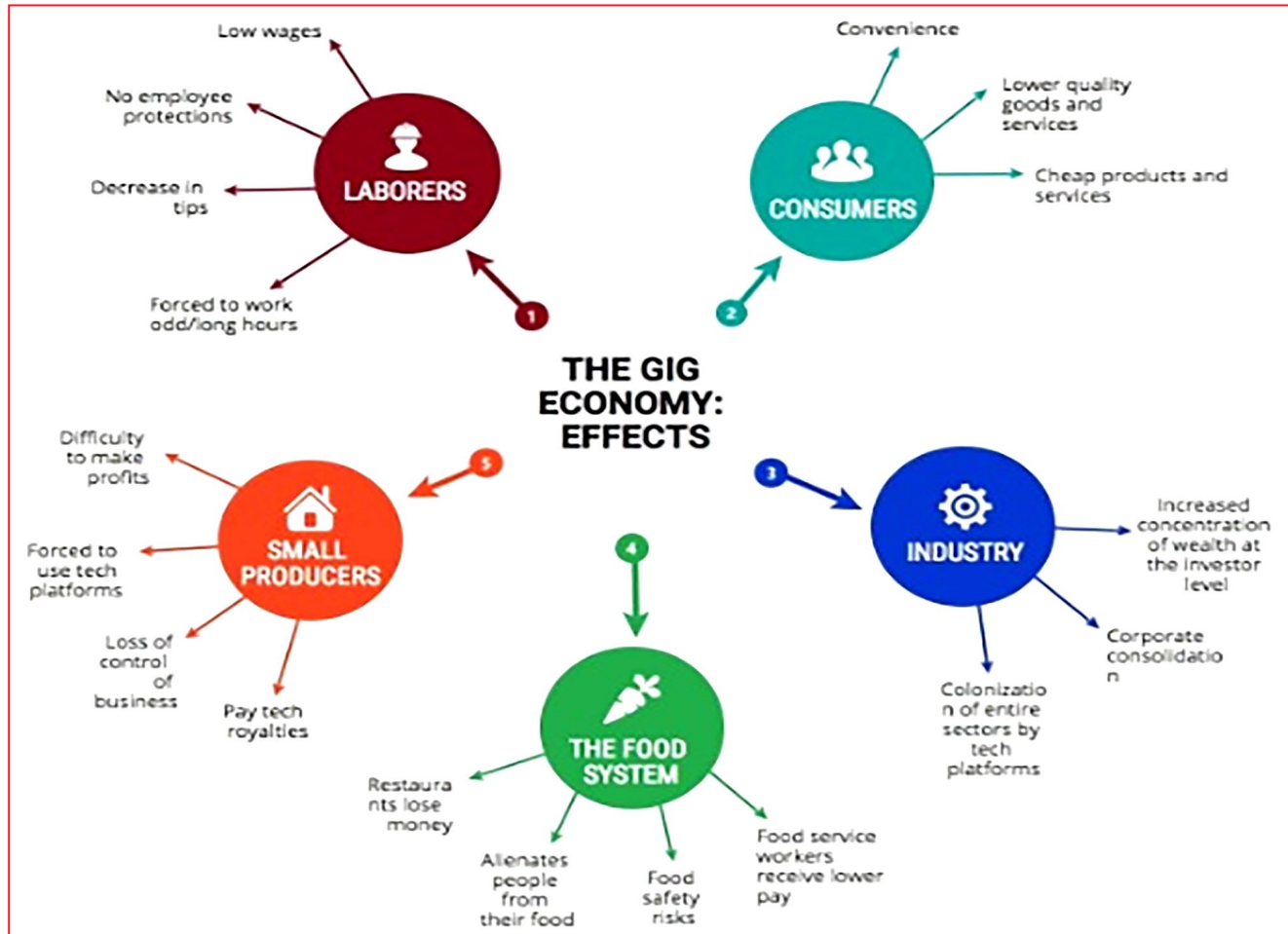
What is the Minimum Wage Policy of India?

➢ **Code of Wages Act 2019:**
○ The Code aims to transform the old and obsolete labour laws into more accountable and transparent ones and seeks to pave the way for the introduction of minimum wages and **labour reforms in the country.**
○ It universalizes the provisions of **minimum wages**

and timely payment of wages to all employees irrespective of the sector and wage ceiling and seeks to ensure **"Right to Sustenance" for every worker** and intends to increase the legislative protection of minimum wage.
○ The Central Government is **empowered to fix the floor wages** by taking into account the living

standards of workers. It may set different floor wages for different geographical areas.

- The **minimum wages decided by the central or state governments must be higher than the floor wage.**

➢ **Fixation of Floor Wage:**

- ○ The **Code on Wages Rules, 2020** mentions the concept of a **floor wage,** which empowers the central government to fix floor wages taking into account the minimum living standards of workers.
  - The floor wage is a baseline wage below which minimum wages **cannot be fixed by state governments.**
  - The Wage Code permits the fixation of **different floor level wages for different geographical areas.** However, this has given rise to the fear of flight of capital from areas where the wage is higher to areas where the wage is lower.

QR Codes for Food Labels

Why in News?

Recently, **Food Safety and Standards Authority of India (FSSAI)** has recommended the inclusion **of QR codes on food products** for accessibility by visually impaired individuals stating that this will ensure **Access to Safe Food** for all.

➢ The FSSAI in 2019 proposed the **Front-of-Pack Labeling (FOPL)**, a key strategy to alert and educate consumers in making an informed choice.

What is QR Code?

➢ A **QR (Quick Response) code**, is a type of **two-dimensional matrix barcode** that can store various types of data, such as alphanumeric text, website URLs, contact information, and more.

➢ It was invented in **1994 by the Japanese company Denso Wave**, primarily for the purpose of **tracking and labeling automobile parts**.

➢ QR codes are characterized by their distinctive square shape and a pattern of black squares on a white background, which can be **scanned and interpreted using a QR code reader or a smartphone camera.**

What are the Key Recommendations of the FSSAI in this Regard?

➢ **FSSAI's Food Safety and Standards (Labelling and Display) Regulations, 2020:**

- ○ The Recommendations are consistent with the **FSSAI's Food Safety and Standards (Labelling and Display) Regulations, 2020**.
- ○ It ensures that food manufacturers adhere to labeling requirements, which are essential for food safety and consumer protection.

➢ **Rights of Persons with Disabilities Act, 2016:**

- ○ By including QR codes for accessibility by visually impaired individuals, the move is in accordance with the **Rights of Persons with Disabilities Act, 2016**.
- ○ It promotes inclusivity and equal access to essential information.

➢ **Information Provided by QR Codes:**

- ○ The QR codes will encompass **comprehensive details about the product**, including, but not limited to, ingredients, nutritional information, allergens, manufacturing date, best before/expiry/use by date, allergen warning, and contact information for customer enquiries.
- ○ The inclusion of a QR code for the **accessibility of information** does not replace or negate the requirement to provide mandatory information on the product label, as **prescribed by relevant regulations.**

What are the Present Concerns Related to Access to Safe Food?

➢ India is experiencing a significant rise in **Non-Communicable Diseases (NCDs)**, such as obesity, diabetes, and cardiovascular diseases.

➢ The **World Health Organization (WHO)** has noted a global increase in NCDs over the last two decades.

➢ These diseases are partly attributed to the **consumption of aggressively marketed, cheaper, and easily available** pre-packaged foods, which are becoming increasingly popular among consumers.

What is the Significance of the Move?

➢ **Accessibility for Visually Impaired Individuals:**

- ○ These codes can be scanned using smartphone applications, which can then read out the information to the user.

Note:

❍ This ensures that visually impaired consumers have the s**ame access to critical information about food product**s as sighted individuals, promoting inclusivity and equal access to safe food.

➢ **Comprehensive Information:**

❍ The level of details provided in the QR code empowers all consumers, including those with dietary restrictions or allergies, to make informed choices, reducing the risk of adverse reactions or health issues.

➢ **Informed Decision-Making:**

❍ Consumers can quickly verify the claims made by manufacturers and make choices that support their health and dietary needs.

❍ This is particularly crucial in a market saturated with pre-packaged foods, as consumers **can distinguish between healthier and less healthy options.**

❍ By providing nutritional information and allergen warnings through QR codes, consumers are better equipped to make healthier food choices.

➢ **Global Significance:**

❍ The use of QR codes on food products is not unique to India. Countries like the US, France, the U.K., and India are prominent users of QR codes on food products.

❍ This aligns with global trends, as consumers worldwide increasingly use QR codes to access i**nformation about the products they purchase.**

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International Relations

Displacement in Democratic Republic of Congo

Why in News?

The **UN International Organization of Migration (IOM)** recently reported a surge in internal displacement in the **Democratic Republic of Congo (DRC),** reaching a staggering 6.9 million.

➢ In the eastern province of **North Kivu,** nearly a million people have been displaced due to the ongoing conflict with the rebel group, **Mouvement du 23 Mars (M23).**

What Factors Contribute to the Widespread Displacement in Congo?

➢ **Conflict in the DRC:**
  ○ Originating in the 1990s with **civil wars in 1996 and 1998,** the DRC conflict was exacerbated by the **aftermath of the 1994 Rwandan genocide,** where ethnic **Hutu extremists killed around one million minority ethnic Tutsis** and non-extremist Hutus.
  ○ The **eastern DRC**, bordering Rwanda, has since faced insurgency from over **120 rebel groups (as per UN Report)**, leading to heightened tensions and violence.
    • Territorial disputes and resource competition fuel the conflict, resulting in substantial casualties.
  ○ Recent resurgence of the **Tutsi-led M23 rebel campaign** from November 2021 has further intensified security challenges, with M23 making notable advances since **January 2023.**

➢ **Major Stakeholders in the Conflict:**
  ○ Noteworthy rebel groups, in addition to M23, encompass the **Allied Democratic Forces (ADF)** and the **Cooperative for Development of the Congo (CODECO).**
    • ADF, an insurgent group based in **Uganda since 1999,** pledged allegiance to the Islamic State in 2019.
    • CODECO asserts its mission to safeguard the **interests of the ethnic Lendu** against the Hemas and the Congolese army.

➢ **Causes of Displacement:**
  ○ **Ethnic Intolerance and Insurgency**: Post-Rwandan genocide, **two million Hutu refugees migrated to North and South Kivu,** sparking ethnic militias and escalating tensions.
  ○ **Political Uncertainty and Governance Issues:** The current President of DRC faces election challenges amid ongoing insecurity, risking the integrity of a **"free, democratic, and transparent" vote.**
  ○ **Regional Tensions**: Armed groups, backed by **Rwanda, Uganda, and Burundi,** act as proxies, heightening conflict dynamics and regional instability.
  ○ **Humanitarian Crisis:** Kivu Security Tractor reports **1,400 fatalities and 600+ attacks in 2023.**
    • Over 1.1 million people in North Kivu, Ituri, and South Kivu need food support, as international response, particularly in funding, remains insufficient.

What are the Major Facts Related to DRC?

➢ **Geography:**
- ❍ The DRC is the **second largest country in Africa** and the 11th largest in the world.
- ❍ It has 37 kilometers of coastline and more than half of the country is covered by dense tropical rainforest.

➢ **Capital:**
- ❍ **Kinshasa** is the capital of the DRC and is located on the **Congo River.**

➢ Bordering Countries:

➢ **Languages:**
- ❍ The official language is **French**, but other languages include **Kituba, Lingala, Swahili, and Tshiluba.**

➢ **Currency:**
- ❍ Congolese franc (CDF).

➢ **Natural Resources:**
- ❍ It is rich in natural resources. This includes **timber, oil and gas, gold and diamonds,** as well as minerals critical to the energy transition, **like cobalt and copper.**

➢ **Major Species:**
- ❍ Great apes such as **bonobos and eastern lowland gorillas** can only be found in Congo.

India-US 2+2 Ministerial Dialogue

Why in News?

Recently, **5ᵗʰ Edition of the India-US 2+2 Ministerial Dialogue** took place, where both countries highlighted progress in various areas of bilateral cooperation including defense, semiconductors, emerging technology, space, health etc.

➢ The 2+2 meetings have been held annually with the US leaders since 2018.

What is a 2+2 Meeting?

➢ **About:**
- ❍ The 2+2 meetings signify the **participation of two high-level representatives**, Ministers holding Foreign and Defence portfolios, from each of the two countries who aim to **enhance the scope of dialogue between them.**
- ❍ Having such a mechanism enables the **partners to better understand and appreciate each other's strategic concerns** and sensitivities taking into account political factors on both sides, in order to build a stronger, more integrated strategic relationship in a rapidly changing global environment.

➢ **India's 2+2 Partners:**
- ❍ The US is India's oldest and most important 2+2 talks partner.
- ❍ Additionally, India has held **2+2 meetings with ministers from Australia, Japan, the United Kingdom and Russia.**

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What are the Key Highlights of the India-US 2+2 Dialogue?

➢ **Defense Deals:**
- ○ Both nations aimed to collaboratively **co-develop and co-produce defence systems**, fostering a deeper partnership in defence technologies.
- ○ India and the U.S. are currently negotiating deals for the purchase of MQ-9B unmanned aerial vehicles and the licensed manufacturer of General Electric's F-414 jet engine in India.
  - These deals align with India's goal of enhancing its defence capabilities.
- ○ The Ministers **looked forward to the finalisation of a Security of Supply Arrangement (SOSA)**, a key priority in the Roadmap, which will further integrate the defence industrial ecosystems of both countries while strengthening supply chain resilience

➢ **Infantry Combat Vehicles and Future Plans:**
- ○ Both sides **discussed infantry combat vehicles,** particularly the Stryker, as part of the defence industry cooperation roadmap.
- ○ Cooperation in infantry combat systems will be formalized once the Indian military's needs are finalized, and a concrete production plan is established through collaboration between Indian and U.S. industry and military teams.

➢ **Advancements in Defence Technology Cooperation:**
- ○ Both sides reviewed the progress of the **India-U.S. Defence Industrial Ecosystem**, **INDUS-X**, launched in June 2023, aimed at expanding the strategic technology partnership and defence industrial cooperation.

➢ **Membership in Combined Maritime Forces:**
- ○ India's decision to become a full member of the **Combined Maritime Forces,** a multilateral construct headquartered in Bahrain, was welcomed by the Defense Secretary of the US.
  - This move signifies I**ndia's commitment to regional maritime security.**

➢ **Maritime Security:**
- ○ Both nations **shared a focus on maritime security** in the **Indo-Pacific** region, acknowledging the **importance of safeguarding vital sea lanes** and promoting stability.

➢ **Space and Semiconductor Collaboration:**
- ○ The Ministers welcomed the rapid progress made under the India-US Initiative on **Critical and Emerging Technology (iCET)** to build science and technology and critical technology value chain collaborations in both the commercial and defence sectors.
- ○ They called on the respective governments, academic, research, and corporate sectors to continue to proactively build these strategic partnerships in emerging technologies **like quantum, telecom, biotechnology, Artificial Intelligence,** and semiconductors to accelerate global innovation and benefit the economies of both countries.
- ○ They welcomed the early meeting of the Strategic Trade Dialogue Monitoring Mechanism.

➢ **Discussion on Chinese Aggression:**
- ○ The US emphasized that the bilateral **relationship extends beyond addressing the challenges** posed by China.

➢ **India-Canada Row:**
- ○ The ongoing row between India and Canada, particularly concerning security concerns related to a **Khalistan separatist based in the US and Canada**, was addressed.
- ○ India communicated its position on core security concerns to its partners.

➢ **Israel-Hamas War:**
- ○ India reiterated its stance on the **Israel-Hamas Conflict,** advocating for a **two-state solution (Two countries officially demarcated and Internationally Recognised)** and the early resumption of dialogue.
- ○ Humanitarian assistance has been provided, emphasizing adherence to international humanitarian law and the condemnation of civilian casualties.

How have been India's Relations with the US?

➢ **About:**
- ○ The U.S.-India strategic partnership is founded on **shared values including a commitment to democracy** and upholding the rules-based international system.
- ○ Both have shared interests in promoting global security, stability, and economic prosperity through trade, investment, and connectivity.

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➢ **Economic Relations:**

o The U.S. has emerged as India's biggest trading partner in 2022-23 on account of increasing economic ties between the two countries.

o The bilateral trade between India and the U.S. has increased by 7.65% to USD **128.55 in 2022-23 as against USD 119.5 billion in 2021-22.**

- Exports to the U.S. rose by 2.81% to USD 78.31 billion in 2022-23 as against USD 76.18 billion in 2021-22, while imports grew by about 16% to USD 50.24 billion.

➢ **International Cooperations:**

o **India and the United** States cooperate closely at multilateral organizations, including the **United Nations, G-20, Association of Southeast Asian Nations (ASEAN)** Regional Forum, **International Monetary Fund, World Bank,** and **World Trade Organization.**

o The United States welcomed India joining the UN Security Council in 2021 for a two-year term and supports a reformed UN Security Council that includes India as a permanent member.

o Together with Australia and Japan, the United States and India convene as the **Quad** to promote a free and open Indo-Pacific and provide tangible benefits to the region.

o India is also one of twelve countries partnering with the United States on the **Indo-Pacific Economic Framework for Prosperity (IPEF).**

o India is a member of the **Indian Ocean Rim Association (IORA),** at which the United States is a dialogue partner.

o In 2021, the United States joined the International Solar Alliance headquartered in India, and in 2022 the **United States Agency for International Development (USAID).**

➢ **Defence Pacts:**

o India has now signed all four foundational agreements with the US; **Logistics Exchange Memorandum of Agreement (LEMOA)** in 2016, **Communications Compatibility and Security Agreement (COMCASA)** in 2018 and **Basic Exchange and Cooperation Agreement for Geo-Spatial cooperation (BECA)** in 2020.

- While the **General Security of Military Information Agreement (GSOMIA)** was signed a long time ago, an extension to it, the Industrial Security Annex (ISA), was signed in 2019.

What are the Major Challenges between India and the US?

➢ **US Criticism of India's Foreign Policy:**

o If the Indian elite has long seen the world through the lens of non-alignment, alliance relationships have been at the heart of US' foreign policy since the **Second World War.**

- India's policy of nonalignment especially during the Cold War has always been a point of concern for the West, especially the US.

o After the 9/11 attacks, the US asked India to dispatch troops to Afghanistan; the Indian military vetoed the request.

- When the US invaded Iraq in 2003, even then India's erstwhile PM withheld military support.

o Even today, India refuses to toe the American line on the Russian-Ukraine war and its **import of cheap Russian oil** continues to break records.

- Pro-US voices have often been raised demanding India to get "on the right side of history".

➢ **India's Engagement with US Adversaries:**

o India has criticised the US decision to block Iranian and Venezuelan oil from the open market.

o India has actively worked to bring Iran into the **SCO (Shanghai Cooperation Organization).**

o India has also held 18 rounds of talks with China to resolve the **border dispute besides remaining a key participant in the China-backed Asian Infrastructure Investment Bank.**

➢ **US' Criticism of India's Democracy:**

o Various US organisations and foundations, from time to time, with the tacit support of some Congressmen and Senators, come out with reports questioning the present state of democratic discourse, press and religious freedom and condition of the minorities in India.

- Some of them include the **International Religious Freedom Report 2023** and the **Human Rights Report on India 2021** by the US State Department.

➢ **Economic Tensions:**

o The **Atmanirbhar Bharat Campaign** has exacerbated the view in the US that India is increasingly becoming a protectionist closed market economy.

o Effective in June 2019, the USA decided to withdraw duty-free benefits to Indian exporters under the

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GSP programme affecting India's export-oriented sectors such as pharma, textiles, agri products and automotive parts.

India and Netherlands Relations

Why in News?

Recently, Delegates from India visited the Netherlands, where both sides have signed a **Memorandum of Intent (MoI)** to cooperate on **Medical Product Regulation** and enhance the quality of medical products and healthcare services for both countries.

➢ The Indian delegation participated in the second **World Local Production Forum (WLPF)** meeting in The Hague.
  ❍ The WLPF is a platform initiated by the **World Health Organization (WHO)** with the goal of increasing access to medicines and health technologies.

What are the Key Facts About the Netherlands?

➢ **Borders:** Germany to the east, Belgium to the south, and the North Sea to the northwest.
➢ **Capital:** Amsterdam (official), The Hague (seat of government).
➢ **Government Type:** Constitutional Monarchy with a parliamentary system.
➢ **Major Rivers:** Rhine, Meuse, and Scheldt.

How Have Been India-Netherland Relations?

➢ **Diplomatic Ties:**
  ❍ India and the Netherlands **established diplomatic relations in 1947**. The year 2022 marks **75 years of the establishment of diplomatic relations.**
  ❍ Today, the two countries are maintaining **strong political, economic & commercial relations**.
  ❍ High-level **mutual exchanges have provided an impetus** to the multifaceted partnership between the two countries.

➢ **Bilateral Trade and Investment:**
  ❍ The Netherlands is the 4th largest trading partner with **India in Europe (From April 2000-March 2023)**. It is also the 4th largest investor in India.
  ❍ Bilateral trade reached an all-time high of **USD 27.58 billion during 2022-23.**
  ❍ The cumulative **FDI (Foreign Direct Investment)** inflows from the Netherlands to India from April 2000-March 2023 amounted to USD 43.75 billion.

➢ **Major Exported Items from India to Netherlands:**
  ❍ India exported **4,610 commodities** to the Netherlands in FY22.
  ❍ India's exports to the Netherlands stood at USD 3.29 billion from April-May 2023-24.
  ❍ Major exported items from India to the Netherlands include petroleum products, telecom instruments, aluminium & products of aluminium, electronic instruments, iron and **Steel**, etc. during April-May 2023-24.

➢ **Recent Developments:**
  ❍ A Joint Statement to formally establish a bilateral Fast-Track Mechanism (FTM) between India and the Netherlands to facilitate investments by Dutch companies in India, was signed by the Department for Promotion of Industry and Internal Trade (DPIIT) and the Embassy of Netherlands in September, 2022.

➢ **Cooperation in Science & Technology:**
  ❍ The Netherlands Organization for Scientific Research (NWO) collaborates with the various departments in the Indian Government.
  ❍ For instance, there is an ongoing project titled **"Local Treatment of Urban Sewage Streams for Healthy Reuse (LOTUS-HR)".**
    ● The LOTUS-HR project is an India-Netherlands joint collaboration of universities and companies funded by the India's Department of Biotechnology and the Dutch NWO-TTW.

➤ **Collaboration in Water Management:**
- ○ A platform called **Dutch Indo Water Alliance Leadership Initiative (DIWALI)** has been developed in which India and Netherlands could participate in designing solutions for water challenges.

➤ **Collaboration in Agriculture:**
- ○ Agriculture is one of the core sectors identified by the Netherlands for enhancing bilateral cooperation with India.
- ○ The **5ᵗʰ Joint Agriculture Working Group (JAWG)** meeting on Agriculture took place in New Delhi in 2018.
- ○ Under the JAWG, an Action Plan was signed which envisages cooperation in establishing Centers of Excellence (CoE) in horticulture, animal husbandry & dairy, fisheries and food processing.
- ○ This is also accompanied by skill development & capacity building in the fields of cold chain, supply chain management etc.

➤ **Healthcare Cooperation:**
- ○ An MoU for Cooperation in the Field of Healthcare and Public Health was signed in January 2014 to promote greater research collaboration in emerging health challenges associated with communicable diseases and **antimicrobial resistance.**

6ᵗʰ Session of India-Ethiopia Joint Trade Committee

Why in News?

The **6ᵗʰ Session of the India-Ethiopia Joint Trade Committee (JTC)** recently concluded in **Addis Ababa, Ethiopia,** bringing together officials from both countries to strengthen economic ties.

What is the India-Ethiopia JTC?
- ➤ The India-Ethiopia JTC is a **bilateral forum** that meets periodically to review and enhance trade and investment relations between the two countries.
- ➤ The JTC is co-chaired by senior officials from the Ministry of Commerce and Industry of India and the Ministry of Trade and Regional Integration of Ethiopia.
- ➤ The JTC discusses various issues and opportunities related to trade, investment, cooperation, and policy matters.

What are the Key Highlights of the JTC meeting?

- ➤ India invited Ethiopia to collaborate on integrating the **Unified Payment Interface (UPI)** with Ethiopia's Ethswitch.
  - ○ Ethswitch is a payment platform infrastructure in Ethiopia.
- ➤ India urged Ethiopia to explore settling **trade transactions in the local currency** for enhanced bilateral trade and conservation of foreign exchange.
- ➤ Health and pharmaceuticals, automobiles, textiles, infrastructure projects, food, and agro-processing are identified as key sectors for mutual investments.
- ➤ Both sides also reviewed the progress of ongoing discussions for **Memorandum of Understanding (MoUs)** in the field of **Standardization and quality assurance** and Customs procedure and agreed to conclude them expeditiously.

How have been the India-EthiopiaTrade Trade Relations?

- ➤ India is one of the **largest sources of long-term concessional credit to Ethiopia,** with over USD 1 billion for sectors such as rural electrification, sugar industry and railways
- ➤ Bilateral trade between India and Ethiopia reached **USD 642.59 million in 2022-23.**
  - ○ Ethiopia's economy grew by an estimated 6.4% in 2021-22.
- ➤ India is the **second-largest exporter to Ethiopia.**
- ➤ Indian companies rank among the **top three foreign investors in Ethiopia** with existing investments totalling USD 5 billion.
- ➤ India and Ethiopia have exchanged several high-level visits, including those of presidents, prime ministers and ministers.

Key Facts About Ethiopia
- ➤ It is a landlocked country located in the **Horn of Africa**, officially known as the **Federal Democratic Republic of Ethiopia.**
  - ○ The capital is Addis Ababa.
- ➤ Ethiopia is located from Sudan to the southeast, Eritrea to the south, Djibouti and Somalia to the west, Kenya to the north, and South Sudan to the east.

Note:

➤ Ethiopia is one of the oldest countries in the world that managed to remain **uncolonized by European powers** even though 90% of Africa was colonized by European nations.

➤ The Ethiopian Calendar has 12 months of 30 days each, plus five or six additional days (sometimes known as the 13th month).

➤ **Ras Dejen (or Dashen)**, the highest peak in Ethiopia.

➤ The largest lake in Ethiopia is **Lake Tana**, and is the source of the **Blue Nile river.**

Artificial Intelligence Safety Summit 2023

Why in News?

The **Artificial Intelligence (AI) Safety Summit 2023 held at Bletchley Park, England** has marked a significant turning point in the global approach to tackling the **challenges posed by frontier AI technologies.**

➤ To tackle these challenges, 28 major countries, including the United States, China, India, and the **European Union**, signed the **Bletchley Park Declaration** at this first-ever AI Safety Summit.

➤ This landmark declaration seeks to create a collective understanding and coordinated approach to address the potential risks and benefits of **advanced AI systems, known as frontier AI.**

Note:

➤ Frontier AI is defined as **highly capable foundation generative AI models** that can produce realistic and convincing outputs, such as text, images, audio, or video, on demand.

What are the Key Highlights of Artificial Intelligence Safety Summit 2023?

➤ **Bletchley Park Declaration:**

  ○ The Bletchley Park Declaration is the first global pact on tackling frontier AI risks, and it reflects a high-level political consensus and **commitment among the major AI players in the world**.

  ○ It acknowledges the **potential of AI to enhance human well-being** but also recognizes the **risks posed by AI, especially frontier AI,** which may cause serious harm, either deliberate or unintentional, particularly in domains like cybersecurity, biotechnology, and disinformation.

  ○ It emphasizes the need for **international cooperation to address AI-related risks**, as they are inherently global, and calls for collaboration among all actors, including companies, civil society, and academia.

  ○ The declaration also announces the establishment of a regular AI Safety Summit, which will provide a platform for **dialogue and collaboration on frontier AI safety.**

    ● The **next summit will be hosted by France** within a year, and South Korea will co-host a mini virtual AI summit in the next six months.

➤ **India's Stance at the Summit:**

  ○ India has shifted from a stance of not considering AI regulation to actively **formulating regulations based on a risk-based, user-harm approach.**

    ● India called for a global framework for the expansion of **"ethical" AI tools,** signaling a commitment to responsible AI usage.

  ○ India has shown interest in **establishing regulatory bodies at both domestic and international levels** to ensure the responsible use of AI.

  ○ **Digital India Act, 2023** which is yet to Implement , is expected to introduce issue-specific regulations for online intermediaries, including **AI-based platforms.**

Note:

The Indo-Pacific Maritime Domain Awareness

Why in News?

Recently, the Chief of the Naval Staff Admiral addressed the fourth edition of the **Goa Maritime Conclave (GMC)** where he stressed that building networks and partnerships like **the Indo-Pacific Maritime Domain Awareness (IPMDA)** would be instrumental in ensuring the security and stability of the **Indian Ocean Region (IOR).**

What is IPMDA?

➤ **About:**

  ○ The IPMDA, introduced by the **Quad group** (consisting of India, Australia, Japan, and the US) at the Tokyo summit, 2022, aims to monitor **"dark shipping"** and create a **more comprehensive and precise real-time maritime overview** of partner nations' waters.

● It focuses on **integrating the Pacific Islands, Southeast Asia,** and the Indian Ocean region **(IOR) in the Indo-Pacific.**

Dark Shipping

➤ Dark shipping is a term used to describe a vessel operating with its **Automatic Identification System (AIS)** turned off .

➤ AIS transponder systems transmit a ship's position at sea, alongside identification data and other useful information that vessels and maritime authorities can reference.

➤ **Objective:**

  ○ The initiative is a significant endeavour aimed at enhancing the security and stability of the **Indo-Pacific region**, which holds a central place in global geopolitics.

    ● It seeks to establish a comprehensive system for monitoring and securing maritime activities in the Indo-Pacific, ensuring the safety of **critical sea lines of communication,** and promoting cooperation among like-minded nations in the region.

➤ **Importance of Navy:**

  ○ To secure the IOR and Indo Pacific, the importance of the Navy cannot be emphasized enough, where force modernisation is the need of the hour.

    ● The Navy currently has over 140 ships and submarines and is targeting a 170 to 180 Navy by 2028, and aim is for the Navy to be fully **AtmaNirbhar** by 2047.

What Has Been the Progress and Achievements of GMC?

➤ **Collaboration Among Navies:**

  ○ The Conclave has successfully **brought together navies from the Indian Ocean region to collaborate on addressing common maritime challenges.** This cooperation has led to coordinated efforts in responding to **natural disasters, conducting joint exercises, and sharing critical maritime information.**

➤ **Effective Response to Piracy:**

  ○ Establishment of robust mechanisms for information sharing, **such as through Information Fusion Centre for the Indian Ocean Region (IFC-IOR) at Gurugram, has greatly improved the situational**
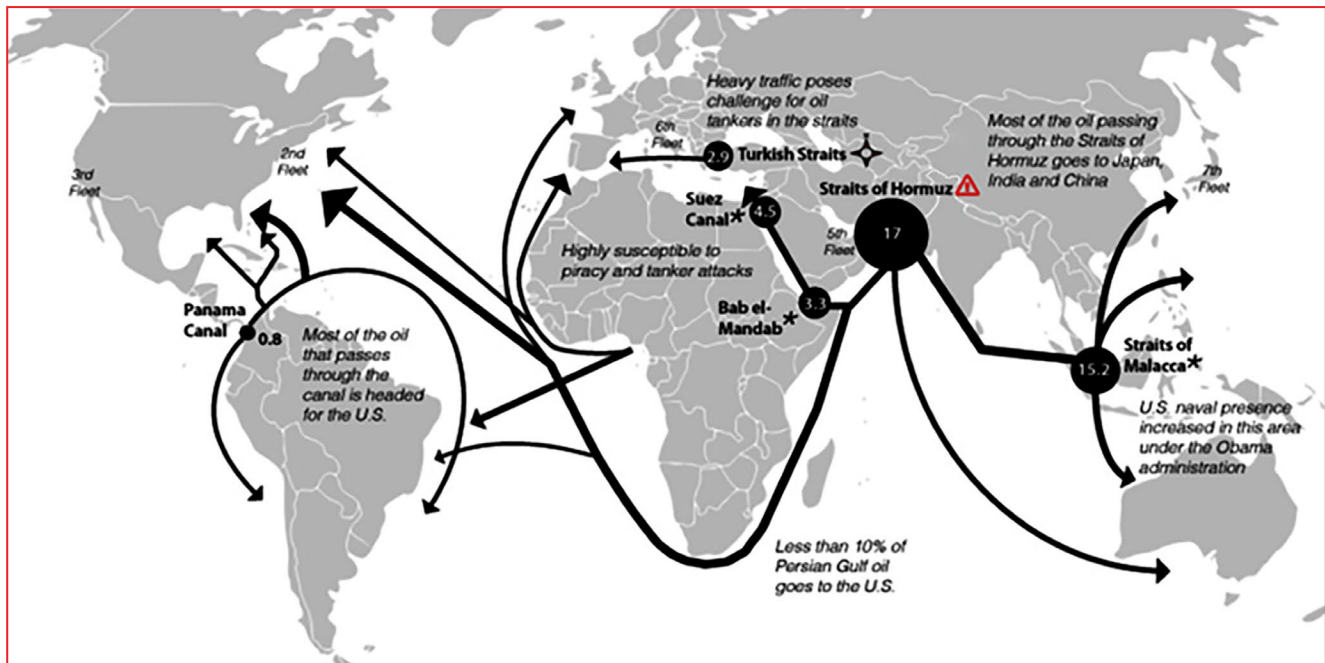
awareness in the region. Navies have been able to respond more effectively to maritime threats, piracy, and other security concerns.

➢ **Improving MDA:z**
  ❍ Sharing of intelligence and information has also **contributed to enhanced MDA.** This has not only improved maritime security but also **allowed for better management** of marine resources and environmental protection.

➢ **Adopting Common Maritime Priorities:**
  ❍ The last edition of GMC saw all Members unanimously adopt the **'Common Maritime Priorities (CMPs)'**, which signaled the common approach of all Members to find regional solutions to regional problems.

What are the Major Challenges Related to the Indian Ocean Region?

➢ **Geopolitical Competition:** The Indian Ocean region is a hotspot for **geopolitical competition among major powers** and regional actors. Its location allows for power projection and influence over regional affairs.
  ❍ The presence of key choke points such as the **Strait of Hormuz, the Bab el-Mandeb Strait, and the Malacca Strait** further enhances its strategic significance.

➢ **China's Militarization Move:** China has been a challenge to India's interests and stability in the Indian Ocean. India's neighbors are receiving military and infrastructural assistance from China, including submarines for Myanmar, and its **overseas military base in Djibouti (Horn of Africa).**

➢ **Maritime Security Threats:** The IOR is vulnerable to various maritime security threats, including piracy, smuggling, illegal fishing, and terrorism. Also, the vastness of the Indian Ocean makes it challenging to monitor and secure its maritime domain effectively.

➢ **Environmental Challenges: Climate change, rising sea levels, coral reef degradation,** and marine pollution are significant environmental challenges in the IOR. These issues affect coastal communities, marine ecosystems, and the livelihoods of millions of people.

India-Bhutan Relations

Why in News?

Recently, **India and Bhutan** agreed to discuss **new routes of Regional Connectivity**, and upgrade border and immigration posts, in order to enhance trade and partnership during Bhutan King's India visit.

Note:

What are the Key Highlights of the Discussion?

➢ **Regional Connectivity:**
  ○ India and Bhutan have **agreed to discuss new routes of regional connectivity**, which includes the development of a cross-border rail link between Gelephu in **Bhutan and Kokrajhar in Assam, spanning 58 km.**
  ○ Additionally, there is a plan to explore a second rail link of approximately **18 km between Samtse in Bhutan and Banarhat** in the tea gardens area of West Bengal.
  ○ Both sides discussed **upgrading border and immigration posts** to support this project, and it could be a significant development in the border area.

➢ **Trade and Connectivity:**
  ○ The two countries agreed to facilitate trade by allowing Bhutanese trade items to be carried further from **Haldibari in West Bengal to Chilahati in Bangladesh, aiming** to enhance trade opportunities and ease the **movement of goods between Bhutan and Bangladesh** through Indian territory.

➢ **Immigration Check Post:**
  ○ The Darranga-Samdrup Jongkhar border **crossing between Assam and Bhutan's SouthEastern** district will be designated as an **immigration check post.**
  ○ This will allow not only Indian and Bhutanese nationals but **also third country nationals to enter and exit the area**, promoting tourism and enhancing connectivity.

➢ **Support for Bhutanese SEZ Project:**
  ○ The two sides agreed to strengthen trade infrastructure with the upgradation of an existing land customs station at **Dadgiri (Assam) to a modernised "Integrated Check Post" (ICP)** along with "development of facilities on the Bhutanese side at Gelephu", indicating India's support to the Bhutanese SEZ project.

➢ **Development Assistance:**
  ○ India has committed to continue its support for **Bhutan's socio-economic development,** with a particular focus on the **13th Five-Year Plan.** This underscores the enduring commitment to their strong bilateral ties.
    ● For the **12th Five Year Plan**, India's contribution of Rs 4,500 crore constituted 73% of Bhutan's total external grant component.

➢ **Lauds India's Support for Global South:**
  ○ Bhutan lauded **India's successful organization of the recent G20 Summit**, praising India for fostering consensus and constructive decisions outlined in the Delhi Declaration.
  ○ Bhutan commended **India's dedication to integrating the interests and priorities** of **Global South** countries in G20 deliberations.

➢ **India-Bhutan Energy Partnership:**
  ○ Progress on the construction of the 1020 MW **Punatsangchhu-II hydropower project** was noted with satisfaction, with its early commissioning expected in 2024.
  ○ An agreement was **reached to expand the existing India-Bhutan energy Partnership** from hydro to non-hydro renewables, including solar energy, as well as green initiatives related to hydrogen and e-mobility.
  ○ India assured essential technical and financial support for projects in these areas.

➢ **Recalling Operation All Clear:**
  ○ Bhutan King recalled Operation All Clear which was **a military operation conducted by the Royal Bhutan Army** in 2003 against Assam separatist insurgent groups in the southern regions of Bhutan.

What is the Significance of Bhutan for India?

➢ **Strategic Importance:**
  ○ Bhutan shares its borders with India and China, and its strategic location makes it an **important buffer state for India's security interests.**

○ India has provided **Bhutan with assistance in areas such as defense,** infrastructure, and communication, which has helped to maintain Bhutan's sovereignty and territorial integrity.

○ India has helped Bhutan build and maintain its border infrastructure, such as roads and bridges, to strengthen its defense capabilities and ensure its territorial integrity.

● In 2017, during the **Doklam standoff between India and China**, Bhutan played a crucial role in **allowing Indian troops to enter its territory to resist Chinese incursions.**

➢ **Economic Importance:**

○ India is Bhutan's largest trading partner, and **Bhutan's major export destination.**

○ Bhutan's hydropower potential is a s**ignificant source of revenue for the country**, and India has been instrumental in assisting Bhutan in developing its hydropower projects.

○ India also provides Bhutan with financial assistance for its development projects.

➢ **Cultural Importance:**

○ Bhutan and India share **strong cultural ties**, as both countries are predominantly Buddhist.

○ India has provided assistance to Bhutan in preserving its cultural heritage, and many Bhutanese students come to India for higher education.

➢ **Environmental Importance:**

○ Bhutan is **one of the few countries in the world** that has pledged to remain **carbon-neutral,** and India has been a key partner in helping Bhutan achieve this goal.

○ India has provided assistance to Bhutan in areas such as R**enewable energy, forest conservation, and sustainable tourism.**

What are the Challenges in the India-Bhutan Relations?

➢ **China's Growing Influence:**

○ China's increasing presence in Bhutan, particularly along the disputed border between Bhutan and China, has **raised concerns in India**. India has been Bhutan's closest ally and has played a key role in protecting Bhutan's sovereignty and security.

○ However, China's growing economic and military influence in the region **poses a challenge to India's strategic interests in Bhutan.**

➢ **Border Disputes:**

○ India and Bhutan share a **699 km long border**, which has been largely peaceful.

○ However, there have been some incidents of border **incursions by Chinese forces in recent years.**

● The **Doklam standoff in 2017** was a major flashpoint in the India-China-Bhutan tri-junction. Any escalation of such disputes could strain India-Bhutan relations.

➢ **Hydropower Projects:**

○ Bhutan's hydropower sector is a key pillar of its economy, and India has been a major partner in its development.

● However, there have been concerns in Bhutan over the terms of some of the hydropower projects, which have been seen as too favorable to India.

● This has led to some public opposition in Bhutan to Indian involvement in the sector.

➢ **Trade Issues:**

○ India is Bhutan's largest trading partner, accounting for **over 80% of Bhutan's total imports and exports.** However, there have been some concerns in Bhutan over the trade imbalance, with Bhutan importing more from India than it exports.

● Bhutan has been seeking greater access to the Indian market for its products, which could help to reduce the **Trade Deficit**.

What are the Key Facts Related to Bhutan?

➢ **About:**

○ Bhutan is nestled between India and China and is a landlocked country. Mountains and valleys dominate the landscape of Bhutan.

● Thimphu is the Capital City of Butan.

○ Bhutan became a democracy in 2008 after the first democratic elections were held in the country. The King of Bhutan is the Head of State.

○ It is named 'Kingdom of Bhutan'. The Bhutanese name is **Druk Gyal Khap**, which means the 'Land of the Thunder Dragon'.

➢ **RIver:**

○ The longest river in Bhutan is the Manas River with over 376 km in length.

● The Manas River is a transboundary river **in the Himalayan foothills between southern Bhutan and India.**

> ➤ **Government:**
>   ○ Parliamentary monarchy.
> ➤ **Border:**
>   ○ Bhutan borders only two countries: India and Tibet, an autonomous region of China.
>   ○ Thimphu is located in the country's eastern part.

India China Partnership for Global Harmony

Why in News?

Recently, China released a white paper **"A Global Community of Shared Future: China's Proposals and Actions"**, to address the common challenges and opportunities faced by humanity in the 21st century.

➤ Amidst global turmoil, with **Russia- Ukraine crisis and issues in West Asia**, attention turns to the **historically linked civilizations of India and China**. Their shared visions for the future could provide hope for global harmony.

What are the Key Vision Points for the Global Community of Shared Future?

➤ **Economic Globalization and Inclusivity:** Uphold the **correct path of economic globalization**. Jointly build an open world economy that represents the **interests of developing nations, rejecting unilateralism, protectionism, and zero-sum games.**

➤ **Peace, Cooperation, and Development:** Embrace **peace, development, cooperation, and win-win results,** steering clear of **colonialism** and hegemony, fostering joint efforts for global peace and contribution.

➤ **Global Community of Shared Destiny:** Construct a global community of **shared destiny to evade conflict between emerging and established powers,** emphasizing mutual respect, equity, and beneficial cooperation for deeper global partnerships.

➤ **Genuine Multilateralism and Fair International System:** Rejecting bloc politics and unilateral thinking, advocating for a fair, UN-centered international system. Upholding international law as the basis for global norms and order and promoting **true multilateralism.**

➤ **Promotion of Common Human Values:** Promoting **equity, justice, democracy, and freedom without imposing a singular model of democracy**.

○ Embrace harmony amidst diversity, respecting each nation's right to choose its social systems and development paths.

How can India and China Cooperate in Building a Global Community of a Shared Future?

➤ About:
  ○ As two ancient Asian civilizations that have been living side by side for thousands of years, **China and India share common thoughts on the future and destiny of mankind.**
  ○ They have the **responsibility, the ability and the opportunity to set an example for the rest of the world** with their Oriental wisdom and civilizational heritage.
  ○ The Chinese people have cherished the vision of **"a world of fairness and justice for the common good"** since ancient times.
    ● Ancient Indian literature also records the **motto of "Vasudhaiva Kutumbakam",** which means "the world is one family" in Sanskrit.
➤ It was also used as the **theme of the G20 summit** held in New Delhi in September 2023.
  ○ Also, in the 1950s, **India and China jointly established the Five Principles of Peaceful Co-existence**:
    ● Mutual respect for each other's territorial integrity and sovereignty
    ● Mutual non-aggression
    ● Mutual non-interference
    ● Equality and mutual benefit
    ● Peaceful co-existence
➤ **Areas and Platforms of Cooperation between India and China:**
  ○ **Economic Cooperation: India and China** are both members of the **BRICS, the SCO, the Asian Infrastructure Investment Bank (AIIB), the New Development Bank (NDB)**.
    ● They can enhance their **economic cooperation through these mechanisms and promote an open, inclusive, and balanced world economy** that reflects the demands and interests of the developing countries.
    ● They can also expand their bilateral trade and investment, and explore new areas of cooperation such as **digital economy, green economy, and innovation.**

Note:

drishti

○ **Security Cooperation:** Both India and China are members of the United Nations **Conference on Disarmament (CD).**

- They can cooperate in **combating terrorism, extremism, and separatism,** and maintain regional peace and stability.

○ **Cultural Cooperation**: **India and China** are both ancient civilizations with rich and diverse cultures.

