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RESEARCHERS FROM THE INDIAN INSTITUTE OF ASTROPHYSICS (IIA) HAVE DISCOVERED A "VAMPIRE STAR" IN THE STAR CLUSTER M67 IN THE CONSTELLATION CANCER.



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GENERAL STUDIES – 1

Topics: Indian culture will cover the salient aspects of Art Forms, Literature and Architecture from ancient to modern times.

1. STATES PUSH FOR GREATER AUTONOMY IN PROMOTING CLASSICAL LANGUAGES

Context:

The centres for the promotion of classical languages **Telugu, Kannada, Malayalam,** and **Odia** are demanding autonomy to improve their functioning.

What is the issue involved?

1. **Current System:** Under the current system, these centres **operate under the Central Institute of Indian Languages (CIIL), Mysuru**, which requires pre-approval for events and has caused staffing and funding issues.
2. **Funding and Staffing:**
 - **Telugu and Odia Centres:** Facing delays and funding issues; staff positions remain unfilled.
 - **Malayalam Centre:** Only two staff members, struggling with financial constraints.
3. **Comparison:** Tamil and Sanskrit centres are autonomous and funded directly by the Union Education Ministry. Tamil language is promoted through an autonomous institute named **Central Institute of Classical Tamil (CICT)**. Sanskrit is promoted through **three Central Universities**.

Currently, six languages enjoy the 'Classical language' status in India. These are **Tamil** (declared in 2004), **Sanskrit** (2005), **Kannada** (2008), **Telugu** (2008), **Malayalam** (2013), and **Odia** (2014).

Criteria for classical language status:

The Government has over time given the following criteria to determine the declaration of a language as a Classical language:

1. **High antiquity** of its early texts/recorded history over a period of 1500-2000 years
2. A body of **ancient literature/texts**, which is considered a valuable heritage by generations of speakers
3. The **literary tradition should be original** and not borrowed from another speech community
4. The classical language and literature being distinct from modern, **there may also be a discontinuity** between the classical language and its later forms or its offshoots.

Benefits of having classical language criteria:

- The **Ministry of Human Resource and Development** provide the following benefits to a language declared as a "Classical Language."
 1. Two major **international awards** for scholars of eminence in Classical Indian Languages are to be awarded annually.
 2. A '**Centre of Excellence** for Studies in Classical Languages' will be set up.
 3. The University Grants Commission will be requested to create and to start with at least in the Central Universities, a **certain number of Professional Chairs** for Classical Languages for scholars of eminence in Classical Indian Languages.

Government measures to promote classical languages:

- **Central Institute of Indian Languages (CIIL):**
 - In addition to promoting all Indian languages, the CIIL, Mysore works for the promotion of four Classical Languages namely **Kannada, Telugu, Malayalam, and Odia**.
 - CIIL works and **collaborates with various stakeholders** including Universities, Institutes, State Governments, etc. for the development of languages through its various schemes.
 - These include the **National Translation Mission, Linguistic Data Consortium of Indian Languages, Bharatavani**, etc.
- **Allocation of funds:**
 - The Union Government **allocates funds** for the promotion of classical Indian languages.
 - To note, a grant of **Rs 1,074 crore** has been released for the **promotion of Sanskrit from 2017-2022**.

Conclusion

As discussed, classical languages in India are declared based on a **defined set of criteria** and enjoy some **literary and financial benefits for their status**.

Prelims Link:

Q. Which one of the following was given classical language status recently? (UPSC 2015)

- (a) Odia
- (b) Konkani
- (c) Bhojpuri
- (d) Assamese

Answer: (a)

Q. Consider the following languages (UPSC 2014)

- Gujarati
Kannada
Telugu

Which of the above has/have been declared as 'Classical Language / Languages' by the Government?

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

Topics: Salient features of Indian Society, Diversity of India.

2. HIMACHAL PRADESH RAISES THE BAR: MARRIAGE AGE NOW 21

Context:

Himachal Pradesh has **passed a Bill to raise the minimum marriage age for women from 18 to 21 years**, amending the Prohibition of Child Marriage (PCM) Act.

The Bill **redefines a “child” as anyone under 21**, eliminating the age difference between genders. It also **overrides any conflicting laws or customs**. To annul a marriage, the time limit has been **extended to five years after reaching the age of 21**. Since the Bill amends a central law, it **must receive the President’s assent to become enforceable**, following approval from the state’s Governor.

Earlier, **in June 2024, a Central bill ‘Prohibition of Child Marriage (Amendment) Bill, 2021’** lapsed in Lok Sabha which aimed to bring uniformity in the age of marriage for men and women. 2021 Bill was based on recommendations of **Jaya Jaitley Committee**

Background:

1. **According to the NFHS-5, 23%** (47% in NFHS-3 and 27% in NFHS-4) of women between the age of 20 and 24 were married before 18 years of age.
2. In India, the practice of child marriage was **first legally prohibited** through the Child Marriage Restraint Act, 1929 (also called **Sarda Act**) (legal age G = 14 years and B = 18 years)
3. **This Act was amended in 1978** to increase the minimum age to 18 years for females, and 21 years for men.
4. **The Prohibition of Child Marriage Act, 2006** replaced the 1929 Act, with the same minimum age limits.
5. In 2020, the central government set up a task force (Chairperson: Ms Jaya Jaitly) to examine the correlation between the age of marriage and the mother, and the child’s health. The Committee suggested **increasing the age of marriage for females to 21**.

What the law says?

Currently, the law prescribes that **the minimum age of marriage is 21 and 18 years for men and women**, respectively. The minimum age of marriage is distinct from the age of

majority, which is gender-neutral.

1. An individual attains the age of majority at 18 as per **the Indian Majority Act, 1875**.
2. For Hindus, Section 5(iii) of **the Hindu Marriage Act, 1955** sets 18 years as the minimum age for the bride and 21 years as the minimum age for the groom. **Child marriages are not illegal** but can be declared void at the request of the minor in the marriage.
3. In **Islam**, the marriage of a **minor who has attained puberty** is considered valid under personal law.
4. The **Special Marriage Act, 1954** and **the Prohibition of Child Marriage Act, 2006** also prescribe 18 and 21 years as the minimum age of consent for marriage for women and men respectively.

Reasons for Prevalence of Child Marriages in India

1. **Poverty:** Families often marry off daughters early to reduce economic burdens.
2. **Cultural Norms:** Deep-rooted traditions prioritize early marriage.
3. **Lack of Education:** Limited access to education perpetuates the cycle of early marriage.
4. **Safety Concerns:** Families marry off girls early to protect them from perceived dangers.

Raising the Legal Age of Marriage to Curb Child Marriages

The government’s recent approval to raise the legal age of marriage for women from 18 to 21 aims to align the age for both genders and address several issues:

- **Health and Wellbeing:** Early marriage and pregnancies negatively affect mothers’ nutritional and mental health.
- **Delay in Responsibilities:** Raising marriage age delays women’s family transition, allowing more time for education and self-development.
- **Gender Equality:** Equalizing legal marriage age promotes gender neutrality, challenging stereotypes.
- **Social and Economic Benefits:** Reduced maternal mortality, improved nutrition, more opportunities for women in higher education and careers.