- They can enhance their cultural cooperation and mutual learning through increased people-to-people contact.

- They can also increase their exchanges and interactions in the fields of **education, tourism, sports, youth, and media,** and foster mutual understanding and friendship between the two peoples.

○ **Environmental Cooperation:** India and China are both parties to the **Paris Agreement on Climate change** and the **Convention on Biological Diversity.**

- They can enhance their **environmental cooperation and coordination on issues such** as **emission reduction, renewable energy, biodiversity conservation**, and disaster management.

- They can also support each other in implementing **Sustainable Development Goals (SDGs).**

➢ **Benefits of India and China Cooperation**

○ **Economic Growth and Trade Opportunities:**

- **Market Expansion:** Both **India and China possess massive consumer markets.** Collaboration between the two could lead to greater trade opportunities, expanding markets for goods and services.

- **Complementary Economies:** China's manufacturing strength and infrastructure, coupled with **India's services sector** and skilled **workforce**, can create a symbiotic economic relationship.

  ■ This collaboration can fill gaps and leverage the strengths of each other's economies.

○ **Technological Advancements and Innovation:** Collaborative efforts in **technology, research, and**

STICKING POINTS

AKSAI CHIN (J&K)
Like India's face-off with Pakistan over Kashmir, its dispute with China over Aksai Chin is almost as old as India itself. In 1958, when China published a map showing Aksai Chin plateau on the western stretch of the border as part of its territory, India protested. Border skirmishes escalated into a war in 1962. China occupied 38,000 sq km of Indian territory in Aksai Chin and constructed a road through Aksai Chin connecting Tibet and Xinjiang. Pakistan recognises the Chinese claim to Aksai Chin. Pakistan has also ceded additional land to China from the portion of Kashmir that it controls, which India also contests.

LADAKH (J&K)
The Indo-China conflict of 1962 in Eastern Ladakh was fought in the area between Karakoram Pass in the north and Demchok in the South East. The two countries dispute several Himalayan border. Tensions flare up from time to time. Despite recent statements by Beijing of its intent to improve ties with New Delhi, reports of Chinese incursion into Indian territory continue.

TAWANG (ARUNACHAL PRADESH)
Tawang is central to the resolution of the Indo-China border dispute. According to Beijing, if India returns Tawang — a sacred place for Tibetan Buddhists — China will settle the border disputes in the western and middle sectors. Tawang is situated in the southwestern extremity of Arunachal Pradesh. Its shares borders with Bhutan to its west and Tibet to its north. Nestling in the eastern Himalayas at an altitude of 3,400 metres, Tawang is known for its stunning view of the mountains, alpine weather and Buddhist monasteries. Its tourism potential makes Arunachal Pradesh or Tawang a coveted piece of real estate in China's eyes.

BONE OF CONTENTION
In 2005, the two sides agreed on political parameters and guiding principles for a boundary settlement, which would form the basis of the final settlement. At the centre of the Sino-Indian boundary dispute is the McMahon Line which the Chinese refuse to recognise. While China claims over 90,000 sqkm of territory, which includes Arunachal Pradesh, the Indian claim extends over 3,68,846 sqkm.

THE McMAHON LINE
- McMahon Line is the effective boundary between India and China which separates Arunachal Pradesh from Tibet.
- It was named after Sir Henry McMahon, then foreign secretary of British India, who negotiated the boundary agreement between the Great Britain and Tibet at the Simla Accord in 1914.
- But China rejects the accord claiming Tibet was not sovereign so did not have the power to conclude treaties.
- The McMahon Line extends for 890km from Bhutan in the west to 260km east of the great bend of the Brahmaputra in the east along the crest of the Himalayas.

Note:

innovation can lead to breakthroughs in various sectors such as renewable energy, healthcare, and artificial intelligence.

- Pooling resources and expertise could accelerate advancements in areas like **space exploration, cybersecurity, and climate change mitigation.**

○ **Global Governance and Diplomacy:** By aligning in global issues, both countries can act as a counterbalance to **unilateral actions by other global powers**, promoting a more multipolar world order.

- Together, **India and China could influence international forums**, speaking with a collective voice on global issues such as trade, security, and climate change**.**

- Working in tandem could strengthen their diplomatic outreach, potentially leading to more effective resolutions.

What are the Challenges and Obstacles in India-China Collaboration?

➤ **Border Disputes**: The long-standing border disputes, **especially along the Line of Actual Control (LAC)**, have resulted in occasional military standoffs, creating mistrust and a potential for escalation.

○ Also, India has criticized **China's recent assertion** regarding **Arunachal Pradesh.**

➤ **Historical Conflicts and Layer of Suspicion:** Historical conflicts and the **1962 Sino-Indian war have left deep-seated mistrust. Both nations view the other's intentions suspiciously**, hindering efforts towards cooperation.

○ Alongside **China's use of its veto power against India in the UNSC** and its close ties with Pakistan, **India's abstention from China's Belt and Road Initiative (BRI)** further contributes to the complexity of relations, adding layers of geopolitical tension and mutual suspicion.

➤ **Strategic Competition and External Pressure:** The strategic competition between China and India is a reality that cannot be ignored, **as both countries have their own national interests and aspirations.**

○ The strategic competition is also influenced by external pressure, **especially from the United States and its allies,** who seek to contain China's rise.

➤ **Divergent Strategic Interests:** Their strategic interests sometimes clash, especially in regions such as **South Asia**, where **both countries seek influence.**

○ China's investments in countries surrounding India can be seen as **encroaching on India's sphere of influence.**

India-Bangladesh Jointly Inaugurated Major Development Projects

Why in News?

Recently, **Indian Prime Minister and Prime Minister of Bangladesh** recently co-inaugurated three significant **Indian-assisted development projects**.

What are the Key Projects Inaugurated?

➤ **Akhaura-Agartala Cross-Border Rail Link**:

○ Executed under India's grant assistance of **Rs 392.52 crore to Bangladesh.** Spans **12.24 km**, comprising a 6.78 km **Dual Gauge rail line in Bangladesh and 5.46 km in Tripura.**

NEW SECTION INAUGURATED

12.24-km Length of Agartala-Akhaura rail rail link

₹1255.1 cr Total Cost of the Project
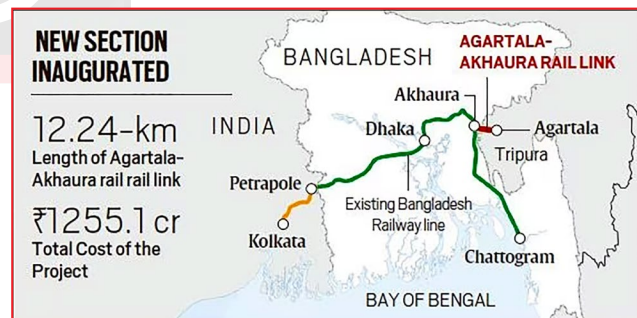
➤ **Khulna-Mongla Port Rail Line:**

○ Implemented under India's concessional Line of Credit with a total cost of **USD 388.92 million.**

○ Involves constructing approximately **65 km** of broad gauge rail route connecting **Mongla Port with Khulna's existing rail network.**

➤ **Maitree Super Thermal Power Project:**

○ Carried out under an Indian Concessional Financing Scheme loan of **USD 1.6 billion.**

○ Houses a **1320 MW (2x660) Super Thermal Power Plant in Rampal, Khulna Division of Bangladesh.**

○ Led by **Bangladesh-India Friendship Power Company (Private) Limited,** a joint venture between **India's NTPC Ltd and Bangladesh Power Development Board (BPDB).**

Note:

➢ **Significance of the Projects:**
  ○ **Connectivity Enhancement:** Strengthening cross-border connectivity through rail links, fostering trade and people-to-people ties.
  ○ **Energy Security:** Significant contribution towards meeting energy needs and ensuring long-term energy security.
  ○ **Bilateral Relations**: Reinforcing the strong bond between **India and Bangladesh**, showcasing collaborative efforts for **mutual prosperity and development** in line with India's Neighborhood First policy'.

What are the Other Key Bilateral Developments Between India and Bangladesh?
➢ **India-Bangladesh Friendship Pipeline**
➢ **Ganga Waters Treaty** and The **Kushiyara River Treaty**
➢ Joint Exercises - **Army (Exercise Sampriti)** and **Navy (Exercise Bongosagar)**

Goa Maritime Conclave 2023

Why in News?

Recently, the 4th edition of **Goa Maritime Conclave (GMC) - 2023** has been held by the Indian Navy under the aegis of **Naval War College, Goa.**

➢ The conclave was attended by delegates from twelve **Indian Ocean nations**, including Comoros, Bangladesh, Indonesia, Madagascar, Malaysia, Maldives, Mauritius, Myanmar, Seychelles, Singapore, Sri Lanka, and Thailand.

➢ **Theme 2023:** "Maritime Security in the Indian Ocean Region: Converting Common Maritime Priorities into Collaborative Mitigating Frameworks".

What are the Key Highlights of Goa Maritime Conclave?

➢ **About:**
  ○ The GMC is a high-level gathering of naval and defense officials from various **Indian Ocean Region (IOR)** nations to discuss common maritime challenges and enhance regional cooperation.
  ○ It is the Indian Navy's outreach Initiative providing a multinational platform to harness the collective wisdom of practitioners of maritime security and the academia **towards garnering outcome oriented maritime thought.**

  ○ It provides a forum for exchange of views by the Chiefs of Navy/ Heads of Maritime Agencies on dealing with **contemporary and future maritime challenges,** as well as presenting cooperative strategies for enhancing interoperability amongst partner maritime agencies.

➢ **Defense Minister's Address:**
  ○ During the Conclave Defence Minister of India referred to the concept of **"Prisoner's Dilemma"** to underscore the need for countries to collaborate with each other instead of working **at cross purposes.**
    ● The concept of the Prisoner's Dilemma, when applied in the domain of international relations, can explain and analyze various situations where countries face strategic decision-making challenges.
    ● For example, when two or more countries engage in an arms race, they often do so out of mutual fear and mistrust.
  ○ The Indian Defense Minister stressed the need for **multinational collaborative mitigation frameworks in the IOR** to address common maritime challenges.
    ● He emphasized the importance of self-reliance in the defense sector to enhance regional security and prosperity.
    ● Also emhasized that a **free, open and rule-based maritime order is a priority for all of us**.'Might is right' has no place in such a maritime order. Adherence to international maritime laws, as **enunciated in the United Nations Convention on the Law of the Sea (UNCLOS) 1982**, must be our lodestar.

What is Prisoner's Dilemma?
➢ **About:**
  ○ The Prisoner's Dilemma is a **fundamental concept in game theory**, a branch of mathematics and social science that analyzes **strategic decision-making in situations** where the outcome depends on the **choices of multiple participants**.
➢ **Prisoner's Dilemma Scenario:**
  ○ The Prisoner's Dilemma is often illustrated using a scenario where two individuals, let's call them A and B, are arrested for a crime, and they are placed in separate interrogation rooms.
  ○ The police lack concrete evidence, **but they offer each prisoner a choice:**

Note:

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- If both prisoners remain silent (cooperate), they both serve a relatively short sentence, If both prisoners confess, they both receive a moderately long sentence.
  - The dilemma arises from the fact that each prisoner must decide without knowing the other's choice. The logical decision for each individual, considering their self-interest, is to confess because it ensures **the least severe outcome regardless of the other's choice**.

What is the Significance of the Secured Indian Ocean Region for India?

➤ **Maritime Security:**
  - There is no universal definition of maritime security, but it c**lassifies issues in the maritime domain comprising** national security, marine environment, economic development, and human security.
  - Besides the world's oceans, **it also deals with regional seas,** territorial waters, rivers and ports.

➤ **Significance for India:**
  - **National Security:**
    - For India, maritime security is an important aspect of **national security as it has a coastline of over 7,000 km**.
    - With advancement in technology, physical threats in the maritime region have now been overshadowed by technological threats.
  - **For Trade Purpose:**
    - India's exports and imports have remained mostly across the shipping lanes of the Indian Ocean.
    - Therefore, **Securing Sea Lanes of Communication (SLOCs)** have been an important issue for India in the 21st century.
  - **Countering China's Growing Presence:**
    - India has expressed concerns about **China's growing presence in the Indian Ocean region**, particularly in countries like Sri Lanka, Pakistan, and Maldives.

- The development of Chinese-controlled ports and military facilities in these areas has been seen as a challenge to India's strategic interests and regional security.

➤ **Present Maritime Security Mechanism in India:**
  - Currently, coastal security of India is governed by a three-tiered structure.
    - The Indian Navy patrols the International Maritime Boundary Line (IMBL), while the **Indian Coast Guard (ICG)** is mandated to do patrolling and surveillance up to 200 nautical mile**s (i.e., Exclusive Economic Zone)**.
  - Simultaneously, the State Coastal/Marine Police (SCP/SMP) performs boat patrolling in shallow coastal areas.
  - The SCP have jurisdiction **up to 12 nautical miles from the coast;** and the ICG and the Indian Navy have jurisdiction over the entire maritime zone (up to 200 nautical miles), including the territorial waters (with the SMP).

➤ **India's Recent Maritime Engagements:**
  - To address shared concerns over maritime security, **Indian naval ships conducted coordinated patrols with countries like Mozambiqu**e, Seychelles, and Mauritius in 2023.
    - These patrols aimed to combat piracy, smuggling, and illicit trafficking in the **Indian Ocean region.**
  - India has been actively involved in capacity-building activities to support African nations in achieving self-sufficiency and enhancing their maritime capabilities.

➤ **SAGAR Initiative:**
  - **Security and Growth for All in the Region (SAGAR)** was launched in 2015. It is India's strategic vision for the Indian Ocean Region (IOR).
  - Through SAGAR, India seeks to deepen economic and security cooperation with its maritime neighbors and assist in building their maritime security capabilities.

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Social Issues

Highlights

- *Issue of Suicide Cases in Educational Hubs*
- *Global TB Report 2023*
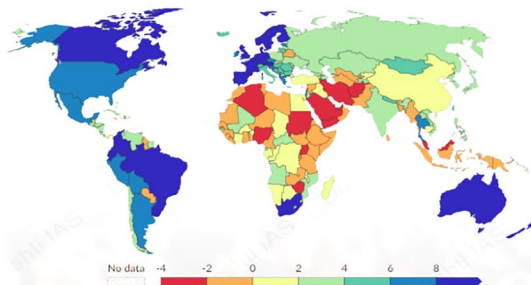- *Population Survey in China*
- *Surrogacy Law*

LGBTQ+

LGBTQ+ refers to a broad category of people, including those who identify as lesbian, gay, bisexual, transgender, intersex, and queer. The terminology used varies widely depending on historical, cultural, and societal contexts.

Discrimination Against LGBTQ+ based on

- Sexual orientation
- Gender expression
- Gender identity
- Sex characteristics

State of LGBTQ+ Rights Globally

- LGBT+ rights index, 2019: The index captures to which extent lesbians, gay, bisexual, transgender and other people outside traditional sexuality and gender categories have the same rights as straight and cisgender people. It combines 18 individual policies, such as the legality of same-sex sexual acts, marriage, and gender marker changes. Higher values indicate more rights, negative values regressive policies.

No data -4 -2 0 2 4 6 8

SINCE 1982...

47 COUNTRIES — DECRIMINALIZED SAME SEX RELATIONSHIPS

22 COUNTRIES — HAVE ACHIEVED THIS THROUGH BROADER REVIEW OF PENAL CODES

12 COUNTRIES — HAVE SPECIFICALLY REPEALED CRIMINALIZING LEGISLATION

10 — HAVE CHANGED THEIR LAW FOLLOWING A COURT DECISION

TODAY...

73 STATES — CRIMINALIZE SAME SEX RELATIONSHIPS

44 COUNTRIES — SPECIFICALLY CRIMINALIZE LESBIAN RELATIONSHIPS

- **Pride Month:** June
- **11th October:** National Coming Out Day

History of LGBTQ+ Rights in India

- **1992:** First-ever protests demanding rights for gay individuals
- **1994:** An NGO challenged the constitutional validity of Section 377 of IPC. Dismissed in 2001
- **1999:** India's first pride parade (Also South Asia's first)
- **2009:** Naz Foundation vs. Govt. of NCT Delhi Case (In Delhi HC) - Treating gay sex between consenting adults as a crime gross violation of the fundamental right to privacy
- **2013:** Suresh Kumar Koushal vs. Naz Foundation- SC overturned Delhi HC ruling

- **2015:** A private member's bill in Lok Sabha seeking decriminalizing homosexuality was introduced
- **2017:** Justice K. S. Puttaswamy vs. Union of India (UoI)- SC ruled privacy a fundamental right
- **2018:** Navtej Singh Johar vs. UoI- SC ruled Section 377 unconstitutional
- **2019:** Transgender Persons (Protection of Rights) Act- To provide protection of rights of transgender persons and their welfare.

Present status of Same-Sex Marriage

- **2023:** Supriyo vs. UoI- SC refused to grant legal status to same-sex marriage and denied same-sex marriage as a fundamental right

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Issue of Suicide Cases in Educational Hubs

Why in News?

Recently, the **Lokniti-Centre for the Study of Developing Societies (CSDS)** has conducted a survey, highlighting a **concerning issue of rising student Suicides** in Kota.

➤ The Lokniti-CSDS survey was conducted **face-to-face using a structured questionnaire** in Hindi, involving **over 1,000 students in October 2023.** 30 % of the sample consisted of girls.

➤ A majority of students who study in Kota's coaching centres come from Bihar, Uttar Pradesh, Rajasthan, and Madhya Pradesh. Nearly half of them belong to cities and small towns; only 14% come from villages.

What are the Reasons for More Students Going to Kota?

➤ **Influence of Family and Relatives:**
  ○ A significant number of students have immediate family members or extended relatives who studied in Kota, **influencing their decision to come to Kota.**

  ○ Social media and recommendations from friends and **parents also play a role in their decision.**

➤ **Entrance Exam Focus:**
  ○ Students in Kota are predominantly preparing for **NEET** (medical entrance exam) and JEE (engineering entrance exam).
    ● NEET is more popular among girls, while JEE is favored by boys.

➤ **Dummy Schools without Regular Attendance:**
  ○ Clearing board exams is a prerequisite for entrance exams. The majority of students in Kota are enrolled **in 'dummy schools' that do not require regular attendance** and only facilitate **board exam appearances.**

What is the Status of Suicides in India as per NCRB's ADSI Report 2021?

➤ **Overall Suicides Status:**
  ○ According to the **National Crime Records Bureau's (NCRB's)** Accidental Deaths & Suicides in India (ADSI) 2021, a total of **1,64,033 suicides were reported in the country during 2021** showing an increase of 7.2% in comparison to 2020.
  ○ Rate of Suicides in **India was 12.0% in 2021.**

States with Higher Percentage Share of Suicides during 2019 to 2021

Sl. No.	Year					
	2019		2020		2021	
1	Maharashtra	(13.6%)	Maharashtra	(13.0%)	Maharashtra	(13.5%)
2	Tamil Nadu	(9.7%)	Tamil Nadu	(11.0%)	Tamil Nadu	(11.5%)
3	West Bengal	(9.1%)	Madhya Pradesh	(9.5%)	Madhya Pradesh	(9.1%)
4	Madhya Pradesh	(9.0%)	West Bengal	(8.6%)	West Bengal	(8.2%)
5	Karnataka	(8.1%)	Karnataka	(8.0%)	Karnataka	(8.0%)

➤ **Suicides Status in Students:**
  ○ Over 13,000 students died by in 2021 in India at the rate of more than 35 every day, a rise of 4.5% from the 12,526 deaths in 2020 with 864 out of 10,732 suicides being due to **failure in examination.**

  ○ The report also showed **the percentage of women student suicide was at a five-year low of 43.49% in 2021,** while men student suicides made up 56.51% of the total student suicides.
    ● In 2017, 4,711 women students died by suicide, while in 2021 such deaths increased to 5,693.

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TOP FIVE STATES WITH HIGHEST STUDENT SUICIDES IN 2021

Maharashtra 1,834

Madhya Pradesh 1,308

Tamil Nadu 1,246

Karnataka 855

Odisha 834
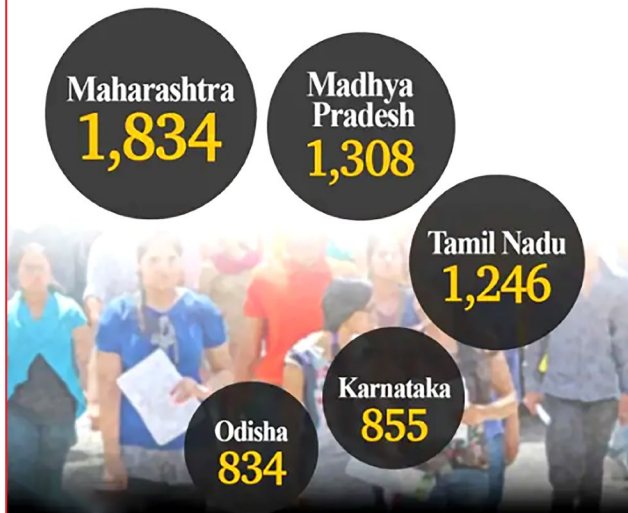
What are the Reasons for Increasing Suicide Cases in Educational Hub?

➢ **Academic Pressure:**
  ○ High expectations from parents, teachers and society can lead to excessive stress and pressure to perform well in exams.
  ○ This pressure to succeed can be overwhelming for **some students, leading to feelings of failure and hopelessness.**

➢ **Mental Health Issues:**
  ○ Mental health problems such as depression, anxiety, and bipolar disorder can contribute to student suicides.
    ● These conditions can be exacerbated by stress, loneliness, and lack of support.

➢ **Isolation and Loneliness:**
  ○ Many students in educational hubs come from far away and live away from their families and friends.
  ○ This can lead to feelings of isolation and loneliness, which can be particularly difficult to deal with in an unfamiliar and competitive environment.

➢ **Financial Concerns:**
  ○ Financial difficulties, **such as not being able to afford tuition fees** or living expenses, can create a great deal of stress and worry for students.
  ○ This can lead to feelings of hopelessness and desperation.

➢ **Lack of Support:**
  ○ Many students in educational hubs are **reluctant to reach out for help when they are struggling.**
    ● This can be due to stigma surrounding mental health problems or a fear of being judged.
  ○ This lack of support can lead to feelings of hopelessness and desperation.

➢ **Stigma Surrounding Failure:**
  ○ In Indian society, failure in competitive exams **is often stigmatized.** Students may feel ashamed to admit their struggles **or discuss their mental health issues,** leading to a lack of support and understanding.

What are the Initiatives To Curb Suicides?

➢ Global Initiatives:
  ○ **World Suicide Prevention Day (WSPD):** Observed on 10th of September every year, WSPD 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.
  ○ **World Mental Health Day:** 10th October is celebrated as **World Mental Health Day,** every year. The overall objective of World Mental Health Day is to raise awareness of mental health issues around the world and to mobilize efforts in support of mental health.

➢ Indian Initiatives:
  ○ **Mental Healthcare Act (MHA), 2017: MHA 2017** aims to provide mental healthcare services for persons with mental illness.
  ○ **KIRAN:** The Ministry of Social Justice and Empowerment has launched a 24/7 toll-free helpline "KIRAN" to provide support to **people facing anxiety, stress, depression, suicidal thoughts** and other mental health concerns.
  ○ **Manodarpan Initiative: Manodarpan** is an initiative of the Ministry of Education under Atmanirbhar Bharat Abhiyan.
    ● It is aimed to provide psychosocial support to students, family members and teachers for their mental health and well-being during the times of Covid-19.

Note:

○ **National Suicide Prevention Strategy:** Announced in 2023, **National Suicide Prevention Strategy** is the first of its kind in the country, with time-bound action plans and multi-sectoral collaborations to achieve reduction in suicide mortality by 10% by 2030. The strategy is in line with the World Health Organisation's South East-Asia Region Strategy for suicide prevention.

Global TB Report 2023

Why in News?

Recently, the **World Health Organization (WHO)** has released the Global **Tuberculosis (TB)** report 2023, highlighting the high burden of TB worldwide in 2022.

➢ India accounted for the highest number of TB cases in the world in 2022, with 2.8 million TB cases, representing 27% of the global burden.

What are the Key Findings of the Global TB Report 2023?

➢ **Burden of TB:**
○ It was the world's second leading cause of death from a single infectious agent in 2022, following **Covid-19**.
○ TB caused almost twice as many deaths as **Human Immunodeficiency Virus (HIV)/Acquired Immunodeficiency Syndrome stage (AIDS).** More than 10 million people continue to fall ill with TB every year.
○ 30 high burden TB countries collectively accounted for 87% of the world's TB cases in 2022.
● Among the top eight high burden countries, in addition to India, are Indonesia, China, the Philippines, Pakistan, Nigeria, Bangladesh, and the Democratic Republic of Congo.

➢ **Increase in TB Diagnosis:**
○ In 2022, 7.5 million people were diagnosed with TB, marking the highest figure recorded since WHO began global TB monitoring in 1995.

➢ **High Mortality Without Treatment:**
○ Without treatment, the death rate from TB disease is high, at about 50%.
○ However, with treatments currently recommended by WHO (a 4–6 months course of anti-TB drugs), about **85% of people with TB can be cured.**

➢ **Global Recovery in TB Diagnosis and Treatment:**
○ There is a **positive global recovery in the number of people diagnosed with TB** and treated in 2022, following two years of Covid-19-related disruptions.
○ Countries like India, Indonesia, and the Philippines, accounted for over 60% of the global reductions.

➢ **TB Incidence Rate:**
○ The TB incidence rate, which measures new cases per 100,000 population per year, increased by 3.9% between 2020 and 2022.
○ This increase **reversed the declining trend of about 2% per year** that had been observed for most of the past two decades.

What are the Findings Related to India?

➢ **TB Case Fatality Ratio in India:**
○ India reported a case **fatality ratio of 12%, indicating that 12% of TB cases** in the country resulted in death.
○ The report estimates that **3,42,000 TB-related deaths occurred in India in 2022**, with 3,31,000 among HIV-negative individuals and 11,000 among those with HIV.

➢ **Multidrug-Resistant TB (MDR-TB):**
○ India recorded 1.1 lakh cases of multidrug-resistant TB (MDR-TB) in 2022, highlighting the continued challenge of MDR-TB as a public health crisis.

What are the Recommendations of the Report?

➢ Urgent action is required to end the global TB epidemic by 2030, a goal that has been adopted by all Member States of the **United Nations (UN)** and the WHO.

➢ **Universal Health Coverage (UHC)** is essential to ensure that all people who need treatment for TB disease or infection can access these treatments.

➢ Multisectoral action is **also needed to address TB determinants such as poverty,** undernourishment, HIV infection, smoking, and diabetes to reduce the number of people acquiring infection and developing TB disease.

What is Tuberculosis?

➢ **About:**
○ Tuberculosis is **an infection caused by Mycobacterium tuberculosis.** It can practically affect any organ of the body. The most common ones are lungs, pleura (lining around the lungs), lymph nodes, intestines, spine, and brain.

➢ **Transmission:**
- ❍ It is an airborne infection that spreads through close contact with the infected, especially in densely populated spaces with poor ventilation.

➢ **Symptoms:**
- ❍ Common symptoms of active lung TB are cough with sputum and blood at times, chest pains, weakness, weight loss, fever and night sweats.

➢ **Treatment:**
- ❍ TB is a treatable and curable disease. It is treated with a standard 6-month course of 4 antimicrobial drugs that are provided with information, supervision and support to the patient by a health worker or trained volunteer.
- ❍ Anti-TB medicines have been used for decades and strains that are resistant to 1 or more of the medicines have been documented in every country surveyed.

➢ **Multidrug-Resistant Tuberculosis (MDR-TB):**
- ❍ It is a form of TB caused by bacteria that do not respond to isoniazid and rifampicin, the 2 most powerful, first-line anti-TB drugs.
- ❍ MDR-TB is treatable and curable by using second-line drugs such as Bedaquiline.
  - ● Extensively **drug-resistant TB (XDR-TB)** is a more serious form of MDR-TB caused by bacteria that d**o not respond to the most effective second-line anti-TB drugs,** often leaving patients without any further treatment options.

What are the Initiatives to Combat TB?
➢ **Global Efforts:**
- ❍ The WHO has launched a joint initiative "**Find. Treat. All. #EndTB**" with the **Global Fund** and **Stop TB Partnership.**
- ❍ WHO also releases the **Global Tuberculosis Report.**
➢ **India's Efforts:**
- ❍ **National Strategic Plan (NSP)** for Tuberculosis Elimination (2017-2025), The Nikshay Ecosystem (National TB information system), Nikshay Poshan Yojana (NPY- financial support), **TB Harega Desh Jeetega Campaign.**
- ❍ Currently, **two vaccines VPM (Vaccine Projekt Management) 1002 and MIP (Mycobacterium Indicus Pranii)** have been developed and identified for TB, and are under Phase-3 clinical trial.

- ❍ In 2018 **Nikshay Poshan Yojna** was launched, which aimed to support every Tuberculosis (TB) Patient by providing a Direct Benefit Transfer (DBT) of Rs 500 per month for nutritional needs.

Population Survey in China

Why in News?

Recently, China has started polling 1.4 million people in a survey on population changes, as authorities struggle to **incentivise people to have more children** amid a declining birth rate and the first population drop in more than six decades.

➢ China is experiencing a declining birth rate and a population drop for the first time in over 60 years, with a **decrease of approximately 850,000 people in 2022.**

➢ The 2022 population decline is the first since 1961, which was the last year of China's **Great Famine**.

What Have Been China's Policies for Population So Far?

➢ **One Child Policy:**
- ❍ China embarked upon i**ts one-child policy in 1980,** when its government was concerned that the country's growing population, which at the time was approaching one billion, would impede economic progress.
  - ● Chinese authorities have **long hailed the policy as a success**, claiming that it helped the country avert severe food and water shortages by preventing up to 40 crore people from being born.
- ❍ It was a source of discontent, as the state used brutal tactics such as forced abortions and sterilisations.
- ❍ It also met criticism and remained controversial for violating **human rights,** and for being unfair to the poor.

➢ **Two Child Policy:**
- ❍ From 2016, the Government of China finally allowed **two children per couple**— a policy change that did little to arrest the rapid fall in population growth.

➢ **Three Child Policy:**
- ❍ It was announced after **China's 2020 census** data showed that the country's rate of population growth is falling rapidly despite the 2016 relaxation.

Note:

❍ The country's **fertility rate has dropped to 1.3, far below the replacement level** of 2.1 required for a generation to have enough children to replace it.

❍ The **United Nations** expects China's population to begin declining after 2030, but some experts say this could happen as early as in the next one or two years.

What are the Concerns over the Falling Population in China?

➢ **Decreased Labour:**

❍ When the young population in a country declines, **it creates labour shortages**, which have a major detrimental impact on the economy.

➢ **Increased Social Spending:**

❍ More older people also **means that demands for healthcare and pensions** can soar, burdening the country's social spending system further when fewer people are working and contributing to it.

➢ **Critical for Developing Nations:**

❍ China faces a unique challenge of population decline as a **middle-income country that relies on labor-intensive sectors**, unlike rich countries (like Japan and Germany) that can invest in capital and technology. This could **reduce its economic growth and affect other developing countries like India.**

❍ The population decline could have various impacts on the world, such as **slowing down the global economic growth** and disrupting **the supply chains that depend on China's manufacturing and exports**.

❍ It could also create opportunities and challenges for other countries to fill the gap in the global labor market and consumer demand.

What are the World's Population Trends?

➢ **World's Population:**

❍ The world's population reached 8 billion people in mid-November 2022 from an estimated 2.5 billion people in 1950, a milestone in human development. While it took the global population 12 years to grow from 7 to 8 billion.
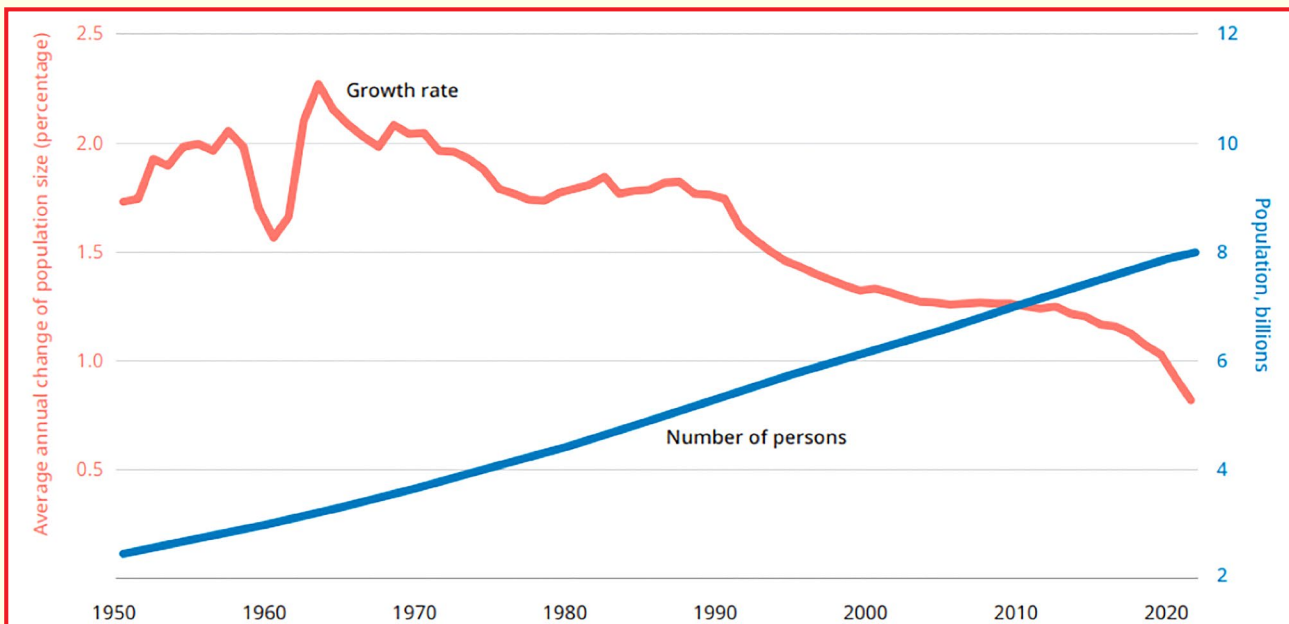
➢ **India's Population:**

❍ According tot he United Nations data, India **has surpassed China to become world's most populous nation** with 142.86 crore people in 2023.

● 25% of India's population is in the age group of 0-14 years, 18% in the 10-19 age group, 26% in the age bracket of 10-24 years, 68% in the 15-64 years age group, and 7% above 65 years.

Note:

➤ **Regions with Highest Population Growth:**
  ○ More than half of global population growth between now and 2050 is expected to occur in Africa.
  ○ Africa has the **highest rate of population growth among major areas.** The population of sub-Saharan Africa is projected to double by 2050.
  ○ In Syria, the population grew by about 6.39% **compared to the previous year**, making it the country with the highest population growth rate in 2023.

DEMOGRAPHIC INDICATORS					
	Population	15-64 years	65+	TFR	Life expectancy
India	1,428.6 mn	68%	7%	2.0	72.5 yrs
China	1,425.7 mn	69%	14%	1.2	79 yrs
World	8,045 mn	65%	10%	2.3	73.5 yrs

UNFPA's State of World Population Report 2023

➤ **Countries with Populations Declining:**
  ○ Several countries are expected to see their populations decline by more than 15% by 2050, including Bosnia and Herzegovina, Bulgaria, **Croatia, Hungary, Japan, Latvia, Lithuania, Republic of Moldova**, Romania, Serbia, and Ukraine.
  ○ Cook Islands has the highest population decline rate of 2.31 % in 2023.

What Lessons can India Learn from Such A Demographic Shift in China?

➤ **Avoid Stringent Measures:**
  ○ Stringent population control measures have landed China in a human crisis that was inevitable. If coercive measures like a two-child limit are enforced, India's situation could be worse.

➤ **Women Empowerment:**
  ○ The proven ways to lower the fertility rate are to **give women the control over their fertility** and ensure their greater empowerment through increased access to education, economic opportunities and healthcare.
  ○ As a matter of fact, China's fertility reduction is only partly attributable to coercive policies, and is largely because of the sustained investments the country had made in education, health and job opportunities for women.

➤ **Need to Stabilize Population:**
  ○ India has done very well with its family planning measures and now **it is at replacement level fertility of 2.1**, which is desirable.
  ○ It needs to sustain population stabilization because in some States like Sikkim, Andhra Pradesh, Delhi, Kerala and Karnataka, the total fertility rate is way below replacement level, which means it can experience in 30-40 years what China is experiencing now.

What are the Steps taken by India to Control Population ?

➤ India became one of the **first developing countries to come u**p with a state-sponsored family planning programme in the 1950s.
  ○ A population policy committee was established in 1952.
  ○ In 1956, a Central Family Planning Board was set up and its focus was on sterilisation.
  ○ In 1976, GOI announced the first National Population Policy.

➤ **National Population Policy, 2000** envisaged achieving a stable population for India.
  ○ The Policy aims to achieve a stable population by 2045.
  ○ One of its immediate objectives is to address the unmet needs for contraception, health care infrastructure, and personnel and provide integrated service delivery for basic reproductive and child health care.

➤ **National Family Health Survey (NFHS)**
  ○ Realising the potential of education in tackling the problems of growing rate of population, the Ministry of Education launched a Population Education Programme with effect from 1980.
    • The Population Education programme is a central sector scheme designed to introduce Population Education in the formal education system.

- It has been developed in collaboration with the United Nations Funds for Population Activities (UNFPA) and with the active involvement of the Ministry of Health and Family Welfare.

Surrogacy Law

Why in News?

Recently, the Delhi High Court has questioned the **association of marital status** with eligibility for surrogacy under the **Surrogacy (Regulation) Act, 2021**.

➤ The petitioner challenged **Section 2(1)(s) of the Surrogacy Act,** which limits the right to avail surrogacy to Indian widows or **female divorcees between the ages of 35 and 45.**

➤ The petitioner's plea also challenges the regulation that compels a single woman (widow or divorcee) to **utilize her own eggs for surrogacy.** Due to her age, using her own gametes is medically inadvisable, and she **seeks a donor for female gametes.**

What is Surrogacy?

➤ **About:**
  ○ Surrogacy is an **arrangement in which a woman (the surrogate)** agrees to carry and give birth to a child on behalf of another person or couple (the intended parent/s).
  ○ A surrogate, **sometimes also called a gestational carrier**, is a woman who conceives, carries and gives birth to a child for another person or couple (intended parent/s).

➤ **Altruistic Surrogacy:**
  ○ It involves no monetary compensation to the surrogate mother other than the medical expenses and insurance coverage during the pregnancy.

➤ **Commercial Surrogacy:**
  ○ It includes surrogacy or its related procedures undertaken for a monetary benefit or reward (in cash or kind) exceeding the basic medical expenses and insurance coverage.

What is the Surrogacy (Regulation) Act, 2021?

➤ **Provisions:**
  ○ Under the **Surrogacy (Regulation) Act, 2021**, a woman who is a widow or a divorcee between the age of 35 to 45 years or a couple, **defined as a legally married woman** and man, can avail of surrogacy if they have a medical condition necessitating this option.
  - The intended couple s**hall be a legally married** Indian man and woman, the man shall be **between the ages of 26-55 years** and the woman shall be between the ages of 25-50 years, and shall **not have any previous biological, adopted, or surrogate child.**
  ○ It also bans **commercial surrogacy**, which is punishable with a jail term of 10 years and a fine of up to Rs 10 lakhs.
  ○ The law allows only altruistic surrogacy where no money exchanges hands and where a surrogate mother is genetically related to those seeking a child.

➤ **Challenges:**
  ○ **Exploitation of the Surrogate and the Child:** The banning of commercial surrogacy moves from the rights-based approach to **a needs-based approach, thus removing the women's autonomy to make their own reproductive decisions** and right to parenthood. One could argue that the state must stop the exploitation of poor women under surrogacy and protect the child's right to be born. However, the current Act fails to balance these two interest**s.**
  ○ **Reinforces Patriarchal Norms:** The Act reinforces **traditional patriarchal norms** of our society that attributes no economic value to women's work and, directly **affecting the fundamental rights of the women** to reproduce under **Article 21 of the constitution.**
  ○ **Emotional Complications:** In altruistic surrogacy, a friend or relative as a surrogate **mother may lead to emotional complications** not only for the intending parents but also for the **surrogate child** as there is great deal of risking the relationship in the course of surrogacy period and post birth.
  - Altruistic surrogacy also limits the option of the intending couple in choosing a surrogate mother as very limited relatives will be ready to undergo the process.
  ○ **No Third-Party Involvement:** In an altruistic surrogacy, there is no third-party involvement. A third-party involvement ensures that the **intended couple will bear and support the medical** and other miscellaneous expenses during the surrogacy process.

- Overall, a third party helps both the intended couple and the surrogate mother navigate through the complex process, which may not be possible in the case of altruistic surrogacy.
  - **Some Exclusion from Availing Surrogacy Services:**
    - There is exclusion of unmarried women, single men, live-in partners, and same-sex couples from availing surrogacy services.
    - This **amounts to discrimination based on marital status**, gender, and sexual orientation, and denies them the right to form a family of their choice.

What are the Recent Changes Made by the Supreme Court?

➤ A government notification in March 2023 amended the law, **banning the use of donor gametes.**
  - It said "intending couples" must use their own gametes for surrogacy.

➤ The petition was filed in the Supreme Court **challenging the amendment as a violation of a woman's right to parenthood.**

➤ The Court interpreted the requirement for the child to be **"genetically related" as being related to the husband.**

➤ The Court emphasized that the law permitting gestational surrogacy is "woman-centric," meaning that the decision to have a surrogate child is **based on the woman's inability to become a mother** due to her medical or congenital condition.

➤ The Court clarified that when **Rule 14(a) of the Surrogacy Rules Applies**, which lists medical or congenital conditions that allow a woman to opt for **Gestational Surrogacy,** the child must be related to the intended couple, especially the husband.
  - **Gestational surrogacy** is a process where one person, who did not provide the egg used in conception, **carries a fetus through pregnancy and gives birth to a baby for another person or couple.**

➤ The Supreme Court stayed the operation of Rule 7 of the Surrogacy (Regulation) Act, 2021, to allow **the woman suffering from the Mayer-Rokitansky-Küster-Hauser (MRKH) Syndrome** —a rare congenital disorder that affects the female reproductive system — to undergo surrogacy using a donor egg.
  - Rule 7 of the Surrogacy Act bans use of donor eggs for the procedure.

■■■

Note:

Science & Technology

Highlights

- FSSAI Lacks Data on Genetically Modified Organisms
- Emergency Alert System
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- Sixth Assembly of International Solar Alliance
- Colours of Domesticated Silkworm Cocoons
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FSSAI Lacks Data on Genetically Modified Organisms

Why in News?

Recently, an **RTI (Right to Information)** investigation has found that the **Food Safety and Standards Authority of India (FSSAI)** lacks data on **Genetically Modified Organism (GMO)** in produce imported **over the past 5 years,** raising concerns about the presence of GM varieties in sold fruits and vegetables.

➢ The RTI has also revealed that FSSAI does not have information on tests undertaken to check for the presence of such varieties.

What is Genetically Modified Organism (GMO)?

➢ **About:**
  ❍ A GMO refers to an entity, whether it's an animal, plant, or **Microorganism**, that has undergone modifications **to its DNA** using genetic engineering **methods.**
  ❍ Across generations, specific traits have been cultivated in crops like corn, animals like cattle, and even domestic companions like dogs through selective breeding. Yet, in recent decades, the progress of biotechnology has enabled researchers to directly manipulate the genetic makeup of microorganisms, plants, and animals.

➢ **Genetic Modification:**
  ❍ It involves altering the DNA of an organism to introduce specific traits or characteristics. There are several techniques used in genetic modification, each with its own advantages and applications.

➢ **Usage of GMO Across World:**
  ❍ Globally, about a dozen **GMO species are being farmed** on a large scale. According to a report by The Royal Society, a London-based fellowship of scientists, some 28 countries allow large-scale **farming of these GMO crops**.
  ❍ In India, the Food Safety and Standards Act, 2006, prohibits **import, manufacture, use or sale of GM food** without FSSAI's approval.
  ❍ So far, India has allowed cultivation and import of only **one GMO — cotton, a non-food crop**.
    ● In 2022, India also allowed **commercial cultivation of GM mustard,** but the move has been challenged and is **pending at the Supreme Court (SC).**

➢ **Import of GMO in India:**
  ❍ The US, Brazil and Argentina **are the top three countries** in terms of land under GMO cultivation. They are **also major exporters of foods to India.**
  ❍ Argentina and Brazil **are India's top two sources of degummed soyabean oil** in 2022-23.
    ● Overall, the import of fresh fruit and vegetables in **India has increased by 25% in the past decade**, as per the Union Ministry of Commerce and Industry.