Limitations of Raising the Legal Age

1. **Limited Success of Legal Measures:** Despite existing laws, child marriages remain prevalent. For example, NFHS-5 data shows that 23% of women aged 20-24 were married before 18. Legal measures alone have limited effectiveness without societal support.
2. **Need for Social Reforms:** Laws alone cannot drive change. Improving health, education, and awareness, along with incentivizing later marriages, are crucial. The decline in child marriages has been more linked to better education and employment

for women than to legal penalties.

3. **Risk of Negative Consequences:** Raising the marriage age without addressing underlying patriarchal norms may lead to an increase in sex-selective abortions and illegal marriages.

Way Forward

1. **Invest in Girls’ Education:** Education is key to delaying marriage. According to NFHS-4, the median age of marriage rises with higher levels of education.
2. **Economic Empowerment:** Financial independence gives girls more control over their marriage decisions, reducing the likelihood of early marriage.
3. **Social and Behavioral Change Campaigns:** Changing societal norms around marriage decision-making is essential.
4. **Marriage Registration:** A system to ensure all marriages are registered can help track and enforce legal marriage ages.

Conclusion

Legislation alone cannot solve the problem of child marriage. A holistic approach that includes education, economic empowerment, and societal change is needed to create lasting impact. Learning from countries like South Korea and Japan, where greater female workforce participation has helped address gender imbalances, can provide useful insights for India.

Insta Links:

[The Prohibition of Child Marriage Amendment Bill 2021](#)

Mains Links:

Q. “Empowering women is the key to controlling population growth”. Discuss. (UPSC 2019)

Topics: [Women and women related issues.](#)

3. ISSUE OF WOMEN SAFETY IN INDIA

Context:

The **recent rape and murder of a young doctor in Kolkata** highlights severe flaws in the legal system.

Women’s Safety Statistics (2022)

1. **Total Crimes:** 445,256 cases registered, a 4% increase from the previous year (about 51 FIRs per hour).
2. **Crime Rate:** 66.4 per lakh population; charge sheet rate at 75.8%.
3. **Crime Types:** 31.4% cruelty by relatives, 19.2% kidnapping, 18.7% assault, 7.1% rape.
4. **Sexual Violence:** Nearly 39,000 incidents in 2016; one rape every 15 minutes in 2018.
5. **Workplace Harassment:** Over 400 cases annually since 2018.
6. **Juvenile Offenders:** 86 rape cases, 68 modesty outrages.
7. **State Data:** Delhi had the highest rate (**144.4 per lakh**); Uttar Pradesh reported the most cases (65,743).

Demands of Healthcare Workers:

Demands	Current Provisions
Central Protection Act	Advocating for a nationwide law similar to the UK’s NHS zero-tolerance policy and US felony classifications. Felonies range from Class A (life imprisonment) to Class E (1-5 years).
Enhanced Safety Measures	Better lighting, security guards, monitored security cameras, safer working conditions, and emergency response systems in healthcare settings.
State Responsibilities	Health and law enforcement are State subjects; lack of centralized data on attacks on medical professionals. N.K. Singh proposed shifting health to the Concurrent List.
Ministry of Health and Family Welfare Order	Mandates filing of an FIR within six hours of violence against healthcare workers.
National Medical Commission (NMC) Directives	Requires medical colleges to develop safe work environment policies and timely incident reporting.

Issues with Legal Response to Crimes Against Women

1. **Inadequate Legal Action:** History of violence often goes unaddressed, as seen in the Kolkata case.
2. **Low Conviction Rates:** High dowry death cases with low convictions due to lenient settlements.
3. **Underpunished Domestic Violence:** Domestic violence laws are weak, with minimal punishment for offenders.
4. **Lax Bail Norms:** Easy bail access for serious crimes like stalking and harassment.
5. **Slow Legal Process:** Delayed trials and high rates of cases disposed of without proper legal proceedings.

India's initiatives related to women's safety:

Legislations:

1. CEDAW ratified (1993)
2. Immoral Traffic (Prevention) Act (1956)
3. Indecent Representation of Women Act (1986)
4. National Policy for Women Empowerment (2001)
5. Protection of Women from Domestic Violence Act (2005)
6. PoSH Act (2013)
7. Criminal Law (Amendment) Acts (2013 & 2018)
8. POCSO Act (2012)

Strategies and Measures:

1. Beti Bachao Beti Padhao Scheme
2. Ujjawala Scheme
3. NIRBHAYA Fund
4. Ministry of Women and Child Development initiatives
5. Safety in trains: 182 helpline, CCTV, 'R-Mitra' app
6. Safety for women tourists: 'Incredible India Help Line', Code of Conduct
7. Safety in metro: Women-only coaches, reserved seats
8. Universal Women Helpline Scheme

Mobile Apps:

1. Suraksha
2. Amrita Personal Safety System (APSS)
3. VithU


Global Initiatives:

1. **International Day for the Elimination of Violence Against Women:** Observed on November 25 by the UN.
2. **UN Women Safe Cities Initiative:** Creates safer public spaces for women and girls.
3. **Gender Inclusive Cities Programme:** Funded by the UN Trust Fund, improves women's safety in cities.
4. **UN Development Fund for Women (UNIFEM):** Supports gender equality and women's empowerment.

National Commission for Women (NCW) had asked all states to ensure that coaching centres and educational institutes strictly enforce the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013.

POSH Act 2013

Context: The Indian Supreme Court has expressed concern over the "sorry state of affairs" in the implementation of the act.

Major Provisions of POSH Act 2013	
Sexual harassment defined	Sexual harassment includes "any one or more" of the following "unwelcome acts or behaviour" committed directly or by implication: <ul style="list-style-type: none"> • Physical contact and advances • A demand or request for sexual favours • Sexually coloured remarks • Showing pornography • Any other unwelcome physical, verbal, or non-verbal conduct of a sexual nature 
Obligation	Every employer is required to constitute an Internal Complaints Committee (ICC) at each office or branch with 10 or more employees.
Complaint Committees	ICC has powers similar to those of a civil court in respect of summoning and examining any person on oath and requiring the discovery and production of documents.
Members	It needs to have a minimum of four members with at least half of them women and one external member, preferably from an NGO or an association that works for women's empowerment or a person familiar with issues related to sexual harassment, like a lawyer.
Time	The complaint must be made "within three months from the date of the incident".
Conciliation	The ICC may (at the request of the aggrieved woman) allow the matter to be settled through conciliation (but no monetary settlement allowed)
Punishment	Non-compliance shall be punishable with a fine of up to Rs 50,000.
Compensation	Compensation is determined based on five aspects: <ul style="list-style-type: none"> • Suffering and emotional distress caused to the woman • Loss of career opportunity • Her medical expenses • Income and financial status of the respondent • The feasibility of such payment
Domestic Worker	Domestic workers are protected under the Act and have the right to seek redressal from the Local Complaints Committee (LCC)

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Insta Links:

Prevention of sexual harassment or POSH Act

Mains Links:

Q. "Though women in post-Independent India have excelled in various fields, the social attitude towards women and the feminist movement has been patriarchal." Apart from women's education and women empowerment schemes, what interventions can help change this milieu"? (UPSC 2021)

4. JUSTICE HEMA COMMITTEE REPORT RELEASED

Context:

On August 22, the Kerala High Court ordered the state to submit the entire Hema Committee report, including redacted sections, in a sealed cover. This follows a PIL demanding criminal action against offenders named in the report. Released on August 19, four-and-a-half years after its submission, the 233-page report exposes severe discrimination and exploitation of women in the Malayalam film industry.