Note:

What are the Concerns Raised by the RTI Investigation?

➢ **Food Safety Concerns:**
  ○ Uncertainty about GM presence in imported produce raises concerns about the safety and health implications for consumers.
  ○ If GM produce is present and consumed unknowingly, it raises potential health risks, considering the **uncertainty regarding the long-term health impacts of GMOs.**

➢ **Regulatory Ambiguity:**
  ○ Lack of clarity and data on GM varieties may lead to **ambiguity in regulating and monitoring the import and sal**e of genetically modified fruits and vegetables.
  ○ It **questions the efficacy of regulatory oversight by FSSAI** regarding the importation and sale of GM produce.

➢ **Public Confidence:**
  ○ It might erode public confidence in the **oversight and safety measures pertaining to food imports**, potentially impacting consumer choices and trust in food safety regulations.

What is FSSAI?

➢ **About:**
  ○ FSSAI is an autonomous statutory body established under the Food Safety and Standards Act, 2006 (FSS Act).
  ○ The Ministry of Health & Family Welfare, Government of India is the administrative Ministry of FSSAI.
  ○ The Chairperson and Chief Executive Officer of FSSAI have already been appointed by Government of India. The Chairperson is in the rank of Secretary to Government of India.

➢ **Headquarters:** Delhi.

➢ **Functions of FSSAI:**
  ○ Framing of regulations to lay down the standards and guidelines of food safety.
  ○ Granting FSSAI food safety license and certification for food businesses.
  ○ Laying down procedure and guidelines for laboratories in food businesses.
  ○ To provide suggestions to the government in framing the policies.
  ○ To collect data regarding contaminants in foods products, identification of emerging risks and introduction of a rapid alert system.
  ○ Creating an information network across the country about food safety.
  ○ Promote general awareness about food safety and food standards.

Emergency Alert System

Why in News?

A recent **earthquake of 6.4 magnitude hit Nepal on 3rd November 2023,** followed by an **aftershock,** which has exposed significant shortcomings in **emergency alert systems in and around Delhi**.

➢ As tremors rattled the region, both government and private **alert mechanisms failed** to reach a considerable number of people who experienced palpable shaking

➢ Emergency alert systems are mechanisms that provide **early warning and notification of impending or ongoing disasters,** such as earthquakes, **cyclones, floods, landslides**, etc.

What are the Emergency Alert Systems in India?

➢ **Google's Android Earthquake Early Warning System:**
  ○ This is a feature that uses the sensors in Android smartphones to **detect seismic activity and alert users** about potential earthquakes.
    ● It also collects and shares the data with seismological agencies to improve earthquake detection and analysis.
  ○ Google launched this feature in India in September 2023, in collaboration with the **National Disaster Management Authority (NDMA)** and the **National Centre for Seismology (NCS)**, Ministry of Earth Sciences.
  ○ Google's alerts are triggered based on the **Modified Mercalli Intensity (MMI)** Scale, an alternative to the Richter scale.
    ● The MMI scale measures the **effects of an earthquake at a specific location**. It describes the observed effects of an earthquake, including what **people experience and what happens to buildings and objects.**

Note:

- The MMI scale is different from the Richter scale and has a range of 1 to 12.
- **Cell Broadcast Alert System (CBAS):**
  - The **CBAS** represents cutting-edge technology that empowers us to **disseminate critical and time-sensitive disaster management messages** to all mobile devices within specified geographical areas, regardless of whether the recipients are residents or visitors.
  - Common applications of Cell Broadcast include delivering emergency alerts such as severe weather warnings (e.g., **Tsunamis, Flash Floods, Earthquakes),** public safety messages, evacuation notices, and other critical information.
  - It is developed in collaboration with the **Department of Telecommunications (DOT)** and the **NDMA** and other agencies to generate and disseminate the alerts.
- **Ministry of Earth Science's National Centre for Seismology (NCS):**
  - This is the agency responsible for monitoring and reporting the seismic activity in India and its neighbourhood.
  - It operates a network of seismological observatories across the country, and provides real-time data and information on earthquakes and tsunamis.
  - It also maintains a website and a mobile app, called **BhooKamp**, to provide earthquake alerts and updates to the public.

What are the Gaps and Challenges in the Emergency Alert Systems?

- **Lack of Coordination and Integration**:
  - India lacks a **single, standardized emergency alert system**, resulting in inconsistent and unreliable information for both the public and authorities.
    - Multiple agencies and platforms operate independently, causing confusion, duplication, and delays in alert generation and dissemination.
  - During recent tremors around Delhi, the NCS website and app crashed, facing a **sudden surge in traffic when real-time information on the tremors** was crucial.
    - This incident highlights significant **coordination challenges** in managing emergency situations.

- **Lack of Accuracy and Timeliness**:
  - The emergency alert systems in India are not able to provide **accurate and timely information** on the location, magnitude, intensity, and impact of the disasters.
    - This is due to the **limitations in the data collection**, analysis, and transmission.
- **Lack of Awareness and Preparedness**:
  - The emergency alert systems in India are not able to reach and inform the masses effectively, due to the **lack of awareness and preparedness** among the public and the authorities.
    - Many people do not know how to access, interpret, and respond to the alerts, and often ignore or dismiss them as false alarms.
  - There is also a lack of **public education and awareness campaigns** on the disaster risks and mitigation measures and the response mechanisms.

Global Positioning System Tracker Anklet

Why in News?

Recently, a prisoner in Jammu and Kashmir was released on bail after he was tagged with a **Global Positioning System (GPS) tracker anklet on his foot** to monitor his movements.

- This is the first time in the country that a GPS tracker has been put to such use.

What are GPS Tracker Anklets?

- **About:**
  - GPS anklets are **small, wearable devices** that are attached to the ankles of individuals who are under some form of **legal supervision, such as parole, probation, house arrest, or bail.**
    - The tracker can be put on the ankle or arm of a person. Thus, there are **GPS anklets and GPS bracelets.**
  - GPS anklets are tamper-proof, and any attempt to remove or damage them triggers an alarm.
    - They also have a battery life of several days and can be recharged by the wearer.
  - GPS anklets can also be used to **enforce curfews, travel restrictions,** or other conditions imposed by the court or the supervising agency.

Note:

drishti

➢ **Working Procedure:**
  ○ GPS anklets use the **GPS technology** to provide the **exact location** of the wearer at all times, and allow law enforcement and security agencies to monitor their movements in real-time.

➢ **GPS Anklets usage on Prisoners:**
  ○ GPS anklets **alleviate criminal justice costs,** easing **prison overcrowding** and **directing resources to serious offenses**.
  ○ They balance public safety and rehabilitation by deterring crime, ensuring **law compliance**, and fostering **offender well-being** through family ties, education, and support services.

➢ **Legal Position on the Use of GPS Anklets Globally:**
  ○ GPS trackers are a precondition for bail in several countries including the United States, the United Kingdom, and Malaysia.

➢ **Concerns Regarding the GPS Anklets in India:**
  ○ Rights activists argue that tracking individuals with GPS is a violation of their **fundamental right to privacy** and **dignity of the offenders**.
    ● The **Supreme Court of India** in **'Maneka Gandhi vs Union of India' (1978)** ruled that the **right to life includes the right to human dignity.**
  ○ GPS anklets raise some legal and ethical issues, such as the **lack of clear and specific laws and regulations** governing their usage in India.

What is a Global Positioning System?

➢ GPS is a satellite navigation system, used to determine the **ground position of an object.** It is a **US-owned utility** that provides users with **Positioning, Navigation, and Timing (PNT)** services.

➢ It provides service to civilian and military users. The civilian service is freely available to all users on a continuous, worldwide basis. The military service is available to US and allied armed forces as well as approved Government agencies.

Note:

➢ To meet the PNT services of India**, Indian Space Research Organisation (ISRO)** has established a regional navigation satellite system called **Navigation with Indian Constellation (NavIC).**

Sixth Assembly of International Solar Alliance

Why in News?

Recently, the **Sixth Assembly of the International Solar Alliance (ISA)** was convened at **Bharat Mandapam in New Delhi**.

What are the Major Highlights of the Assembly?

➢ The Assembly discussed the **ISA's broader strategy,** emphasizing the need to focus on energy access before transitioning to renewable sources, echoing the **organization's philosophy of "access first and then transition."**

➢ The assembly announced an increase in **Viability Gap Funding (VGF) for projects,** raising it from **10% to a range of 10% to 35% to foster greater investments**, particularly in African countries.

➢ Four projects supported by the ISA were inaugurated during the assembly. These initiatives spanned across different countries:
  ○ Solarization of the **Malawi Parliament**
  ○ Solarization of **rural healthcare centers in Fiji**
  ○ Installation of a **solar-powered cold storage in Seychelles**
  ○ Solarization of a **school in Kiribati**

➢ India reaffirmed the commitment to make **solar energy** the primary energy source and emphasized that renewable energy could potentially supply **65% of the world's total electricity by 2030** and **decarbonize 90% of the power sector by 2050**.

Note: Around **80% of the global population** reside in countries that **depend on fossil fuel imports.**

What is the International Solar Alliance?

➢ The **International Solar Alliance** is an **action-oriented, member-driven, collaborative platform** for increased deployment of solar energy technologies as a means for bringing **energy access, ensuring energy security, and driving energy transition in its member countries.**

➢ Initially conceived as a **joint effort by India and France**, ISA was conceptualized during the **21st Conference of Parties (COP21) in 2015.**
  ○ With its framework Agreement amended in 2020, all UN member states are eligible to join ISA.

- Currently, **116 countries are signatories,** with 94 having completed the necessary ratification to become full members.

➤ The ISA is guided by its '**Towards 1000**' strategy which aims to **mobilize USD 1,000 billion** of investments in solar energy solutions by **2030,** while delivering energy access to **1,000 million** people using clean energy solutions and resulting in **installation of 1,000 GW** of solar energy capacity.

- This would help mitigate global solar emissions to the tune of **1,000 million tonnes of CO_2 every year**.

➤ The **Assembly is the apex decision-making body of ISA**, in which each Member Country is represented.

- This body makes decisions concerning the implementation of the ISA's Framework Agreement and coordinated actions to be taken to achieve its objective.

Colours of Domesticated Silkworm Cocoons

Why in News?

Silk, often referred to as the **"queen of fibres,"** has been valued for its beauty and luxury for ages. Researchers have revealed the genetic factors behind the **cocoon colors** and adaptations of silk-producing insects, and how they have transformed the silk industry.

What is Cocoon in Silk?

➤ A cocoon in silk is a **protective layer of silk thread** that is spun by a silkworm around itself.

- The silk thread is very fine, strong, and lustrous. The cocoon usually has an oval or round shape.

➤ The cocoon can be used to make silk fabric by unwinding the thread and weaving it.

What Genetic Insights Does Silk Moth Domestication Uncover?

➤ **Evolution of Silk Moth Domestication:**

- It is produced by the cocoons of the domesticated **silk moth (*Bombyx mori*),** which was derived from the **wild silk moth (*Bombyx mandarina*)** more than 5,000 years ago in China.
  - While the domesticated silk moth thrives worldwide, the ancestral moth still roams in regions like China, Korea, Japan, and far-eastern Russia.

➤ **Types of Silk:**

- **Wild Silk (Non-mulberry Silks):**
  - Wild' silks, which include the **muga, tasar, and eri silks** are obtained from other moth species: namely, *Antheraea assama, Antheraea mylitta, and Samia cynthia ricini.*
  - These moths survive relatively **independently of human care**, and their caterpillars forage on a wider variety of trees.
  - Non-mulberry silks comprise about **30% of all silk produced in India.**
    - These silks have shorter, coarser, and harder threads compared to the long, fine, and smooth threads of the mulberry silks.

- **Mulberry Silk:**
  - The most common and widely produced type of silk, accounting for about **90% of global silk production.**
    - Derived from the cocoons of the domesticated mulberry silkworm (*Bombyx mori*), which feeds exclusively on **mulberry leaves.**
  - Has long, smooth, and lustrous fibers that can be woven or knitted into various fabrics with different textures and finishes.
  - Suitable for a wide range of applications, such as clothing, bedding, curtains, upholstery, and accessories.

➤ **Cocoon Colours:**

- The ancestral mulberry moth makes (uniform) **brown-yellow cocoons**.
  - In contrast, domesticated silk moth cocoons come in an eye-catching palette of yellow-red, gold, flesh, pink, pale green, deep green or white.

- The pigments that colour the silkworm cocoons are derived from chemical compounds called **carotenoids and flavonoids,** which are made by the mulberry leaves that the silkworms feed on.
  - The silkworms absorb the carotenoids and flavonoids and transport them to the silk glands, where they are taken up and bound to the silk protein.
  - The amount and type of pigments in the silk glands determine the colour and intensity of the silk threads, which are then extruded by the silkworms to form the cocoons.

Note:

- The pigments that coloured the cocoons are water-soluble, so they gradually fade away.
  - The coloured silks we see in the market are instead produced by using acid dyes.
- **Mutations in genes responsible for carotenoids and flavonoids** cause differently colored cocoons, providing insight into the molecular basis of silk diversity.

What is the Status of India's Silk Industry?
- **Silk Production:**
  - India stands as the **world's second-largest producer of raw silk** after China.
  - In the fiscal year 2020-21, the country produced a substantial 33,739 MT of raw silk.
    - India boasts a diverse range of silk types, including **Mulberry, Tasar, Muga, and Eri**. The variations arise from the distinct feeding habits of the silkworms.
  - The silk industry stands as one of India's largest **foreign exchange earners,** contributing significantly to the country's economic landscape.
- **Leading States:**
  - In the fiscal year 2021-22, **Karnataka emerged as the leading state** in India's silk production, making a substantial contribution of 32%.
    - Other significant contributors include Andhra Pradesh (25%), along with states like Assam, Bihar, Gujarat, and West Bengal, all playing pivotal roles in the thriving silk industry.
- **Top Importers:**
  - The country exports to more than 30 countries in the world. Some of the top importers are the USA, UAE, China, UK, Australia, and Germany.
- **Workforce:**
  - The country's **sericulture** industry employs around **9.76 million people in rural and semi-urban areas.** The sericulture activities in India are spread across 52,360 villages.
- **Central Silk Board (CSB):**
  - It is a statutory body, established in 1948 by an Act of Parliament, under the administrative control of the Ministry of Textiles, Government of India.
    - Its headquarters is located in **Bangalore.**
  - The CSB is responsible for the overall development and promotion of the **sericulture and silk industry in India,** through research, extension, training, quality control, and marketing support.

- **Initiative:**
  - **Silk Samagra.**
  - North East Region Textile Promotion Scheme (NERTPS):
    - The objective of this scheme is the **revival, expansion, and diversification of sericulture** in the North Eastern States with a special focus on Eri and Muga silks.

Genetically Engineered Insects

Why in News?

India aims to increase the Bioeconomy's contribution to **GDP (Gross Domestic Product)** from **2.6% to 5% by 2030,** as outlined in the **'Bioeconomy Report 2022'** by the Department of Biotechnology (DBT).

- Biotechnology funding in India **remains stagnant, with only a 0.0001%** allocation of the GDP. Despite a temporary increase during **Covid-19,** funding levels haven't returned to pre-pandemic standards.
- The 'Guidelines for Genetically Engineered (GE) Insects', issued by the DBT in April 2023, provide procedural roadmaps for those interested in creating GE insects but have issues.

What is Bioeconomy?
- According to the **United Nations Food and Agriculture Organisation (FAO)**, the bioeconomy is "**the production, use and conservation of biological resources**, including related knowledge, science, technology, and innovation to provide information, products, processes and services to all economic sectors with the aim of moving towards a sustainable economy".
- The term bioeconomy became popular in the first decade of the 21st century following its adoption by the **European Union (EU)** and the **Organisation for Economic Co-operation and Development (OECD)** as a framework for promoting the use of **biotechnology to develop new products and markets**. Since then, both the EU and the OECD have implemented specific bioeconomy policies.

Note:

What are the Key Highlights of the Bioeconomy Report 2022?

➢ India's bioeconomy is on a robust growth trajectory, projected to reach USD 150 billion by 2025 and surpass USD 300 billion by 2030.

➢ The sector experienced a remarkable 14.1% increase, reaching USD 80 billion in 2021 compared to USD 70.2 billion in 2020.

  ○ Daily, the bioeconomy generated USD 219 million, reflecting its significant economic impact.

➢ In 2021, the sector witnessed the **establishment of three biotech startups daily**, totaling 1,128 for the year.

➢ With over USD 1 billion invested in research and development, the industry is demonstrating a commitment to innovation and advancement.

➢ Amidst the global pandemic, India administered **4 million Covid-19 vaccine doses** and conducted 3 million tests daily, showcasing its resilience and capacity.

➢ Over the past decade, the number of **biotech startups has soared from 50 to over 5,300,** with expectations of doubling by 2025.

➢ The **Biotechnology Industry Research Assistance Council (BIRAC)** has played a pivotal role by establishing 74 bio-incubation centers across 21 states/UTs, fostering a supportive environment for bio-entrepreneurs.

➢ Notably, India boasts the second-highest number of USFDA (United States Food and Drug Administration)-approved manufacturing plants outside the US, underscoring its global standing in the biotech industry.

What are Genetically Engineered (GE) Insects?

➢ **About:**

  ○ GE insects are organisms **whose genetic material has been altered through genetic engineering** techniques to introduce specific desired traits or characteristics.

  ○ This involves **manipulating the insect's DNA in** a way that is not naturally occurring, often with the aim of conferring certain benefits or addressing specific issues.

➢ **Application:**

  ○ The development and release of GE insects offers applications in various fields such as,

    ● **Vector management in human and livestock health**

    ● Management of major crop insect pests

    ● Maintenance and improvement of human health and the environment through a reduction in the use of chemicals

    ● Production of proteins for healthcare purposes

    ● Genetic improvement of beneficial insects like predators, parasitoids, pollinators (e.g. honey bee) or productive insects (e.g. silkworm, lac insect).

➢ **Issues with Genetically Engineered (GE) Insects Guidelines:**

  ○ The guidelines **lack specificity on the purposes for which GE insects** may be approved in India. While they emphasize **applications in health, agriculture, and environment,** there is a **misalignment with the broader commitment** to contributing to the bioeconomy.

    ● **Uncertainty for Researchers:** The guidelines are limited to research and don't address confined trials or deployment. Lack of clarity on government approval for deployment raises concerns about community exposure without individual choice.

    ● **Uncertainty of Ambit:** Ambiguity surrounds the definition of 'beneficial' in the context of GE insects, hindering funders and scientists from investing. Similar ambiguities exist in other gene-editing guidelines, affecting progress.

What are the Challenges Related to Genetically Engineered (GE) Insects?

➢ **Ecological Impact:**

  ○ One major **concern is the potential ecological impact** of releasing genetically modified insects into the environment. There is a risk that these insects could disrupt ecosystems by affecting non-target species or by altering the balance of existing populations.

➢ **Unintended Consequences:**

  ○ Genetic engineering is a complex process, and u**nintended consequences can arise.** Changes in the targeted genes might have unexpected effects on the insect's behavior, lifespan, or interactions with other organisms.

  ○ There is the risk of the modified genes **spreading beyond the intended population.** If the modified insects can breed with wild populations, the engineered genes may enter the wild gene pool, leading to unintended consequences.

Note:

- ➤ **Ethical Concerns:**
  - ○ Some people are concerned about the morality of altering the genetics of living organisms, particularly when it involves their release into the environment.
- ➤ **Regulatory Challenges:**
  - ○ Developing regulatory frameworks for genetically engineered **insects can be challenging.** Determining the appropriate level of testing, monitoring, and oversight is crucial to ensure both safety and effectiveness.
- ➤ **Long-Term Stability:**
  - ○ Ensuring the **stability of the engineered traits over generations** is crucial. Genetic modifications must remain effective and not degrade or become subject to natural selection pressures that could compromise their intended purpose.
- ➤ **Costs and Scalability:**
  - ○ Developing and implementing genetically engineered **insect technologies can be expensive.** Ensuring cost-effectiveness and scalability for large-scale applications, such as disease vector control, is an ongoing challenge.

Kavach System

Why in News?

The recent collision between two passenger trains in **Andhra Pradesh's Vizianagaram district** drew attention to the absence of the **Traffic Collision Avoidance Systems (TCAS)**, specifically the indigenously developed system called **'Kavach,'** which, if installed, could have averted the tragic incident.

What is Kavach?

- ➤ **About:**
  - ○ Kavach is a **cab signaling train control system with anti-collision features** developed by the **Research Design and Standards Organisation (RDSO) in association with three Indian vendors.**
    - It has been adopted as our **National Automatic Train Protection (ATP) System.**
  - ○ It adheres to **Safety Integrity Level-4 (SIL-4)** standards and acts as a vigilant watchdog over the existing signaling system, **alerting the loco pilot when approaching a 'red signal'** and applying automatic brakes if necessary to prevent overshooting the signal.

  - • The system also relays **SoS messages** during emergency situations.
  - ○ It features centralized live monitoring of train movements through the **Network Monitor System.**
    - • The **Indian Railways Institute of Signal Engineering & Telecommunications (IRISET) in Secunderabad, Telangana** hosts the 'Centre of Excellence' for Kavach.
- ➤ **Components of Kavach:**
  - ○ Within the **Kavach setup**, designated railway stations along the intended route for deployment **consist of three essential components.**
    - • **First Component:** The first component involves the **incorporation of Radio Frequency Identification (RFID) technology into the tracks**.
      - RFID employs **radio waves to identify objects or individuals and utilizes electromagnetic fields** to automatically read wireless device information from a distance without physical contact or line of sight.
    - • **Second Component:** The **locomotive,** serving as the driver's cabin, **is equipped with RFID readers,** a computer, and brake interface equipment, comprising the second component.
    - • **Third Component:** It encompasses radio infrastructure, **such as towers and modems,** strategically installed at railway stations to support the system's functionality.
- ➤ **Challenges in Deployment:**
  - ○ Its deployment cost is **₹50 lakh per kilometer,** with limited coverage of approximately 1,500 km currently, posing a challenge in comprehensive implementation across the **68,000 km rail network.r**

> **Note:** Presently, the **Indian Railways** has designated **₹4,000 crore within the Signalling and Telecom budget section**, encompassing **₹2,000** crore allocated under the **Rashtriya Rail Sanraksha Kosh (RRSK)** specifically for implementing **Kavach.**

Radiative Cooling Paint

Why in News?

Researchers at the **Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR)** Bengaluru, an autonomous institute of the **Department of Science and Technology,** have introduced an **innovative paint that utilizes radiative cooling.**

➢ In the wake of **escalating global temperatures and the pressing need for sustainable cooling solutions,** this new, cost-effective, and eco-friendly **radiative cooling technology** stands as an effective solution.
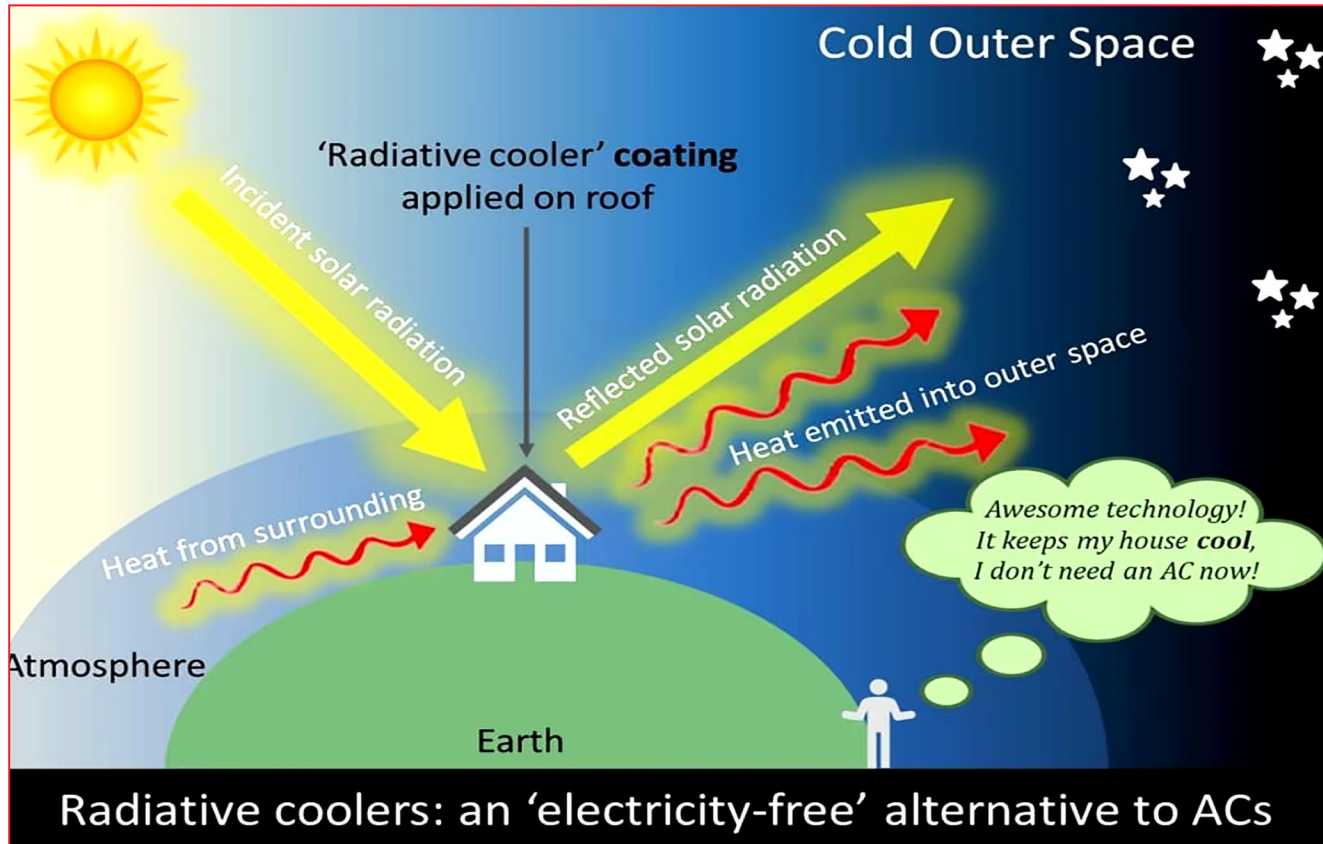
What is Radiative Cooling Technology?

➢ **About:**
   ○ It is a method designed to **dissipate heat from an object by emitting thermal radiation** into the atmosphere, allowing the object to become cooler.
   ○ It leads to **creation of cool surfaces by emitting thermal radiation** directly into the extremely cold **universe (around 3 Kelvin)**, using the atmospheric transmission window (8 - 13 μm).
      ● Notably, this process occurs without any reliance on electricity.

Radiative coolers: an 'electricity-free' alternative to ACs

➢ **Need:**
   ○ Increased **global warming** and **urban heat island effects** have accentuated the necessity for effective cooling technologies.
      ● Conventional active cooling devices like **air-conditioners, fans, and refrigerators demand substantial electrical energy,** contributing to greenhouse gas emissions and elevated surface temperatures.
   ○ **Radiative cooling technology** addresses these challenges by **emitting thermal radiation** without electricity consumption, through the **atmospheric transmission window.**

➢ **Radiative Cooling Paint:**
   ○ It is derived from a **novel magnesium oxide (MgO)-polyvinylidene fluoride (PVDF) polymer nanocomposite** prepared from materials that are earth abundant, cheap, non-toxic and non-harmful.
      ● It showcases remarkable cooling capabilities with **high solar reflectivity and infrared thermal emissivity.**
      ● The **MgO-PVDF** with dielectric nanoparticles resulted in **high solar reflectance (96.3%) and exceptional thermal emission (98.5%).**
   ○ Tailored to counter **escalating heat impact on buildings,** this paint minimizes electricity usage

Note:

drishti

and provides **crucial cooling during sweltering summer days.**

- With outstanding optical features, **it lowers surface temperatures by about 10°C** in strong sunlight, outperforming standard white paints.

○ Its **water-resistant, hydrophobic nature** guarantees effortless application on diverse surfaces, ensuring consistent coverage and strong adhesion.

Deepfakes

Why in News?

A **Deepfake video** showing an Indian actress has sparked **outrage and concern over the misuse of artificial intelligence (AI)** to create realistic but fake videos, also known as deepfakes.

What are Deepfakes?

➢ **About:**

○ Deepfakes are **synthetic media that use AI** to manipulate or generate visual and audio content, usually with the intention of deceiving or misleading someone.

➢ **Deepfake Creation:**

○ Deepfakes are created using a **technique called generative adversarial networks (GANs),** which involve two competing neural networks: a **generator and a discriminator.**

- The generator tries to **create fake images or videos that look realistic,** while the discriminator tries to **distinguish between the real and the fake ones.**

  ■ The generator learns from the **feedback of the discriminator** and improves its output until it can fool the discriminator.

- Deepfakes require a large amount of data, such as photos or videos, of the source and the target person, which are often collected from the internet or social media without their consent or knowledge.

○ Deepfakes are a part of **Deep Synthesis,** which uses technologies, including **deep learning and augmented reality,** to generate text, images, audio and video to create virtual scenes.

➢ **Positive Applications of Deep Learning:**

○ Deep learning technology has enabled positive advancements, such as **restoring lost voices and recreating historical figures.**

○ Deep learning techniques have been applied in **comedy, cinema, music, and gaming to enhance artistic expression.**

○ Synthetic avatars of people with **physical or mental disabilities** will help express themselves online.

○ It enhances **medical training and simulation** by generating diverse and realistic medical images. It also creates **virtual patients and scenarios** for simulating medical conditions and procedures, improving training efficiency.

○ It can also be used to enhance the interaction and immersion of **augmented reality (AR)** and gaming applications.

➢ **Concerns Regarding the Deepfakes:**

○ Deepfakes are a problem because they can be used for various malicious purposes, such as

- **Spreading propaganda, and fake news**;
- **Influencing elections and public opinion;**
- **Blackmailing and extortion** individuals or organizations;
- **Damaging the reputation and credibility** of celebrities, politicians, activists, and journalists; and
- **Creating non-consensual pornography and revenge porn**.

○ Deepfakes can cause various harms, such as **eroding trust in institutions, media, and democracy**, and undermining the **rule of law and human rights.**

○ Deepfake technology can violate the **privacy, dignity, and reputation of individuals,** and harm the **mental health and well-being** of the victims, **especially women**, who are often the targets of such malicious manipulation.

➢ **Detection:**

○ Look for **visual and audio inconsistencies** in the media.

○ Use **reverse image search** to find the original source or similar images.

○ Use AI-based tools to analyze the quality, consistency, and authenticity of the images or videos.

○ Using **digital watermarking or blockchain** to verify the source and integrity of the media.

Note:

○ Educate oneself and others about deepfake technology and its implications.

What are the Global Approaches Related to Deepfake Regulation?

➤ **India:**
- ○ India **does not have specific laws or regulations that ban or regulate the use of deepfake technology.**
- ○ India has called for a global framework on the expansion of **"ethical" AI** tools.
- ○ Existing laws such as **Sections 67 and 67A of the Information Technology Act (2000)** have provisions that may be applied to certain aspects of **deep fakes, such as defamation and publishing explicit material.**
- ○ Section **500 of the Indian Penal Code (1860)** provides punishment for defamation.
- ○ The **Digital Personal Data Protection Act,** provides some protection against the misuse of personal data.
- ○ The **Information Technology Rules, 2021,** mandate the removal of content impersonating others and artificially morphed images within 36 hours.
- ○ India **needs to develop a comprehensive legal framework** specifically targeting deepfakes, considering the potential implications for privacy, social stability, national security, and democracy.

➤ **Global:**
- ○ The recent **world's first ever AI Safety Summit 2023** involving **28 major countries,** including the US, China, and India, agreed on the **need for global action to address AI's potential risks.**
  - The **Bletchley Park Declaration declaration at the summit** acknowledged the risks of intentional misuse and the loss of control over AI technologies.

○ **European Union:**
- The European Union's Code of **Practice on Disinformation** requires **tech companies to counter deep fakes** and fake accounts within six months of signing up to the Code.

➤ If found non-compliant, tech companies **can face fines up to 6% of their annual global turnover**

○ **United States:**
- The U.S. introduced the bipartisan **Deepfake Task Force Act** to assist the Department of Homeland Security in countering deepfake technology.

○ **China:**
- China introduced comprehensive regulation on deep synthesis, effective from January 2023.
  - ■ Aimed at curbing disinformation, the regulation requires clear labelling and traceability of deep synthesis content.
  - ■ The Regulations impose obligations on the providers and users of so-called "deep synthesis technology".

➤ **Tech Companies:**
- ○ Big tech companies like **Meta and Google** have announced measures to address the issue of deep fake content.
  - However, there are still vulnerabilities in their systems that allow the dissemination of such content.
- ○ Google has introduced tools for identifying synthetic content, including **watermarking and metadata.**
  - Watermarking embeds information directly into content, making it resistant to editing, while metadata provides additional context to original files.

Types of AI apps explained

Machine learning	**Deep learning**	**Neural network**
AI that uses current and historical data, along with algorithms, to make software more accurate at predicting outcomes without being programmed to do so.	A type of machine learning that imitates the way humans gain knowledge, making the process of collecting, analyzing and interpreting large amounts of data faster and easier.	A system of hardware and software designed to recognize patterns and operate similar to neurons in the human brain.

Note:

Devas- ISRO's Antrix Corporation Deal

Why in News?

The district court of The Hague, Netherlands, rejected India's request to cancel a USD 111 million compensation award to **foreign investors in Devas Multimedia.**

➢ The payment was awarded by the **United Nations Commission on International Trade Law (UNCITRAL) tribunal** because **a satellite deal from 2005 with India's ISRO's Antrix Corporation and Devas Multimedia was cancelled in 2011**.

➢ The Court of Netherlands refused to overturn the award, finding the Indian government liable for improperly terminating the deal.

What is the Case of the Devas-Antrix Deal?

➢ **The 2005 Devas-ISRO Satellite Deal:**

  ○ In 2005, **Antrix Corporation,** the commercial arm of the **Indian Space Research Organisation (ISRO)**, entered a satellite deal with **Devas Multimedia, a Bengaluru start-up.**

    ● The deal involved leasing the **S-band on ISRO satellites**, **GSAT-6 and GSAT-6A**, for 12 years to provide digital multimedia services.

Note:
➢ The S-band is a designation for a part of the **microwave band of the electromagnetic spectrum.**
➢ The S-band is used for Satellite communication, Radar, Supplying vital real-time data, and High resilience to rain fade and other environmental interference.
➢ The S-band is used by the shipping, aviation, and space industries. The S-band spectrum is also extremely valuable for mobile broadband services.
➢ **GSAT-6 and GSAT-6A are high-power S-band communication satellites.**

➢ **Cancellation of the Satellite Deal:**

  ○ In 2011, the Indian government abruptly cancelled the deal, citing **national security reasons**.

    ● The decision was taken in the midst of the **2G scam** and allegations that the Devas deal involved the handing over of a communication spectrum valued at nearly Rs 2 lakh crore for a pittance.

➢ **Legal Battles and Compensation Awards:**

  ○ Foreign investors in Devas Multimedia, pursued compensation through international tribunals.

● In 2015, the **International Chamber of Commerce (ICC)** arbitration tribunal, awarded Devas Multimedia USD 1.2 billion in compensation.

  ■ Deutsche Telekom received USD 101 million from the **Permanent Court of Arbitration in Geneva.**

  ■ In 2020, three Mauritius-based investors were granted USD 111 million by UNCITRAL.

○ Due to the Indian Government not paying the compensation, Devas filed an appeal in the US and EU to liquidate assets of Indian **Public Sector Undertaking (PSUs)** for recovery of penalty.

➢ **Indian Government's Challenge:**

○ In 2022, the Indian government challenged the compensation awards, citing a **Supreme Court of India** order that upheld **Devas Multimedia's liquidation on fraud charges.**

  ● The **Enforcement Directorate** and the **Central Bureau of Investigation** are currently pursuing cases of **money laundering and corruption** in India against Devas and its officials.

➢ **The Hague District Court's Rejection:**

○ The district court in Hague rejected India's plea to set aside the compensation awards.

○ It ruled that charges of deceit, fraud, and corruption had already been addressed and dismissed during earlier legal proceedings.

○ The Supreme Court of India's judgment was deemed to hold no independent significance.

International Chamber of Commerce (ICC)
➢ ICC is the world's largest business organization working to promote international trade and responsible business conduct.
➢ It has been helping to resolve difficulties in international commercial and business disputes to support trade and investment since 1923.
➢ ICC headquarters is in Paris, France.

Zika Virus

Why in News?

Recently, the **Karnataka State Health Department** issued an alert following **Zika virus** detection in mosquito samples from **Talakayalabetta, Chikkaballapura village.**

Note:

➢ The **Zika virus,** a **mosquito-borne flavivirus**, and its impacts on public health have been a matter of significant concern.

What is Zika Virus?

➢ **About:** The **Zika virus,** a mosquito-borne flavivirus, that is primarily spread by Aedes mosquitoes, particularly *Aedes aegypti*.

  ❍ Also, it can also be **transmitted from mother to fetus during pregnancy, as well as through sexual contact, transfusion of blood** and blood products.

  ❍ The Zika virus has an **RNA genome**, and thus a very high potential to accumulate mutations.

    ● Genomic studies have suggested that the Zika virus has two lineages: **African and Asian.**

➢ **History:** Discovered in 1947 in the **Zika forest in Uganda** from infected monkeys, the **first human cases were recorded in 1952 in Uganda and Tanzania.**

  ❍ Outbreaks have occurred across Africa, the Americas, Asia, and the Pacific since 2007.

  ❍ Notable outbreaks have occurred in Indian states like **Kerala and Karnataka** in recent years.

➢ **Symptoms:** Often asymptomatic; when present, **common symptoms include fever, joint pain, muscle pain,** and headache lasting 2-7 days.

➢ **Association with Other Conditions:** Linked with **Guillain-Barre syndrome, neuropathy, and myelitis** in adults and children.

  ❍ Also, the **interaction between Zika and dengue viruses significantly impacts disease severity**.

  ❍ Exposure to one can worsen the impact of the other, posing challenges in vaccine development and public health management.

➢ **Complications:** Infection during pregnancy causes **congenital malformations, such as microcephaly** and other associated conditions.

> **Note**: **Guillain-Barre syndrome** is a serious autoimmune disorder that affects the peripheral nervous system. The syndrome affects the nerves responsible for muscle movement, pain, temperature, and touch sensations.
> ➢ **Microcephaly** is a **birth defect in which babies are born with a smaller than usual head** and underdeveloped brain

➢ **Treatment and Prevention: No specific treatment available**. Symptomatic relief and medical care advised for worsening conditions.

  ❍ **No vaccine available yet**; prevention focused on **mosquito bite protection,** eliminating breeding sites, and public health initiatives to control mosquito populations.

➢ **Related Indian Government Initiatives:**

  ❍ **National Guidelines for Zika Virus Disease** under **Integrated Disease Surveillance Programme**

  ❍ **Rashtriya Bal Swasthya Karyakram (RBSK):** It aims to improve the quality of life of children and provide comprehensive care to all children in the community.

    ● RBSK involves screening of children from birth to 18 years of age for four Ds:

      ■ Defects at birth
      ■ Deficiencies
      ■ Diseases
      ■ Development delays including disability

Other Viral Diseases	
➢ **Covid-19**	➢ **Influenza**
➢ **Dengue**	➢ **HIV**
➢ **Nipah**	➢ **Mpox**
➢ **Ebola**	➢ **Chickenpox**
➢ **Yellow fever**	➢ **West Nile Virus**
➢ **Hepatitis**	➢ **Polio**
➢ **Japanese Encephalitis**	➢ **Norovirus, Rotavirus and Astrovirus**
➢ **Marburg Virus**	
➢ **Measles and Rubella**	

CO_2 to CO Conversion Technology

Why in News?

The **National Centre of Excellence in Carbon Capture and Utilisation (NCoE-CCU)** at IIT Bombay has developed a new technology for converting **carbon dioxide (CO_2) to carbon monoxide (CO).**

➢ The technology is energy-efficient and can be used in the steel sector. It aligns with India's goal for **net-zero emissions by 2070.**

How Does the CO_2 to CO Conversion Technology Work?

➢ **Working Process:**
- ❍ The CO2 to CO conversion technology operates through an **electrocatalytic process.**
- ❍ Unlike traditional methods that **require high temperatures (400-750 °C),** and the presence of the equivalent amount of hydrogen, this process can operate at **ambient temperatures (25-40 °C)** in the presence of water, **eliminating the need for high-temperature conditions.**
  - ● The energy for this electrocatalysis reaction can be sourced directly from **renewable energy, such as solar panels or windmills,** ensuring a carbon-neutral operation. Making it highly energy-efficient process and environmentally friendly and sustainable.

➢ **Significance for the Steel Industry:**
- ❍ CO is a crucial chemical in the steel industry, used in the **conversion of iron ores to metallic iron in blast furnaces.**
  - ● CO is a widely used chemical in the industry especially in the form of syngas.
- ❍ Traditionally, CO is produced through the partial **oxidation of coke/coal, resulting in significant CO2 emissions.**
  - ● The new CO_2 to CO conversion technology presents an opportunity to establish a **circular economy,** reducing **carbon footprint and associated costs in steel production.**

Electrocatalytic Process
➢ It is a catalytic process that involves the **direct transfer of electrons between an electrode and reactants.**
➢ This process is environmentally friendly, efficient, and inexpensive. It can be used in many sustainable energy technologies.

Carbon monoxide (CO)
➢ It is a **colorless, odorless, and tasteless** gas that is slightly less dense than air.
➢ **Sources of CO:** CO is a byproduct of the **incomplete combustion of hydrocarbons.** Common sources include burning fossil fuels like natural gas, petrol, coal and oil, wood smoke, car and truck exhausts etc.

➢ It is toxic to humans insofar as it forms a complex thereby displacing oxygen from the hemoglobin of the blood.
➢ In the atmosphere CO is short lived because of the role it plays in the formation of **ground-level ozone.**

India's Deep Ocean Mission

Why in News?

India is gearing up for a **historic Deep Ocean Mission to explore and harness the depths of the ocean**, a frontier that remains largely uncharted and holds immense potential for scientific and economic benefits.

➢ Countries such as the **U.S.A., Russia, China, France, and Japan** have already achieved successful deep-ocean crewed missions.

What is the Deep Ocean Mission?

➢ **About:**
- ❍ **Deep Ocean Mission (DOM)** is an ambitious initiative of the **Ministry of Earth Sciences (MoES)** which aims to develop technologies and capabilities for **deep sea exploration.**
  - ● Also, DOM is one of nine missions under the **Prime Minister's Science, Technology, and Innovation Advisory Council (PMSTIAC).**

➢ **Key Pillars of the Mission:**
- ❍ Technological Advancements for **Deep-Sea Mining and Crewed Submersibles**
- ❍ Ocean Climate Change Advisory Services
- ❍ Innovations for **Deep-Sea Biodiversity Exploration and Conservation**
- ❍ **Survey and Exploration** of Deep-Ocean Minerals
- ❍ **Harvesting Energy and Freshwater** from the Ocean
- ❍ Establishment of an **Advanced Marine Station for Ocean Biology**

➢ **Major Advancement in DOM Objectives:**
- ❍ **Samudryaan** and Matsya6000: As a part of DOM, India's flagship deep ocean mission, **Samudrayaan,** was initiated in 2021 by the Minister of Earth Sciences.
  - ● With Samudrayaan, India is embarking on a groundbreaking crewed expedition to reach a depth of **6,000 m to the ocean bed in the Central Indian Ocean.**

Note:

- This historic journey will be accomplished by **Matsya6000**, a **deep-ocean submersible** designed to accommodate a crew of three members.
  - It is constructed from a titanium alloy, the sphere is engineered to withstand pressures of up to 6,000 bar.

> **Note:** The decision to target a depth of **6,000 meters holds strategic importance** due to the presence of valuable resources like **polymetallic nodules and sulphides.** These resources, containing essential metals, are found between depths of **3,000 to 5,500 meters.**

  - **Varaha- India's Deep-Ocean Mining System:** The **National Institute of Ocean Technology**, an autonomous institute under MoES has conducted successful deep-sea locomotion trials using **'Varaha,' an underwater mining system**, at a depth of 5,270 meters in the central Indian Ocean.
    - These trials signified a pivotal moment in deep-sea resource exploration.

What are the Major Challenges in Deep Ocean Exploration?

➢ **Oceanic Pressure Challenges:** The high-pressure conditions in the deep ocean present a formidable challenge, exerting **immense pressure on objects comparable to carrying a weight of about 10,000kg per square meter**.

➢ **Equipment Design and Functionality**: The harsh conditions necessitate meticulously **designed equipment made from robust materials.** Electronics and instruments operate more efficiently in space or vacuum conditions, **while poorly designed objects tend to collapse or explode underwater.**

➢ **Challenges of Landing**: The **soft and muddy surface of the ocean bed** makes it exceptionally challenging for heavy vehicles to land or maneuver.