Background of the case:

In 2017, a Malayalam actress was abducted and assaulted, leading to an investigation that implicated actor Dileep. This event shook the industry and prompted the formation of the Women in Cinema Collective (WCC) to support the survivors. The Kerala government established the Justice Hema Committee to investigate gender issues in the industry, and the committee submitted a report in 2019 detailing sexual harassment and gender inequality.

Why was it delayed?

The report was delayed for **nearly five years due to privacy concerns and sensitive information** but was finally released in August 2024. Key findings include widespread sexual harassment, a fear of retribution, **dominance by a male “mafia,”** lack of basic facilities for women on film sets, and gender pay disparities.

Key Issues Highlighted in the Report:

Highlights	Details
Sexual Abuse	Unwanted physical advances, rape threats, and code names for women willing to compromise.
Casting Couch	Women are forced to exchange sexual favours for jobs; those who comply are labelled as “cooperating artists.”
Safety on Film Sets	Female workers often bring relatives for protection against sexual demands and harassment.
Criminal Influence	Industry affected by criminal elements; female artists are harassed in hotels, often under threat by intoxicated men.
Fear of Consequences	Despite legal protections, women fear the stigma and consequences of reporting sexual harassment.
Cyberthreats	Women in cinema face online harassment, bullying, defamation, and vulgar comments on social media.
Inadequate Facilities	Lack of proper toilet facilities on sets, especially during menstruation, causes discomfort and difficulties.
Inhumane Working Conditions	Junior artists suffer from inadequate pay, slave-like treatment, long hours, and delayed or misappropriated payments.

Key Recommendations of the Report:

1. **Internal Complaints Committee (ICC):** Mandate ICCs under the 2013 Workplace Harassment Act, including FEFKA and AMMA members.
2. **Independent Tribunal:** Suggest an independent tribunal for harassment cases with in-camera proceedings for privacy.
3. **Written Contracts:** Make written contracts mandatory for all workers in the film industry.
4. **Gender Training:** Require cast and crew to complete gender awareness training before production.
5. **Support for Women Producers:** Provide budgetary incentives and loans for films produced by women

Legal framework for Women’s safety:

1. Indian Penal Code (BNS): Sections 354, 354A, 509 (sexual offences).
2. Workplace Harassment Act, 2013: Mandates Internal Complaints Committees (ICC).
3. IT Act, 2000: Addresses obscene digital content.
4. POCSO Act, 2012: Protects children from sexual exploitation.
5. Immoral Traffic Act, 1956: Prevents trafficking for sexual exploitation.

Mains Links:

Q. What are the continued challenges for Women in India against time and space? (UPSC 2019)

Q. Is the National Commission for Women able to strategize and tackle the problems that women face in both public and private spheres? Give reasons in support of your answer. (UPSC 2017)

5. BEYOND FEAR: THE HIDDEN PSYCHOLOGICAL TOLL ON WOMEN’S SAFETY

Context:

Women in India face various forms of aggression and violence, ranging from domestic abuse to public harassment. While the physical impacts of these forms of violence are widely acknowledged, the psychological consequences are often ignored.

Psychological Impact

- Women live in a state of **perpetual vigilance due to inadequate structural protections**, leading to a deeply ingrained sense of constant alertness and anxiety in their daily lives.
- The **constant state of alertness** forces women to continuously evaluate their surroundings for potential threats. This vigilant state is not only exhausting but also deeply ingrains a sense of fear and anxiety, often perceived as a normal part of life.
- **Women struggle to articulate the discomfort** and mental labour involved in maintaining this heightened awareness. This psychological strain often goes unrecognized, both by the women experiencing it and by society at large.
- The mental toll of this perpetual vigilance can lead to **chronic stress, anxiety disorders, depression, and other mental health issues**, further complicating the lives of women who are already navigating a hostile environment.

Social Implications

- The psychological burden **shapes how women interact with the world and perceive themselves**. This constant vigilance curtails women's freedom to explore, take risks, and connect with others, leading to a more constrained existence.
- The **fear of violence influences career choices, personal relationships, and even daily activities**, such as traveling alone or participating in public events.
- This burden is **often passed from one generation to the next**, with mothers imparting the need for caution and vigilance to their daughters, perpetuating a cycle of fear and limitation.

Intersectionality

- The burden of vigilance is **compounded by caste, class, and religious identities**. Women from marginalized communities face intensified discrimination and prejudice, adding layers of complexity to their experiences.
- These women **encounter more immediate and pervasive dangers**, often lacking the institutional support needed to address safety concerns.
- **Marginalized women are disproportionately affected** by violence and are more likely to be ignored by legal and social systems, exacerbating their vulnerability.

Societal Impact

- **The prioritization of safety over curiosity** and exploration limits women's experiences and opportunities for growth, both personally and professionally.
- Society, in turn, is deprived of the potential contributions and innovations that women could bring if they were free from the constant burden of vigi-

lance.

- The pervasive nature of this psychological burden **hinders the development of a more equitable society**, where all individuals can participate fully and equally.
- **Unlocking the full potential of women is crucial for overall societal progress**, as their contributions are essential for the advancement of various sectors.

Government Schemes

- India has implemented several schemes aimed at improving women's safety, including the Nirbhaya Fund, which finances initiatives for women's safety, and the Beti Bachao, Beti Padhao (Save the daughter, Educate the Daughter) scheme, which addresses issues related to female empowerment.
- The One Stop Centre Scheme, which provides support to women affected by violence, is another important initiative.
- However, despite these efforts, the implementation and effectiveness of these schemes remain inconsistent, particularly in rural areas.

International Best Practices

- Countries like **Sweden and Norway** have implemented **comprehensive safety nets and educational programs that emphasize gender equality** and provide robust support systems for women.
- In **New Zealand**, the government has prioritized the well-being of women through **legislative changes**, ensuring that violence against women is met **with stringent consequences and providing ample support for victims**.
- **The Netherlands** has developed a proactive approach **by integrating gender-sensitivity training across various sectors, from law enforcement to public services**, to create a more aware and responsive system.

Way Forward

- **Broaden the Understanding of Violence:** Expanding the definition of violence to include psychological harm, such as constant vigilance, is crucial for effectively addressing this form of harm.
- **Implement State and Societal Measures:** Safety measures should prevent restrictions on women's freedom, facilitated by improved urban planning, increased policing in high-risk areas, and public awareness campaigns.
- **Shift Perspective:** Society must acknowledge the constant vigilance as a form of violence, requiring a shift in focus to not only prevent physical violence but also alleviate the psychological burden women bear.
- **Create Safer Environments:** Collective societal

action is crucial for creating safe environments for women, including community-based initiatives, educational reforms, and active men’s involvement in discussions about women’s safety.

Conclusion

By addressing both the physical and psychological impacts of violence against women, India can move closer to building a society where women can live freely and safely, without the burden of constant vigilance. This is not just a matter of human rights but is also essential for the overall progress and well-being of society.

Practice Question: The physical impact of violence against women is visible and often acknowledged, but the psychological burden remains largely overlooked.” Discuss the psychological and behavioural consequences of violence against women in India and suggest measures to address these less tangible forms of violence.

Topics: Distribution of key natural resources across the world (including South Asia and the Indian subcontinent)

6. GEOTHERMAL POWER POTENTIAL IN INDIA

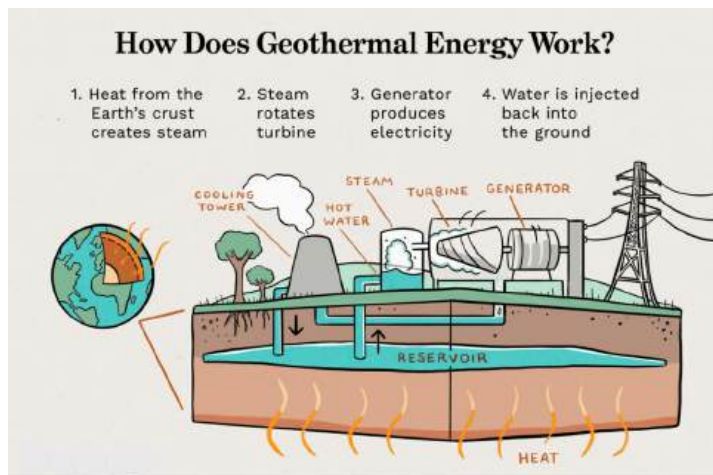
Context:

India has **identified approximately 10,600 MW of geothermal power potential**, according to the **Geological Survey of India (GSI)**.

1. The GSI has conducted extensive **exploration across 381 thermally active areas**, gathering data on temperature, discharge, and water quality.
2. **A 20 kW pilot geothermal power plant** using **Binary Organic Rankine Cycle technology** has been successfully commissioned in Telangana by **Singareni Collieries Company Limited**.

What is Geothermal energy?

It is heat that comes from the Earth’s interior. It is harnessed by **tapping into steam or hot water reservoirs** found beneath the Earth’s surface. This energy can be **used directly for heating** or to generate electricity using geothermal power plants.



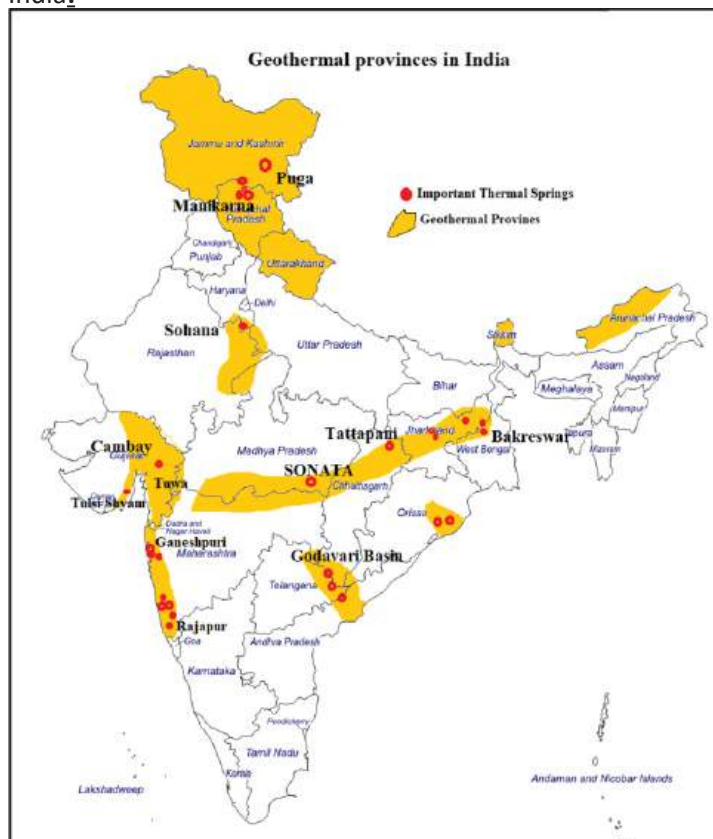
Types of Geothermal Power Plants (Sometimes such Qns can be asked in Prelims)

There are **three types of geothermal power plants** where we can harness the heat of the earth to produce electricity.

1. Dry steam powerplant
2. Flash steam power plant
3. Binary cycle power plant

All these plants follow the **same principle of using the heat of the earth to produce electricity.** As flash steam power plant requires a high enthalpy range and hence they cannot be used in India.

Status of Geothermal Energy/Geothermal Powerplants in India:



Geothermal resources in India have been mapped by the **Geological Survey of India (GSI)** and a broad estimate by the **Ministry of New and Renewable Energy (MNRE)** suggests that there could be **10 GW of geothermal power**

Potential of Geothermal Energy in India:

Aspect	Description	Example
Abundant Resource	India has substantial geothermal energy resources with an estimated potential of 10,600 MW.	
Baseload Power	Provides a reliable, consistent power supply, contributing to grid stability and reducing fossil fuel dependence.	
Hot Springs and Geysers	Harness geothermal hot springs and geysers for power generation.	Puga Geothermal Field, Ladakh
Direct Use Applications	Used directly for space heating, greenhouse cultivation, and industrial processes.	Chumathang for house heating and hot water
District Heating	Can be used for efficient and sustainable heating in cities.	Manikaran, Himachal Pradesh
Tourism Potential	Unique geothermal sites can attract tourists and benefit local economies.	Tattapani, Himachal Pradesh
Off-Grid Applications	Beneficial for remote or off-grid areas, providing electricity and reducing reliance on diesel generators.	Remote areas like Ladakh

Various challenges in the widespread adoption of geothermal energy in India:

- High Upfront Costs:** Significant initial investment for drilling wells and installing infrastructure.
- Limited Geothermal Resources:** Most resources are low-temperature, suitable mainly for direct heat applications.
- Lack of Technical Expertise:** Insufficient professionals with experience in geothermal exploration and development.
- Regulatory and Policy Framework:** The absence of a comprehensive regulatory framework specific to geothermal energy.
- Uncertain Resource Assessment:** Limited exploration and data make accurate resource assessment challenging.
- Infrastructure Limitations:** Remote areas may lack the necessary infrastructure, increasing costs and complexity.
- Environmental Considerations:** Potential negative impacts, such as groundwater contamination or seismic activity.