➢ **Material Extraction and Power Demands:** Extracting **materials from the ocean floor requires significant power and energy** to pump them to the surface.
  - Remotely operated vehicles are ineffective in the deep oceans due to the **absence of electromagnetic wave propagation.**
  - **Visibility is limited,** with natural light penetrating only a few tens of meters underwater, unlike space observations facilitated by telescopes.

➢ **Other Compounded Challenges:** Varied factors such as **temperature variations, corrosion, salinity**, and others further complicate deep-sea exploration, demanding comprehensive solutions.

> **Note: 2021-2030** has been designated by the United Nations as the **'Decade of Ocean Science'.**

CAR-T Cell Therapy

Why in News?

Recently, The **Central Drugs Standard Control Organisation (CDSCO)** has granted market authorisation fo**r NexCAR19**, India's first indigenously-developed **Chimeric Antigen Receptor T cell (CAR-T cell) Therapy.**

➢ India is now one of the first developing countries to **have its indigenous CAR-T and gene therapy platform.**

What is NexCAR19?

➢ **About:**
  - NexCar19 is a **type of CAR-T and gene therapy** developed indigenously in India by ImmunoACT, which is a **company incubated at IIT Bombay.**

Note:

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○ It is designed to target **cancer cells that carry the CD19 protein.**

- This protein acts like a flag on cancer cells, which allows **CAR-T cells to recognise and attach themselves to the cancer cells** and start the process of elimination.

○ Even some developed nations don't have their own CAR-T therapies; they import them from the **United States or Europe.**

TREATMENT FOR SPECIFIC B-CELL CANCERS

NexCAR19 is a prescription drug for B-cell lymphomas, lymphoblastic leukaemias when other treatments have been unsuccessful

PATIENT'S WHITE blood cells are extracted by a machine through a process called leukapheresis and genetically modified, equipping them with the tools to identify and destroy the cancer cells.
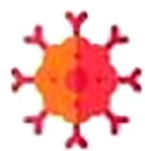
NEXCAR19 IS manufactured to an optimal dose for the patient, and typically administered as a single intravenous infusion. Prior to this, the patient is put through chemotherapy to prime the body for the therapy.

HOW NEXCAR19 WORKS

T-cells are naturally made by the body as an advanced defence against viruses and cancer cells. As T-cells mature, they develop specific connectors (receptors) to target key signals on cancer cells.

Scientists have identified certain proteins that are abnormally expressed on the surfaces of specific types of cancer cells. Specially designed receptors can find and bind to these cells.

However, cancers can limit the inbuilt extent and efficiency with which T-cells are able to seek and fight them. This results in an increase in cancer burden.
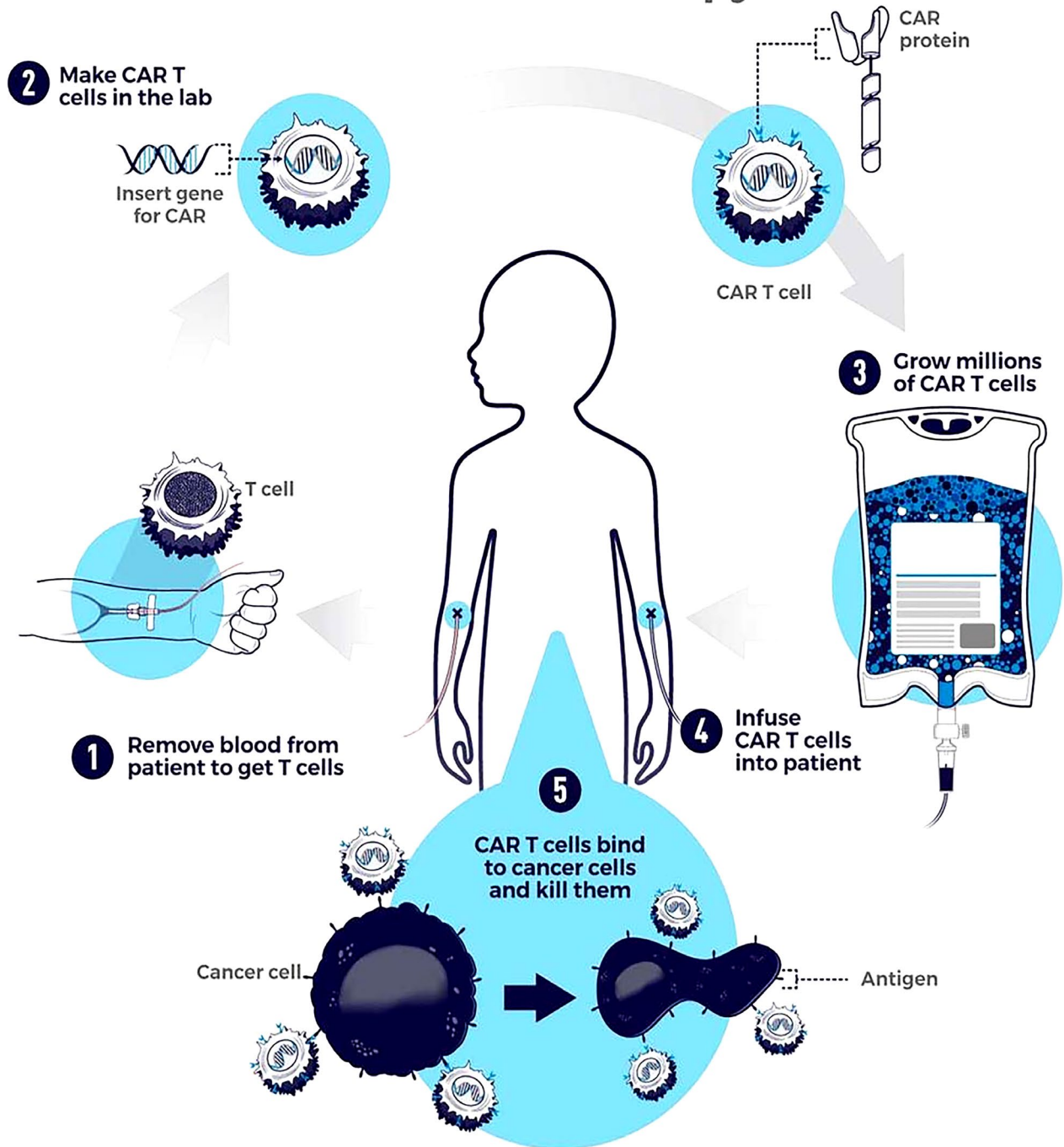
A safe shell of a virus is used to genetically engineer T-cells so they express Chimeric Antigen Receptors — connectors that target a protein called CD19 on B-cell cancer.

Source: ImmunoACT

Note:

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CAR T-cell therapy is a type of treatment in which a patient's T cells are genetically engineered in the laboratory so they will bind to specific proteins (antigens) on cancer cells and kill them. (1) A patient's T cells are removed from their blood. Then, (2) the gene for a special receptor called a chimeric antigen receptor (CAR) is inserted into the T cells in the laboratory. The gene encodes the engineered CAR protein that is expressed on the surface of the patient's T cells, creating a CAR T cell. (3) Millions of CAR T cells are grown in the laboratory. (4) They are then given to the patient by intravenous infusion. (5) The CAR T cells bind to antigens on the cancer cells and kill them.

Note:

- **Patient Eligibility:**
  - NexCAR19 therapy is intended for people with **B-cell lymphomas** who have not responded to standard treatments like chemotherapy and have experienced relapse or recurrence of cancer.
  - Initially, the therapy is approved for p**atients aged 15 years and older.**
- **Procedure:**
  - The process commences with the patient donating blood at a transfusion center. The T-cells are genetically modified and reinfused into the patient within a period of 7-10 days.
- **Efficacy:**
  - It leads to significantly **lower drug-related toxicities**. It causes **minimal damage to neurons** and the central nervous system, a condition known as **neurotoxicity.**
    - Neurotoxicity can sometimes occur when CAR-T cells recognise the CD19 protein and enter the brain, potentially **leading to life-threatening situations.**
  - This therapy also results in Minimal **Cytokine Release Syndrome (CRS),** which is characterized by inflammation and hyperinflammation in the body due to the death of a significant number of tumour cells, as CAR-T cells are designed to target and eliminate cancer cells.

Haemoglobin in Chondrocytes

Why in News?

A recent serendipitous discovery in a study published in Nature found that **chondrocytes,** which produce cartilage, also produce and rely on **haemoglobin** for their survival, revealing that haemoglobin isn't exclusive to **red blood cells (RBCs).**

- Chondrocytes are the cells that make cartilage, **the connecting tissue between bones.**

What are Haemoglobin Bodies or 'Hedy'?

- **Discovery:**
  - In 2017, a pathologist in China, **came across spherical structures** (while studying **growth plates,** which are cartilaginous tissue at the end of certain long bones) that bore a striking resemblance to RBCs and contained haemoglobin**.**

- The discovery of functional haemoglobin in cartilage also leads to the possibility that it plays a role in certain joint diseases as **there are many bone deformities that develop from defects in chondrocytes.**
- **Formation of Haemoglobin Bodies:**
  - The structures, referred to as **'haemoglobin bodies' or 'Hedy,'** were found within **chondrocytes in the cartilage**, and they appeared to form via a process **similar to phase separation, akin to oil separating from water.**
- **Insights into Stem Cells:**
  - Research found a special group of stem cells in the growth plate in 2018, and is excited about the potential implications of this discovery for **stem cells** in the growth plate.
    - One exciting idea is that the haemoglobin in the growth plate **might influence the destiny of these stem cells.**

> **Stem Cells**
> - Stem cells are the body's raw materials — **cells from which all other cells with specialized functions are generated.**
>   - Under certain conditions in the body or a laboratory, **stem cells divide to form more cells called daughter cells.**

What is the Significance of Haemoglobin in Chondrocytes?

- **Haemoglobin's Importance in Chondrocytes:**
  - Haemoglobin is essential for the survival of chondrocytes, the cells that form cartilage. Without haemoglobin, chondrocytes die and cause embryonic lethality in mice (as experiments were conducted on mice).
- **Haemoglobin's Role in Oxygen Transport and Storage in Chondrocytes:**
  - Haemoglobin helps chondrocytes cope with low oxygen levels by transporting oxygen within the cells. Without haemoglobin, chondrocytes suffer from hypoxic stress and impaired function.
  - Haemoglobin acts as an oxygen reservoir for chondrocytes, releasing oxygen when needed. Without haemoglobin, chondrocytes cannot maintain adequate oxygen levels and die.

Note:

Red Blood Cell

➢ The Red Blood Cells (RBCs) are also known as **Erythrocytes.**

➢ RBCs contain the **iron-rich protein called haemoglobin** that gives blood its red colour.

➢ RBCs are the most copious blood cell produced in **bone marrows.** Their main function is to **transport oxygen** from and to various tissues and organs.

Carbon Nanoflorets

Why in News?

Recently, researchers at IIT Bombay have created **carbon nanoflorets** capable of converting **sunlight into heat** with unmatched efficiency.

➢ This innovative development holds the potential to revolutionize sustainable heating solutions while minimizing the **carbon footprint.**
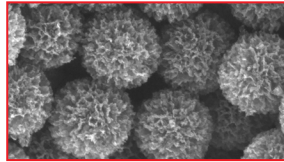
What are Carbon Nanoflorets?

➢ **About:**

  ○ The carbon nanoflorets, developed by researchers from IIT Bombay, demonstrate an impressive **light absorption efficiency of 87%.**

  ○ They can absorb multiple frequencies of sunlight, including infrared, visible light, and ultraviolet, in stark contrast to **traditional solar-thermal materials** that typically **absorb only visible and ultraviolet light.**

➢ **Designing Process of Carbon nanoflorets:**

  ○ A special form of silicon dust called DFNS (dendritic fibrous nanosilica) is heated in a furnace.

  ○ Introduction of Acetylene gas in the chamber facilitates carbon deposition, turning it black.

  ○ Then the black powder is collected and treated with a strong chemical that dissolves the DFNS away, leaving carbon particles behind, resulting in **spherical carbon beads with cone-shaped pits,** forming the carbon nanoflorets, resembling **marigold flowers** when observed under a microscope.

➢ **The Role of Unique Structure:**

  ○ The structure of the nanoflorets, composed of carbon cones, **minimizes light reflection and ensures maximum internal absorption.**
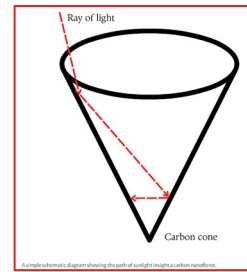
  ○ This distinctive design captures and **retains sunlight, converting it into thermal energy.**

A simple schematic diagram showing the path of sunlight inside a carbon nanofloret.

➢ **Minimal Heat Dissipation:**

  ○ The long-range disorder in the nanoflorets' structure ensures that heat generated within the material is **not carried over long distances.**

    ● This characteristic reduces the dissipation of heat into the environment, allowing the nanoflorets to retain and utilize the generated thermal energy effectively.

What are the Applications and Commercial Potential of Carbon Nanoflorets?

➢ **Heating Water Efficiently:**

  ○ A one-square-meter coating of carbon nanoflorets can vaporize approximately five litres of water within an hour, surpassing the performance of **commercial solar stills.**

    ● Carbon nanoflorets are ideal for water heating applications, offering a **sustainable and cost-effective solution** that reduces reliance on **fossil fuels.**

    ● Nanoflorets can be applied to diverse surfaces, such as paper, metal, and terracotta clay, making them versatile for various applications.

➢ **Eco-Friendly Heating:**

  ○ By utilizing nanofloret coatings, users can harness **solar energy** for heating their homes in an environmentally friendly manner, thereby reducing their carbon footprint.

➢ **Stability and Longevity:**

  ○ Coated nanoflorets exhibit exceptional stability with a minimum **lifetime of eight years.**

    ● Researchers are continuing to assess their durability under various environmental conditions.

■■■

Note:

Environment & Ecology

Highlights

- Production Gap Report 2023
- Baler Machine
- Global Tiger Numbers Rise, Southeast Asia Faces Habitat Threats
- Loss and Damage Fund
- India's Energy Conservation Building Code, 2017
- One Year of Project Cheetah
- Composite Water Management Index
- Pusa-2090 Alternative to Pusa-44
- 8-Point Plan in NCR and Nearby Regions under GRAP Stage-IV
- Critical Evaluation of Elephant Corridor Report 2023
- Adaptation Gap Report, 2023
- Global Declaration for River Dolphins
- International Biosphere Reserve Day 2023
- Melting of West Antarctica's Ice Sheet
- WJC Report Links Wildlife Trafficking to Organized Crime

Production Gap Report 2023

Why in News?

Recently, **Production Gap report 2023** has been published by the **Stockholm Environment Institute (SEI),** Climate Analytics, E3G, International Institute for Sustainable Development (IISD) and the **UN Environment Programme (UNEP)**.

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

➢ The production gap is the difference between governments' planned fossil fuel production and global production levels consistent with **limiting global warming to 1.5°C or 2°C.**

Figure ES.1

The fossil fuel production gap — the difference between governments' plans and projections and levels consistent with limiting warming to 1.5°C and 2°C, as expressed in units of greenhouse gas emissions from fossil fuel extraction and burning — remains large and expands over time. (See details in Chapter 2 and Figure 2.1.)

Global fossil fuel production

Legend:
- Government plans & projections
- Stated policies
- Announced pledges
- 2°C-consistent
- 1.5°C-consistent
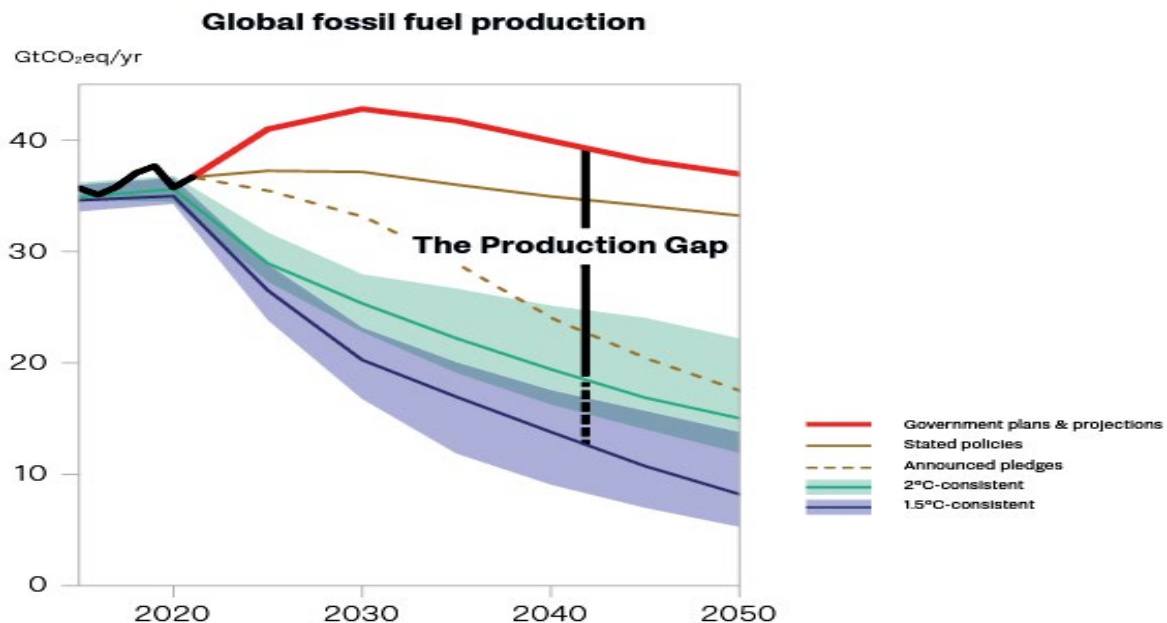
Note:

What are the Key Findings of the Production Gap Report?
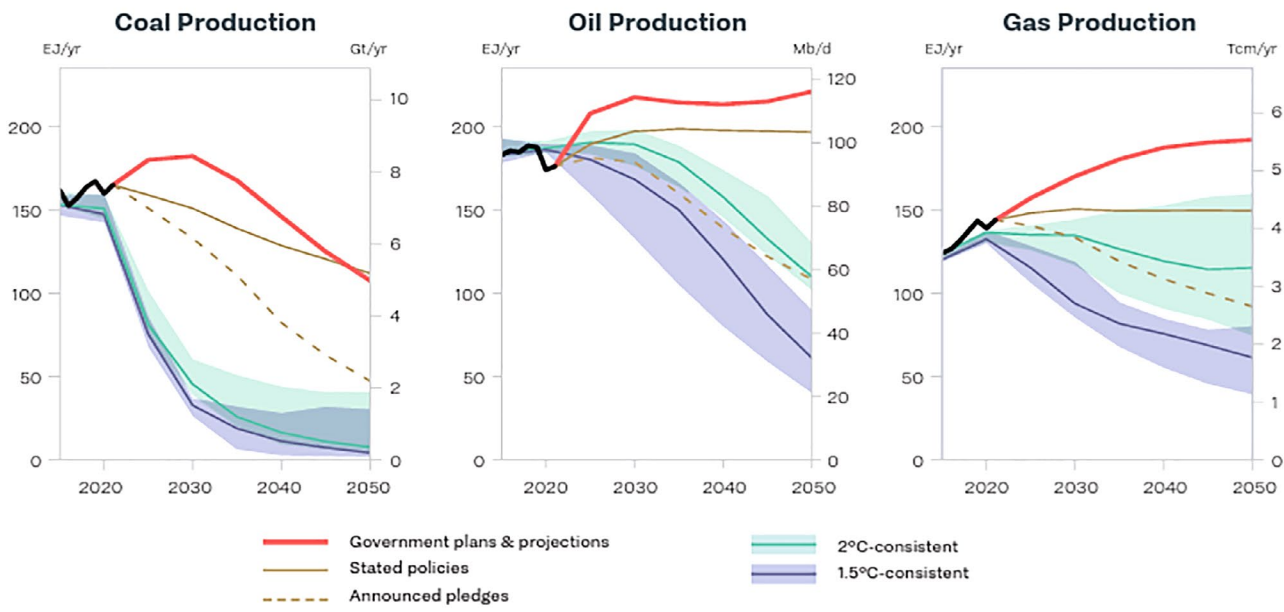
➢ **Projected Increase in Fossil Fuels Production:** Governments are planning to produce twice as much fossil fuel in 2030 than is compatible with the 1.5°C warming limit.

Government plans and projections would lead to an increase in global coal production until 2030, and in global oil and gas production until at least 2050. (See details in Chapter 2 and Figure 2.2.)

○ This **projection exceeds the 2°C target by 69%**, emphasizing the pressing need for more ambitious climate action.

○ Taken together, government plans and projections **would lead to an increase in global coal production until 2030**, and in global oil and gas production until at least 2050.

○ This **conflicts with government commitments under the Paris Agreement**, and clashes with expectations that global demand for coal, oil, and gas will peak within this decade even without new policies.

○ Major producer countries have pledged to achieve net-zero emissions and launched initiatives to reduce emissions from fossil fuel production, but **none have committed to reduce coal, oil, and gas production in line with limiting warming to 1.5°C**.

➢ **India Specific Findings:**

○ **India's Updated NDCs:**

● **Emission Reduction:** **India's NDC** aims to cut emissions intensity by 45% compared to 2005 levels by 2030.

● **Renewable Energy Share:** It targets 50% non-fossil power capacity by 2030.

● **Long-term Vision:** The updated NDC is a stride toward the 2070 **net-zero emissions goal.**
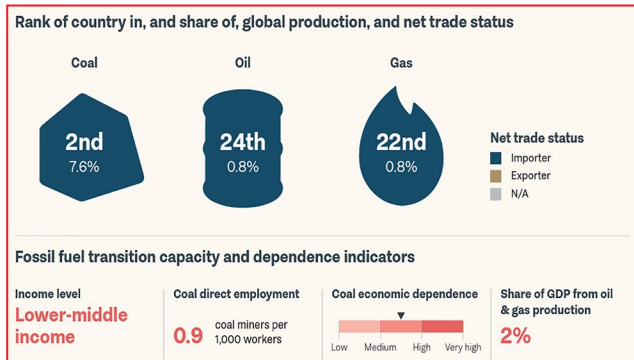
○ **Government's Stance on Fossil Fuel Production:**

● **Low-Carbon Transition with National Scale:** The Long Term-Low Emission Development Strategy(LT-LEDS) released during **COP27** commits to a low-carbon shift that preserves development needs.

■ Emphasis is placed on maintaining energy security, access, and employment.

Note:

- **Support for Domestic Fossil Fuel:** An emphasis on self-reliance calls for the expansion of coal production to generate state income and job opportunities.
  - Plans include scaling up domestic oil and gas exploration to meet increasing demand as the country's **demand for gas** is expected **to rise by over 500% by 2030.**
  - The government has set up rolling electronic auctions of mining blocks to increase domestic coal production and is encouraging **foreign direct investment** in the oil and gas secto.r
  - While investing in green energy, India maintains its commitment to fossil fuels, primarily coal.
  - **ONGC Videsh Ltd (OVL),** a subsidiary of India's national oil company, has stakes in 33 oil and gas projects in 15 countries (ONGC Videsh, 2023).

What are the Recommendations?

➢ **Transparency in Plans:** Governments should be more transparent in their plans, projections, and support for fossil fuel production and how they align with national and international climate goals.

➢ **Adopt Fossil Fuels Reduction Targets:** There is a strong need for governments to adopt near- and long-term reduction targets in fossil fuel production and use to complement other climate mitigation targets and to reduce the risks of stranded assets.

➢ **Phase out of Fossil fuels:** Countries should **aim for a near total phase-out of coal production and use by 2040** and a **combined reduction in oil and gas production and use by three-quarters by 2050 from 2020 levels**, at a minimum.

➢ An equitable transition away from fossil fuel production **must recognize countries' differentiated responsibilities and capabilities.** Governments with greater transition capacity should aim for more ambitious reductions and help finance the transition processes in countries with limited capacities.

Baler Machine

Why in News?

With the problem of farm fires being taken up by the **Supreme Court**, Belar, a machine that facilitates **ex-situ (off-site)** stubble management has been in demand in Punjab and adjacent regions.

➢ Baler machines have been around for a decade, and currently around 2,000 of them operate in Punjab. Of these 1,268 are highly subsidised (50-80%) under the Centre's **Crop Residue Management (CRM) scheme.**

What is the Crop Residue Management (CRM) Scheme?

➢ **About:**
  - It is a **Central Sector Scheme** launched under the Ministry of Agriculture & Farmers Welfare to address the issue of **stubble burning** by assisting farmers and related organisations.

➢ **Financial Assistance under the Scheme:**
  - Farmers receive financial assistance at a rate of 50% for the purchase of crop residue management machinery.
  - **Cooperative Societies, Farmer Producer Organizations (FPOs)**, and Panchayats receive financial assistance at a rate of 80% for establishing **Custom Hiring Centres (CHCs).**

➢ **Scheme Supported Machines:**
  - Super Straw Management Systems, **Happy Seeder**, Super Seeder, Smart Seeder, zero till seed cum fertilizer drill, Mulcher, Paddy Straw Chopper, hydraulically reversible mould board plough, Crop reapers, Reaper binders, **Balers**, and Rakes.

What is a Baler Machine?

➢ **About:**
  - Balers play a pivotal **role in stubble compression, acting as hydraulic presses to compact crop residues into dense, manageable packages.** These compressed stubbles are securely bound using twine, wire, or strapping.
    - **Before using a baler machine, farmers cut the crop residue** with a tractor-mounted cutter. A tractor-mounted baler machine compresses the stubble into compact bales using netting.

Note:

➢ **Significance:**

○ **Environmental Preservation: Eliminates the need for crop stubble burning,** contributing to **reduced air pollution** and soil degradation.

■ Farmers burn stubble after harvesting, which contributes to air pollution. Balers offer an environmentally-friendly alternative to burning stubble by compressing it into bales.

➢ **Resource Efficiency:** Efficientl**y compresses stubble,** making it easier for handling, transport, and storage.

○ It allows farmers to immediately plough the field and sow the next crop.

➢ **Economic Gain:** Opens **avenues for revenue generation through the sale of compressed stubble as a valuable resource.**

➢ **Other Ways to Handle Stubble:**

○ **In-situ treatment of Stubble:** For example, crop residue management by zero-tiller machine and **Use of bio-decomposers (e.g., Pusa bio-decomposer).**

○ **Use of Technology:** For example, Turbo Happy Seeder (THS) machine, which can uproot the stubble and also sow seeds in the area cleared. The stubble can then be used as mulch for the field.

What are the Issues with Balers?

➢ **High Input Cost:** A single baler costs about Rs 14.5 lakh without subsidies. Currently, there are around 700 non-subsidized balers operating in Punjab.

○ **Affordability Issue:** No baler units were sold in the first two years after being included under the Crop Residue Management scheme.

➢ **Unavailability of Enough Machines:** Punjab has around 32 lakh hectares of rice fields, but **only 15-18% of this area can be covered by the available balers** in the state. One baler can cover only 15-20 acres in a day.

What is Stubble Burning?

➢ Stubble (parali) burning is a method of removing paddy crop residues from the field to sow **wheat** from the last week of September to November, coinciding with the withdrawal of the **southwest monsoon.**

➢ Stubble burning is a process of setting on fire the straw stubble, left after the harvesting of grains, like paddy, wheat, etc. It is usually required in areas that use the combined harvesting method which leaves crop residue behind.

Global Tiger Numbers Rise, Southeast Asia Faces Habitat Threats

Why in News?

Countries have submitted **tiger** population numbers from 2010-2022 to the **Global Tiger Recovery Program (GTRP)** and **United Nations Convention on International Trade in Endangered Species (CITES)** under GTRP 2.0 which aims to pave the way for tiger conservation from 2023-2034.

➢ The St Petersburg Declaration in 2010 saw 13 tiger range countries commit to reversing the decline of the species population and double their numbers by 2022.

What is the Status of Tiger Conservation in World?

➢ The **wild tiger status is good in South Asia and Russia,** but the picture in Southeast Asia is grim, posing challenges to the global tiger population recovery.

➢ There has been an **overall increase in the tiger population by 60%, taking the number to 5,870.**

○ However, countries like **Bhutan, Myanmar, Cambodia, Lao-PDR and Vietnam showed a decline in tiger populations,** making the situation "grim" in the Tiger Range Countries (TRCs) of Southeast Asia.

Big cat count

According to the data released by the PM, the number of tigers in India increased by 200 in the past four years. A look at the tiger population

Year	Tiger population
2006	1,411
2010	1,706
2014	2,226
2018	2,967
2022	3,167

Tiger population
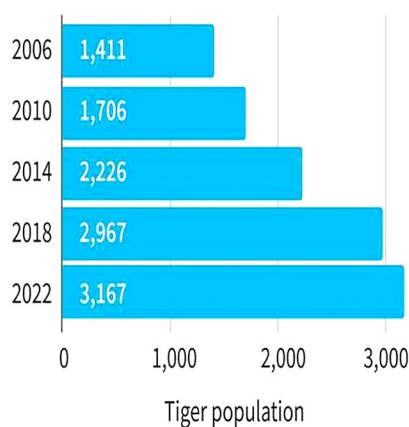
Steady rise: A tiger at Van Vihar National Park in Bhopal on Sunday. PTI

Note:

- ➤ The **success of countries in South Asia like Bangladesh, Bhutan, India and Nepal** including China and Russia in North East Asia is attributed to effective measures taken for habitat conservation and protection.
  - ○ India's wild tiger population is 3,167 in 2022. Nepal has tripled the tiger population.

What is Global Tiger Recovery Program 2.0 (2023-34)?

- ➤ Global Tiger Recovery Programme (GTRP) 2.0 was released at Thimphu on 29 July **International Tiger Day** 2023 by Minister of Foreign Affairs, Royal Govt of Bhutan.
  - ○ GTRP was launched by the **World Bank** in 2010 under the Global Tiger Initiative (GTI) to double wild tiger populations by 2022, with commitments from Tiger Range Countries (TRCs).
  - ○ The Global Tiger Forum (GTF) became the implementing arm for the tiger agenda.
- ➤ GTRP 2.0 has been **firmed up by tiger range countries** through the intergovernmental platform of the Global Tiger Forum along with collaborators like the **Worldwide Fund for Nature (WWF).**
  - ○ GTRP 2.0 emphasizes on strengthening tiger governance, enhancing resources and protection, while addressing contemporary challenges like Human-Wildlife Conflict.
- ➤ The new version has retained several ongoing archetypal actions along with new ones for a differentiated approach to save the endangered wild tigers.

TIGER

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

Subspecies of Tiger

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

Habitat

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

Countries Where Tiger Population Is Found

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

Protection Status

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

Threats

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

Conservation Efforts

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

Tigers In India

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

Drishti IAS

Note:

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What are Threats to the Tiger Population in the World?

➢ **Prey and Tiger Poaching:** The situation is said to be challenging in the region due to widespread **prey and tiger poaching combined with other lacunae** such as inadequate patrolling, poor wildlife monitoring, forest loss for commercial needs, proximity to wildlife trade hubs and rapid infrastructure development resulting in fragmentation.

➢ **Low Investment in Wildlife Conservation:** Poor monitoring and low investment in wildlife conservation are other reasons for the drop in tiger populations.

➢ **Habitat Loss and Fragmentation:** Habitat loss and fragmentation, along with depleting biodiversity due to anthropogenic reasons among others, is another concern raised threatening the tiger conservation.

  ○ The report observed that loss of forest is a major factors across its ranges, with rapid decline in Southeast Asia.

➢ **Degradation of Tiger Habitat:** The tiger habitat has seen degradation due to deforestation, infrastructure development and illegal logging. The report emphasised the need for prey population augmentation in some patches.

What are the Suggestions Given by the Report?

➢ **Need of Genetically Viable Tiger Population:** The report stated that, "For a demographically and genetically viable tiger population, steps need to be taken to reverse the current trend of habitat loss, prey depletion and tiger poaching."

  ○ If steps on tiger stressors are not taken, a majority of the tiger population in Southeast Asia and small populations in parts of South Asia would be lost.

➢ **Address Human-environmental Stress in Tiger Landscapes:** The **Tiger Conservation Landscapes (TCL)** need to be seen from the perspective of an ongoing **human-environmental stress continuum.**

  ○ There are ongoing agro-pastoral as well as other human-induced modifications in several TCLs. Such stressors impact the availability of welfare factors for major wild herbivores and thereby affect the relative abundance of major carnivores, including the tiger.

➢ **Need a Robust Policy Action:** The grim situation demands a robust policy framework supported by political will, long-term availability of resources from the population has **increased by 60%, reaching 5,870 individuals.**

  ○ However, the report also highlights the challenges and threats faced by the tigers, especially in Southeast Asia, where the situation is grim.

What are Initiatives Taken for Tiger Conservation?

➢ **At Global Stage:**

  ○ **St. Petersburg Declaration on Tiger Conservation:**

    • This resolution was adopted In **November 2010**, by the leaders of **13 tiger range countries (TRCs)** assembled at an International Tiger Forum in **St. Petersburg, Russia.**

      ■ 13 TRCs are: **Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Russia, Thailand and Vietnam.**

    • The resolution's **implementation mechanism** is called the **Global Tiger Recovery Program** whose overarching goal was to double the number of wild tigers from about 3,200 to more than 7,000 by 2022.

  ○ **Global Tiger Forum:**

    • The GTF is the only intergovernmental international body established with members from willing countries to embark on a global campaign to protect the Tiger. It is **located in New Delhi, India.**

    • It was formed on recommendations from an international symposium on Tiger Conservation at New Delhi, India.

    • **Out of the 13 tiger range countries, seven are currently members of GTF**: Bangladesh, Bhutan, Cambodia, India, Myanmar, Nepal and Vietnam besides **non-tiger range country U.K.**

  ○ **Global Tiger Initiative (GTI):**

    • GTI was launched in 2008 by founding partners the World Bank, **Global Environment Facility (GEF),** Smithsonian Institution, Save the Tiger Fund, and International Tiger Coalition (representing more than 40 non-government organizations).

    • **The GTI is led by the 13 tiger range countries.** It is a global alliance of governments, international

Note:

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organizations, civil society, the conservation and scientific community, and the private sector committed to working together toward a common agenda to save wild tigers from extinction.

- **The GTI Secretariat, based at the World Bank**, assists the 13 tiger range countries to carry out their conservation strategies and drive the global tiger conservation agenda, through planning, coordination, and continuous communication.

➢ **India:**
  ○ **Project Tiger**
  ○ **National Tiger Conservation Authority**
  ○ **Tiger Census in India**
  ○ **Wild Life (Protection) Amendment Act, 2022**

Loss and Damage Fund

Why in News?

In light of the escalating climate crisis, the **'Loss and Damage' (L&D) fund** and adaptation have recently come into focus.

What is the Loss and Damage Fund?

➢ **About:**
  ○ The 'Loss and Damage' (L&D) fund is a financial mechanism designed to **address the irreversible consequences of climate change** that cannot be avoided or mitigated through adaptation efforts.
    - **Adaptation** is the proactive response to **climate change,** the art of survival using which communities and countries make deliberate choices to **prepare for and cope with climate-related challenges.**
  ○ This fund recognizes and aims to compensate for the real losses incurred by **communities, countries, and ecosystems** due to the impacts of climate change.
    - These losses extend beyond monetary value and cut to the core of human rights, well-being, and environmental sustainability.
➢ **Genesis and Evolution of the L&D Fund:**
  ○ **Historical Accountability and Inception:**
    - Over 30 years, there has been a persistent call for affluent nations to acknowledge their role

in historic pollution, which has elevated the world's average **surface temperature by more than 1 degree Celsius**.
    - This historic pollution is currently causing significant damage worldwide, especially in the poorest nations.
  - **COP 19 (2013):**
    - The formal agreement at the **19th Conference of the Parties (COP 19)** to the **United Nations Framework Convention on Climate Change (UNFCCC)** in Warsaw, Poland, in 2013, led to the **establishment** of the L&D fund.
    - This fund was specifically created to provide financial and technical assistance to **economically developing nations** that were incurring Loss and Damage due to climate change.
  ○ **Subsequent Developments and Challenges:**
  - **COP 25:**
    - Following COP 19, the Santiago Network for L&D was established at COP 25. However, at this point, countries did not commit any funds to support the initiative.
  - **COP 26:**
    - **2021 COP26 climate summit in Glasgow,** aimed to continue discussions over the next three years regarding the **operationalization of the fund.**
  - **COP 27 (November 2022):**
    - After intense negotiations at COP 27, representatives of the UNFCCC's member states agreed to set up the L&D fund. Additionally, a **Transitional Committee (TC)** was established to figure out how the new funding mechanisms under the fund would operate.
      ◆ The TC was tasked with preparing recommendations for countries to consider, deliberate on, and potentially adopt by **COP 28.**
  ○ **Stalemate at TC4 and TC5:**
  - **TC4 Meeting:**
    - The fourth meeting of the TC4 concluded with no clear consensus on operationalizing the L&D fund.

Note:

- The key points of contention included the hosting of the fund at the **World Bank,** the **foundational principle of common but differentiated responsibilities (CBDR)**, issues related to **climate reparations,** and the eligibility of all developing nations for the funds.
  - **TC5 Meeting:**
    - Recommendations from TC5 have been drafted and forwarded to COP 28.

What are the Challenges Regarding the Loss and Damage Fund?

➢ **Developed Nations' Reluctance:**
  ○ Developed nations, particularly the US, have remained **non-committal about being primary donors to the fund**. Their support is voluntary, raising concerns about the commitment to the fund's objectives.
    ● The unwillingness of wealthy nations to fulfill their intended commitments undermines faith in global climate negotiations and hampers the cooperative spirit necessary to address climate change.

➢ **Uncertainty Surrounding the Fund:**
  ○ There is currently **no indication of the size of the L&D fund,** and any attempt to specify the fund's size was quashed under pressure from the U.K. and Australia.
    ● The current draft merely urges and invites developed nations to provide money, without a clear commitment or framework.

➢ **Diplomatic Breakdown and Global Consequences:**
  ○ Developing nations express discontent, perceiving that their concerns and needs are **not adequately addressed by the international community.**
    ● This complicates the path to climate action and raises doubts about addressing other global issues effectively.
  ○ Beyond immediate diplomatic and trust-related repercussions, the watering down of the L&D fund has far-reaching implications. It threatens climate justice and exacerbates the suffering of **vulnerable communities in developing nations**, who have **contributed minimally to global emissions** but bear the brunt of climate change.

➢ **Security Implications of Climate-Change-Induced Instability:**

  ○ Climate-change-induced instability can have security implications as conflicts and tensions emerge in vulnerable nations.
    ● These conflicts threaten to spill across borders, creating security challenges.
  ○ Beyond the immediate consequences, the absence of support for vulnerable communities **can lead to an increase in humanitarian crises**, including food shortages, people displacement, and conflicts.
    ● This forces communities to cope independently with a worsening climate and its consequences.

India's Energy Conservation Building Code, 2017

Why in News?

Recently, the **International Energy Agency (IEA)**, in its **World Energy Outlook 2023**, report has highlighted that **India's Energy Conservation Building Code (ECBC), 2017** sets it apart from other developing economies.

➢ The IEA stated that India is unique among developing countries because its rules for energy efficiency in commercial buildings are strong, whereas in many other developing countries, energy efficiency **in buildings is not as advanced as India.**

What is the International Energy Agency?

➢ The International Energy Agency is **an autonomous Intergovernmental Organisation** established in **1974 in Paris, France.**

➢ IEA mainly focuses on its energy policies which include economic development, energy security and environmental protection. These policies are also known as the 3 E's of IEA.

➢ India became an **Associate member of IEA in March 2017** but it was in engagement with IEA long before its association with the organization.
  ○ Recently, India has inked a **Strategic Partnership Agreement with the IEA** to strengthen cooperation in global energy security, stability and sustainability.

➢ The World Energy Outlook Report is released by the IEA annually.

➢ **IEA Clean Coal Centre** is dedicated to providing independent information and analysis on how **coal can become a cleaner source of energy**, compatible with the UN Sustainable Development Goals.

Note:

What is India's Energy Conservation Building Code (ECBC), 2017?

➤ **About:**
- ○ The ECBC was first released by the **Ministry of Power's Bureau of Energy Efficiency (BEE) in 2007**, followed by an update in 2017.
  - Currently, 23 states have notified **rules to enforce ECBC compliance**, while large states like Maharashtra and Gujarat a**re still in the process of drafting rules**.
- ○ ECBC sets minimum energy standards for commercial buildings, with the objective of enabling energy savings of between 25 and 50% in compliant buildings.
- ○ The code is **applicable to commercial buildings like hospitals**, hotels, schools, shopping complexes, and multiplexes which have a connected load of 100 kW or more, or contract demand of 120 kVA or more.

➤ **Focus:**
- ○ The ECBC in India **focuses on six key components** of building design, including the envelope (walls, roofs, windows), lighting systems, HVAC (Heating, ventilation, and air conditioning) systems, and electrical power systems.
- ○ These components **have both mandatory and prescriptive requirements.** The code applies to both new constructions and retrofitting existing buildings.
- ○ Compliant **buildings are assigned one of three tags in ascending order** of efficiency, namely ECBC, ECBC Plus, and Super ECBC.

➤ **Need for ECBC:**
- ○ Implementation of energy efficiency building codes like ECBC is important as **buildings in India account for 30% of total electricity consumption,** a figure that is expected to touch 50% by 2042.
- ○ Furthermore, BEE notes that 40% of buildings that will exist in the next twenty years are yet to be built, which gives **policymakers and builders a unique opportunity to ensure that they are built in a sustainabl**e manner.

➤ **Evolution from 2007 to 2017:**
- ○ The 2017 update of ECBC **introduces additional priorities**, such as renewable energy integration, ease of compliance, and the **inclusion of passive building design strategies.**
- ○ It also **emphasizes flexibility for designers.** This marks **a significant shift from the 2007 version** and aligns with **global trends towards sustainable and energy-efficient practices.**

Where Do States Stand In ECBC Implementation?

➤ Out of 28 states, only 15, including Uttar Pradesh, Punjab, Karnataka, Andhra Pradesh, Telangana, and Kerala, **have adopted the latest 2017 (ECBC) rules**.

➤ However, Gujarat, Maharashtra, J&K, Ladakh, and Manipur are y**et to implement these rules,** missing out on potential energy savings.
- ○ The National Research Development Corporation estimates that Gujarat alone could save 83 terawatt-hours of energy by 2030 with effective **ECBC compliance.**

➤ The **State Energy Efficiency Index (SEEI) of 2022** ranked **Karnataka as the top state for energy efficiency in buildings**, followed by Telangana, Haryana, Andhra Pradesh, and Punjab.
- ○ On the flip side**, Bihar scored the lowest, and along with Odisha**, West Bengal, Tamil Nadu, and Jharkhand, ranked as the five worst states for energy efficiency in buildings.

What are the Government Initiatives to Promote Energy Conservation and Energy Efficiency?

➤ **PAT Scheme:**
- ○ **Perform Achieve and Trade Scheme (PAT)** is a market based mechanism to enhance the cost effectiveness in improving the Energy Efficiency in Energy Intensive industries through certification of energy saving which can be traded.
- ○ It is a part of the National Mission for Enhanced Energy Efficiency (NMEEE), which is one of the eight missions under the **National Action Plan on Climate Change (NAPCC).**

➤ **Standards and Labeling:**
- ○ The scheme was launched in 2006 and is currently invoked for equipments/appliances Room Air Conditioner (Fixed/VariableSpeed), Ceiling Fan, Colour Television, Computer, Direct Cool Refrigerator, Distribution Transformer, Domestic Gas Stove, General Purpose Industrial Motor, LED Lamps, Agricultural Pumpset, etc.

➤ **Demand Side Management (DSM):**
- ○ DSM is the selection, planning, and implementation of measures intended to have an influence on the demand or customer-side of the electric meter.