Steps Taken in India:

- Renewable Energy Research & Technology Development Programme (RE-RTD)
 - 100% financial support by MNRE** to government/non-profit research organizations.
 - Up to 70% financial support to industry, startups, private institutes**, entrepreneurs, and manufacturing units.
- Renewable Energy Technology Action Platform**
 - Collaboration under the US-India Strategic Clean Energy Partnership.
- Mission on Advanced and High-Impact Research (MAHIR)
- Oil and Natural Gas Corporation (ONGC) has established India’s first Geothermal field **development project at Puga village in Ladakh.**
- Tata Power is India’s largest integrated power company.** Tata Power will be setting up a geothermal plant in Gujarat of about **5MW plant.**
- National Thermal Power Corporation** is planning to construct a **300MW** of geothermal power plant project in **Chhattisgarh.**

Insta Links:

- Geothermal Energy

Mains Link:

Q. Examine the various obstacles to an energy-secure India. How can the government ensure energy security while honouring its net zero commitments? (15M)

Topics: Important Geophysical phenomena such as earthquakes, Tsunami, Volcanic activity, cyclone etc., geographical features and their location- changes in critical geographical features (including water-bodies and ice-caps) and in flora and fauna and the effects of such changes.

7. ATMOSPHERIC RIVERS: ‘FLYING RIVERS’ CAUSING DEVASTATING FLOODS

Context:

Heavy rains and floods have recently affected several parts of India, killing scores and displacing thousands. These floods are exacerbated by “flying rivers,” or atmospheric rivers.

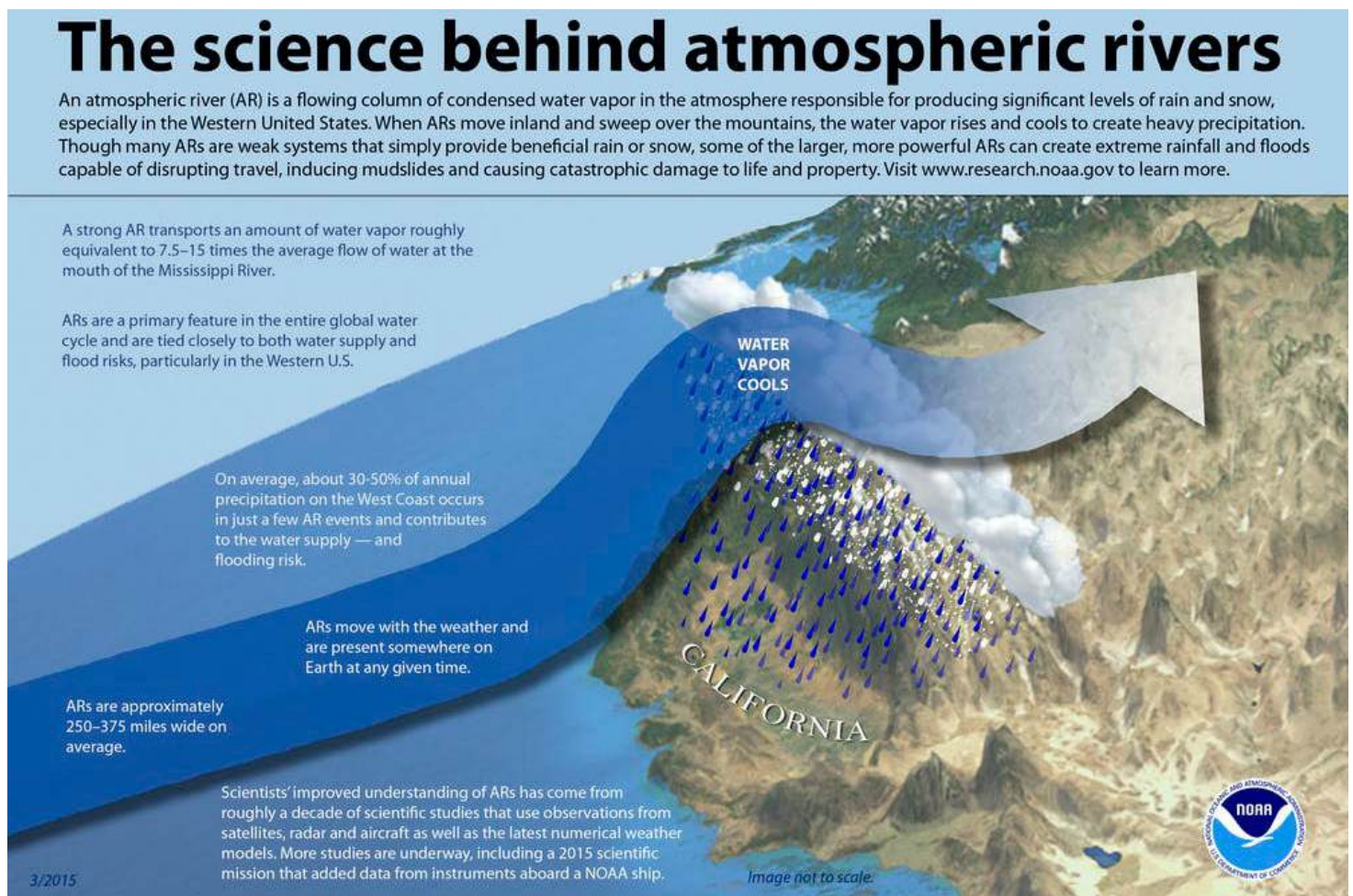
What are Atmospheric rivers?

These are **long, narrow bands of water vapour** in the atmosphere that transport moisture from the tropics to other regions. These **“rivers in the sky”** can be thousands of kilometres long and hundreds of kilometres wide, carrying large amounts of water vapour. When they make landfall, **they can release this moisture as heavy rain or snow**, often leading to significant flooding and other weather-related impacts.

Atmospheric rivers occur globally, affecting the west coasts of the world’s major landmasses. A well-known example is the **“Pineapple Express,”** a strong atmospheric river that is capable of bringing moisture from the tropics near Hawaii over to the U.S. West Coast.

The main characteristics or defining features of the Atmospheric Rivers

1. **A shape that is long and narrow**, no more than **400 to 500 Km wide**, and extending for thousands of Kilometres some-times across entire ocean basins.
2. Wind speeds of greater than **12.5 meters per second** in the lowest 2 km.
3. Very thick **Integrated Water Vapour** concentrations.
4. These **narrow plumes of enhanced moisture transport** occur in the lower troposphere in the low-level jet region (within the warm sector) of extra-tropical cyclones.