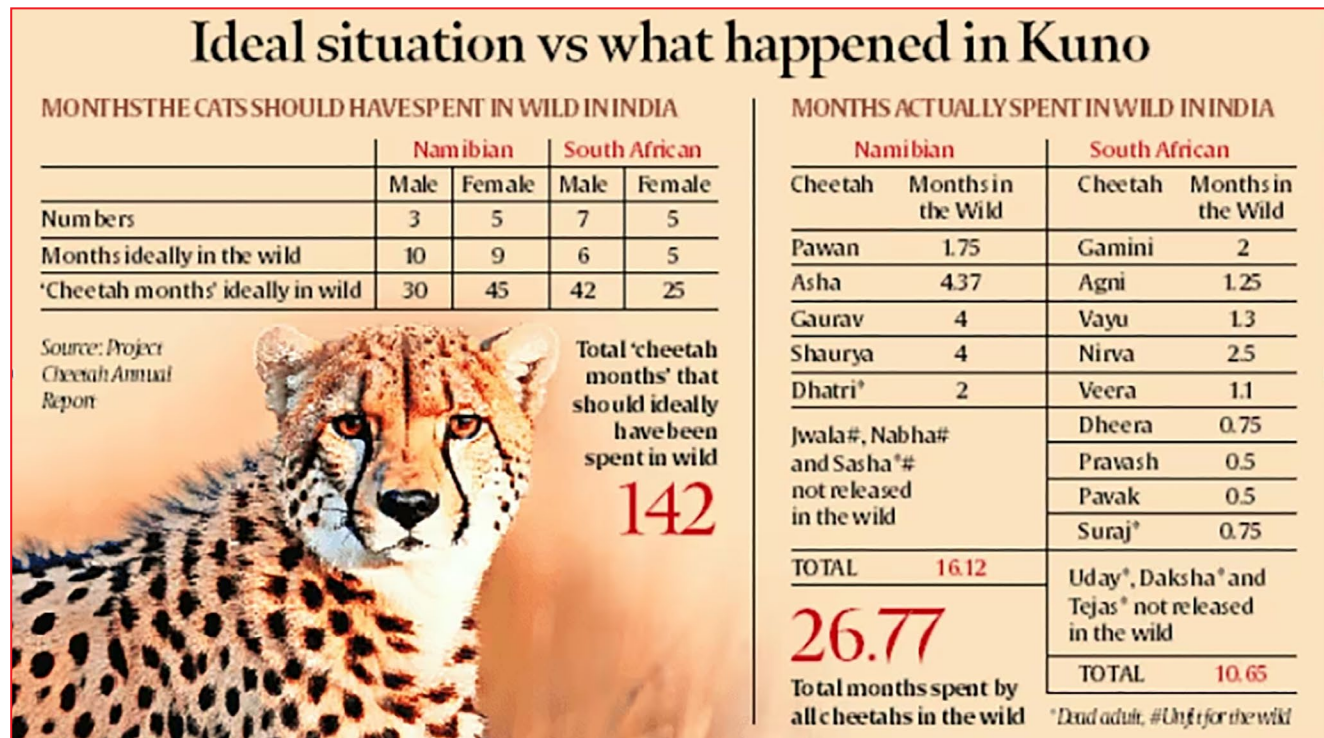
Note:

One Year of Project Cheetah

Why in News?

Project **Cheetah**, India's ambitious attempt to introduce **African cheetahs** in the wild in the country, has been **completed a year** after its launch in **September 2022.**

➢ The project has claimed to have achieved **short-term success on four counts:** "**50% survival of introduced cheetahs from South Africa and Namibia**, the establishment of **home ranges,** the **birth of cubs in Kuno**", and revenue generation for local communities.

What Are the Comprehensive Outcomes of Project Cheetah's First Year?

➢ **Survival in the Wild:**
  ○ According to **the Cheetah reintroduction project**, Cheetahs, meant for a total of **142 months in the wild, spent less than 27 months combined**.
  ○ The project faced a **setback with a 40% loss in the functional adult population**, resulting in the **death of six out of 20 cheetahs**, including Dhatri, Sasha, Suraj, Uday, Daksha, and Tejas.
    ● Additionally, four cubs were born in India, of which three died, and the fourth is being raised in captivity.

Ideal situation vs what happened in Kuno

MONTHS THE CATS SHOULD HAVE SPENT IN WILD IN INDIA

	Namibian		South African	
	Male	Female	Male	Female
Numbers	3	5	7	5
Months ideally in the wild	10	9	6	5
'Cheetah months' ideally in wild	30	45	42	25

Source: Project Cheetah Annual Report

Total 'cheetah months' that should ideally have been spent in wild **142**

MONTHS ACTUALLY SPENT IN WILD IN INDIA

Namibian		South African	
Cheetah	Months in the Wild	Cheetah	Months in the Wild
Pawan	1.75	Gamini	2
Asha	4.37	Agni	1.25
Gaurav	4	Vayu	1.3
Shaurya	4	Nirva	2.5
Dhatri*	2	Veera	1.1
Jwala#, Nabha# and Sasha*# not released in the wild		Dheera	0.75
		Pravash	0.5
		Pavak	0.5
		Suraj*	0.75
TOTAL	16.12	Uday*, Daksha* and Tejas* not released in the wild	

26.77 Total months spent by all cheetahs in the wild

	South African
TOTAL	10.65

*Dead adult, #Unfit for the wild

➢ **Home Range Establishment:**
  ○ The goal was for cheetahs to establish home ranges in Kuno.
    ● **Only three cheetahs,** namely Namibian imports Asha, Gaurav, and Shaurya, spent more than three months continuously **in the wild**. However, they have been confined to bomas(enclosures) since July 2023.
  ○ There are doubts about the successful establishment of "home ranges" in Kuno.

➢ **Reproduction Success:**
  ○ The Action Plan aimed at successful cheetah reproduction in the wild.
    ● **Siyaya aka Jwala, a Namibian female,** gave birth to four cubs in Kuno. However, she was captive-raised and considered unfit for the wild. Her cubs were born inside a hunting boma.
  ○ The reproduction goal faces challenges and compromises, raising questions about the project's long-term success.

➢ **Contribution to Local Livelihood:**
  ○ Project Cheetah positively contributed by generating jobs, and contracts, and **appreciating land prices around Kuno.**

Note:

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Cheetah

Common Name – Cheetah

Scientific Name – *Acinonyx jubatus*
○ *Acinonyx jubatus jubatus* (African Cheetah)
○ *Acinonyx jubatus venaticus* (Asiatic Cheetah)

Reintroduction of Cheetah to India:

- The "Action Plan for Introduction of Cheetah in India" was released by MoEF&CC at the 19th meeting of the National Tiger Conservation Authority (NTCA) (January 2022).
  ○ Such a plan was first proposed in 2009.
- In September 2022, eight cheetahs landed in India from Namibia.
  ○ The 8 cheetahs have been relocated to the Kuno-Palpur National Park, Madhya Pradesh.
- The relocation of cheetahs to India from Namibia is the world's first inter-continental large wild carnivore translocation project.

Slightly brownish and golden skin; thicker than the Asiatic Cheetahs

More prominent spots and lines on the face

Found all over the African continent

IUCN Red List Status – Vulnerable

African Cheetah

Slightly smaller than the African ones.

Pale yellowish fawn coloured skin - more fur under body, belly specifically.

Found only in Iran; the country claims there are only 12 of them left. Year 1952 - Asiatic Cheetah officially declared extinct from India.

IUCN Red List Status – Critically Endangered

Asiatic Cheetah

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- **No reported human-cheetah conflicts** in the area, indicating a harmonious coexistence between the introduced cheetahs and local communities.

What Challenges Does Project Cheetah Face?

➤ **Integrity Challenges:**
  ○ Three Namibian cheetahs, Sasha (the project's first casualty), Jwala, and Savannah alias Nabha, were captive-raised as **"research subjects,"** compromising the integrity of the project.

➤ **Shift in Stance:**
  ○ India's decision to abstain from the **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) vote against trade in elephant ivory** weeks after importing cheetahs raised ethical concerns about the project's commitments.

➤ **Paradigm Shift Ahead:**
  ○ Kuno's inability to support a **genetically self-sustaining population** necessitates a paradigm shift towards a **meta-population approach.**
    - A meta-population approach involves managing distinct populations of a species in fragmented habitats, acknowledging their interdependence for long-term viability and genetic diversity.

Note:

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○ Unlike leopards, **cheetahs cannot travel long distances** between scattered populations on their own.

○ Borrowing from the South African model of periodic translocation for genetic viability is proposed, but concerns arise about the impact on forest connectivity for natural wildlife dispersal.

➢ **Kuno's Carrying Capacity:**

○ The Cheetah Action Plan estimated a high probability of long-term persistence with populations **exceeding 50 individuals.**

● A feasibility report in 2010 estimated 347 sq km of Kuno could sustain 27 cheetahs, while the larger 3,000 sq km landscape could hold 70-100 animals.

● Revised assessments in 2020 indicated Kuno's cheetal density at 38 per sq km, supporting 21 cheetahs, challenging the feasibility of a single population of 50 cheetahs.

○ The project's only option now is a **meta-population scattered over central and western India**, posing challenges compared to the South African model of assisted dispersal.

What is the Cheetah Reintroduction Project?

➢ The Cheetah Reintroduction Project in India formally commenced on September 17, 2022, to restore **the population of cheetahs,** which were declared **extinct in the country in 1952**.

➢ The project involves the translocation of cheetahs from South Africa and Namibia to **Kuno National Park in Madhya Pradesh.**

➢ The project is implemented by the **National Tiger Conservation Authority (NTCA)** in collaboration with the **Madhya Pradesh Forest Department, Wildlife Institute of India (WII)**, and cheetah experts from Namibia and South Africa.

Note:

➢ Cheetahs, the **fastest land animals,** are considered **"crepuscular" hunters,** meaning they hunt at sunrise and sunset.

➢ Cheetah females have a **gestation period of 92-95 days**; and will give birth to a litter of approximately three or five cubs.

Composite Water Management Index

Why in News?

The **Composite Water Management Index (CWMI)** has been a pivotal tool in India, serving as a significant **barometer for assessing states' efficacy in water management.**

➢ However, recent developments have **raised queries regarding its future, casting doubts on its continuity**.

What is the Composite Water Management Index?

➢ **About:**

○ The **Composite Water Management Index (CWMI)** is launched by **NITI Aayog** to provide an annual snapshot of the water sector status and **water management performance of the states and union territories (UTs) in India.**

➢ **Genesis and Evolution of the Report:**

○ Launched in **June 2018 by Niti Aayog**, the CWMI's debut edition spotlighted India's water challenges, **rating states based on 28 parameters, utilizing data from 2015-16 and 2016-17.** The second edition launched in August 2019 was for 2017-18.

● The report was a result of collaborative efforts between **NITI Aayog and three key ministries: Water Resources, Drinking Water & Sanitation, and Rural Development.**

➢ **Themes and Indicators:**

○ The Index comprises **nine themes** (each having an attached weight) with 28 different indicators.

● Source augmentation and restoration of waterbodies

● Source augmentation (Groundwater)

● Major and medium irrigation — Supply side management

● Watershed development — Supply side management

● Participatory irrigation practices — Demand side management

● Sustainable on - farm water use practices — Demand side management

● Rural drinking water

Note:

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- Urban water supply and sanitation
- Policy and governance

➤ **Delay in Subsequent Editions:**
  ❍ The NITI Aayog attributed delays in the third and fourth rounds of the CWMI to the unavailability of updated data caused by the Covid-19 pandemic.
    - Considerations were made to **combine rounds 3.0, 4.0, 5.0, and 6.0** to cover the years 2021-22 and 2022-23, while contemplating extending data coverage to the **district level.**

What is the Status of Water Resources in India?

➤ The **net amount of water that can be used in India in a year is estimated at 1,121 billion cubic meters (bcm)**. However, the data published by the Ministry of Water Resources shows that the total water demand will be 1,093 bcm in 2025 and 1,447 bcm in 2050.
  ❍ This means that there will be a major water shortage in India within 10 years.

➤ As per the **Falkenmark Water Index** (used for measuring water scarcity throughout the world), wherever the amount of water available per capita is below 1,700 cubic meters in a year, there is water scarcity.
  ❍ Going by this index, **almost 76% of people are already living with water scarcity** in India.

What are the Government Initiatives Related to Water Management in India?

➤ **National Aquifer Mapping and Management Program**
➤ **Jal Shakti Abhiyan**
➤ **National Water Policy, 2012**
➤ **Atal Bhujal Yojana**

Pusa-2090
Alternative to Pusa-44

Why in News?

With the **Supreme Court** emphasizing the need to **cease stubble burning** in states like Punjab, Haryana, Uttar Pradesh, and Rajasthan, the discussion surrounding **Pusa-2090** rice variety from its ability to provide an alternative to the **problematic long-duration Pusa-44 variety.**

What is Pusa-44 and Pusa-2090?

➤ **Pusa-44:**
  ❍ **Pusa-44,** a long-duration paddy variety bred by the **Indian Agricultural Research Institute (IARI),** has been a key contributor to stubble burning.
  ❍ Its growth cycle of **155-160 days**, from **nursery sowing to harvesting,** leads to late October maturity, leaving a short window for field preparation for the next crop.
  ❍ Due to time constraints, farmers **resort to burning the stubble,** causing severe environmental issues.
  ❍ Despite its longer duration, the **high-yielding nature of Pusa-44,** averaging 35-36 quintals an acre, makes it popular among farmers.

Note: In the current kharif season, **Pusa-44 covers a significant portion of the paddy cultivation** in Punjab, especially in **non-basmati varieties.** Whereas, **basmati varieties,** producing softer straw, **contribute less to stubble burning,** but their cultivation area is relatively smaller.

➤ **Pusa-2090: A Potential Solution**
  ❍ IARI has developed **Pusa-2090**, an improved version derived from a **cross between Pusa-44 and CB-501,** an early-maturing **Japonica rice line.**
  ❍ It matures in a **shorter duration of 120-125 days** while maintaining comparable yields, addressing the core issue of stubble burning.
  ❍ It combines the **high yield attributes of Pusa-44 with the quicker maturation cycle of CB-501**, making it a promising alternative.
  ❍ It has undergone testing at the All-India Coordinated Rice Improvement Project and has been identified for **cultivation in regions like Delhi and Odisha.**
    - Farmers in regions where Pusa-2090 has been tested have reported **promising yield results.**

What can be the Alternatives to Stubble Burning?

➤ **PUSA Decomposers:** The decomposers are in the form of **capsules** made by **extracting fungi strains** that help the paddy straw to decompose at a much faster rate.

➤ **Happy Seeder**: It is a tractor-mounted device offering an **eco-friendly alternative to stubble burning**.
  ❍ It works by **cutting and lifting rice straw**, simultaneously sowing wheat into the exposed soil and depositing the straw over the sown area as protective mulch.

Note:

> ➢ **Palletisation**: Paddy straw, when dried and **transformed into pellets,** becomes a viable alternative fuel source.
>> ○ When mixed with coal, **these pellets can be utilized in thermal power plants** and industries, potentially saving coal usage and lowering carbon emissions.

8-Point Plan in NCR and Nearby Regions under GRAP Stage-IV

Why in News?

Commission for Air Quality Management in National Capital Region (NCR) and Adjoining Areas has invoked **an eight-point action plan aligning with Stage-IV of the Graded Response Action Plan (GRAP)**, aiming to avert any additional decline in the **region's air quality.**

> **What is the Graded Response Action Plan (GRAP)?**
> ➢ **About:**
>> ○ The **GRAP** consists of emergency measures designed to prevent the deterioration of air quality after reaching specific thresholds in the **Delhi-NCR region.**
>> ○ The **Ministry of Environment, Forests & Climate Change (MoEF&CC)** notified the GRAP in 2017.
>> ○ Commission for Air Quality Management in NCR & Adjoining Areas (CAQM) implements the GRAP.
> ➢ **Implementation:** It is implemented under four stages:

The stages and restrictions

Good 0-50	Satisfactory 51-100	Moderate 101-200
Poor 201-300	Very Poor 300-400	Severe 401-500

STAGE I (AQI 201-300)
Agencies to strictly enforce orders by NGT, SC on keeping vehicles older than 10 years (for diesel) and 15 years (petrol) off roads.

STAGE II (AQI 301-400)
● Measures to curb air pollution at hot spots
● Diesel generators of more than 19KW cannot be used unless they run on dual fuel or have emission control devices.

STAGE III (AQI 401-450)
● BS-III petrol, BS-IV diesel private cars to be banned in NCR. Last year, the rule was optional for state governments
● Schools will likely be closed for children up to Class 5.

STAGE IV (AQI OVER 450)
● Light commercial vehicles registered outside Delhi will be restricted except those that are EVs/CNG/ BS-VI diesels. Vehicles carrying essentials or providing essential services to be allowed
● Educational institutions will likely be closed. Non-emergency commercial activities and odd-even vehicle policy may be rolled out.

> ➢ **GRAP is incremental in nature** and thus, when the air quality dips from 'poor' to 'very poor,' measures listed under both sections have to be followed.

What is the Eight Point Action Plan as per Stage-IV of GRAP?

➢ Prohibiting the e**ntry of truck traffic into Delhi**, except for those transporting essential goods and services, along with LNG/CNG/electric trucks.

➢ **Restricting non-Delhi-registered Light Commercial Vehicles (LCVs) to enter Delhi,** unless they are EVs/CNG/BS-VI diesel, except for essential service carriers.

➢ Banning the **operation of Delhi-registered diesel Medium Goods Vehicles (MGVs)** and **Heavy Goods Vehicles (HGVs)**, except for those transporting essential items.

➢ Imposing a **prohibition on construction and demolition (C&D)** activities in linear public projects like highways, roads, flyovers, power transmission, and pipelines.

➢ Advising **NCR State Governments and GNCTD** to transition physical classes for grades VI to IX, XI to online mode.

➢ Directing NCR State Governments/GNCTD to consider **allowing 50% capacity in public, municipal, and private offices**, with the remainder working remotely.

➢ Empowering the Central Government to **decide on work-from-home protocols** for employees in Central Government offices.

➢ Encouraging State Governments to contemplate additional emergency measures such as the **closure of educational institutions, non-essential commercial activities, and implementing an odd-even vehicle registration number scheme.**

What are the Main Causes and Sources of Air Pollution in Delhi-NCR Region?

➢ **Stubble burning:** Burning crop residue by farmers in the nearby states of **Punjab, Haryana and Uttar Pradesh** though significantly reduced but still stands as a primary cause of heightened air pollution brought by north-westerly winds in the national capital during **October and November.**
> ○ According to SAFAR, stubble burning contributed 25% to Delhi's pollution in 2021.
>> ● **SAFAR** stands for System of Air Quality and Weather Forecasting and Research. It is a national initiative introduced by the **Ministry of Earth Sciences (MoES)** to provide location-specific information on air quality in near real time.

Note:

- ➤ **Vehicle Emissions**: The vehicular emissions from the **large number of cars, trucks, buses, and two-wheelers** plying on the roads of Delhi and the NCR are another significant source of air pollution.
  - ○ As per a research paper published in the **Observer Research Foundation,** the transport sector is the **main source of PM2.5 emissions in Delhi (28% of all PM2.5 emissions).**
- ➤ **Industrial Emissions:** The presence of multiple industries in and around the NCR region releases harmful emissions into the atmosphere. Industries emit various pollutants such as **sulfur dioxide (SO2), nitrogen oxides (NOx), and particulate matter**, contributing substantially to air pollution.
- ➤ **Construction Activities:** Construction sites, especially **brick kilns in the outskirts,** generate high levels of pollutants.
  - ○ Lack of compliance with **environmental regulations, inadequate waste management, and insufficient timelines** for construction projects compound the problem.
- ➤ **Waste Burning and Landfills:** Improper disposal of waste, including **open burning of garbage and landfill sites,** emits harmful gases and particulate matter into the air, significantly affecting air quality.
  - ○ **Example: The Ghazipur landfill site.**
- ➤ **Geographical and Meteorological Factors**: The geographical location of the NCR region, along with **specific meteorological conditions such as temperature inversion during winters,** contributes to trapping pollutants close to the ground, leading to the exacerbation of pollution levels.
  - ○ **October 2023** witnessed the highest pollution levels since 2020 in Delhi-NCR, **partly due to minimal rainfall.**
    - ● Rain typically aids in settling particulate matter and dust, thereby enhancing the Air Quality Index .

> **Note**: Global research connects **air pollution to acute myeloid leukemia,** and non-Hodgkin lymphoma in children, primarily due to **pollutants like benzene, NOx, and particulate matter.** Delhi stands out with **high numbers of leukemia and lymphoma cases in children** compared to regions with lower pollution levels.

What are the Indian Government Initiatives Related to Air Pollution?
- ➤ **System of Air Quality and Weather Forecasting and Research (SAFAR) Portal.**
- ➤ **Air Quality Index**
- ➤ **For Reducing Vehicular Pollution:**
  - ○ **BS-VI Vehicles,**
  - ○ **Push for Electric Vehicles (EVs),**
  - ○ **Odd-Even Policy** as an emergency measure (for Delhi).
- ➤ Subsidy to farmers for buying **Turbo Happy Seeder (THS) Machine** for reducing stubble burning.
- ➤ **National Air Quality Monitoring Programme (NAMP)**

Critical Evaluation of Elephant Corridor Report 2023

Why in News?

Several discrepancies have been identified in the recently published **"Elephant Corridors of India, 2023"** report by the central government.

What are the Major Discrepancies Observed in the Elephant Corridors of India 2023 Report?

- ➤ **Corridor Definition Inconsistencies:** Critics argue that the **initial significance of corridors has been diluted,** as there is a trend to label any area where elephants move as corridors.
  - ○ This has led to the **classification of landscapes and habitats as corridors in the report** and the subsequent surge in the number of elephant corridors.
- ➤ **North and Northeast Corridor Discrepancies:** Critics argue that while certain areas in **West Bengal are suitable for elephants** due to small forest patches, most regions elephants traverse in South Bengal are dominated by **agriculture**.
  - ○ The **report proposes linking these areas to other elephant landscapes,** a departure from the original intent of a corridor.
  - ○ Expansive corridors might escalate human-elephant conflicts.
- ➤ **Dangers to Elephants:** Critics argue that the **expansion of elephant ranges** has also led to increased incidents of elephant deaths due to **electrocution** and falling into wells.

Note:

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What are the Project Elephant Directives on Elephant Corridors?

➢ In **2005-06, Project Elephant** issued directives to states regarding elephant corridors. It stated that **corridors** in forest areas should adhere to the rules outlined in the **Wild Life (Protection) Act, 1972**.

○ Meanwhile, areas with revenue and private lands were instructed to comply with the **Environment (Protection) Act, 1986** as eco-sensitive areas, potentially prohibiting red-category industries.

ELEPHANT

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4 Main Species of Elephant

Species	Found in	IUCN Red List Status	Habitat
Indian	Asia	EN (CITES – Appendix I, WPA – Schedule I)	Subtropical broadleaf forest, tropical broadleaf moist forest, dry forest, grassland
Sumatran	Asia	CR	Broadleaf moist tropical forests
Savanna (Bush)	Africa	EN	All sub-Saharan Africa except for Central Africa's dense tropical forest
Forest	Africa	CR	Dense Tropical Forests

Indian Elephant (Elephas maximus)

Largest Land Mammal on Asian Continent
National Heritage Animal of India

⌖ **Top 5 Indian States by Maximum Elephant Population:**
(As per elephant census 2017)
▪ **Karnataka > Assam > Kerala > Tamil Nadu > Odisha**

⌖ **Social Structure:**
▪ **Female elephants are more social than males; form herd (generally 5-7)**
   ▪ **Led by the oldest female, the 'matriarch'**
▪ **Males usually live alone**

⌖ **Threats:**
▪ **Habitat Fragmentation**   ▪ **Human-Elephant Conflict**
▪ **Poaching for Ivory**   ▪ **Mistreatment in Captivity**

⌖ **Conservation Efforts:**
▪ **Gaj Soochna App (2022)**
▪ **Gaj Yatra (2017)**
▪ **Hathi Mere Sathi campaign (2011)**
▪ **National Elephant Corridor project (2005)**
▪ **Monitoring the Illegal Killing of Elephants (MIKE) Programme (2003)**
▪ **Project Elephant (1992)**

What are Elephant Corridors?

➢ **About:**
○ Elephant corridors are **strips of land** that enable elephant movement between two or more friendly habitats.
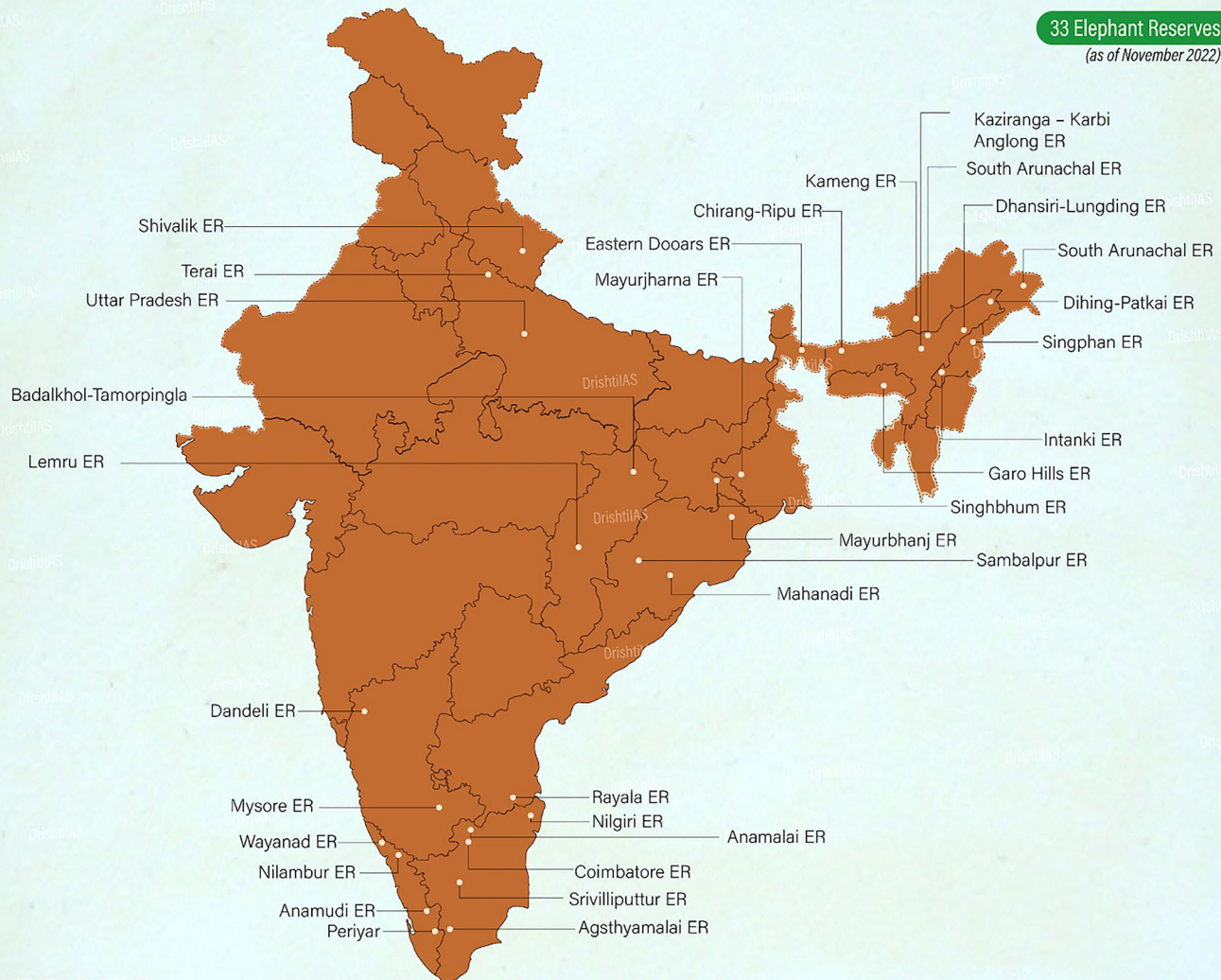
➢ **Major Takeaways from Elephant Corridors of India, 2023 Report:**
○ The report highlighted a **surge of 62 new corridors,** marking a 40% increase since 2010, now **totalling 150 corridors across the nation.**
○ **West Bengal** has the highest number of elephant corridors, totaling **26**, constituting **17% of the total corridors.**
  ● The **East central region contributes 35% (52 corridors)**, and the **North East region** follows as the **second-largest with 32% (48 corridors).**
  ● **Southern India** registered 32 elephant corridors, representing 21% of the total, while **northern India** has the lowest count of 18 corridors, amounting to 12%.
○ Elephants have expanded their ranges in the **Vidarbha region of Maharashtra** and southern Maharashtra bordering Karnataka.
  ● Their presence has also increased in areas such as **Madhya Pradesh within the Sanjay Tiger Reserves and Bandhavgarh,** along with expanded ranges in **northern Andhra Pradesh, allowing movement from Odisha.**

Note:

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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

South Arunachal ER

Eastern Dooars ER

Terai ER

Mayurjharna ER

Dihing-Patkai ER

Uttar Pradesh ER

Singphan ER

Badalkhol-Tamorpingla

Lemru ER

Intanki ER

Garo Hills ER

Singhbhum ER

Mayurbhanj ER

Sambalpur ER

Mahanadi ER

Dandeli ER

Rayala ER

Mysore 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.

Adaptation Gap Report, 2023

Why in News?

As per the latest edition of **Adaptation Gap Report, 2023** released by **UN Environment Programme,** developing countries, together, **need at least USD 215 billion every year** this decade to carry out meaningful adaptation work. In 2021, **just about USD 21 billion** went to developing countries for adaptation projects, which was down about 15% from the previous years.

Note:

➢ This year's report focuses on **adaptation finance**, or the availability of money to carry out the adaptation projects.

What are the Key Highlights of the Adaptation Gap Report, 2023?

➢ **Adaptation Finance Gap:**
  ○ The adaptation finance gap – the difference between estimated adaptation financing needs and costs and finance flows - has grown over the past.
  ○ The adaptation gap is likely **10-18 times as great as current international adaptation finance flows — at least 50% higher than previous range** estimates.
  ○ The current adaptation finance gap is now estimated at **USD 194-366 billion per year.**

➢ **Gender Equality in Financing:**
  ○ Of the international public finance for adaptation that is also tagged with gender equality as a principal objective, only 2% is assessed as gender-responsive, with a further 24% considered gender-specific or integrative.

➢ **Seven Ways to Increase Financing:**
  ○ **Private Financing:**
    ● **Domestic expenditure and private finance** are potentially important sources of adaptation finance where domestic budgets are likely to be a large source of funding for adaptation in many developing countries, **ranging from 0.2 % to over 5 % of government budgets.**
      ■ There is also fragmented evidence of increasing private-sector adaptation interventions all over the world and in most sectors such as water, food and agriculture; transport and infrastructure; tourism.
  ○ **Internal Investments:**
    ● **'Internal Investments'** by large companies, financial institutions' provision of finance for activities that contribute to **adaptation, and companies 'provision of adaptation goods and services** are much needed.
      ■ Also the options of **Corporate Social Responsibility** can be explored in India for achieving climate financing and adaptation goals.
  ○ **Reform of Global Financial Architecture:**

● Report calls for a reform of **global financial architecture**, to **ensure greater and easier access to finance for climate-related purposes** from multilateral agencies the **World Bank or the International Monetary Fund (IMF)** after it has become evident that current levels of international financial flows for fighting climate change are highly inadequate.

Seven ways to bridge the adaptation finance gap
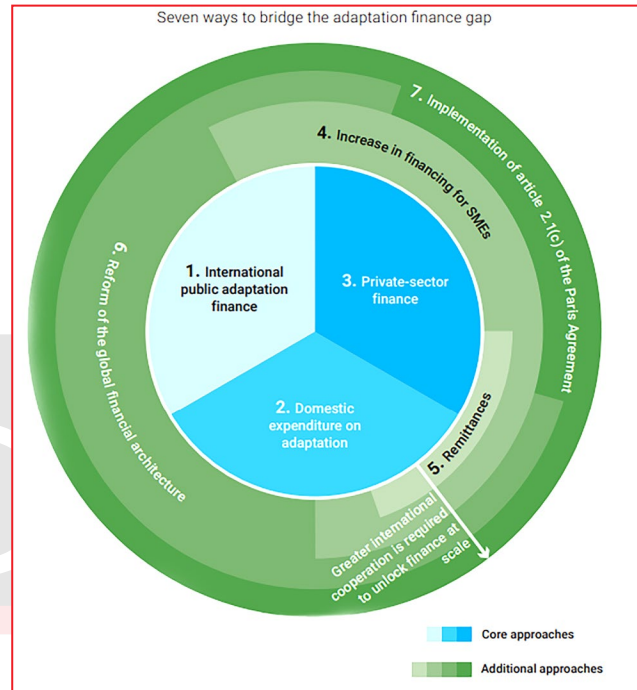
What are Climate Financing Concerns for Developing Countries?

➢ **Limited Capacity of Developing Countries:**
  ○ **Adaptation is vital for saving lives, livelihoods, and ecosystems,** particularly in developing and vulnerable countries with limited resilience, as there is no immediate solution to halt the ongoing effects of climate change. **These adaptation measures require adequate climate financing.**

➢ **Feasibility of Adaptation Measures by Developing Countries:**
  ○ Countries take various adaptation measures based on their specific needs **which include reinforcing coastlines, constructing seawalls in island nations, experimenting with heat-resistant crops,** building climate-resilient infrastructure, securing water sources, and similar efforts to help local populations better cope with rising temperatures and their consequences.

Note:

- But these **adaptive measures impose financial obligations beyond the budgetary reach of governments.**
- ➤ **Lack of Proactiveness on Part of Developed Countries:**
  - ○ Developed countries, as per international climate agreements, are **obligated to offer financial support and technology to assist developing countries in adapting to climate change**.
    - Developed countries have **failed to channelise requisite funds despite various conventions and treaties.**
- ➤ **Requirement of Funds Far Outweighs the Availability of Funds:**
  - ○ Most of the developing countries have listed their adaptation requirements in their climate action plans, called **Nationally Determined Contributions (NDCs) which seek to document every country's contribution to the global fight against climate change.**

What are the Efforts Being Made by the Developed Countries?

- ➤ **Target of USD 100 billion:**
  - ○ Developed countries had promised, **way back in 2009**, to mobilize at least **USD 100 billion** in climate finance every year from **2020** but even three years after the deadline, **that amount has not been realized.**
- ➤ **UNFCCC Platform:**
  - ○ Efforts are being made to increase the finance flows, not just for adaptation, but for all other kinds of climate needs, together called climate finance through **United Nations Framework Convention on Climate Change (UNFCCC).**
    - But the need for climate finance has skyrocketed and is now assessed to be in **trillions of dollars every year.**
- ➤ **Glasgow Climate Conference:**
  - ○ **At the Glasgow climate conference in 2021**, the developed countries had committed themselves to double the money for adaptation.
    - Separately, there is also an agreement that a new climate financing goal, **over and above USD 100 billion every year,** would be set by 2025.
- ➤ **New Collective Quantified Goal:**
  - ○ The **doubling of adaptation finance by 2025** and the **new collective quantified goal** for **2030** that is

under deliberation will be instrumental in helping to close the **climate finance gap** with the help of developing countries.

What is Climate Financing?

- ➤ **About:**
  - ○ It refers to **local, national, or transnational financing—drawn from public, private and alternative sources** of financing—that seeks to **support mitigation and adaptation actions that will address climate change.**
    - It seeks to support mitigation and adaptation actions that will address climate change.
- ➤ **Common but Differentiated Responsibility and Respective Capabilities (CBDR):**
  - ○ The UNFCCC, **Kyoto Protocol,** and the **Paris Agreement** call for financial assistance from Parties with **more financial resources (Developed Countries)** to those that are less endowed and **more vulnerable (Developing Countries).**
    - This is in accordance with the principle of **CBDR.**
- ➤ **Conference of Parties-26 (COP 26):**
  - ○ In UNFCC **COP26**, new financial pledges to support developing countries in achieving the global goal for adapting to the effects of climate change were made.
    - New rules for the **international carbon trading mechanisms** agreed at COP26 will support adaptation funding.
- ➤ **Intergovernmental Panel on Climate Change (IPCC), 2018:**
  - ○ Climate finance is critical to tackle the issues posed by climate change and **achieve the goal of limiting the rise in the earth's average temperature** to below 2 degrees Celsius over pre-industrial levels, something the **IPCC report 2018** has predicted.

Global Declaration for River Dolphins

Why in News?

Recently, **11 Asian and South American** countries signed a landmark deal in Bogota, Colombia to save the world's **six surviving species of river dolphins** from extinction.

➢ This landmark deal signifies a ray of hope in combating the severe decline of river dolphin populations, which have dwindled by a staggering **73% since the 1980s.**

What is the Global Declaration for River Dolphins?

➢ **About:**

○ The **Global Declaration for River Dolphins** aims to halt the **decline of all river dolphin species** and bolster the most vulnerable populations through concerted efforts.

● It outlines measures such as **eradicating gillnets, reducing pollution, expanding research initiatives**, and creating protected areas to safeguard the remaining river dolphin species.

○ Countries that adopted the declaration include: Bangladesh, Bolivia, Brazil, Cambodia, Colombia, Ecuador, **India**, Nepal, Pakistan, Peru, and Venezuela.

● There was also a representative from the regional government in Indonesia that has responsibility for the **Mahakam river.**

➢ **Foundational Pillars:**

○ The **eight foundational pillars** of the Global Declaration for River Dolphins comprise initiatives like **establishing a network of protected areas**, **improving river dolphin site management**, **expanding research and monitoring efforts,** engaging local communities and Indigenous Peoples, eradicating unsustainable fishing practices, enhancing water quality and quantity, promoting **World River Dolphin Day (24ᵗʰ October)** to raise awareness, and augment resource allocation and partnerships.

What are the Key Facts Associated with River Dolphins?

➢ **About:**

○ River dolphins are a group of **freshwater cetaceans** that inhabit various river systems across Asia and South America.

○ The **Six Surviving River Dolphin Species** include: **Amazon, Ganges, Indus, Irrawaddy, Tucuxi, and the Yangtze finless porpoise**.

● The Chinese river dolphin was deemed **'probably extinct' in 2007.**

○ As per the **IUCN Red list**, **Yangtze finless porpoise** are classified as **Critically Endangered.**

● **Amazon, Ganges, Indus, Irrawaddy and Tucuxi** are labeled as **Endangered.**
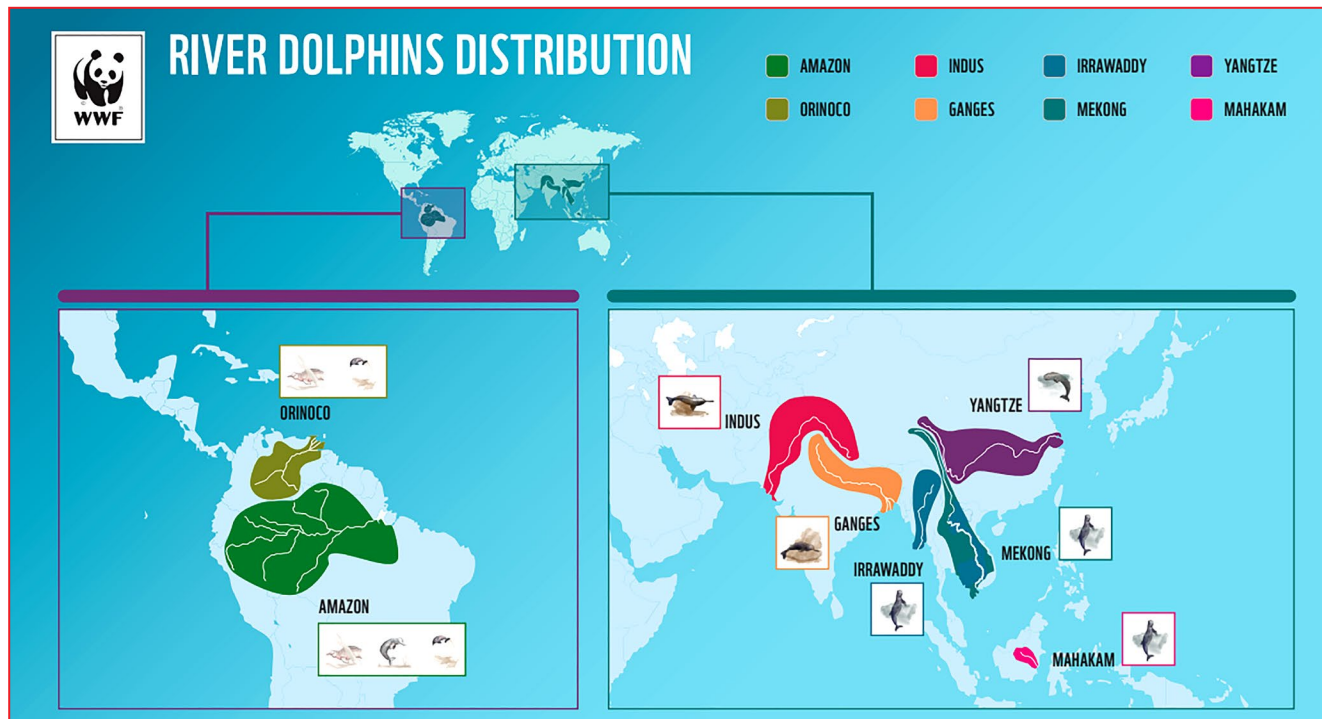
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Note: The Yangtze finless porpoise is the **world's only freshwater porpoise** but it is included with the **other freshwater cetaceans** under the umbrella name **'river dolphins'**.

➢ The Amazon river dolphin, also known as the pink river dolphin or boto is the largest river dolphin.

➢ **Challenges Faced by River Dolphins:**

○ River dolphins are threatened by diverse factors, including **unsustainable fishing practices, hydropower dam construction, pollution from various industries**, agriculture, and mining, as well as habitat loss.

○ Also, the recent tragic deaths of **over 150 river dolphins in the drought-stricken Lake Tefe in the Amazon** illustrate how climate change poses an increasingly severe threat to their survival.

➢ **Successful Conservation Efforts:**

○ Conservation efforts in populated river basins like the **Indus and Yangtze have seen success.**

● For instance, the **Indus river dolphin population in Pakistan** doubled due to joint stakeholder action.

● Additionally, the **Yangtze finless porpoises** witnessed a **23% increase in numbers owing to protective measures.**

○ Moreover, the World Wildlife Fund's **electronic pinger project** saved **80 dolphins in Indonesia's Mahakam river** from gill net entanglement.

GANGES RIVER DOLPHIN

(Platanista gangetica gangetica)

National aquatic animal of India

Facts

- Can only live in freshwater; prefer deep water
- Essentially blind; hunts by emitting ultrasonic sound
- Can't breathe in water; must surface every 30-120 seconds for air
- Also called 'susu' because of sound they make while breathing

Habitat & Distribution

- Distributed in Ganges and Brahmaputra River basins of India, Nepal and Bangladesh.
- Distribution range in India covers 7 states namely, Assam, Uttar Pradesh, Madhya Pradesh, Rajasthan, Bihar, Jharkhand and West Bengal.

Protection Status

- IUCN Red List: Endangered
- CITES: Appendix I
- Wildlife Protection Act 1972: Schedule I

Threats

- Habitat destruction
- Pollution
- Bycatch
- Climate Change
- Hunting

Conservation Efforts

- Project Dolphin (2021): On lines of project Tiger
- National Dolphin Research Centre (2021): India's and Asia's First; in Patna University (Bihar)
- Dedicated Dolphin Sanctuary:
  - Vikramshila sanctuary (Bihar) – 1991
  - Hastinapur sanctuary (UP) – Proposed

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Note:

International Biosphere Reserve Day 2023

Why in News?

The second anniversary of **International Biosphere Reserve Day,** celebrated on **November 3,** annually highlights the critical importance of **biosphere reserves(BR)** in safeguarding our environment and promoting sustainability.

➢ In this context, the **United Nations Educational, Scientific and Cultural Organization (UNESCO)** partnered with the **Ministry of Environment, Forests and Climate Change** and the **National Centre for Sustainable Coastal Management,** concluded the **10ᵗʰ South and Central Asian Biosphere Reserve Network Meeting (SACAM)** in Chennai, India.

○ The SACAM event, themed **"Ridge to Reef,"** facilitated collaboration on sustainable environmental practices in South and Central Asia.

What is World Biosphere Reserve Day?

➢ This day celebrates the role of biosphere reserves in **conserving biodiversity** and promoting sustainable development.

➢ Established by **UNESCO in 2022**, to be observed annually on November 3.

➢ Aims to raise awareness, share best practices, and showcase achievements of the **World Network of Biosphere Reserves (WNBR).**

What is a Biosphere Reserve?

➢ **About:**

○ Biosphere reserves are 'learning places for **sustainable development**'.

○ They are sites for testing interdisciplinary approaches to understanding and managing changes and interactions between **social and ecological systems,** including **conflict prevention and management of biodiversity.**

○ They are places that provide local solutions to global challenges. Biosphere reserves include terrestrial, marine and coastal ecosystems.

● Each site promotes solutions reconciling the conservation of biodiversity with its sustainable use.

➢ **Features:**

○ Biosphere reserves consist of **three main zones:**

● The **core area** is the strictly protected zone, where natural processes and biodiversity are preserved.

● The **buffer zone** surrounds the core area, where human activities are ccompatible with conservation and research objectives.

● The **transition area** is the outermost zone, where sustainable development and human well-being are promoted.

The three zones that characterise a Biosphere Reserve are

● Core area
● Buffer zone
● Transition area
⌂ Human settlements
◎ Research station
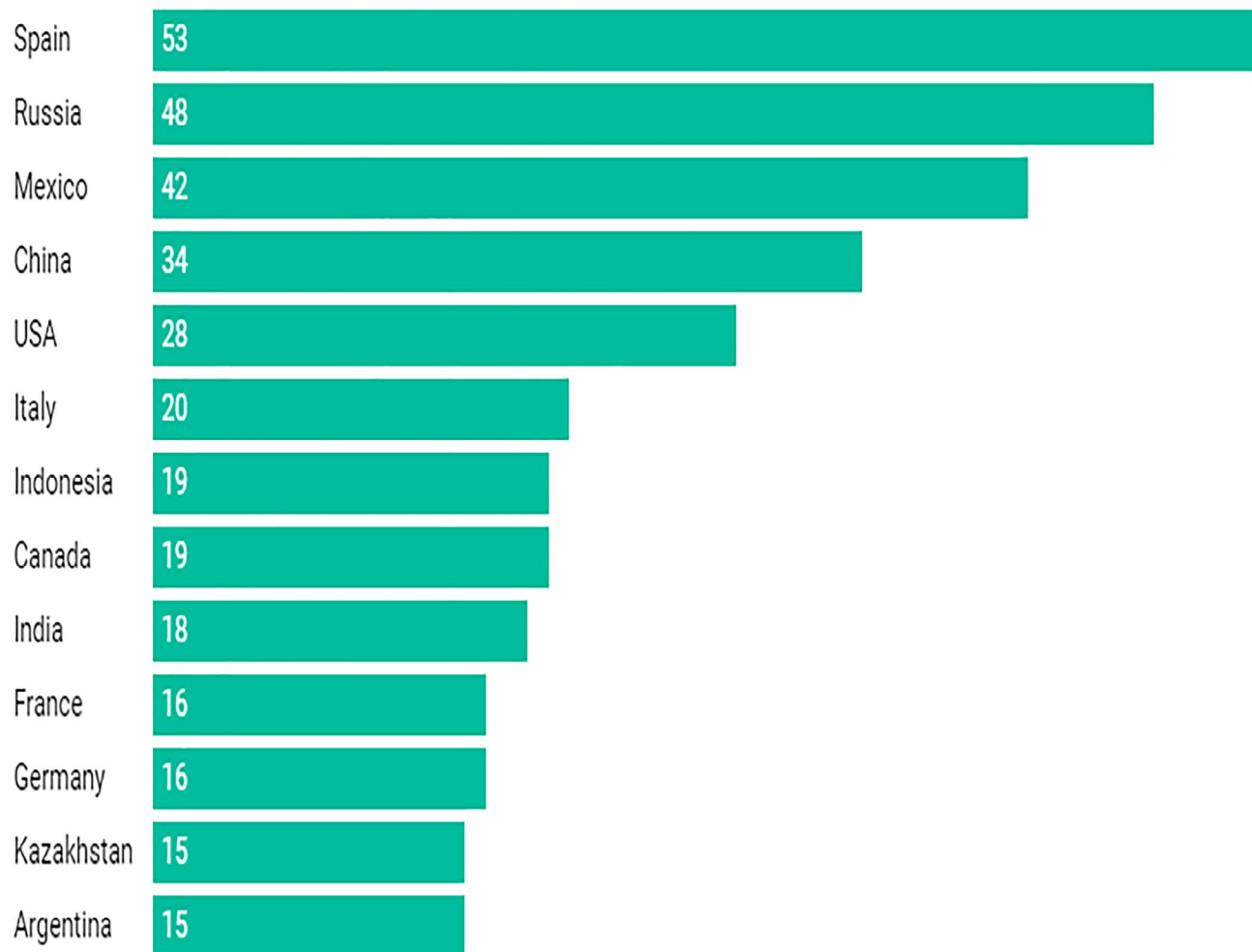⌾ Monitoring
▣ Education / training
◉ Tourism / recreation

Note:

○ Biosphere reserves are **nominated by national governments** and remain under the sovereign jurisdiction of the states where they are located.

○ Biosphere reserves are designated by **UNESCO under the Man and the Biosphere (MAB) Programme** which was launched in 1971.

● The MAB Programme aims to improve the relationship between **people and their environment** and to foster the integration of natural and social sciences.

● The MAB Programme also supports the implementation of the **2030 Agenda for Sustainable Development** and the **post-2020 global biodiversity framework.**

○ Biosphere reserves are part of the **World Network of Biosphere Reserves (WNBR),** which currently comprises **748 sites in 134 countries, including 22 transboundary sites.**

● The WNBR facilitates the exchange of information, knowledge, and best practices among biosphere reserves and their stakeholders.

● The WNBR also fosters cooperation and innovation for addressing global challenges such as **climate change**, **biodiversity loss**, **poverty**, and **pandemics.**

Countries with highest biosphere reserves

Country	Reserves
Spain	53
Russia	48
Mexico	42
China	34
USA	28
Italy	20
Indonesia	19
Canada	19
India	18
France	16
Germany	16
Kazakhstan	15
Argentina	15

○ Biosphere reserves are nominated by **national governments** and remain under the sovereign jurisdiction of the states where they are located.

○ Biosphere reserves are also supported by other United Nations agencies, for example, the **United Nations Development Programme**, the **United**
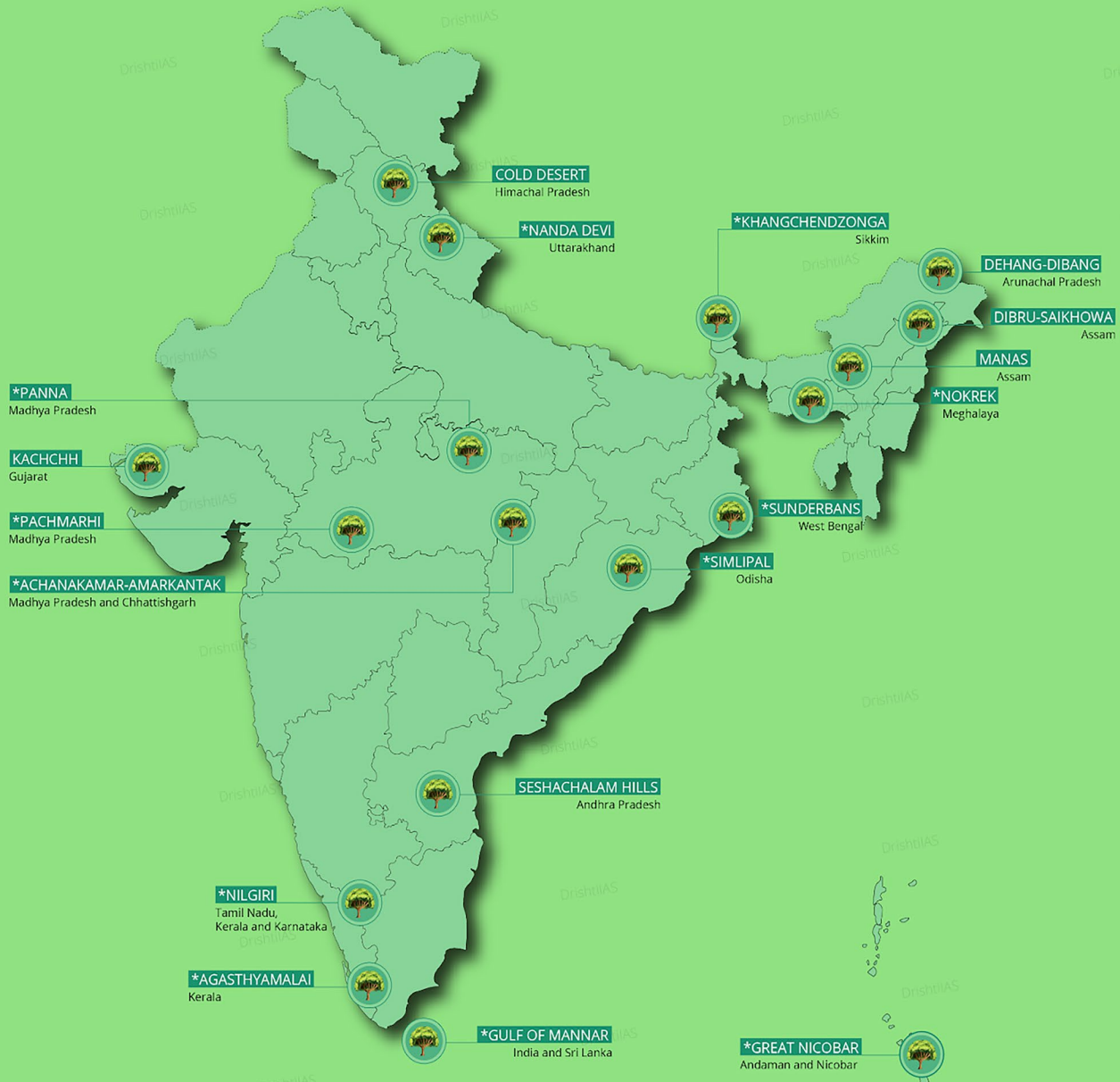
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Nations Environment Programme, as well as the **International Union for Conservation of Nature.**

➢ Biosphere Reserves in India:

Biosphere Reserves in India

COLD DESERT
Himachal Pradesh

*KHANGCHENDZONGA
Sikkim

DEHANG-DIBANG
Arunachal Pradesh

*NANDA DEVI
Uttarakhand

DIBRU-SAIKHOWA
Assam

MANAS
Assam

*PANNA
Madhya Pradesh

*NOKREK
Meghalaya

KACHCHH
Gujarat

*PACHMARHI
Madhya Pradesh

*SUNDERBANS
West Bengal

*ACHANAKAMAR-AMARKANTAK
Madhya Pradesh and Chhattishgarh

*SIMLIPAL
Odisha

SESHACHALAM HILLS
Andhra Pradesh

*NILGIRI
Tamil Nadu,
Kerala and Karnataka

*AGASTHYAMALAI
Kerala

*GULF OF MANNAR
India and Sri Lanka

*GREAT NICOBAR
Andaman and Nicobar

NOTE

- The idea of 'Biosphere Reserves' was initiated by UNESCO in 1973-74 under its Man and Biosphere (MAB) Programme.
- A scheme called Biosphere Reserve is being implemented by Government of India since 1986.
- India has 18 biospheres reserves, of which 12 have been included in the MAB Programme. Panna (Madhya Pradesh) was included in MAB in 2020.
- Mura-Drava-Danube (MDD) is the world's first 'five-country biosphere reserve' (Austria, Slovenia, Croatia, Hungary and Serbia).

*World Network of Biosphere Reserve (MAB-UNESCO)

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Note:

What is the Importance of Biosphere Reserves?

➢ Biosphere reserves play a crucial role as **carbon sinks, absorbing carbon dioxide** from the atmosphere and contributing to climate change mitigation.

  ○ Acting as **pockets of hope in the face of the climate crisis**, the UNESCO biosphere reserves are hidden oases, protecting biodiversity, reducing pollution, and enhancing climate resilience.

➢ Biosphere reserves act as sanctuaries for a wide variety of ecosystems, including **tropical rainforests, alpine deserts, and coastal areas,** providing habitats for countless unique and endangered plant and animal species.

  ○ Biosphere reserves are home to more than **250 million people**, who depend on the ecosystem services and natural resources for their livelihoods.

➢ They promote sustainable economic development by offering opportunities for **eco-tourism** and other environmentally friendly activities, benefiting local communities.

➢ Biosphere reserves also showcase how to involve **local communities**, indigenous peoples, women, youth, and other stakeholders in decision-making and management processes.

What are the Challenges for Biosphere Reserves?

➢ Rapid **deforestation** threatens the integrity of ecosystems within biosphere reserves.

  ○ Overharvesting of natural resources, such as timber and wildlife, can deplete reserves' ecological resources.

➢ **Habitat loss** due to human activities and urban expansion endangers various plant and animal species.

➢ The introduction of **invasive species disrupts the balance of native ecosystems**, impacting biodiversity.

  ○ Controlling and managing invasive species is an ongoing challenge.

➢ **Climate change** poses a significant threat, affecting the stability and resilience of ecosystems within biosphere reserves.

  ○ Altered weather patterns, rising temperatures, and extreme events can lead to ecosystem disturbances.

➢ Changes in **land use, such as agriculture, mining**, and infrastructure development, impact the natural landscape of reserves.

➢ Pollution from **agricultural runoff, industrial activities, and waste disposal** can harm the environment within biosphere reserves.

  ○ Maintaining water quality and mitigating pollution is crucial for ecosystem health.

➢ Many biosphere reserves **lack sufficient resources and funding** for conservation and management efforts.

Melting of West Antarctica's Ice Sheet

Why in News?

A recent study reveals alarming predictions about the **West Antarctic** ice sheet's **inevitable melting** due to warming ocean waters.

➢ The implications of this melting are profound, with the **potential to significantly elevate global mean sea levels by 5.3 meters,** adversely affecting millions of individuals residing in vulnerable **coastal cities** worldwide**, including those in India.**

What do Ice Sheets Represent and How Do They Affect Sea Levels?

➢ **About:**

  ○ An ice sheet is essentially a mass of glacial ice that covers more than 50,000 square kilometers of land.

    ● An ice sheet, such as the **West Antarctic ice sheet,** covers vast land areas, holding a substantial amount of **freshwater.**

    ● The two major ice sheets in the world, **Greenland and Antarctica,** collectively possess around **two-thirds of the Earth's freshwater.**
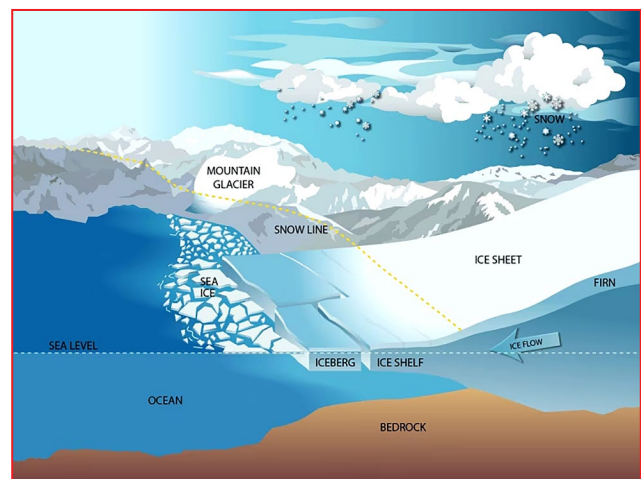
○ When ice sheets gain or lose mass, they respectively **contribute to a fall or rise in global mean sea levels.**

> **Note:** The present Antarctic ice sheet accounts for **90% of Earth's total ice volume.**

➢ **Processes Driving West Antarctic Ice Sheet Melting:**

○ Ice shelves stabilize the land-based glaciers just behind them. The melting of ice sheets occurs through various mechanisms. One key process involves **warm ocean waters eroding ice shelves,** which are the edges of an **ice sheet** floating on the ocean.

○ As these ice shelves thin or disintegrate, the **glaciers behind them accelerate,** releasing **more ice into the ocean** and consequently causing sea level rise.

> **Note: Ice shelves and ice sheets** differ from **sea ice**, which constitutes the free-floating ice encircling the polar regions. Sea ice forms when seawater freezes.

➢ **Current Trends and Findings:**

○ The recent findings are distressing, indicating a significant, **widespread warming of the Amundsen Sea** and escalating ice shelf melting across all scenarios considered.

○ This projected melting will **inevitably lead to increased sea level rise**, profoundly impacting coastal communities worldwide.

➢ **Implications for India and Vulnerable Coastal Regions:**

○ India, with its extensive coastline and dense population, is particularly susceptible to sea level rise.

○ Coastal communities **might face displacement or become climate refugees** if unable to fortify against rising seas, highlighting the **urgency for adaptive strategies** such as building protective infrastructure.
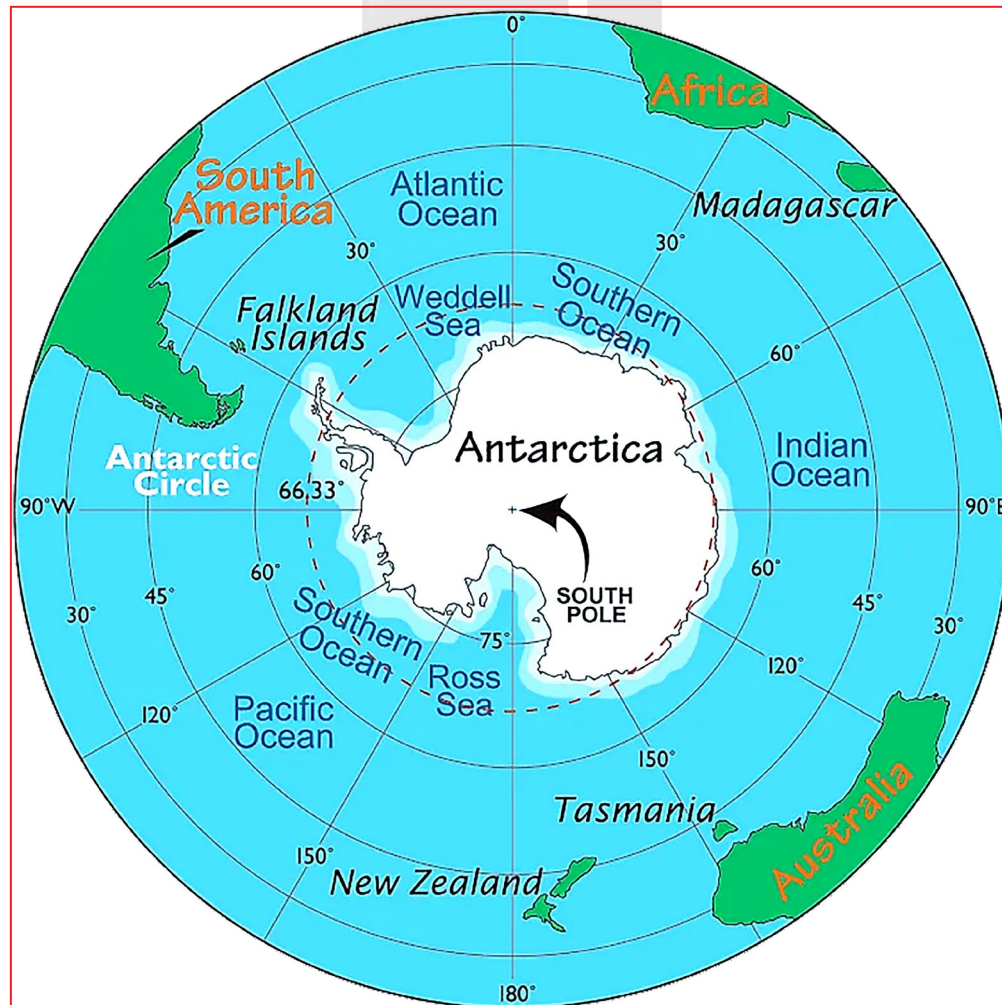
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What Actions has India Taken Related to Antarctica?

➤ India acceded to the **Antarctic Treaty** in 1983, received the consultative status on the **12th September, 1983.**

➤ **National Centre for Polar and Ocean Research** (erstwhile National Centre for Antarctic and Ocean Research) is India's premier R&D institution responsible for the country's research activities in the Polar and Southern Ocean realms.

➤ The **Indian Antarctic Act of 2022** regulates visits and activities in Antarctica, covering mineral protection, native plant conservation, and banning non-native bird introductions.

➤ Presently, India has **two operational research stations at Antarctica – Maitri and Bharati.**
  ○ **Dakshin Gangotri** was the first station to be built before **1985** but is **no longer operational.**

WJC Report Links Wildlife Trafficking to Organized Crime

Why in News?

The **Wildlife Justice Commission (WJC)**, a nonprofit organization dedicated to combating organized crime, has released a new report titled **Convergence of Wildlife Crime with Other Forms of Organised Crime: A 2023 Review.**

➤ It is a follow-up to the first report published in 2021, which mentioned 12 case studies linking **wildlife trafficking** with **human trafficking,** fraud, **migrant smuggling**, **illicit drugs**, **corruption** and **money laundering**.

➤ The report also reveals the **environmental crime of illegal sand mining** for the first time.

What are the Key Highlights of the Report?

➤ **Convergence of Wildlife Crime and Organized Crime**:
  ○ The report uncovers strong connections between **wildlife trafficking and various forms of organized crime.**
    ● These connections include protection rackets, **extortion, murder, money laundering, illicit drugs, tax evasion, and corruption.**

➤ **Illegal Sand Mining:**

  ○ For the first time, the report identifies **illegal sand mining as an environmental crime.**
    ● Sand, a raw material and **second-most-used resource in the world** is used to make concrete, asphalt and glass.
    ● About **40-50 billion tonnes of sand resources are exploited each year,** but their extraction is managed and **governed poorly** in many countries,
  ○ The Report sheds light on the adverse impacts of **unregulated sand extraction**, which is a crucial raw material globally.

➤ **Environmental Impact of Sand Mining:**
  ○ Indiscriminate sand mining leads to **erosion,** negatively affecting **communities and their livelihoods.**
  ○ It has dire consequences for aquifers, storm surge protection, deltas, freshwater and marine fisheries, land use, and biodiversity.

➤ **Involvement of Violent Sand Mafias:**
  ○ The report emphasizes that illegal sand-mining operations are often organized and operated by **violent sand mafias.**
  ○ The report recognizes instances of individuals, including journalists, activists, and government officials, who were **killed for opposing illegal sand mining.**
  ○ These incidents were reported not only in India but also in other countries, including Indonesia, Kenya, Gambia, South Africa, and Mexico.

➤ **Case Studies:**
  ○ In addition to the 12 case studies from 2021, the report puts on record three cases from Southeast Asia, Africa and Central America.
    ● The first case study illustrated the diversion of commodities such as **pangolin scales,** illegal sand mining, protection rackets and **elephant ivory** in Southeast Asia and Africa.
    ● The Second case from Africa involved an embedded convergence between **corruption, rhino poaching and money laundering.**
    ● The third study from Central America represented transactional convergence between **drug trafficking networks and seafood businesses** involving **sea cucumber and sharks** closely linked to the smuggling of illicit drugs, money laundering, **tax evasion** and corruption.

Note:

➢ **Guiding Law Enforcement and Policymakers:**
  ○ The report highlights the **growing seriousness of wildlife trafficking**, which has become a highly profitable and serious criminal activity.
    ● Crime convergence should be further studied and integrated as part of the approach to tackle wildlife crime and organized crime more broadly.
  ○ The paper aims to provide typologies and strategies that can inform and support law enforcement and policymakers in their efforts to **address transnational organized crime more effectively.**

Organized Crime
➢ **About:**
  ○ Organized Crime activities **refer to actions carried out jointly or severally by members of a gang or syndicate, with the intent of obtaining pecuniary or other advantages.**
➢ **Types of Organized Crime:**
  ○ Organized gang criminality, Racketeering, Syndicate Crime, Drug trafficking, Cybercrime, Human trafficking, Money laundering, Violence, People smuggling, Extortion, Counterfeiting.
  ○ They operate covertly, exploiting gaps in law enforcement and regulations.
➢ Legal Position In India on Organized Crime:
  ○ India does not have a specific law to deal with organized crime at the national level. The existing laws, such as the **National Security Act,1980,** and the **Narcotic Drugs and Psychotropic Substances Act, 1985** are inadequate as they target individuals and not criminal groups or enterprises.
  ○ States, such as **Gujarat (Gujarat Control of Organised Crime Act, 2015), Karnataka (Karnataka Control of Organised Crime Act, 2000),** and **Uttar Pradesh (Uttar Pradesh Control of Organised Crime Act, 2017),** have enacted their laws to combat organized crime.
  ○ India is also a party to several international conventions and treaties, these include:
    ● **United Nations Convention against Transnational Organized Crime (UNTOC).**
    ● **United Nations Convention against Corruption (UNCAC).**
    ● **United Nations Office On Drug And Crime (UNODC).**

■■■

Security

Massive Aadhaar Data Breach

Why in News?

Recently, Resecurity, an American cyber security company, said that **Personally Identifiable Information (PII)** of 815 million Indian citizens, including **Aadhaar** numbers and passport details, were **being sold on the Dark Web**.

➢ The threat actors selling the data claimed it was sourced from the **Indian Council of Medical Research (ICMR),** which has been subjected to **numerous Cyber-Attack attempts with 6,000 incident**s being reported in 2022.

What is the Dark Web?

➢ The dark web refers to sites **that are not indexed and only accessible via specialized web browsers.** Significantly smaller than the tiny surface web, the dark web is considered a **part of the deep web.**

  ❍ Using our ocean and iceberg visual, the dark web would be the **bottom tip of the submerged iceberg.**

➢ The dark web is intentionally hidden and can only be **accessed with special software, configurations,** or authorization, making it a realm of the internet that is not easily accessible to the average user.

What is Personally Identifiable nformation and How Did Threat Actors Gain Access to Sensitive Data?

➢ **About PII:**
  ❍ PII is information that **when used alone or with other relevant data**, can identify an individual.
  ❍ PII may be direct identifiers like **passport information or quasi-identifiers** that can be combined with other information to successfully recognise an individual.

➢ **Access to Sensitive Data:**
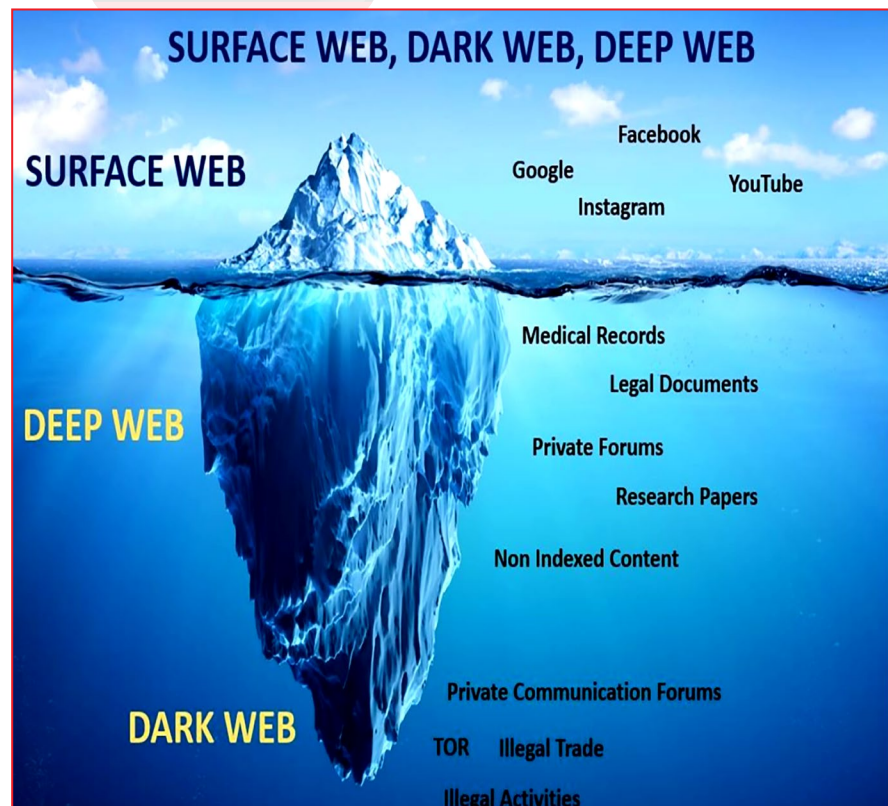
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○ Threat actors selling stolen data on the dark web **declined to specify how they obtained the data** without which any effort to identify the source of the data leak would be speculative.

○ Lucius, the second threat actor found selling data online claimed to have access to a 1.8 terabyte data leak impacting an unnamed "India internal law enforcement agency". However, the claim is yet to be authenticated.

○ Data samples observed by researchers contain multiple references to **UIDAI (Unique Identification Authority of India**) and Aadhaar cards, as well as voter ID cards. It is also possible that **threat actors successfully breached a third-party aggregating** these details.

➢ **Threats Arising from Leaked Information:**

○ India being one of the fastest growing economies of the world, ranked 4th globally in **all malware detection in the first half of 2023**, according to a survey from Resecurity.

○ The unrest in West Asia and increase in attacks by threat actors capitalizing on the chaos exposed personally identifiable data significantly, increasing the **risk of digital identity theft.**

○ Threat actors leverage **stolen identity information to commit online-banking theft**, tax frauds, and other cyber-enabled financial crimes.

What are the Previous Instances of Data Breach?

➢ Aadhaar data leaks were also reported in 2018, 2019, and 2022, with three instances of **large-scale leaks being reported,** including one in which farmer's data stored on the **PM Kisan** **website was made available on the dark web.**

➢ Earlier in 2023, reports emerged that a bot on the messaging platform Telegram was returning personal data of Indian citizens who registered **with the Covid-19 vaccine intelligence network (CoWIN) portal.**

What are the Provisions Related to Data Governance in India?

➢ IT amendment Act,2008:

○ Existing Privacy Provisions India has some privacy provisions in place under the IT (Amendment) Act, 2008.

○ However, these provisions are largely specific to certain situations, such as restrictions on publishing the names of juveniles and rape victims in the media.

➢ **Justice K. S. Puttaswamy (Retd) vs Union of India 2017:**

○ In August 2017, a nine-judge bench of the Supreme Court in *Justice K. S. Puttaswamy (Retd) Vs Union of India* unanimously held that Indians have a constitutionally protected fundamental right to privacy that is an intrinsic part of life and liberty under **Article 21.**

➢ **B.N. Srikrishna Committee 2017:**

○ Government appointed a committee of experts for Data protection under the chairmanship of Justice B N Srikrishna in August 2017, that submitted its report in July 2018 along with a draft Data Protection Bill.

○ The Report has a wide range of recommendations to strengthen privacy law in India including restrictions on processing and collection of data, Data Protection Authority, **right to be forgotten, data localisation** etc.

➢ **Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules 2021:**

○ **IT Rules (2021)** mandate social media platforms to exercise greater diligence with respect to the content on their platforms.

➢ **Proposal of 'Digital India Act',2023 to replace IT act,2000:**

○ IT Act was originally designed only to protect e-commerce transactions and define cybercrime offenses, it did not deal with the nuances of the current **cybersecurity** landscape adequately nor did it address data privacy rights.

○ The new Digital India Act envisages to a**ct as catalysts for the Indian econom**y by enabling more innovation, more startups, and at the same time protecting the citizens of India in terms of safety, trust, and accountability.

National Security Strategy

Why in News?

After years of deliberations, India has recently started the process of bringing in a **National Security Strategy** and the **National Security Council Secretariat (NSCS)** has

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started collating inputs from several Central ministries and departments.

What is the National Security Strategy?

➢ **Understanding National Security Strategy:**
   ○ A National Security Strategy (NSS) is a comprehensive document that lays out a **country's security objectives and the means** to achieve them.
   ○ The NSS is a dynamic document that **undergoes periodic updates to adapt to changing circumstances** and emerging challenges.

➢ **Scope of National Security Strategy:**
   ○ It addresses a wide range of modern challenges and threats. This includes **not only outdated threats but also newer, modern warfare issues that have become increasingly significant in today's interconnected world.**
   ○ It encompasses **not only traditional threats,** such as military and defense-related issues, **but also non-traditional ones** like financial and economic security, food and energy security, information warfare, **vulnerabilities in critical information infrastructure, supply chain disruptions,** and **environmental challenges.**

➢ **Role of National Security Strategy in India:**
   ○ By providing a holistic view of India's national security landscape and a roadmap to address aforementioned challenges, the National Security Strategy **will guide critical defense and security reforms,** making it an essential tool in safeguarding the nation's interests.

What is India's Need for National Security Strategy?

➢ **The Need for a National Security Strategy in India:**
   ○ A National Security Strategy for India has been a recurring topic in military discussions. However, **despite various attempts, it has yet to be formulated** and implemented due to a lack of a cohesive, whole-of-government effort, and the government has deliberately not made its national security objectives public.

➢ **Urgency Amid Complex Threats and Geopolitical Uncertainties:**
   ○ Given the multifaceted nature of emerging threats and the **increased uncertainties in global geopolitics,** there is a pressing need to develop a national security strategy in India.

➢ **Calls for Revising Existing Directives and the Role of Military Reforms:**
   ○ Former Army Chief General has emphasized the **outdated nature of the current political direction for the Armed Forces** and the necessity of revising it.
      • The only political direction for the Armed Forces in existence is the Defence Minister's operational Directive of 2009.
   ○ Experts have underscored that significant military reforms like the **theaterisation of armed forces** should stem from a **comprehensive national security strategy.**
      • The absence of such a strategy has been likened to attempting military reforms without a clear roadmap.

➢ **Countries Having National Security Strategy:**
   ○ **Most developed countries with an advanced military and security infrastructure have a National Security Strategy in place**, updated from time to time.
      • The US, the UK and Russia have published national security strategies.
   ○ **China** also has such a strategy in place, called the **Comprehensive National Security,** which is closely tied to its governance structure.
   ○ **Pakistan**, too, has brought out a **National Security Policy 2022-2026**, underlining its national security objectives and priority areas.

S-400 Missile and Project Kusha

Why in News?

The **Indian Air Force (IAF)** to strengthen its defence capabilities has deployed three **S-400 Triumf air defence missile** squadrons along the **borders with China and Pakistan.**

➢ India in 2018-19 signed a contract with **Russia for five S-400 missile squadrons.** Three have arrived, and the remaining two are delayed due to **Russia-Ukraine conflict**.

➢ In another development, the **Indian Defence Acquisition Council** recently cleared the procurement of the **Indian Long Range Surface Air Missile(LRSAM) system** under **Project Kusha.**
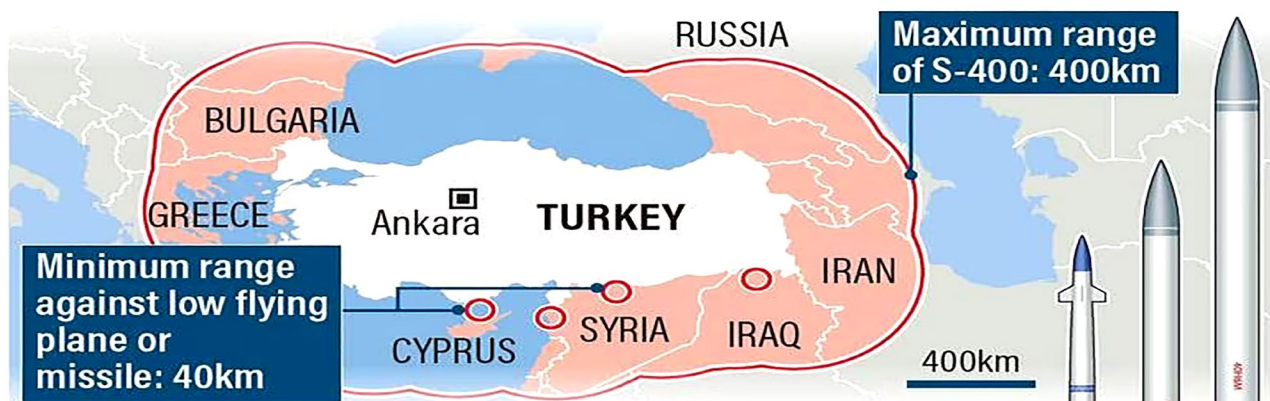
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What is the
S-400 Triumf Missiles System?

➢ **About:**

　○ The S-400 Triumf is a mobile, **surface-to-air missile (SAM)** system developed by **Russia,** capable of intercepting and destroying various aerial targets, such as aircraft, drones, cruise missiles, and ballistic missiles.

　○ The S-400 has a range of up to **400** km, at an altitude of up to 30 km and can engage up to **36 targets simultaneously**, with four different types of missiles.

● It is the most dangerous operationally deployed **modern long-range SAM (MLR SAM)** in the world, considered much ahead of the **US-developed Terminal High Altitude Area Defense system (THAAD).**
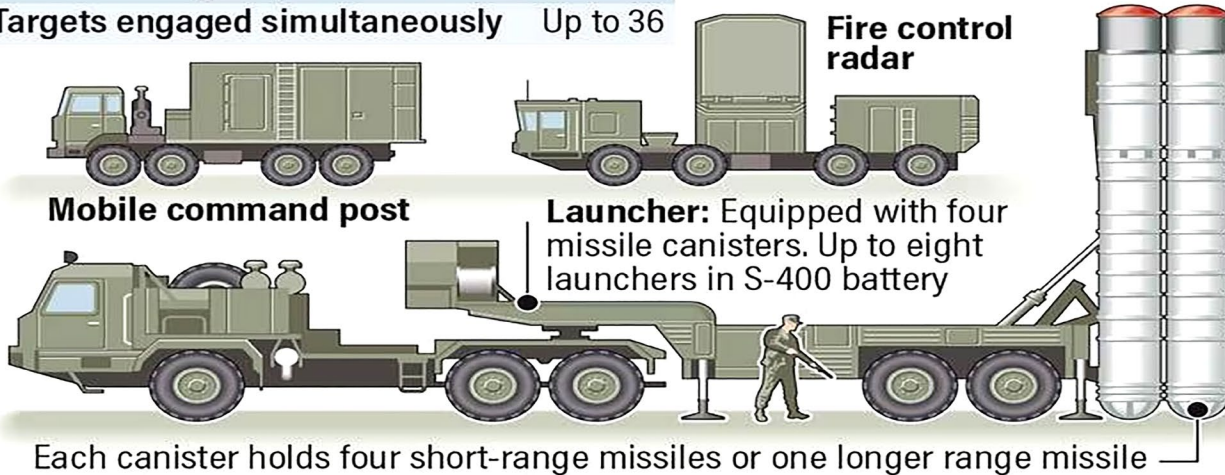
S-400 SURFACE-TO-AIR MISSLIE SYSTEM

Maximum range of S-400: 400km

RUSSIA

BULGARIA

GREECE

Ankara　**TURKEY**

Minimum range against low flying plane or missile: 40km

CYPRUS　SYRIA　IRAQ　IRAN

400km

S-400 TRIUMF (SA-21 Growler)

Maximum detection range	600km
Maximum altitude	30km
Maximum target speed	4.8km/sec
Targets engaged simultaneously	Up to 36

Missile ranges
9M96: 120km
48N6: 250km
40N6: 400km

Mobile command post

Fire control radar

Launcher: Equipped with four missile canisters. Up to eight launchers in S-400 battery

Each canister holds four short-range missiles or one longer range missile

● Can shoot down up to 80 target simultaneously

● Cannot yet accurately target low-flying aircraft and missiles (altitude below 30,000 ft) at great distances

Sources: Associated Press, Army Technology

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- ➤ **Importance for India:**
  - ❍ India decided to procure the S-400 missiles to enhance its **air defence capabilities and deterrence posture** against **China and Pakistan,** which have been modernizing and expanding their air forces and missile arsenals.
    - India faces a **two-front threat from China and Pakistan**, which have been involved in several border disputes and conflicts with India over the years.
  - ❍ India's acquisition is crucial to counter the growing presence and **influence of China** in the **Indian Ocean Region,** where China has been building ports, bases, and infrastructure projects.
    - India also wants to maintain its strategic autonomy and diversify its defence partners, amid the uncertainty and volatility of the global order.

What is Project Kusha?

- ➤ Project Kusha led by the **Defence Research and Development Organisation (DRDO)** is an ambitious defence initiative by India aimed at developing its **long-range air defence system by 2028-29.**
  - ❍ Long-range air defence systems will be capable of detecting and destroying enemy projectiles and armour, including cruise missiles, stealth fighter jets, and drones at long range.
  - ❍ It will consist of **three types of interceptor missiles,** with ranges of 150 km, 250 km, and 350 km, and advanced long-range surveillance and fire control radars.
- ➤ Project Kusha is expected to rival the effectiveness of the **renowned S-400 system of Russia and the Iron Dome system of Israel**.

Iron Dome System of Israel

- ➤ It is a **ground-to-air defence system** that comprises radar and interceptor missiles that are capable of tracking and neutralising any rockets or missiles fired towards targets in Israel.cvvv
- ➤ It was developed by the state-run **Rafael Advanced Defense Systems and Israel Aerospace Industries** and was deployed in 2011.
- ➤ It is particularly useful in defending against rockets, artillery and mortars, as well as aircraft, helicopters and **unmanned aerial vehicles (UAVs)**.

- ➤ The Dome has a range of close to 70 km and has three crucial components, Detection and Tracking radar, Battle Management and Weapons Control and the Missile Launcher.

State-Sponsored Cyber Attacks

Why in news?

Recently, Apple Inc. has sent notification to individuals, including opposition leaders and journalists, about "State-Sponsored Attackers who are remotely **trying to compromise" their iPhones.**

- ➤ This is the second time that Opposition politicians and civil society actors in India have been warned that they **have been targets of spying attempts**.
- ➤ In 2021, the Paris-based Forbidden Stories collective reported that the **Pegasus spyware,** which was sold only to government agencies by an Israeli firm NSO Group, was allegedly used on a range of journalists, civil society groups and politicians in India.

Note: A **cyber attack** is a malicious and deliberate attempt to breach the security of computer systems, networks, or digital devices, with the intent of stealing, damaging, altering, or accessing sensitive data, disrupting operations, or causing harm in the digital realm.

What are State-Sponsored Cyber Attacks?

- ➤ **About:**
  - ❍ State-sponsored cyber attacks, also known as nation-state cyber attacks are cyberattacks **conducted or supported by governments or government agencies** against other nations, organizations, or individuals.
  - ❍ These attacks are characterized by their **high level of sophistication, organization, and resources**, as they are backed by the extensive capabilities and funding of a nation-state.
  - ❍ Examples of state-sponsored cyberattacks include the Stuxnet worm, which targeted Iran's nuclear program, the alleged **Russian interference in the 2016 U.S. presidential election**, and the 2017 WannaCry ransomware attack, which was linked to North Korea.

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➤ **Implications on National Security:**
  ❍ **Data Theft:** State-sponsored attacks can lead to the theft of sensitive national security information, military secrets, and **critical infrastructure data.** Such breaches can compromise a nation's defense capabilities.
  ❍ **Economic Impact:** Attacks on key industries and critical infrastructure can result in economic losses. For instance, the disruption of energy or financial systems can have severe economic consequences.
  ❍ **Political Influence:** Cyberattacks can be used to manipulate public opinion, influence elections, and undermine political stability. Disinformation campaigns and hacking can have far-reaching political implications.
  ❍ **National Sovereignty:** Cyberattacks can infringe upon a nation's sovereignty and compromise its ability to govern and protect its citizens.

What is Pegasus?
➤ **About:**
  ❍ It is a **type of malicious software** or malware classified as a spyware.
    ● It is designed to gain access to devices, without the knowledge of users, and gather personal information and relay it back to whoever it is that is using the software to spy.
  ❍ Pegasus has been developed by the I**sraeli firm NSO Group that was set up in 2010.**
    ● Pegasus infections can be achieved through so-called **"zero-click"** attacks by exploiting flaws in operating system, which do not require any interaction from the phone's owner in order to succeed.
➤ **Target:**
  ❍ Huma**n Rights activists, journalists and lawyers around the world** have been targeted with phone malware sold to authoritarian governments by an Israeli surveillance firm.
  ❍ Indian ministers, government officials and opposition leaders also figure in the list of people whose phones may have been compromised by the spyware.
    ● In 2019, **WhatsApp filed a lawsuit** in the US court against Israel's NSO Group, alleging that the firm was incorporating **cyber-attacks** on the application by infecting mobile devices with malicious software.

What are the Initiatives to Foster Cyber Security?
➤ **Indian:**
  ❍ Cyber Surakshit Bharat Initiative
  ❍ **National Cyber security Coordination Centre (NCCC).**
  ❍ **Cyber Swachhta Kendra**
  ❍ **Indian Cyber Crime Coordination Centre (I4C)**
  ❍ **Computer Emergency Response Team - India (CERT-IN)**
➤ **International Mechanisms:**
  ❍ **International Telecommunication Union (ITU)**
  ❍ **Budapest Convention on Cybercrime**

President Terminates Services of an Indian Army Major

Why in News?

The President of India has dismissed an Indian Army Major stationed in a **Strategic Forces Command (SFC)** unit due to their involvement in serious national security breaches, as determined by an Army inquiry.

➤ The President utilized her authority under the **Army Act, 1950**, along with **Article 310** of the Constitution and other relevant powers, to promptly terminate his services.

What are the Ethical Concerns Involved in Army Major's Actions and Subsequent Dismissal?

➤ **Ethical Violations and National Security Concerns:**
  ❍ An Army inquiry, initiated in March 2022, revealed lapses and ethical violations by the Major, including the sharing of **classified information, suspicious financial transactions, and connections with a Pakistani intelligence operative** via social media.
    ● The Major's possession of secret documents on electronic devices was also against Army regulations. **These actions raised significant ethical concerns and posed a threat to national security.**
➤ **Presidential Authority and Legal Basis:**
  ❍ President in accordance with the powers conferred by **Section 18 of the Army Act, 1950,** and other relevant enabling powers, issued orders to terminate the services of the Major immediately.