The science behind atmospheric rivers

An atmospheric river (AR) is a flowing column of condensed water vapor in the atmosphere responsible for producing significant levels of rain and snow, especially in the Western United States. When ARs move inland and sweep over the mountains, the water vapor rises and cools to create heavy precipitation. Though many ARs are weak systems that simply provide beneficial rain or snow, some of the larger, more powerful ARs can create extreme rainfall and floods capable of disrupting travel, inducing mudslides and causing catastrophic damage to life and property. Visit www.research.noaa.gov to learn more.

A strong AR transports an amount of water vapor roughly equivalent to 7.5–15 times the average flow of water at the mouth of the Mississippi River.

ARs are a primary feature in the entire global water cycle and are tied closely to both water supply and flood risks, particularly in the Western U.S.

On average, about 30–50% of annual precipitation on the West Coast occurs in just a few AR events and contributes to the water supply — and flooding risk.

ARs move with the weather and are present somewhere on Earth at any given time.

ARs are approximately 250–375 miles wide on average.

Scientists’ improved understanding of ARs has come from roughly a decade of scientific studies that use observations from satellites, radar and aircraft as well as the latest numerical weather models. More studies are underway, including a 2015 scientific mission that added data from instruments aboard a NOAA ship.

3/2015 *Image not to scale.*

Mechanism of precipitation from Atmospheric rivers (Ars)

Heavy rainfall can result, especially when ARs make landfall because of the **convergence and thus vertical uplift within** an AR, and most significantly when the moisture-laden air is forced to rise over mountains. E.g. near the Rockies on the western coast of America.

Impact of Atmospheric rivers in the world

ARs are a major cause of extreme precipitation and severe flooding in mid-latitude, westerly coastal regions such as the West Coast of North America, Western Europe, and the west coast of North Africa. Over 80% of flooding damages in Western USA are linked to ARs. More than **80% of all flooding damages in the Western part of the USA** are associated with atmospheric rivers.

Impact of Atmospheric Rivers in India

- Eastward-moving cyclonic circulations** in the northern latitudes of India in conjunction with the **atmospheric rivers drawing water vapour from the lower latitudes** under the circumstances of positive interference result in extremely heavy and intense precipitation over the higher reaches of northern India.
- Atmospheric Rivers result in heavy precipitation** when they confront mountainous terrain, such as those found in the Himalayan ranges of North India for example:
 - 2010, Leh in the Ladakh region of Jammu and Kashmir** experienced a cloud burst, and the heavy rains that followed triggered flash floods and mudslides
 - 2011 Kupwara District in J&K** experienced heavy rainfall. Rain or thundershowers occurred in a large number of places across the country.

Data:

A study found that between **1951 and 2020, India experienced 574 atmospheric rivers** during the monsoon season, with their frequency and intensity increasing due to climate change.

Benefits of Atmospheric Rivers:

- Water Supply:** Despite the hazardous effects of ARs, they can also be beneficial **by providing precipitation** which is essential for water supply and resources.
 - Over the west coast of the USA, for example, ARs are thought to provide an **average of 30–50% of annual precipitation** and have been responsible for ending 33–74% of droughts in the region.
- Maintaining Hydrological Balance:** Atmospheric rivers transport water vapour from the tropics to higher latitudes, redistributing moisture and supporting ecosystems and agriculture.

Way forward to deal with the challenges of atmospheric rivers

- Improving atmospheric forecasting systems** should be a priority
 - A better understanding of atmospheric rivers' intensity, duration, and landfall locations can provide valuable information to residents and emergency responders.

- It also is important to **discourage new construction in high-risk areas** and help people move to safer locations after major disasters, rather than rebuilding in place.

Conclusion: As there is a direct relationship between the intensity of atmospheric rivers the climate change and they are getting stronger with the changed climate pattern, the solution lies in reducing global greenhouse gas emissions. Thus, stabilizing the global climate system is the only long-term way to minimize economic damage and risk to vulnerable communities arising from the atmospheric rivers.

Mains Link:

Q. How does the cryosphere affect global climate? (UPSC 2017)

Prelims Link:

Q. The formation of an ozone hole in the Antarctic region has been a cause of concern. What could be the reason for the formation of this hole? (UPSC 2011)

- Presence of prominent tropospheric turbulence; and inflow of chlorofluorocarbons
- Presence of prominent polar front and stratospheric clouds; and inflow of chlorofluorocarbons
- Absence of polar front and stratospheric clouds; and inflow of methane and chlorofluorocarbons
- Increased temperature in polar region due to global warming

Ans: (b)

8. ADDRESSING COASTAL EROSION: CHALLENGES AND SOLUTIONS

Context:

Coastal erosion in Tamil Nadu is increasingly threatening livelihoods and infrastructure due to both natural processes and human interventions.

What is Coastal erosion?

It refers to the loss of coastal land due to the action of waves, currents, and human activities.

Examples:

- Tamil Nadu**, with **India's second-longest coastline**, faces significant erosion challenges exacerbated by construction projects like **groynes, ports, and desalination plants**. **Groynes**, intended to control erosion, often shift the problem to neighbouring areas rather than solving it.
- Chengalpattu:** Groynes at Soolerikattukuppam are causing erosion to neighbouring villages.
- Puducherry:** A port's construction led to severe beach erosion, though recent efforts to restore the beach have had mixed results.

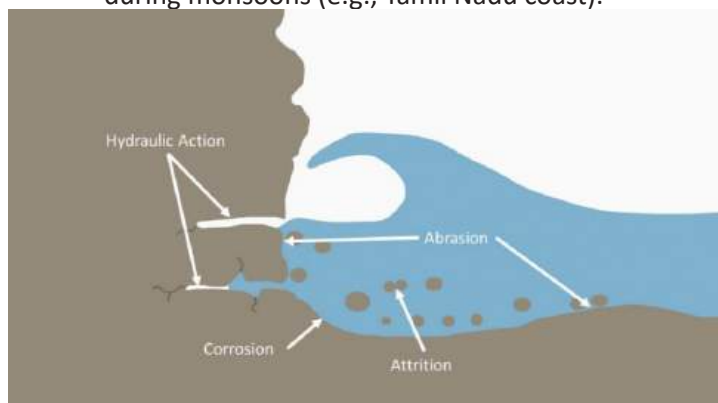
Key Findings of the Study Regarding Tamil Nadu Coast:

1. **Sand Movement:** For most of the year, sand is carried from south to north by wind and sea currents; during the northeast monsoon, this flow reverses.
2. **Impact of Structures:** Building ports, breakwaters, or groynes disrupts this natural sand movement.
3. **Erosion Effect:** Sand accumulates on one side of these structures, leading to increased erosion on the opposite side, with waves encroaching further inland and heightening coastal risks.

Causes of Coastal Erosion:

Natural Causes:

- **Waves:** Powerful waves erode coastlines through abrasion and hydraulic action (e.g., the cliffs of Dover).
- **Tides:** High and low tides can significantly impact erosion, especially in areas with large tidal ranges (e.g., Bay of Fundy).
- **Wind and Sea Currents:** Cause long-term erosion by moving sand along the coast; direction reverses during monsoons (e.g., Tamil Nadu coast).



Human Cause:

- **Hard Structures:** Ports and groynes disrupt sand movement, leading to erosion on the down-current side and accumulation on the up-current side.
- **Development Projects:** Infrastructure changes, such as land reclamation, worsen erosion by altering the shoreline (e.g., Mumbai).
- **Port Expansion:** Breakwaters and jetties from expanded ports block sand movement, increasing erosion on one side (e.g., Ennore and Adani Katupalli Ports).

Impact of Coastal Erosion

- Pollution of beaches caused by broken sewer lines
- **Loss of income** those who are dependent
- **Disruption of communications** caused by the collapse of seafront bridge road and railway foundations
- Damage and destruction of jetties
- **Removal of small islands**
- **Destruction of habitats** of flora and fauna
- **Loss of agricultural lands**
- Silting and invasion of saline water

- **Scarcity of drinking water**

Challenges:

- **Ineffectiveness of Groynes:** Often shifts erosion rather than prevents it.
- **Regulatory Issues:** Lack of proper clearance and adherence to Coastal Regulation Zone rules.

Solution:

1. **Green belts and artificial reefs** help in the mitigation of coastal erosion.
2. **Coastal habitats such as Mangroves,** Coral Reefs, and lagoons are recognized as the best defence against sea storms and erosion, deflecting and absorbing much of the energy of sea storms.
3. **Hybrid Approach:** Combining hard and soft measures like bio-shields and nourishment to better manage erosion.

Government Initiatives to Tackle Coastal Erosion:

1. **Shoreline Mapping System:** NCCR identifies 33.6% of the coastline as vulnerable to erosion.
2. **Hazard Line:** Defined by MoEFCC for disaster management and adaptive planning.
3. **Coastal Regulation Zone (CRZ) Notification 2019:** Allows erosion control measures and sets up No Development Zones.
4. **Coastal Zone Management Plans (CZMP):** States must map erosion-prone areas and prepare Shoreline Management Plans.
5. **National Strategy for Coastal Protection:** Guidelines developed by MoEFCC for coastal states.
6. **Flood Management Scheme:** State and Union Governments plan anti-sea erosion projects.
7. **Coastal Management Information System (CMIS):** Collects coastal data for protection planning; and experimental setups in Kerala, Tamil Nadu, and Puducherry.
8. **State Initiatives:** Tamil Nadu's response includes building groynes and seawalls, though their effectiveness is debated.
9. **Using Geosynthetic tubes:** currently being used along the coast in Odisha.

Insta Links:

Coastal erosion and landforms thus formed

Mains Link:

The extent and severity of the coastal erosion problem are worsening with global sea level rise. It has both ecological and economic costs and needs to be addressed urgently. Analyse. (250 words)

GENERAL STUDIES – 2

Topics: Structure, organization and functioning of the Executive and the Judiciary; Ministries and Departments of the Government; pressure groups and formal/informal associations and their role in the Polity.

1. BAIL IS THE RULE, AND JAIL IS THE EXCEPTION

Context:

The Supreme Court of India reaffirmed that the legal principle **“bail is the rule, and jail is the exception”** applies even to cases under the Unlawful Activities (Prevention) Act (UAPA).

Background of the Case:

Jalaluddin Khan, a retired police constable, was accused of harbouring terrorists by renting out his house to PFI members. The Supreme Court found no evidence linking him to unlawful activities, but ruled him deserved bail, emphasizing the principle of “bail is the rule, jail is the exception.”

About Bail:

Topic	Information
Definition	Bail is the release of an accused person from custody , on the undertaking that they will appear in court for their trial.
Legal Basis	Bail in India is governed by the Code of Criminal Procedure (CrPC) , which provides for the granting of bail by police and courts.
Statutory Bail	Statutory bail is a right to bail that accrues when police fail to complete the investigation within a specified period in respect of a person in judicial custody. It is enshrined in the CrPC and is available for most offences.
The time limit for statutory bail	60 days to complete the investigation and file a final report (in most cases). 90- or 180-day limit for some cases.
Regular Bail	Regular bail is granted to an accused person who is in custody and is usually granted on the basis of surety or personal bond.
Anticipatory Bail	Anticipatory bail is granted before arrest and is meant to protect an accused person from arrest.
Conditions for Bail	Bail may be granted with conditions, such as surrendering of passport, attending court hearings regularly, not contacting witnesses, etc.
Eligibility	Bail eligibility depends on several factors, including the nature of the crime, severity of the offence, likelihood of fleeing from justice , past criminal record, and the strength of evidence against the accused.
Status of under-trials	As per NCRB (National Crime Report Bureau) , over the last 10 years, the number of undertrials in jails has risen constantly and in 2020, about 76% of all prison inmates in the country were undertrials (without bail)

Legal Provisions of Bail:

1. **Bail in Bailable Offences (Section 479 of Bhartiya Nagarik Suraksha Sanhita, 2023):**
 - In bailable offences, the **accused has a right to be granted bail**.
 - **The maximum period for which an undertrial prisoner** can be detained is limited to **one-half of the maximum period of imprisonment for the offence**.
 - **First-time offenders** must be granted bail if they have been detained for over **one-third of the maximum period of imprisonment** for the offence.
2. **Special Laws Related to Bail:**
 - **Specific laws** like the Protection of Children from Sexual Offences (POCSO) Act, 2012, and **the Protection of Women from Domestic Violence Act, 2005**, also include provisions for the grant of bail.
 - These provisions ensure that the **rights of the accused are protected** while considering the seriousness of the offences and the need for justice.

Concerns with Denial of Bail:

1. **Bail laws disproportionately** affect marginalized groups.
2. **High Number of Undertrials:** 75.8% of all prisoners are undertrials.
3. **Overcrowded Jails:** Indian prisons have an occupancy rate of 131.4%.
4. **Impact on Vulnerable Sections:** Over 60% of inmates are illiterate or have education below Class X.
5. **Human Rights Violations:** Poor living conditions and unequal treatment in prisons.

Measures Taken:

- **Plea Bargaining:** Allows pre-trial negotiation between defendant and prosecution.
- **E-prisons Software:** Enables efficient access to inmate data by state authorities.
- **Model Prison Manual 2016:** Provides guidelines for undertrial inmate facilities, including legal defence and aid.
- **Model Prisons Act, 2023:** Focuses on the rehabilitation and transformation of inmates into law-abiding citizens.

Conclusion:

To address **large-scale undertrial incarceration**, it is crucial to **understand its root causes**, which include socio-economic and structural barriers. Developing effective bail laws requires **considering undertrial demographics, offence categories, and appropriate timelines for granting bail**. Additionally, there is an urgent need for bail reform, supported by empirical research, to diagnose and effectively address these issues, ensuring a more just and equitable legal system.