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○ This action **demonstrates the exercise of executive authority within the framework of established legal provisions.** It underscores the **commitment to uphold ethical standards and maintain the integrity** of the military.

➤ **Broader Implications and Ongoing Investigations:**

○ The termination orders **highlight the importance of ethical conduct, integrity, and national security in the armed forces.**

○ It is noteworthy that the Army has taken **disciplinary action against a Brigadier and a Lieutenant Colonel** for social media policy violations related to their membership in this group which drives the importance of **Code of Conduct.**

○ This case emphasizes the **Army's vigilance and proactiveness** in addressing potential breaches of security and lack of **Devotion-To-Duty.**

○ Ongoing efforts to safeguard classified military information and counter- intelligence concerns remain a critical focus for the military, not the least of which is **setting high moral standards** and adherence to **fundamental duties** as per the constitution.

What are Articles 309, 310 and 311 of the Constitution of India Related to Civil Services?

➤ **Part XIV** of the Constitution of India deals with Services under The Union and The State.

○ **Article 309** empowers the Parliament and the State legislature to **regulate the recruitment, and conditions of service of persons appointed**, to public services and posts in connection with the affairs of the Union or of any State respectively.

○ According to **Article 310**, except for the provisions provided by the Constitution, **a civil servant of the Union works at the pleasure of the President** and a civil servant under a State works at the pleasure of the Governor of that State **(English doctrine of Pleasure).**

● But this power of the Government is **not absolute.**

➤ **Article 311:**

○ **Article 311 (1)** says that no government employee either of an all India service or a state government shall be dismissed or removed by an authority subordinate to the own that appointed him/her.

○ **Article 311 (2)** says that no civil servant shall be dismissed or removed or reduced in rank except after an inquiry in which s/he has been informed of the charges and given a reasonable opportunity of being heard in respect of those charges.

○ **Exceptions to Article 311 (2):**

● **2 (a)** - Where a **person is dismissed or removed or reduced in rank on the ground of conduct** which has led to his conviction on a criminal charge; or

● **2 (b)** - Where the **authority empowered to dismiss or remove a person or to reduce him in rank** is satisfied that for some reason, to be recorded by that authority in writing, it is not reasonably practicable to hold such inquiry; or

● **2 (c)** - Where the **President or the Governor, as the case may be, is satisfied that in the interest of the security of the State,** it is not expedient to hold such inquiry.

What are Some of the Important Provisions of the Army Act, 1950?

➤ **Enlistment and Terms of Service:**

○ It specifies the procedures for enlisting and the terms of service for army personnel, including **conditions of recruitment, training, and retirement.**

● **Discipline and Conduct:** The Army Act provides a detailed framework for maintaining discipline within the army. It outlines various offenses and penalties for misconduct, such as insubordination, desertion, disobedience, and conduct unbecoming of a soldier.

➤ **Court-Martial:**

○ The Act establishes the legal framework for convening courts-martial to try military personnel accused of offenses. It defines different types of courts-martial, such as **General Court-Martial (GCM), District Court-Martial (DCM), and Summary General Court-Martial (SGCM).**

● **Legal Rights of Accused:** The Act outlines the legal rights and safeguards for individuals facing court-martial, including the **right to legal representation, the right to remain silent, and the right to appeal.**

➤ **Detention:**

○ The Act allows for the detention of military personnel in certain circumstances, such as when they are

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considered a threat to the security or discipline of the army.

- **Service Tribunals:** The **Armed Forces Tribunal Act 2007 establishes** the **Armed Forces Tribunal**, a specialized judicial body to hear appeals and petitions related to military matters.

➢ **Miscellaneous Provisions:** The Act contains various miscellaneous provisions, including those related to the **protection of witnesses, the appointment of Judge Advocates**, and the rules for administering oaths.

Strategic Forces Command

➢ There are **2 tri-service commands, Strategic Forces Command (SFC) and Andaman and Nicobar Command (ANC),** which is headed by rotation by officers from the 3 Services.

➢ The **SFC (Strategic Forces Command),** looks after the delivery and operational control of the country's nuclear assets. It was **created in 2003**, but because it has no specific geographic responsibility and a designated role, it is not an integrated theatre command but an integrated functional command.

▪▪▪

Art and Culture

Motorable Road to Amarnath Cave Shrine

Why in News?

The **Border Roads Organisation (BRO)** has completed the construction of a motorable road that connects the **Amarnath cave shrine** in Kashmir's Lidder Valley with **the Baltal base camp**, making the pilgrimage more accessible and comfortable for the devotees.

➤ This milestone resulted from the successful upgrade of the **Baltal road**, a feat accomplished through the continuous efforts of **Project Beacon.**

> **Note:**
> ➤ Project Beacon is the **BRO's oldest undertaking**, was raised on May 18, 1960, with its **headquarters at Srinagar, Jammu and Kashmir.**
> ○ Beacon currently takes care of the **road infrastructure development and maintenance** in important areas of Kashmir.

What are the Key Facts Regarding Amarnath Cave Shrine?

➤ The Amarnath mountain features a cave on its south famously known as the **Amarnath Cave.** This cave is the location of the **Amarnath Temple,** a significant Hindu shrine situated in the **Pahalgam** tehsil of the Anantnag district in Jammu and Kashmir, India.

○ The shrine is perched at an altitude of 3,800 metres, contributing to the challenging nature of the pilgrimage.

➤ **Amarnath Peak,** a part of the **Himalayas** is a mountain with a peak elevation of 5,186 meters, in the Ganderbal district of Jammu and Kashmir, in the vicinity of Sonamarg.

➤ Amarnath yatra is an annual pilgrimage to the Amarnath cave, where devotees pay homage to an **ice stalagmite believed to be the lingam of Lord Shiva.**

○ The ice stalagmite forms every year during **the summer months** and reaches its maximum size in July and August, when thousands of Hindu devotees make an annual pilgrimage to the cave.

➤ **Traditional Access Routes:**

○ Pilgrims historically approached the shrine via two routes **Pahalgam and Sonamarg both located in the Lidder Valley,** each presenting its own set of challenges through demanding terrains.

○ Pilgrims also had the option to use chopper services from Baltal to Panchtarni, located 6 km away from the shrine. However, **ecological concerns** led to the **discontinuation of services** directly to the shrine.

AMARNATH YATRA Trek Route Map

Kozhikode and Gwalior in UNESCO Creative Cities Network

Why in News?

Recently, the **United Nations Educational, Scientific and Cultural Organization (UNESCO)** announced the addition of 55 new cities to its **Creative Cities Network**

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(UCCN). Among the new entrants, two Indian cities made their mark: **Kozhikode in Kerala as the 'City of Literature' and Gwalior in Madhya Pradesh as the 'City of Music'.**

> **Note:**
> ➢ Other Indian cities in the UCCN include Jaipur: Crafts and Folk Arts (2015), Varanasi: Creative City of Music (2015), Chennai: Creative City of Music (2017), Mumbai: Film (2019), Hyderabad: Gastronomy (2019), and Srinagar: Crafts and Folk Art (2021).

India's both the nominations have been included in the UNESCO's Creative Cities Network Gwalior for Music & Kozhikode for Literature

Kozhikode   Gwalior

What is the Significance of Kozhikode and Gwalior?

➢ **Kozhikode as City of Literature:**
  ○ Kozhikode is the **first city in India to receive** the prestigious title of **'City of Literature'** by UNESCO.
  ○ The city has a long history of hosting various literary events, such as the **Kerala Literature Festival**, which is one of the largest literary gatherings in Asia.
    ● This acknowledgement reinforces the city's role as a hub for intellectual exchange and literary discussions.
    ● Kozhikode carried the distinction of being home to over 500 libraries.
  ○ The city is also home to many renowned writers, including **S. K. Pottekkatt (the most celebrated writer of the city)**, Thikkodiyan and P. Valsala Sanjayan, along with poets, scholars, and publishers who have contributed to the diversity and vibrancy of Malayalam literature and culture.

➢ **Gwalior as the City of Music:**
  ○ Gwalior is the second city in India to be designated as the 'City of Music' by UNESCO, after Varanasi in 2015.
  ○ The city is widely regarded as the birthplace of **Tansen**, one of the greatest musicians and composers in Indian history, who was **also one of the 'Navratnas' (nine jewels) in the court of Emperor Akbar.**
  ○ The city is also the origin of the **Gwalior Gharana,** the oldest and most influential school of Hindustani classical music.
  ○ The city hosts one of the biggest annual music festivals in India, the **Tansen Sangeet Samaroh,** which attracts thousands of music lovers and artists from across the country and abroad.

> **UNESCO Creative Cities Network (UCCN)**
> ➢ It was **created in 2004.**
> ➢ It **aims** to "promote cooperation among cities which recognize creativity as a strategic factor in their urban development".
>   ○ **Sustainable Development Goal 11** aims for Sustainable Cities and Communities.
> ➢ The **network covers seven creative fields:** crafts and folk arts, media arts, film, design, gastronomy, literature and music.

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History

Highlights

- *Portuguese Coin*

Portuguese Coin

Why in News?

A farmer in North Goa's Nanoda Bamber village unearthed a pot that contained coins from a bygone era.

➢ Pot contained 832 copper coins, believed to have been minted in Goa around the **16th or 17th Century when it was under Portuguese rule.**

What was Characteristic of Portuguese Coinage in India?

➢ Portuguese **issued coins in gold and silver from Goa,** as well as copper, tin, and lead coins from other mints such as Cochin, Diu, and Damão.

➢ The **gold coins were called 'Cruzado' or 'Manoel'** and were issued in the same size, value, and weight. They had a cross on one side and the royal arms on the other.

➢ The **silver coins were called 'Meia-espera' and 'Espera'.**

➢ The copper coins were divided into various denominations such as '**Bazaruco', 'Leal', 'Tanga', 'Pardau', and 'Real'.**

  ❍ The copper coins had various symbols such as a castle, a lion, a crown, a cross, and the king's name.

➢ The **tin and lead coins were mainly issued from Diu and Malacca** and were called 'Dinheiro'.

❍ They had a crude design and were often irregular in shape and size. They had the king's name or initials on one side and a cross or a flower on the other.

What was India's Engagement with Portuguese in Goa?

➢ **Portuguese as a Traveller:** Vasco da Gama was the first Portuguese explorer to reach India by sea in 1498 at Calicut on the **Malabar Coast** and was welcomed by a local ruler Zamorin.

➢ **Portuguese as a Coloniser:** In 1505, **Francisco de Almeida became the first viceroy of Portuguese India** and established a base in Cochin. He also fought against the Zamorin of Calicut and the Mamluks of Egypt, who were rivals in the spice trade.

  ❍ **Afonso de Albuquerque (**in 1510**)** captured Goa from the Bijapur Sultanate and made Goa the capital of the Portuguese State of India.

➢ **Colonial Rule of Portuguese:** The Portuguese rule in Goa lasted for about 450 years, from 1510 to 1961. During this period, Goa became a prosperous and cosmopolitan city, known as the **"Rome of the East".**

➢ **Liberation of Goa:** The **liberation of Goa** from Portuguese rule was achieved by the Indian government in December 1961, after a 36-hour military operation known as **Operation Vijay.**

➢ **Statehood to Goa:** In 1987, **Goa was granted statehood** by the Indian government, and became the 25th state of India.

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Geography

Highlights

- *Subansiri Lower Hydroelectric Project*
- *Rainfall Deficiency in Southern Peninsular India*

Subansiri Lower Hydroelectric Project

Why in News?

The **Subansiri Lower Hydroelectric Project,** India's largest hydel project under construction, faced a setback when a **landslide blocked** the only functional diversion tunnel and stopped the flow of water downstream of the dam into the **Subansiri River, a major tributary of the Brahmaputra.**

➢ This resulted in the **river bed drying up and endangering aquatic life.** The incident also raised questions about the safety and viability of the project, which has faced multiple delays and opposition since its inception in 2005.

What is the Subansiri Lower Hydroelectric Project?

➢ The Subansiri Lower Hydroelectric Project is a **run-of-river scheme** that aims to **generate 2,000 MW of power** by harnessing the potential of the Subansiri River, which flows along the border of Arunachal Pradesh and Assam.
   ○ A run-of-river dam is one in which the **flow of water in the river downstream of the dam** is the **same as the flow of water upstream** of the dam.
➢ The project is being executed by the **National Hydroelectric Power Corporation (NHPC)**.
➢ The project involves the construction of a 116-metre-high **concrete gravity dam,** a 34.5-km-long reservoir, five diversion tunnels, eight spillways, and a powerhouse with eight 250-MW units.
   ○ **Gravity dam** is constructed from concrete or cement, it is designed to **hold back water by primarily utilizing the weight** of the material alone to resist the horizontal pressure of water pushing against it.

➢ The project is expected to generate around 7,500 million units of power annually in a 90% dependable year.
➢ The project is also expected to provide flood moderation, irrigation, and drinking water benefits to the downstream areas.
➢ NHPC Limited commenced construction work of Subansiri Lower Hydroelectric Project in January 2005.
   ○ However, **due to agitations and protests by local stakeholders,** the project construction work was stalled from December 2011 to October 2019. The project construction resumed from October 15, 2019, after the clearance by **National Green Tribunal.**

Subansiri River
➢ Subansiri, or "Gold River" is the largest tributary of the Upper Brahmaputra river.
➢ Emerging from the Tibetan Himalayas, the river flows into India through the **Miri Hills of Arunachal Pradesh**. The significant variation in its topography presents an opportunity for harnessing hydropower potential in the region.

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Rainfall Deficiency in Southern Peninsular India

Why in News?

The **India Meteorological Department (IMD)** recent analysis regarding the **rainfall patterns** in Southern peninsular India, spanning 123 years of records, **exposed that the region encountered its sixth driest October in its meteorological history.**

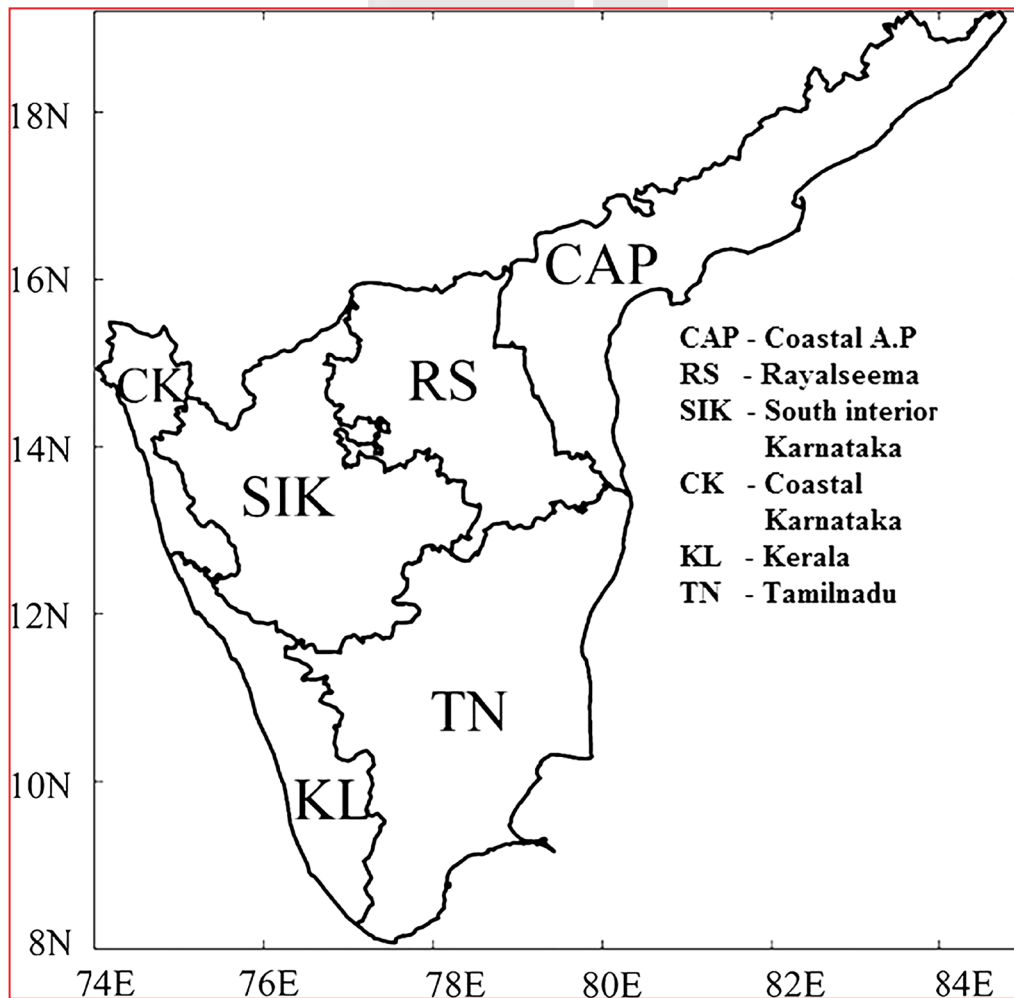### What are the Major Factors Influencing Rainfall Deficiency in Southern Peninsular India?

➢ **About:**
  ❍ The Southern Peninsular region encompassing **Kerala, Mahe, South Interior Karnataka, Tamil Nadu, Karaikal, Puducherry, coastal Andhra Pradesh, Yanam and Rayalaseema** received only 74.9mm of rain in October, **which was over 60% below normal.**

➢ **Factors Influencing Rainfall Deficiency:**
  ❍ **Confluence of Northeast Monsoon and Cyclone Hamoon:** The **commencement of the northeast monsoon** coincided with the **genesis of Cyclone Hamoon,** causing a **diversion of moisture away from southern peninsular India.**
    ● This altered wind flow patterns and weakened the onset of the northeast monsoon.
  ❍ **El Nino and Indian Ocean Dipole (IOD):** 2023 is an **El Nino year** combined with a **positive phase of the Indian Ocean Dipole (IOD).**
    ● In such conditions, there is **less rainfall over northern Tamil Nadu** and adjoining areas.
      ■ Whereas, the southernmost areas of Tamil Nadu and Kerala receive good rainfall in October.

CAP - Coastal A.P
RS - Rayalseema
SIK - South interior Karnataka
CK - Coastal Karnataka
KL - Kerala
TN - Tamilnadu

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➢ **Cyclone Hamoon**:
  ❍ It was a very severe tropical cyclone that made landfall in Bangladesh on 25th October, 2023.
    ● The cyclone formed from a **low-pressure area over the west-central Bay of Bengal**.
  ❍ It was **named by Iran,** and the **word "Hamoon"** is a Persian word that refers to **inland desert lakes or marshlands.**

INDIAN OCEAN DIPOLE
Positive phase
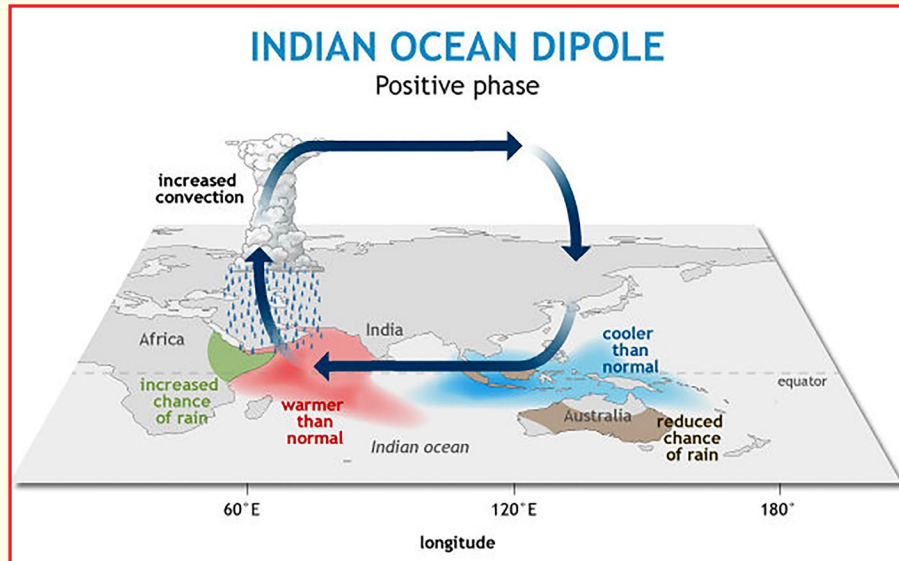
➢ **El Nino:**
  ❍ It is a natural phenomenon that involves a **periodic warming of the surface waters in the equatorial Pacific Ocean.**
    ● The word "**El Niño**" means "**Little Boy**" in Spanish.
    ● It is one of the two phases of a climate pattern called **El Niño-Southern Oscillation (ENSO)**
  ❍ Over India, **it has the effect of suppressing the monsoon rainfall.**

➢ **Indian Ocean Dipole (IOD):**
  ❍ The **IOD** is an **atmosphere-ocean phenomenon** that occurs in the Indian Ocean.
  ❍ It's characterized by a **disparity in sea surface temperatures** between the eastern and western Indian Oceans.

INDIAN OCEAN DIPOLE
Negative phase
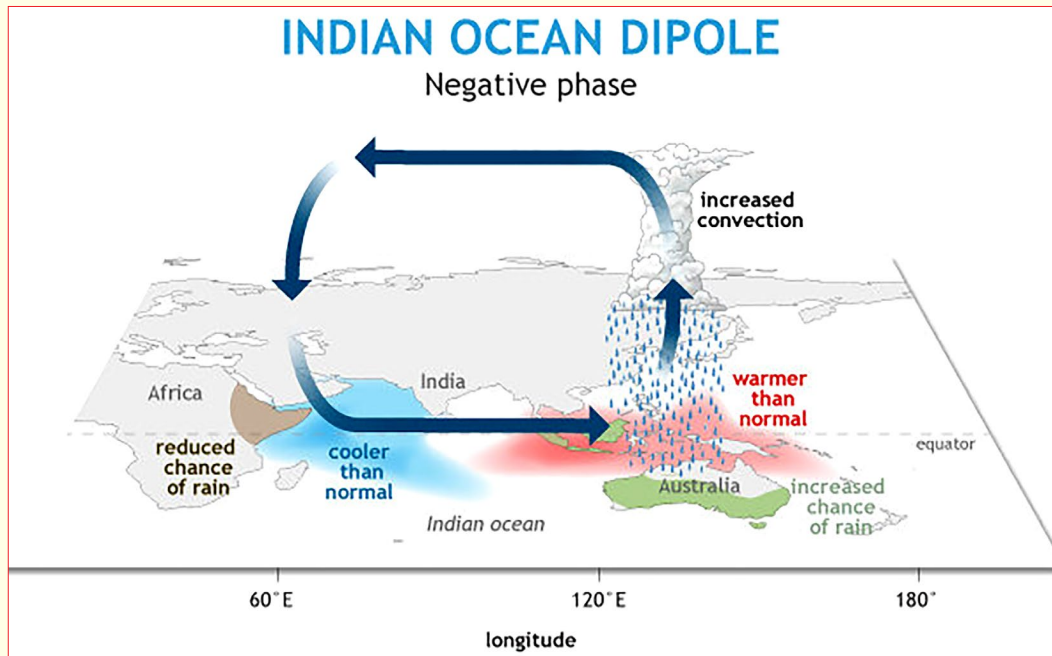
➢ **India Meteorological Department:**
  ❍ It was established in 1875.
  ❍ It is the **National Meteorological Service** of the country and the principal government agency in **all matters relating to meteorology and allied subjects.**

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Ethics

Highlights

- *Rising Scientific Misconduct in India*
- *Ethical Perspectives on Online Gaming*

Rising Scientific Misconduct in India

Why in News?

According to a survey by **India Research Watchdog** the escalating number of **retractions in Indian research,** raising substantial concerns related to **Scientific Misconduct in India.**

What is Scientific Misconduct?

- **About:**
  - Scientific misconduct can be **described as a deviation from the accepted standards** of scientific research, study and publication ethics.
  - There can be **many forms of scientific misconduct** such as Plagiarism, Misconduct involving experimental techniques, and Fraud.
  - Retractions occur when **published papers are withdrawn from the scientific literature** due to various reasons, including mistakes, data fabrication, plagiarism, and other forms of misconduct.
- **Examples:**
  - When the results of a scientific investigation are reported **without giving credit to the principal investigators** whose work has been involved.
  - Scientific fraud, where authors create an article with fabricated images or data, which is then submitted to a peer-reviewed publication without approval from an independent oversight board.

What are the Statistics of Scientific Misconduct in India?

- **Increases Scientific Retractions:**
  - Retractions from India have increased 2.5-times between 2020 and 2022 over the number recorded between 2017 and 2019.
    - The primary reason for retractions is identified as misconduct, where authors **knowingly engage in unethical practices.**
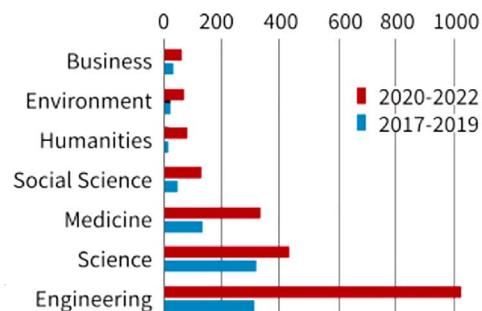- **Quality Decline Indicators:**
  - The ratio of research output to retractions is **used as a proxy for quality, revealing an alarming drop in India**, almost halving the ratio. This indicates a **potential decline in the overall quality of research.**
- **Domains of Retractions:**
  - Engineering sees a significant increase, accounting for almost 48% of all retractions, up from 36% in the period 2017-2019.
 - Additionally, the humanities **experience an extraordinary growth of 567% in retractions.**
- **Reasons for Rise in Scientific Misconduct:**

The chart shows retractions by domains in India. Engineering accounts for almost 48% of all cases

| | 0 | 200 | 400 | 600 | 800 | 1000 |
Business
Environment
Humanities
Social Science
Medicine
Science
Engineering

2020-2022
2017-2019

The chart shows the results of a small survey conducted by India Research Watchdog

No crisis: 4%
Light punishment: 10%
Unethical researchers: 35%
University ranking parameters: 51%

Reasons for research crisis
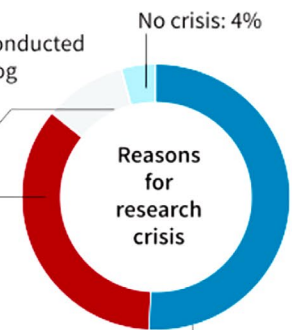
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○ A little more than half of the respondents believe that university **ranking parameters are behind the rise**.

○ Another 35% attributed it to **unethical researchers**, while 10% pointed to the minimal action taken when an allegation is reported or **when an offender is 'caught'.**

○ Additional factors contributing to the rise in retractions include the **compulsory publication requirement for PhD students** instituted in 2017, potentially leading to low-quality publications, and the proliferation of predatory journals.

➢ **Urgent Call to Action:**

○ The data is presented as an urgent call to action, emphasizing the need to **scrutinize research malpractice in Indian academia**.

○ The potential consequences on both research and teaching are highlighted, urging immediate intervention to prevent the production of substandard or bogus research.

What are the Ethical Implications of Scientific Misconduct?

➢ **Long term Consequences:**

○ Scientific misconduct, regardless of its scale, **can have far-reaching consequences**, especially when influential figures in a field are involved.

➢ **Breach of Academic Integrity:**

○ Scientific misconduct, including plagiarism, data fabrication, and **manipulation, constitutes a serious breach of academic** and scientific integrity. It undermines the **foundation of honest and transparent scholarly** inquiry.

➢ **Impact on Trust and Credibility:**

○ Unethical practices erode the trustworthiness of **scientific findings, diminishing the credibility of research**. This not only affects the reputation of individual researchers but also tarnishes the image of the entire scientific community.

➢ **Compromised Quality and Academic Rigor:**

○ The alarming drop in the ratio of research output to retractions signifies compromised quality.

○ This compromises **academic rigor, hindering the progress and advancement of knowledge.**

Ethical Perspectives on Online Gaming

Why in News?

The recent case of suspension of a **Police Sub-Inspector (PSI) in Pune**, Mahrastra highlights complex **ethical concerns surrounding online gaming and the responsibilities of a law enforcement officer**.

What are the Ethical Implications Surrounding the Officer's Participation in Online Gaming?

➢ **Arguments In Favor of Officer's Involvement in Online Gaming**

○ **Personal Freedom and Individual Rights:** The **officer, like any other citizen**, has the **right to engage in legal recreational activities** during personal time.

● The officer's **use of personal funds for legal recreational activities**, including online gaming, falls under their discretionary spending and financial autonomy.

○ **Adherence to Legal Norms:** If the online gaming activity is legally permissible and the officer complies with the law, **their engagement is within the framework of legal norms** and should be respected as part of individual autonomy.

○ **Mitigation of Stress:** Online gaming, like any leisure activity, might serve as a stress-relieving tool, providing **a mental escape and relaxation** from the pressures of the job.

➢ **Ethics Issues Involved:**

○ **Violation of Organizational Standards:**

● **Breach of Code of Conduct:** Engaging in online gaming without permission from the unit commander breaches the **established code of conduct within the Maharashtra State Police**, indicating a disregard for institutional regulations.

● **Conflict with Professional Norms:** Ethically, the **officer's participation in online gaming during duty hours** conflicts with the expected professionalism and ethical standards required within law enforcement.

○ **Negative Public Image and Trust Implications:**

● **Public Perception and Trust Erosion:** Media interviews discussing **personal victories in**

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uniform undermine public confidence in the officer's professional integrity and the broader image of law enforcement, potentially eroding trust in the police force.

- **Impact on Organizational Credibility:** Ethically, such conduct **damages the credibility and reputation of the entire police force**, as the

officer's actions are reflective of the institution, impacting its overall image and public trust.

○ **Role Model Expectations and Ethical Responsibilities:**
- **Role as a Public Figure:** Ethically, as a law enforcement official, the officer is a public figure and is expected to **serve as a role model, setting an example of ethical behavior and responsible conduct.**

What are the Broader Ethical Issues Revolving Around Online Gaming?

➤ **Addiction and Mental Health:** Concerns arise from the **addictive nature of certain online gaming activities**, potentially leading to compulsive behavior, neglect of responsibilities, and adverse effects on **mental health.**

➤ **Financial Risk and Vulnerability:** Individuals, particularly vulnerable demographics, **might face financial risks,** leading to **debt or economic hardship** due to excessive spending on gaming, raising **ethical questions about responsible consumer engagement and corporate duty of care.**

➤ **Exploitation of Vulnerable Users:** Ethical concerns emerge about the potential **exploitation of susceptible users** who may be lured into spending beyond their means, highlighting the need for protective measures and corporate social responsibility.

➤ **Regulatory Ambiguity and Legal Definitions:** The distinction between **skill-based gaming and gambling lacks clear definitions,** leading to regulatory ambiguity, ethical debates, and varied interpretations about the nature of these gaming activities.

➤ **Corporate Responsibility and User Well-being:** Gaming companies have an ethical responsibility to ensure that their **platforms do not exploit users or foster addictive behaviors,** prioritizing user well-being over profit motives.

○ Ethical considerations revolve around promoting responsible gaming practices, protecting users, and offering resources for addiction prevention and support.

➤ **Impact on Social Norms:** Ethical dilemmas emerge regarding the **normalization of excessive gaming behavior in society**, potentially altering social norms and behaviors, particularly among younger demographics.

Note: Recently, the Finance Ministry of India announced a **28% Goods and Services Tax (GST) on online money gaming**, casinos, and horse racing.

■■■

Miscellaneous

UGC Regulations Open Doors for Foreign Universities in India

Why in News?

The **University Grants Commission (UGC)** has recently released regulations that pave the way for foreign universities, ranked among the **world's top 500, to establish branch campuses in India**.

➢ The move aligns with the **National Education Policy 2020,** envisioning a legislative framework for top global universities in India.

➢ The guidelines were notified after the **draft norms announced by UGC for Foreign universities** were made public for feedback.

What are the Key Aspects of these Regulations?

➢ **Collaborative Initiatives:**
  ○ **Two or more** foreign universities can **collaborate** to establish campuses in India.
    - Each participating institution must meet individual eligibility criteria.
    - Each foreign university has the opportunity to set up **more than one** campus in the country.

➢ **Faculty Engagement Requirements:**
  ○ International faculty appointed for Indian campuses must commit to staying in the **country for a minimum of one semester.**
    - This ensures a sustained and meaningful contribution to the academic environment.

➢ **Application Process Modifications:**
  ○ The time for the standing committee to process applications has been **extended from 45 to 60 days.**
    - Recommendations of the committee must be presented before the UGC within the revised 60-day timeframe.

➢ **Autonomy:**
  ○ Foreign universities are permitted to decide their admission process, fee structure, and also repatriate funds to their parent campuses.

➢ **Restrictions on Operations:**
  ○ Foreign universities are **prohibited** from **opening learning centers,** study centers, or franchises acting as representative offices without prior commission approval.
    - Approval is mandatory before initiating any new program on their Indian campuses.

➢ **Online Learning Constraints:**
  ○ Programs **cannot be offered online or in Open and Distance Learning** modes under these regulations.
    - Lectures in online mode are allowed but should **not exceed 10% of the program requirements.**

➢ **Financial Implications:**
  ○ Foreign universities are **exempt from paying annual fees to the UGC,** except for a one-time application fee.
    - The establishment of campuses should be **funded using the foreign universities' own infrastructure, land, and resources.**

➢ **Scholarships and Fee Concessions:**
  ○ Foreign universities are encouraged to provide **full or partial merit-based and need-based scholarships** and **fee concessions to Indian students**.

University Grants Commission (UGC)

➢ It came into existence on **28th December, 1953** and became a **statutory body** by an **Act of Parliament in 1956,** for the coordination, determination and maintenance of standards of teaching, examination and research in **university education.**
  ○ It also regulates the recognition of **fake universities, autonomous colleges, deemed to be universities**, and distance education institutions.

➢ The head office of the **UGC is located in New Delhi**.

Note:

Traditional Seed Preservation Practices in North East

Why in News?

Ao and Sümi Naga communities in Nagaland follow practices passed down through generations, **Traditional Seed Preservation Practices,** preserving seeds from successful harvests for successive cycles.

➢ Traditionally agrarian, the Ao and Sümi Naga communities practise **jhum or shifting cultivation.**

> **Note:** Seed preservation refers to the **intentional act of storing seeds from plants for future use.** It involves collecting, storing, and maintaining seeds under specific conditions to ensure their viability and ability to germinate when planted.
>
> ➢ The goal of seed preservation is **to safeguard genetic diversity**, conserve plant species, and maintain agricultural productivity.

Who are Nagaland's Ao and Sümi Naga Communities?

➢ **Ao Naga Community:**
  ○ The Ao Naga tribe predominantly resides in Nagaland's Mokokchung district, stretching from Tsüla (Dikhu) Valley to Tsürang (Disai) Valley.
  ○ Believed to have originated from Southeast Asian countries like Indonesia, Malaysia, and Myanmar, the Ao Nagas are part of the Naga tribes descending from Mongoloid ancestry.
  ○ Within the Ao tribe, two racial groups, **the Mongsen and the Chongli,** constitute distinct segments.
  ○ The Aos **became the first Nagas to adopt Christianity** and Western education.

➢ **Sümi Naga Community:**
  ○ The Sümi Naga people are another indigenous community in Nagaland known for their unique cultural practices and strong agricultural heritage.
  ○ They celebrate various festivals like **Tuluni, Ahuna, and Tsükhenye,** often centered around agricultural cycles, accompanied by traditional dances, songs, and feasts.
  ○ Similar to several other Naga tribes, the Sümi Naga traditionally practiced jhum or shifting cultivation, cultivating crops such as rice, millet, beans, lentils, pepper, and tobacco.

What is Shifting Cultivation?

➢ Shifting cultivation, **locally called 'Jhum'**, is a widely practiced system of crop cultivation among the indigenous communities of Northeast India.

➢ The practice, also known as **slash-and-burn agriculture**, is when farmers clear land by slashing vegetation and burning forests and woodlands to create clear land for agricultural purposes.

➢ This provides a very easy and **very fast method of the preparation of the land for agriculture.**

➢ The bush and the weeds can be removed easily. The burning of waste materials provides needed nutrients for the cultivation.

➢ It gives a family its food, fodder, fuel, livelihood and is closely linked to their identity.

➢ Because of cutting of forests and trees, this practice leads to soil erosion and may also affect the course of rivers.

QS World University Rankings: Asia 2024

Why in News?

Recently, the global higher education think-tank **Quacquarelli Symonds** has released the QS Asia University Rankings: Asia 2024, including 148 universities from India in the comprehensive list of 856 universities across Asia.

What is QS World University Rankings?

➢ **QS World University Rankings** are **released annually by Quacquarelli Symonds (QS)**.

➢ The rankings evaluate the **performance and quality of universities worldwide.**

➢ The methodology considers indicators such as **academic reputation, faculty-student ratio, employer reputation,** sustainability, employment outcomes, international research network, citations per faculty, international faculty ratio, and international student ratio.

➢ They provide rankings by subject, region, student city, business school, and sustainability.

What are the Key Highlights of the QS World University Rankings: Asia 2024?

➢ **Top Ranking Universities:**
  ○ **Peking University (China) topped the list,** followed by the University of Hong Kong (Hongkong) and National University of Singapore (NUS) (Singapore).

Note:

➤ **Indian Universities' Performance:**

○ IIT Bombay retains its **top ranking in India and is ranked 40th in Asia.**

○ Seven Indian institutions are **among the top 100 in Asia,** with five of them being **Indian Institutes of**

Technology (IITs), along with the Indian Institute of Science, Bangalore, and Delhi University.

● The increasing visibility of Indian universities in international rankings reflects the expansion of **India's higher education landscape and its contributions** to global research.

				Indian Universities in QS World University: Asia 2024 - Top 200	
2024	**2023**	**Change**	**QS WUR**	**Institution**	**Location**
40	40	0	149	Indian Institute of Technology Bombay (IITB)	Mumbai
46	46	0	197	Indian Institute of Technology Delhi (IITD)	Delhi
53	53	0	285	Indian Institute of Technology Madras (IITM)	Chennai
58	52	6	225	Indian Institute of Science	Bangalore
59	61	2	271	Indian Institute of Technology Kharagpur (IIT-KGP)	Kharagpur
63	66	3	278	Indian Institute of Technology Kanpur (IITK)	Kanpur
=94	85=	9	407	University of Delhi	Delhi
111	124=	13	364	Indian Institute of Technology Guwahati (IITG)	Guwahati
116	114	2	369	Indian Institute of Technology Roorkee (IITR)	Roorkee
117	119	2	606	Jawaharlal Nehru University	Delhi
149	185=	36	777	Chandigarh University	Chandigarh
163	173	10	888	Vellore Institute of Technology (VIT)	Vellore
=171	205=	34		Bharathiar University	Coimbatore
=179	185=	6	427	Anna University	Chennai
186	200=	14	1100	Amity University	Noida
=187	181	6	847	University of Calcutta	Kolkata
=199	207=	8	1084	Banaras Hindu University	Varanasi

➤ **India Surpasses China:**

○ India has surpassed China in the **number of universities featured in the QS World University Rankings: Asia 2024,** indicating a **significant increase compared to the previous year**, with 37 new entries from India, while China had only seven new entries.

➤ **India's Strengths and Challenges:**

○ While India performs well in terms of research output and highly qualified faculty members with PhDs, it falls **below the regional average in academic and employer reputation.**

○ India's research output has **increased significantly,** showing a 60% increase from 2018 to 2022, more than double the global average.

○ However, the growth **gap with China is narrowing,** with India catching up in terms of research output.

What are the Indian Initiatives Related to Education and Research?

➤ **Institutions of Eminence (IoE) Scheme:**

○ It is a government's scheme to provide the regulatory architecture for setting up or upgrading of 20 Institutions (10 from public sector and 10

from the private sector) as world-class teaching and research institutions called 'Institutions of Eminence'.

➢ **National Education Policy, 2020:**
  ○ It aims to introduce several changes in the Indian education system - from the school to college level and make India a global knowledge superpower.

➢ **Impacting Research Innovation and Technology (IMPRINT):**
  ○ It is a first-of-its-kind Pan-IIT and IISc joint initiative to develop a new education policy and a roadmap for research to solve major engineering and technology challenges that India must address and champion to enable, empower and embolden the nation for inclusive growth and self-reliance.

➢ **Uchhatar Avishkar Yojana (UAY):**
  ○ It was announced with a view to promote innovation of a higher order that directly impacts the needs of the Industry and thereby improves the competitive edge of Indian manufacturing.

FIDE Grand Swiss Open 2023

Why in News?

India celebrates as **Vidit Santosh Gujrathi (FIDE Grand Swiss) and Vaishali Ramesh Babu (FIDE Women's Grand Swiss)** secure victories in the **FIDE Grand Swiss Open**, earning coveted spots in the **2024 Candidates Tournament** for a chance to challenge the World Chess Champion.

➢ The **World Chess Championship 2024** is scheduled to take place in Toronto, Canada in April 2024.

What is the FIDE Grand Swiss Open?

➢ The FIDE Grand Swiss Open is a **chess tournament** that is part of the **qualification for the World Championship cycle.**

➢ The FIDE Grand Swiss and FIDE Women's Grand Swiss 2023 was held at the Villa Marina, Douglas, Isle of Man.

➢ The top two players in the open event **will qualify for the 2024 Candidates Tournament,** which will determine the challenger for the World Champion.
  ○ The total prize fund is USD 600,000, with USD 460,000 for the Grand Swiss and USD 140,000 for the Women's Grand Swiss.

➢ The first Grand Swiss was held in 2019 in the Isle of Man.

International Chess Federation (FIDE)

➢ It is the governing body of the sport of chess, and it regulates all international chess competitions.
  ○ It's constituted as a non-governmental institution. It organizes the World Chess Championship.

➢ It was recognized by the **International Olympic Committee** as a Global Sporting Organization in 1999.

➢ FIDE currently has its headquarters in **Lausanne (Switzerland)**, but it was initially founded in 1924 in Paris under the motto "Gens Una Sumus" (Latin for "We are one Family").

➢ It was one of the very first International Sports Federations, alongside the governing bodies of the sports of Football, Cricket, Swimming, and Auto Racing. It is now one of the largest, encompassing 199 countries as affiliate members, in the form of National Chess Federations.

■■■

Rapid Fire

Highlights

- Bestu Varsh 2023
- AAINA Dashboard for Cities
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- Russia's Withdrawal From Comprehensive Nuclear Test Ban Treaty
- Bharat Atta Sale to Stabilize Rising Wheat Flour Prices

- Earth's Deep Clues to Moon Formation
- Krishi 24/7: AI Revolutionizing Agricultural News Monitoring
- Timed Out Dismissal in Cricket
- India Flags Off First International Cruise Liner
- ATL Marathon 2023-24
- Inaugural AIESC Meeting
- Neeraj Chopra Nominated for 2023 World Athlete of the Year Award
- Dinosaur-Killing Asteroid and Aftermath
- NMC's One Nation One Registration Platform
- Antarctic Avian Flu Outbreak
- IOM's Global Initiative for Legal Identity Solutions
- 76th Session of WHO Regional Committee for South-East Asia
- Saima Wazed Elected as WHO Regional Director for South-East Asia
- Chinese Antarctic Fleet Sets Off to Build New Research Station
- Culmination of Azadi Ka Amrit Mahotsav
- Rohini Nayyar Prize
- Foundation Day of Indian States
- GST Collections Rise to ₹ 1.72 Lakh Crore
- Nandini Das Wins British Academy Book Prize 2023
- Manufacturing PMI Signals Eight-Month Low
- World Cities Day 2023
- Rajyotsava Awards in Karnataka
- Ballon d'Or 2023
- Strong Growth Across Core Industries in India
- Mera Yuva Bharat (MY Bharat)
- India Shines at Para Asian Games 2023

Birth Anniversary of Birsa Munda

The Prime Minister of India paid tributes to tribal leader **Birsa Munda** on his **birth anniversary (15th November 1875)** belonging to the **Munda tribe** in the **Chotanagpur Plateau area.**

➢ In response to the British colonial presence and missionaries' attempts to convert tribals to Christianity,

Birsa Munda initiated the 'Birsait' faith, emerging as a **tribal leader** and leading resistance against British conversion efforts.

➢ He led the Munda Rebellion aimed to establish **Munda Raj,** or self-rule, and restore the tribal rights over their land and forest.

➢ Birsa Munda encouraged tribals to **resist colonial laws and refuse to pay rent**. He started the **Ulgulan movement** involving **guerrilla warfare**, challenging religious practices, and social changes.

Note:

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➢ The Ulgulan movement aimed at establishing Munda Raj by driving out the British.

➢ Birth anniversary celebrated as **Janjatiya Gaurav Divas,** acknowledging tribal contributions.

➢ He is Remembered as **'Bhagwan' (God) and 'Dharati Aba' (Father of the earth)** by followers.

➢ Jharkhand, meaning "The Land of Forests," was formed on November 15, 2000, marking the birth anniversary of **Bhagwan Birsa Munda.**
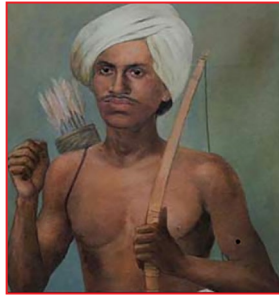
Read more: Birth Anniversary of Birsa Munda, Janjatiya Gaurav Divas

Bestu Varsh 2023

The Prime Minister of India has extended New Year greetings on the occasion of Gujarati New Year.

➢ Gujarati New Year 2023, also known as **Padwa or Bestu Varas,** is being celebrated on **November 14.**

➢ It is celebrated as part of the five-day **Diwali** Celebrations. It ideally falls on **Pratipada of Shukla Paksha** in the **Kartik month (Hindu calendar month)**.

Read more: India's Traditional New Year Festivals

AAINA Dashboard for Cities

The **Ministry of Housing and Urban Affairs (MoHUA)** launched the **'AAINA Dashboard for Cities' portal,** offering **Urban Local Bodies (ULBs)** a platform to voluntarily submit key data.

➢ AAINA aims to help cities assess their **performance relative to others**. It seeks to inspire cities by highlighting possibilities and areas for enhancement.

➢ The **Dashboard categorizes data into five pillars:** Political & Administrative Structure, Finance, Planning, Citizen-Centric Governance, and Delivery of Basic Services.

○ ULBs will regularly submit data, including audited accounts and self-reported performance metrics, through a user-friendly portal.

➢ AAINA is envisioned as a **permanent platform for ULB-related data**, a comprehensive database of key performance metrics.

○ With active ULB cooperation, the dashboard aims to become a public resource, allowing stakeholders to access and utilize the collected data.

Read more: Urban Local Government in India

Zaglossus attenboroughi

Recently, scientists have rediscovered the elusive **Zaglossus attenboroughi**, a long-beaked echidna named after **naturalist David Attenborough**, in **Indonesia's Papua region.**

➢ Echidnas, part of the **monotreme group,** are unique **mammals laying eggs instead of giving live birth**. Also known as spiny anteaters, they sport sharp spines on their bodies and primarily feed on ants and termites.

➢ Echidnas, particularly the Zaglossus attenboroughi, are **nocturnal and shy,** making their discovery challenging. This species was confined to the remote Cyclops Mountains.

➢ **International Union for Conservation of Nature (IUCN) Red List:** Critically Endangered

➢ **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES):** Appendix II

World Diabetes Day

World Diabetes Day (WDD) is celebrated **annually** on **14 November**, coinciding with the **birthday of Sir Frederick Banting,** the **co-discoverer of insulin** in **1922** alongside Charles Best.

➢ **Origin: WDD** originated in **1991** as a response to the increasing health threat of diabetes, established by the **International Diabetes Federation (IDF)** and the **World Health Organization.**

Note:

➢ **Official Recognition: In 2006**, WDD attained **official recognition** as a **United Nations Day** through the adoption of **United Nations Resolution 61/225.**

➢ **Campaign: WDD campaign** strives to be the **primary platform** for **promoting IDF advocacy initiatives**

throughout the entire year.

➢ **Logo: Blue circle logo adopted in 2007** recognized as the **symbol for diabetes awareness**.

➢ **Theme(2021-23): Access to Diabetes Care**
  Read More: World Diabetes Day

Birth Anniversary of Pandit Jawahar Lal Nehru

Every year on **November 14**, **Children's Day** is observed to pay homage to the **first Prime Minister of independent India**.

PT. JAWAHARLAL NEHRU
FIRST PRIME MINISTER OF INDIA

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Famous Speech
Tryst with Destiny

Pre-Independence Contribution

○ **General Secy** of All India Congress Committee (AICC) 1923
○ In 1929-31, drafted '**Fundamental Rights and Economic Policy**' resolution
○ Led **protests against Simon Commission** in 1928
○ Presided over of **INC Lahore Session (1929) & Lucknow session (1936)**
○ **Second Satyagrahi (1940)** of **Individual Satyagraha** (first - Vinoba Bhave)
○ **Moved the 'Quit India' movement resolution** at the AICC session Bombay (1942)
○ Elected as President of INC for seven times (till 1954)

(14th November 1889 -27th May, 1964)

Post-Independence Contribution

○ Introduced - **Objectives Resolution** (guiding principles for drafting the Constitution
○ Promoted industrialization by carrying out the **first five-year plans**
○ **Non-Alignment Movement (NAM)** - his greatest geopolitical accomplishment
○ Promoted **democratic socialism**
○ Established **parliamentary supremacy over the military** (prevented India from becoming another junta-ruled Third World autocracy)
○ Laid Foundation of:
  ■ **Scientific base** for India's space triumphs
  ■ Dual-track **nuclear programme**

Books Written
○ The Discovery of India
○ Glimpses of World History
○ An Autobiography
○ Letters from a Father to His Daughter

Read More: Jawahar Lal Nehru

Supreme Court's Directives on Pollution Control

The **Supreme Court's** recent directives to multiple state governments underscore an urgent call to address the **escalating issue of air pollution**.

➢ Emphasizing the immediate **cessation of stubble burning** in **Punjab, Haryana, Uttar Pradesh, Rajasthan, and Delhi**, the Court voiced concern over the detrimental impact on people's lives and health.

➢ Notably, the Court denounced pollution as a severe health hazard, describing it as a **'murder of the people's health.'**

➢ Additionally**, it critiqued the 'odd-even' scheme for being an inadequate method to control vehicular pollution** and suggested prohibiting out-of-state taxis from entering Delhi.

  Read more: Air pollution

CORPAT & EX-BONGOSAGAR

The **4th edition of** the Bilateral Exercise between the Indian Navy and the Bangladesh Navy, **BONGOSAGAR-23**, and **the 5th edition of Coordinated Patrol (CORPAT)** by the two navies were conducted **in the Northern Bay of Bengal recently.**

Note:

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- Ships and aircraft from both navies undertook joint patrolling along the International Maritime Boundary Line (IMBL) and subsequently conducted maritime exercises to enhance interoperability.
- **CORPAT-23 (India -Bangladesh)** also included the maiden Humanitarian Assistance and Disaster Relief (HADR) drills conducted between the two navies, wherein a Search and Rescue scenario at sea was exercised.
- Other Related Exercises:
  - SAMPRITI: Annual Military Exercise (11th edition conducted in October 2023 in Umroi, Meghalaya).

Read More: Bongosagar Exercise, India-Bangladesh Relations

Saturn's Rings

Saturn's rings will briefly disappear from view in 2025 due to an optical illusion caused by the planet's tilt (which happens every 13 to 15 years), and the alignment of its rings with Earth's line of sight.

- The rings will gradually reappear as Saturn continues to revolve around the Sun.
- According to NASA, Saturn is expected to **lose its rings completely in the next 300 million years** due to the gravitational pull of the planet and its magnetic field.
  - The **phenomenon of "ring rain"** causes ice particles from the rings to be pulled into the planet by its gravity under the influence of Saturn's magnetic field.
- About Saturn:
  - 6th planet from the Sun

- 2nd largest in the solar system
- Composed mostly of hydrogen and helium
- Spectacular and complex rings made of ice, rock, and dust
- 146 moons, including Enceladus and Titan
- Shortest day in the solar system (10.7 hours)
- One orbit around the Sun takes about 29.4 Earth years

Read More: **Saturn's Mysterious Rings & Extreme Tilt**, **Methane in the Moons of Saturn**, **Jupiter Saturn Great Conjunction**

Acharya JB Kripalani Birth Anniversary

Recently, the Prime Minister of India has paid tributes to **Acharya Jivatram Bhagwandas(JB) Kripalani** on his birth anniversary(11th November 1888 in Hyderabad, Sindh).
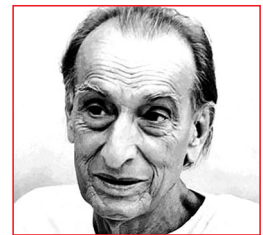
- He Joined **Gandhi's** cause in 1917, associated with the **Non-Cooperation Movement**, **Civil Disobedience Movement**, and **Quit India Movement.**
- J.B. Kripalani was the president of the **Indian National Congress(INC)** in 1947. He was one of the founders of the **Kisan Mazdoor Praja Party (KMPP)** after the independence leaving INC.
- He moved the **first-ever No confidence motion** in **Lok Sabha** in 1963, immediately after the **India-China War (1962).**
- He is the author of several books, including **"Gandhi: His Life and Thought" (1970).** The autobiography titled **"My Times" was published posthumously in 2004.**
  Read more: Acharya Kripalani

Maulana Azad Birth Anniversary

Recently, the Prime Minister of India has paid tributes to **Maulana Abul Kalam Azad** on his birth anniversary(11th November 1888 in Mecca, Saudi Arabia).

- He adopted the pen name **'Azad' meaning 'free'** to indicate his rejection of orthodox and narrow views.

Note:

- Azad supported the **Non-Cooperation Movement** started by **Gandhiji** and entered the **Indian National Congress in 1920.**
- He was the **first education minister of independent India** and under his tenure as the education minister established the **University Grants Commission**, the **Indian Council for Cultural Relations**, and the **Indian Institutes of Technology**.
  - ○ **National Education Day** is observed on 11th November in India to commemorate the birth anniversary of Maulana Azad.
- He was awarded the **Bharat Ratna, India's highest civilian honour,** posthumously in 1992.

  Read more: Maulana Abul Kalam Azad

Winter Session of Parliament to Start on December 4

The Winter Session of **Parliament** will begin on December 4, 2023 as per the announcement of the Union government.

- This will also be the **first full session to be held in the new Parliament building**. A five-day Special Session had been held in September, 2023 during which the **Lok Sabha** and **Rajya Sabha** had ceremonially moved their sittings to the new building.
- India does not have a fixed parliamentary calendar. By convention (i.e., not provided by the Constitution), **Parliament meets for three sessions in a year.**
  - ○ The longest, **Budget Session (1st session),** starts towards the end of January, and concludes by the end of April or first week of May. The session has a recess so that Parliamentary Committees can discuss the budgetary proposals.
  - ○ The second session is the three-week **Monsoon Session**, which usually begins in July and finishes in August.
  - ○ Third session is the Winter Session.

  Read More: Parliament Sessions

Supreme Court Attains Full Strength

The **Supreme Court** welcomed three new judges, taking the judicial strength to its sanctioned capacity of 34, which becomes significant as the pendency clock on the **National Judicial Data Grid (NJDG)** dashboard has risen to a high of 80,000 cases.

- Supreme Court **collegium** held that in view of the ever mounting pendency of cases, the workload of judges has increased considerably which necessitated the court having full working judge strength leaving no vacancy at any point of time.
- The swearing-in of the three judges and the court reaching its full judicial strength coincides with **Chief Justice of India** completing a year in the office.

  Read More: Case Information Software (CIS), Supreme Court Portal for Assistance in Court's Efficiency

Headline Inflation and Food Price Shocks

Reserve Bank of India (RBI) Governor in a keynote speech delivered in Tokyo, highlighted the need for **vigilant and disinflationary monetary policy in India,** amid the threats of **food price shocks, global slowdown and geopolitical uncertainties.**

- **Consumer Price Index (CPI) inflation** is projected at 5.4% for 2023-24, down from 6.7% in 2022-23, but **headline inflation** is vulnerable to recurring and overlapping food price shocks
  - ○ **Core inflation** has decreased by 170 basis points since January 2023. **Monetary policy is vigilant and actively focused on disinflation** to bring inflation in line with the target while also supporting economic growth.
- **Headline Inflation,** as the name suggests, is the total inflation for the period, comprising a basket of commodities.
  - ○ Core inflation = Headline inflation − (Food and Fuel) inflation.
- Amidst global economic challenges, policymaking grapples with trade-offs. India, staying agile, sees Japan as a key partner for future growth.

  Read more: Reserve Bank of India (RBI)

Note:

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Bihar Assembly Passes Bill to Increase Reservation Quota

The Bihar Assembly has unanimously passed a bill to **elevate reservation quotas** in educational institutions and government jobs for various communities.

➢ The overall reservation quota for **Scheduled Castes (SCs), Scheduled Tribes (STs), Extremely Backward Classes (EBCs)**, and **Other Backward Classes (OBCs)** has been raised from **50% to 65%.**

○ With the existing **10% quota for Economically Weaker Sections (EWS), the effective reservation becomes 75%.**

➢ The bill emphasizes **inclusive growth and aims to address societal inequalities.**

➢ The proposed changes align with the **caste survey report,** providing a strategic direction for policy reform.

➢ The Bill is set to be presented in the Legislative Council, with expectations of unanimous approval.

Read more: Rethinking Reservation Policies in India

Battle of Surabaya

The 10th of November is celebrated as National Heroes Day in Indonesia to commemorate the heroism of Indonesian patriots during the 1945 Battle of Surabaya.

➢ The **Battle of Surabaya**, fought between **Indonesian nationalists and British and British Indian forces,** which lasted from 1945 to 1949.

➢ At the time of war, **Indonesia was a Dutch colony** and after Japan's surrender in **World War II**, Indonesian nationalists declared independence. However, **the Dutch did not recognize this declaration** and sought to regain control of their colony, **which led to war.**

➢ The outcome of the battle was a **victory for the British and British Indian forces,** who managed to capture the city of Surabaya after heavy fighting.

Read More: Indian National Army, Advent of Europeans In India

Note:

Supreme Court Orders on Firecrackers and Pollution

Recently, the **Supreme Court** restated its **directives to reduce air and noise pollution** resulting from **firecrackers**.

➢ Emphasizing that **its mandates are binding for all states,** the court stressed the necessity for ongoing endeavors to diminish pollution, **not only during festivities but consistently throughout the year.**

➢ It underlined the importance of responsible Diwali celebrations, **highlighting that joy should not compromise the environment's well-being.**

The recipe for hazard

Traditional firecrackers are made of several chemicals and metals that are hazardous for human health

THE EXPLOSIVE KIND
Bombs of all kinds contain sulphur, potassium nitrate and aluminium

THE SPARKLING ONES
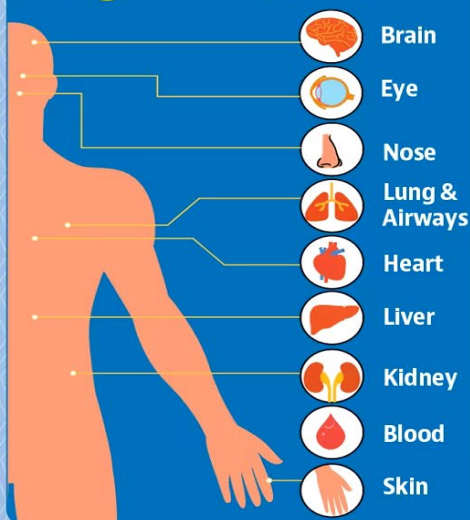These crackers such as phuljhadi and anar contain sulphur, barium nitrate and aluminium and magnesium dust

IN THE AIR
The ones such as rockets contain charcoal, sulphur, potassium nitrate and aluiminium

Organs affected

- Brain
- Eye
- Nose
- Lung & Airways
- Heart
- Liver
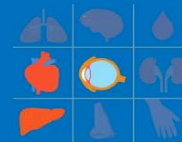- Kidney
- Blood
- Skin

How these ingredients affect humans

Aluminium
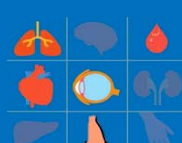Exposure may lead to neuromuscular problems, confusion, disturbed sleep

Sulphur dioxide
Can cause damage to heart, eye, liver

Barium
Fatigue or weakness, difficulty in breathing, blood pressure changes, facial numbness

Potassium nitrate
Redness or itching of skin or eyes, shortness of breath, dizziness and mental impairment

Read more: **Green Crackers**

Artificial Rain Project to Combat Delhi Pollution

Recently, the **Delhi government** has been considering **artificial rain** through **cloud seeding** as a measure to combat **escalating pollution levels in the city.**

➢ IIT-Kanpur has conducted pilot projects during monsoon months, and the focus is now on winter conditions.

➢ A minimum requirement of **40% cloud and moisture is necessary for cloud seeding.**

○ The potentially favorable conditions for artificial rain are projected on November 20 and 21, 2023.

Note:

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➢ The project involves using **silver iodide and other components** for **cloud seeding via aircraft.**

➢ The effectiveness of artificial rain in reducing pollution levels depends on factors like moisture and rainfall.

   Read more: Cloud Seeding

INDUS-X Investors Meet

The **Innovations for Defence Excellence (iDEX)** and the **US Department of Defence** organized the **inaugural INDUS-X Investors Meet in New Delhi,** fostering collaboration in **defence innovation**.

➢ The event featured the launch of the **INDUS-X Educational Series (Gurukul)** aimed at guiding innovators and startups in the **defence ecosystem**

of India and the US.

   ❍ The Gurukul Educational Series will offer sessions for startups by experts from both countries, facilitating **navigation in the defence ecosystems.**

➢ Panel discussions focused on **investment opportunities** in the defence sector, establishing a sustainable commercial foundation for collaboration and co-production.

➢ The **India-US Defence Acceleration Ecosystem (INDUS-X) initiative,** launched in June 2023, aims to **enhance strategic technology partnership** and defence industrial cooperation between India and the US.

   Read more: Innovations for Defence Excellence, India-U.S. Strategic Partnership

80% of Semiconductor Manufacturing Funds Remain Untouched

An official from the Industry Ministry stated that out of the **USD 10 billion allocated for semiconductor production** through the **Production Linked Incentive (PLI) Scheme** by the Union government, about **USD 8 billion remains unclaimed.**

➢ In 2021, India announced its roughly **USD 10 billion dollar PLI scheme** to encourage **semiconductor and display manufacturing** in the country.

➢ The **PLI scheme** was launched by the **Government of India** to boost the domestic manufacturing sector and to reduce the dependence on imports.

   ❍ The scheme offers financial incentives to companies that manufacture products in India.

   ❍ It covers **14 key sectors:**

   Read more: India Semiconductor Mission

SOP STORY SO FAR

SECTORS WHERE PLI SCHEME HAS BEEN ANNOUNCED

March 2020
➢ Key starting materials (KSMs)/ drug intermediates (DIs) and active pharmaceutical ingredients (APIs)
➢ Large scale electronics manufacturing
➢ Medical devices

November 2020
➢ Electronics/ technology products
➢ Pharmaceuticals drugs
➢ Telecom & networking products

➢ Food products
➢ White goods (ACs & LED)
➢ High-efficiency solar PV modules
➢ Automobiles & auto components
➢ Advance chemistry cell (ACC) battery
➢ Textiles— MMF segment and technical textiles
➢ Specialty steel

Sept 2021
➢ Drones and drone components

Need For Policy to Distribute Sanitary Napkins in Schools

The **Supreme Court** tells Centre to set down a national model for the number of girls' toilets per female population across government-aided and residential schools in the country and place on record an "optimum" **menstrual hygiene policy** with focus on the distribution of **sanitary napkins.**

Note:

➤ It was held that certain States had already been implementing their own schemes for distribution of sanitary napkins.

❍ In Tamil Nadu, **18 packets with six napkins each were given to girls.**

❍ Northeastern States had also shown progressiveness with their own schemes.

➤ The latest **National Family Health Survey 5 (NFHS-5)** found a significant improvement in the percentage of women aged 15-24 who use a hygienic method of protection during their menstrual cycle, rising from **58% in NFHS-4 to 78%.**

Read More: World Menstrual Hygiene Day, Swachh Bharat guidelines

Uttarakhand State Foundation Day

Annually, **9th November** is celebrated as **Uttarakhand State Foundation Day,** as on this day Uttarakhand became **India's 27th state on November 9, 2000,** when it was carved out of **northern Uttar Pradesh**.

➤ The state was originally named Uttaranchal, but was renamed Uttarakhand in 2007. The name Uttarakhand comes from the Sanskrit dialect and means "northern city"

➤ Uttarakhand is a land of natural beauty, cultural diversity, and religious significance. It is home to the **Char Dham, the four sacred Hindu pilgrimage sites** of Badrinath, Kedarnath, Gangotri, and Yamunotri.

➤ Uttarakhand is home to two **UNESCO Heritage sites,** Valley of Flowers and **Nanda Devi National Park.**

Read more: Statehood Demand

Note:

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Aadhaar Authentication: Reinforcing Prison Security

The **Ministry of Home Affairs (MHA)** has proposed an initiative to implement **Aadhaar authentication** for inmates and visitors in around 1,300 jails across the nation.

➢ The integration of **Aadhaar services with the ePrisons system developed by the** **National Informatics Centre (NIC)** is aimed at accurately verifying inmates and visitors, thereby reducing identity fraud within the prison system and enhancing administrative processes related to prisoner management.

➢ As per the MHA notification, the **authentication process will be voluntary, with the onus on the States and Union Territories** to adhere to relevant guidelines.

Read more: **Safeguarding Aadhaar Data**

IREDA Launches CSR Portal

The **Indian Renewable Energy Development Agency (IREDA)** launched a **Corporate Social Responsibility (CSR) portal** to improve transparency in **CSR initiatives.**

➢ The portal was launched during the valedictory function of **"Vigilance Awareness Week 2023 (30th October to 5th November)"**, held at the company's registered office in Delhi.

  ○ The theme for the week was **"Say No to Corruption; Commit to the Nation"**, aimed to raise public awareness about **corruption and promote a corruption-free working environment.**

➢ The portal is intended to facilitate transparency in the receipt and disposal of CSR requests from various organizations and institutions.

➢ IREDA is a **Mini Ratna (Category – I) Government of India** enterprise under the administrative control of the Ministry of New and Renewable Energy.

Read more: **India's Renewable Energy Growth Praised by IRENA**

The Legal Literacy and Legal Awareness Program (LLLAP)

As per the recent data, **the Legal Literacy and legal Awareness Program (LLLAP)** has reached more than 6 lakh people through 14 implementing agencies under the **Designing Innovative Solutions for Holistic Access to Justice (DISHA) scheme.**

➢ **LLLAP** is an initiative by the **Department of Justice, Ministry of Law and Justice,** Government of India aimed at increasing legal literacy and awareness among the masses.

➢ The program seeks to **educate people about their legal rights, duties, and entitlements,** as well as the various legal mechanisms available for seeking redressal of grievances.

➢ **DISHA** is launched for a period of five years **2021-2026** to advance the cause of access to justice. It aims to **design and consolidate various initiatives to provide citizen- centric delivery of legal services.**

➢ Under DISHA, the programmes being implemented at a pan India level are **Tele-Law: Reaching the Unreached, Nyaya Bandhu (Pro Bono Legal Services) and Legal Literacy and Legal Awareness Programme.**

Read More: E-Courts, SUPACE

Russia's Withdrawal From Comprehensive Nuclear Test Ban Treaty

Recently, Russia has withdrawn from the **Comprehensive Nuclear Test Ban Treaty (CTBT).**

➢ CTBT bans **all nuclear explosions,** for both **military and civilian purposes,** in all environments.

  ○ The treaty was negotiated at the **Conference on Disarmament in Geneva in 1994** and adopted by the **United Nations General Assembly.**

➢ The **CTBT was signed by 187 states,** including Russia and the United States, but has not entered into force as **eight countries, including the United States, have not ratified it.**

  ○ **India** has not yet signed the treaty.

Read more: Comprehensive Nuclear Test Ban Treaty

Bharat Atta Sale to Stabilize Rising Wheat Flour Prices

The Indian government has launched the sale of **'Bharat' brand Atta (wheat flour)** with a **maximum retail price (MRP) of Rs 27.50 per kilogram** which is lower than the national average price of Rs 35.93 per kg.

Note:

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- This initiative is part of the government's **ongoing efforts to stabilize the prices** of essential commodities and provide relief to consumers.
- **'Bharat' Atta** will be available through various outlets, including **Kendriya Bhandar, National Agricultural Cooperative Marketing Federation of India Limited (NAFED),** and **National Cooperative Consumer Federation (NCCF),** ensuring its accessibility to a broader consumer base.
  - NAFED, founded in 1958, is a leading Indian cooperative organization for **agricultural product procurement and marketing**.
  - NCCF is an **apex organization for consumer cooperatives**. It functions under the **Ministry of Consumer Affairs, Food and Public Distribution.**
  - Both NAFED and NCCF are registered under the **Multi-State Co-operative Societies Act, of 2002.**
- The efforts to stabilize prices of essential commodities have not only benefitted consumers but also supported farmers by ensuring a fair price for their produce.
  Read more: Kendriya Bhandar

Earth's Deep Clues to Moon Formation

Recent research reveals that **Earth's deep interior contains evidence of a massive collision more than 4.46 billion years ago,** shedding light on the **formation of the moon** and the planet's evolution.

- A colossal impact created molten rock that later formed the moon by coalescing in space.
  - Two **continent-sized blobs (large, dense regions) within Earth's mantle,** one under **Africa and another under the South Pacific**, are believed to be remnants of this ancient collision.
- These blobs, denser than the surrounding material, may have originated from the collision between **primordial Earth and a Mars-sized object called Theia.**
  - Theia is believed to have collided with young Earth **forming the Moon** and **leaving material in the lower mantle.**
- Computer simulations support the idea that most of Theia was absorbed into Earth, forming these blobs, while residual debris formed the moon.
  - These blobs are about 2% of Earth's mass, twice the mass of the entire moon.

- The increased density in the blobs is attributed to their high iron content, similar to moon rocks.
  Read more: Inner Core of the Earth

Krishi 24/7: AI Revolutionizing Agricultural News Monitoring

The collaboration between the **Department of Agriculture and Farmers Welfare (DA&FW)** and the **Wadhwani Institute for Artificial Intelligence (Wadhwani AI)** resulted in the development of **Krishi 24/7**, a groundbreaking **AI-powered solution designed for automated agricultural news monitoring and analysis.**

- With support from **Google**, this innovation aims to transform the process of identifying and managing agricultural news articles, **ensuring timely alerts and actions to safeguard farmers' interests and foster sustainable agricultural growth.**
  - **Krishi 24/7** scans and translates articles in multiple languages, extracting crucial information.
  Read more: Artificial Intelligence & Agriculture

Timed Out Dismissal in Cricket

Sri Lankan Batsman **Angelo Mathews' timed-out dismissal** during a **recent ICC Men's Cricket World Cup 2023** match against Bangladesh stands as a first instance of timed-out dismissal in the **146-year** chronicle of International Cricket.

- As per the **ICC Men's Cricket World Cup 2023 playing conditions**, the incoming batter must be ready to face the next ball within a **strict 2-minute time limit.**
  - However, the **Marylebone Cricket Club's (MCC) Law 40.1.1 states** that following a wicket fall or a batter's retirement, the **new batter must be prepared to face the next ball within 3 minutes**. Failure to do so results in a **'Timed Out' dismissal.**
- The batter argued that the delay was due to a faulty helmet, not an attempt to waste time or gain an advantage.
  - However, the **rules do not account for last-minute equipment malfunctions.**

Note:

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India Flags Off First International Cruise Liner

Recently, the Union Minister of Ports, Shipping & Waterways flagged off the maiden voyage of the vessel **Costa Serena,** the first **International Cruise Liner in India** from Mumbai.

➢ The initiative aligns with the **"Dekho Apna Desh" campaign,** reflecting the government's emphasis on promoting tourism.

➢ The development of **cruise and lighthouse tourism** is part of the **Sagarmala Programme,** which aims to establish India as the premier cruise hub in the **Asia Pacific region by 2030.**

   ❍ The goal is to increase the **annual number of cruise passengers in India to 18 lakhs by 2030,** up from the current figure of 4.72 lakhs.

➢ India plans to have **25 operational cruise terminals by 2047,** with an estimated annual passenger count of 5 million.

   Read more: Ganga Vilas Cruise

ATL Marathon 2023-24

Atal Innovation Mission (AIM), a flagship initiative set up by the **NITI Aayog,** opened applications for the **'Atal Tinkering Lab(ATL) Marathon 2023-24,'** a **national-level innovation challenge** in collaboration with the Ministry of Education, **YuWaah** and **UNICEF.**

➢ The 2023-24 ATL Marathon is themed around **"India's 75th Republic Day(26th January 2024)",** with several problem statements on which student teams can build projects like Space, Agriculture, Inclusivity, **Disaster management,** Mobility, Health, Education & Skill Development.

   ❍ Students across India can participate and develop innovative solutions for community problems.

➢ Aims to create an ecosystem of innovation in schools and expose students to innovation.

   Read more: Atal New India Challenge 2.0

Inaugural AIESC Meeting

The inaugural **Australia India Education and Skill Council (AIESC) meeting,** hosted at IIT Gandhinagar, represents a pivotal moment in the bilateral education and skill development collaboration between **Australia and India**.

➢ Established in **2011** as the **Australian India Education Council (AIEC),** this bi-national body strategically guides the educational, training, and research partnerships between the two countries.

➢ By focusing on themes like **shaping future workforces, bolstering institutional partnerships, and driving research impact through internationalization,** the council seeks to pave the way for the future of education and skilling in both nations.

   Read more: India-Australia Relations

Neeraj Chopra Nominated for 2023 World Athlete of the Year Award

Neeraj Chopra, the Olympic and World Champion Javelin Thrower, stands among the **11 nominees for the 2023 Men's World Athlete of the Year award given** by the **World Athletics.**

➢ The selection process involves a **three-way voting system,** incorporating votes from the **World Athletics Council, the World Athletics Family,** and the public.

   ❍ While the **council's vote carries 50% weight, the remaining 50% is divided equally between the World Athletics Family** and public votes.

   Read more: World Athletics

Dinosaur-Killing Asteroid and Aftermath

Recent research published in the **journal *Nature Geoscience*** has revealed the significant role played by dust ejected into the atmosphere by an **asteroid(Chicxulub Impactor) impact on Mexico's Yucatan Peninsula 66 million years ago.**

➢ This research was conducted based on **paleoclimate simulations (PS)** using sediment from a North Dakota paleontological site called Tanis.

   ❍ PS replicates Earth's climate for studying past climates and predicting future changes.

➢ The impact caused wildfires, quakes and a climate catastrophe, darkening skies, **dropping temperatures by 27°F**, and blocking photosynthesis, vital for plant life, resulting in an **"impact winter"** with severe consequences.

Note:

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➤ Researchers calculated that the total amount of dust produced by the impact exceeded 2,000 gigatonnes, which was **11 times the weight of Mt. Everest,** playing a key role in extinction.

➤ The asteroid, 6-9 miles wide, ended the **Cretaceous Period(which began 145 million years ago and ended 66 million years ago)**, causing **three-quarters of species**, including **dinosaurs,** to vanish. Meanwhile, small, adaptable **mammals** thrived and eventually rose as Earth's dominant species.

○ Recovery took about 20 years, with pre-impact conditions returning in the same timeframe.

Read More: Asteroids

NMC's One Nation One Registration Platform

The **National Medical Commission (NMC)** plans to transform India's medical registration system with the **'One Nation, One Registration Platform'** for easy access to medical practitioner information.

➤ The NMC's initiative aims to eliminate **duplication and bureaucratic hurdles,** offering public access to **information about every physician in India.**

➤ A **National Medical Register(NMR)** patch pilot will provide doctors with **unique identification numbers for cross-state practice.**

○ A masked ID will be assigned to undergraduate students, which will be unmasked upon course completion, facilitating qualification updates and cross-state licensing.

○ The NMR will centralize data on doctors, including qualifications, registration dates, specialities, and more, streamlining accessibility.

➤ The NMC also outlines processes for additional qualifications, license renewal, and appeal options for rejected applications.

Read more: National Medical Commission (NMC)

Antarctic Avian Flu Outbreak

Scientists from the **British Antarctic Survey (BAS)** have identified the presence of **Highly Pathogenic Avian Influenza (HPAI)** in the **Antarctic region for the first time**, raising significant concerns for the delicate populations of **penguins** and seals in the region.

➤ The discovery found the HPAI in **Brown Skua populations on Bird Island, South Georgia.**

➤ Avian influenza, often referred to as bird flu, is a highly contagious viral infection that primarily affects birds.

○ In 1996, highly pathogenic **avian influenza H5N1 virus** was first identified in domestic waterfowl in **Southern China**.

Read more: Avian Influenza

IOM's Global Initiative for Legal Identity Solutions

Recently, a **Legal Identity and Rights-Based Return Management Conference** was organized by **United Nations' International Organization for Migration (IOM)** at Copenhagen, Denmark to promote dialogue between countries of origin and destination for people without legal identities.

➤ It was highlighted that around **one billion people globally lack a legal identity,** impeding their access to services and freedom of movement, thereby leading to more **hazardous and irregular migration routes.**

➤ The initiative was organized within the framework of **IOM's Global Programme Enhancing Readmission and Legal Identity Capacities (RELICA)**, launched in 2022.

➤ IOM was established in **1951** and has its head office at **Le Grand-Saconnex, Switzerland.**

Read more: International Migration Outlook 2022

76th Session of WHO Regional Committee for South-East Asia

Investment in **Primary Health Care (PHC)** as the most inclusive, equitable and cost-effective way to achieve **Universal Health Coverage** was emphasized during the **Ministerial Roundtable Conference at the 76th session of WHO Regional Committee for South-East Asia** in New Delhi.

➤ **Delhi Declaration** on strengthening primary health care as a key element towards achieving universal health coverage was signed at the meeting.

➤ Reaffirming the vision of the Government of India of "**Antyodaya**" (the principle of leaving no one behind), it was stated that India's strong health system relies on a **"whole of government" and "whole of society"** approach with the goal of improving essential health services and health systems to **pre-pandemic levels.**

Note:

➤ Importance of **Ayushman Bharat Health and Wellness Centres (AB-HWCs)** was emphasized which are transforming the delivery of comprehensive primary health care services.

     Read More: Accredited Social Health Activist (ASHA), Ayushman Bharat Digital Mission (ABDM)

Saima Wazed Elected as WHO Regional Director for South-East Asia

Saima Wazed (from Bangladesh) was elected as the **Regional Director of the World Health Organization's South-East Asia region** during the **76th session of the WHO Regional Committee for Southeast Asia.**

➤ The Regional Committee for **South-East Asia** is WHO's governing body in the Region.

➤ **The WHO Southeast Asia Region has 11 Member States** - Bangladesh, Bhutan, the Democratic People's Republic of Korea, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, Thailand, and Timor-Leste. WHO has country offices in all 11 Member States.

❍ The WHO South-East Asia Regional Office is **headquartered in New Delhi, India.**

Chinese Antarctic Fleet Sets Off to Build New Research Station

Two Chinese icebreaker research vessels and a cargo ship have set sail for **Antarctica.**

➤ The mission's primary objective is to complete the **construction of China's fifth research station in the Antarctic,** situated on Inexpressible Island near the **Ross Sea.**

❍ The Ross Sea is located off the coast of Antarctica. It is one of the last **intact marine ecosystems** in the world.

❍ **China has four research stations in Antarctica:** Great Wall(1985), Zhongshan(1989), Kunlun(2009), and Taishan(2014).

➤ An icebreaker is a ship specially designed to navigate through ice-covered waters, and also provide a safe waterway for other vessels.

➤ **India has two active research stations in Antarctica, 'Maitri' and 'Bharati.'**

     Read more: India's Antarctic Missions, PACER Scheme

Culmination of Azadi Ka Amrit Mahotsav

The **Indian Prime Minister** marked the culmination of **Azadi Ka Amrit Mahotsav** with the conclusion of the **'Meri Maati Mera Desh'** campaign.

➤ Commencing on the **12th of March 2021,** the inception of the **Azadi Ka Amrit Mahotsav** drew **inspiration from Mahatma Gandhi's Dandi Yatra**.

❍ Notably, the conclusion of this celebratory event was observed on the **31st of October 2023, coinciding with the birth anniversary of Sardar Vallabhbhai Patel.**

➤ During the same occasion, the **foundation stone for the Amrit Vatika and Amrit Mahotsav Memorial** was also ceremoniously laid.

➤ The "**Meri Maati Mera Desh**" campaign pays homage to the courageous individuals who made significant sacrifices for the nation.

❍ Through collaborative efforts at various levels, the campaign involves diverse activities such as **erecting memorials, taking pledges, planting indigenous saplings,** and honoring freedom fighters and their families through ceremonies.

     Read more: Dandi March 1930, Sardar Vallabh Bhai Patel

Rohini Nayyar Prize

Engineer-turned-social worker **Deenanath Rajput** was awarded the **Rohini Nayyar Prize** for Outstanding Contribution to Rural Development for his work in changing the lives of over 6,000 tribal women in **Naxalite affected areas of Chhattisgarh** through the establishment of a **farmers' producers organization (FPO).**

➤ This is the **second edition of the Rohini Nayyar Prize,** which was instituted in the memory of the eponymous economist and administrator Rohini Nayyar who passed away in **2021.**

➤ Rohini Nayyar Prize awardee is granted a cash prize of ₹10 lakhs.

     Read More: Gandhi Peace Prize, Shanti Swarup Bhatnagar Prize

Note:

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Foundation Day of Indian States

The Foundation Day of the **eight states and five union territories,** namely Punjab, Chandigarh, Haryana, Andhra Pradesh, Chhattisgarh, Karnataka, Kerala, Madhya Pradesh, Tamil Nadu, Andaman and Nicobar Islands, Delhi, Lakshadweep and Puducherry was celebrated on 1st of November. The Foundation Day programme was organized as part of the **'Ek Bharat Shreshtha Bharat'** initiative of Government of India.

➤ It was stressed that the foundation of four dharma peethas by Adi Shankaracharya in different corners of the country united the nation from **Kashmir to Kanyakumari** through the bonds of shared culture.

➤ **Formation Years:**
  ○ **1956:** Tamil Nadu, Andhra Pradesh, Madhya Pradesh, Karnataka, Kerala
  ○ **1966:** Haryana was carved out of Punjab.
  ○ **2000:** Chhattisgarh

Read More: North-Eastern States Reorganisation Act, 1971 , Jammu and Kashmir Reorganisation Act, 2019, Statehood Demand

GST Collections Rise to ₹ 1.72 Lakh Crore

In October, India's Goods and Service Tax (GST) revenues surged, reaching the **second-highest** monthly collection of ₹1.72 lakh crore in 10 months.

➤ GST levies on **imports of goods** rose 13.9% in October, which is faster than the growth from domestic transactions.

➤ The average gross monthly GST collection in the **FY 2023-24 now stands at ₹1.66 lakh crore** and is 11% more than that in the same period in the previous financial year.

➤ The spate of **notices to tax evaders and anti-evasion drives** have led to substantial collections.

➤ The total revenue of **Centre** and the **States** in the month of October 2023 after regular settlement is ₹72,934 crore for CGST and ₹ 74,785 crore for SGST.

Read More: Goods and Service Tax Council, GST Appellate Tribunal

Nandini Das Wins British Academy Book Prize 2023

Nandini Das, an India-born author, won the British Academy Book Prize 2023 for **Global Cultural Understanding**, for her book **'Courting India: England, Mughal India, and the Origins of Empire'.**

➤ The author has sought to present a new perspective on the origins of empire through the story of the arrival of the first English ambassador in India, **Sir Thomas Roe,** in the early **17th century.**

➤ The British Academy Book Prize, **previously named the Nayef Al-Rodhan Prize,** was created in **2013** to honor outstanding non-fiction works that exhibit rigor, originality, and promote a deeper understanding of different world cultures and their interactions.

Read More: International Booker Prize, Nobel Prize in Literature

Manufacturing PMI Signals Eight-Month Low

In October 2023, the manufacturing sector's growth slowed down to its **lowest pace since February.** This decline was attributed to a decrease in new orders, which reached a one-year low, as indicated by the **S&P Global India Manufacturing** Purchasing Managers' Index (PMI).

➤ **Producers facing higher costs** due to increased prices for aluminum, chemicals, leather, paper, rubber, and steel reported slower input accumulation, **the slowest in eight months,** even though manufacturers continued to stock up on supplies.

➤ Business confidence **dipped to a five-month low** as concerns about inflation **and demand tempered optimism**, though firms still maintained a generally positive outlook on future prospects.

- ➤ **Consumer goods were behind most of the slowdown,** recording considerably softer increases in sales, production, exports, input inventories and buying levels.

  Read More: Index of Industrial Production, India's Manufacturing Sector

World Cities Day 2023

World Cities Day, designated by the **United Nations General Assembly**, is celebrated **annually on 31ˢᵗ October and was first celebrated in 2014.**

- ➤ The Day serves as an opportunity to promote the **international community's interest in global urbanization**, push forward cooperation among countries in addressing challenges of urbanization and contribute to sustainable urban development around the world.

- ➤ **Theme for 2023:** "Financing sustainable urban future for all."

- ➤ The UN-Habitat programme promotes the development of **sustainable cities in line with sustainable development goal 11.**

  - ○ The United Nations Human Settlements Programme (UN-Habitat) is the United Nations agency for human settlements and sustainable urban development.

  Read more: World Cities Day

Rajyotsava Awards in Karnataka

On **Karnataka Rajyotsava Day**, celebrated on **1st November,** Karnataka government bestows the prestigious **Rajyotsava Award, the state's second-highest civilian honor.**

- ➤ Rajyotsava Award recognizes exceptional contributions of Individuals in diverse fields.

- ➤ Karnataka Formation Day

- ➤ (Rajyotsava Day), celebrated on November 1st, marks the state's birth in **1956.** It resulted from **merging Kannada-speaking regions of South India.**

  - ○ At India's independence, South India was ruled by Mysuru, **Nizams of Hyderabad, Madras Presidency, and Bombay Presidency**. To improve administration, regions were **redefined based on language**.

  - ○ In 1956, Mysuru's boundaries were adjusted to include Kannada-speaking areas.

- ○ The name changed from **'Mysuru' to 'Karnataka' on November 1, 1973.** Since then each year **November 1 marks the celebration of state formation.**

Ballon d'Or 2023

Lionel Messi secured his **eighth Ballon d'Or,** a record in football history, and **Aitana Bonmati** claimed the **Ballon d'Or Féminin Award** for her exceptional contributions to Spain's Women's World Cup win and Barcelona's success.

- ➤ The Ballon d'Or is an annual football award presented by French news magazine France Football since 1956.

- ➤ The Ballon d'Or awards are based on a **player's individual performance in the previous season**. This is a change from previous criteria, which were based on player performance during the calendar year.

- ➤ The award was temporarily merged with the **FIFA World Player of the Year** from 2010 to 2015 and is known as the FIFA Ballon d'Or. However, in 2016, this partnership concluded.

  Read more: Indian Football's Vision 2047

Strong Growth Across Core Industries in India

The **Index of Eight Core Industries (ICI)** in India for **September 2023** indicates robust growth, rising by **8.1% compared to September 2022.**

- ➤ The ICI measures combined and individual performance of production of eight core industries viz. Cement, Coal, Crude Oil, Electricity, Fertilizers, Natural Gas, Refinery Products and Steel.

  - ○ The Eight Core Industries comprise 40.27% of the weight of items included in the **Index of Industrial Production (IIP).**

- ➤ Specifically, **coal production surged by 16.1%,** while steel and electricity generation also saw impressive increments of 9.6% and 9.3%, respectively.

  - ○ However, the **production of crude oil witnessed a slight decline by 0.4%**.

- ➤ This growth trajectory reflects an overall positive momentum in India's core industries, highlighting a promising economic landscape for the nation.

  Read more: Core Sector Industries

Note:

Mera Yuva Bharat (MY Bharat)

Recently, the Indian Prime Minister launched the **'Mera Yuva Bharat (MY Bharat)'** platform aiming to be a **technology-driven facilitator for youth development and youth-led development.**

➢ **MY Bharat** will benefit the youth in the age group of **15-29 years**, in line with the definition of '**Youth' in the National Youth Policy.**

❍ In case of programme components specifically meant for the adolescents, the beneficiaries will be in the age group of **10-19 years.**

➢ It is a **'Phygital Platform' (physical + digital)** comprising physical activity along with an opportunity to connect digitally.

❍ It envisions a framework where the **youth of our country can seamlessly connect with programs, mentors, and their local communities.**

❍ This engagement is designed to **deepen their understanding of local issues** and empower them to contribute to constructive solutions.
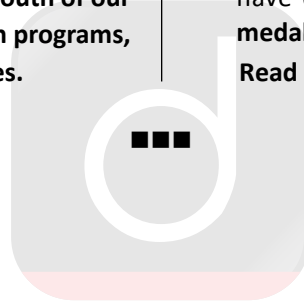
Read more: Youth in India 2022 Report

India Shines at Para Asian Games 2023

Indian **para-athletes** mark a monumental achievement in the history of **Para Asian Games held in Hangzhou, China** with an **all-time high medal tally of 111,** including an impressive 29 gold medals.

➢ With this India clinches the **5th position in the overall medal tally behind China, Iran, Japan and the Republic of Korea.**

➢ Out of the 111 medals secured, **female para-athletes** have contributed significantly, accounting for **40 medals,** constituting 36% of the total medal tally.

Read more: Paralympic Games

Note:

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