Insta Links:

- Bail

2. SUPREME COURT AS CUSTODIAN OF LIBERTIES

Context:

The article discusses the Supreme Court’s **role as a protector of individual liberties**

Background of the case Involved:

The case involves former **Delhi Deputy Chief Minister Manish Sisodia**, who was arrested and detained for an extended period in connection with corruption allegations. His incarceration raised concerns about the **prolonged pre-trial detention and the denial of bail**. The Supreme Court of India eventually granted him bail, emphasizing the **principles of justice, individual liberty, and the right to a fair and speedy trial**.

What do Liberties mean?

Liberties refer to the **basic rights and freedoms that individuals are entitled to**, usually protected by law or the Constitution. These include:

1. **Freedom of Speech:** The right to express one’s opinions without censorship (e.g., a journalist freely writing about government policies).
2. **Right to Privacy:** The protection against unwarranted government intrusion into personal life (e.g., safeguarding personal data from unauthorized access).
3. **Freedom of Movement:** The ability to travel or reside in different places without restrictions (e.g., moving to another state for work).
4. **Right to Fair Trial:** The guarantee that one will be treated justly in legal proceedings (e.g., being provided with legal representation and a chance to defend oneself in court).

These liberties are essential to **ensuring that individuals can live without undue interference or oppression**.

Provisions that make the Supreme Court The Guardian of Civil Liberties:

Provision/Tool	Explanation
Article 13	Declares any law void if it contravenes Fundamental Rights. Supreme Court can invalidate such laws.
Article 32	Grants individuals the right to approach the Supreme Court directly for enforcement of Fundamental Rights.
Article 136	Allows the Supreme Court to grant special leave to appeal on matters, including civil liberties.
SLP (Special Leave Petition)	A petition to the Supreme Court seeking permission to appeal against lower court decisions.

Article 142	Empowers the Supreme Court to pass orders necessary for complete justice, including protecting civil liberties.
Writs	Legal orders like Habeas Corpus, Mandamus, etc., to enforce Fundamental Rights.
PIL (Public Interest Litigation)	Petitions addressing broader social concerns to ensure justice on matters affecting the public.
Judicial Review	Power to assess the constitutionality of laws and government actions.
Basic Structure Doctrine	Ensures certain fundamental features of the Constitution cannot be altered by amendments.
Doctrine of Severability	Allows invalidation of unconstitutional parts of a law while preserving the rest.
Doctrine of Eclipse	Temporarily suspends laws infringing on Fundamental Rights until they are aligned with the Constitution.
Doctrine of Substantive Due Process	Ensures laws affecting fundamental rights are just, fair, and reasonable.
Doctrine of Colorable Legislation	Prevents indirect legislation that violates constitutional limits.

Instances where the Supreme Court has acted as the guardian of civil liberties:

Case	Instance of Supreme Court as Guardian of Civil Liberties
Maneka Gandhi vs. Union of India (1978)	Expanded the scope of Article 21 to include the right to live with dignity, ensuring fair, just, and reasonable laws.
Kesavananda Bharati vs. State of Kerala (1973)	Established the Basic Structure Doctrine, safeguarding essential constitutional features including civil liberties.
Navtej Singh Johar vs. Union of India (2018)	Decriminalized consensual homosexual acts, protecting the rights and dignity of the LGBTQ+ community.
Justice K.S. Puttaswamy vs. Union of India (2017)	Recognized the right to privacy as a fundamental right, protecting individuals from arbitrary state actions.
Shreya Singhal vs. Union of India (2015)	Struck down Section 66A of the IT Act, upholding the fundamental right to freedom of speech and expression.
Arnab Goswami vs. State of Maharashtra (2020)	Emphasized the right to personal liberty and the principle of bail over-incarceration, reinforcing the right to a fair and speedy trial.
Delhi Excise Policy Case (2024)	Reaffirmed the right to a speedy trial as a fundamental right under Article 21

Challenges Associated With the Functioning of the Supreme Court:

- Prolonged Incarceration:** The Supreme Court faces criticism for lengthy pre-trial detentions, raising concerns about the balance between individual liberty and judicial processes.
- Weaponization of Penal Laws:** There are apprehensions about the misuse of stringent laws like the Prevention of Money Laundering Act (PMLA), leading to prolonged detention without swift justice.
- Case Delays and Pendency:** Huge backlog of cases leads to significant delays in justice delivery, affecting public confidence and litigants' lives.
- Implementation of Judgments:** Slow or inadequate enforcement of Court orders, reducing the impact of decisions and causing legal unpredictability.
- Independence of Judiciary:** Threats to judicial independence from procedural delays, appointments, and potential corruption, challenging the integrity of the judiciary.
- Judicial Overreach and Activism:** Criticism of the Court's encroachment on legislative and executive domains, potentially undermining the separation of powers.
- Appointments and Transparency Issues:** Lack of transparency and clear standards in the judicial appointment process, leading to erosion of trust in the judiciary.

Way Forward:

1. **Strengthening Implementation Frameworks:** Create clear guidelines for executing Supreme Court judgments and establish monitoring systems to track compliance.
2. **Reducing Case Backlog:** Increase judges and staff, and implement tech solutions like e-filing. Example: The e-Courts project for better court management.
3. **Ensuring Doctrinal Consistency:** Apply uniform legal principles and promote consistency in rulings. Example: Apply fair trial principles from recent rulings across similar cases.
4. **Addressing Judicial Overreach:** Clarify judicial boundaries and promote restraint to maintain balance among government branches.
5. **Improving Appointments and Transparency:** Revise the Collegium system for better transparency in judicial appointments.
6. **Protecting Judicial Independence:** Address threats to independence and promote dialogue among branches to uphold judicial integrity.

Bangalore Principles of Judicial Conduct:

1. **Independence:** Judges should decide cases free from external pressures.
2. **Impartiality:** Judges must be unbiased and fair.
3. **Integrity:** Judges should act honestly and ethically.
4. **Propriety:** Judges must uphold the dignity of their office.
5. **Equality:** Judges should treat everyone equally.
6. **Competence and Diligence:** Judges must have legal expertise and handle cases thoroughly.

Insta Links:

- Supreme Court

Mains Link:

Q. Discuss the desirability of greater representation to women in the higher judiciary to ensure diversity, equity and inclusiveness. (UPSC 2021)

Q. Critically examine the Supreme Court's judgement on 'The National Judicial Appointments Commission Act, 2014' with reference to appointment of judges of higher judiciary in India. (UPSC 2017)

Prelims Link:

Q. With reference to the Indian judiciary, consider the following statements: (UPSC 2021)

1. Any retired judge of the Supreme Court of India can be called back to sit and act as a Supreme Court judge by the Chief Justice of India with the prior permission of the President of India.
2. A High Court in India has the power to review its own judgement as the Supreme Court does.

Which of the statements given above is/are correct?

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

Ans: (c)

[Topics: Appointment to various Constitutional posts, powers, functions and responsibilities of various Constitutional Bodies.](#)

3. REVAMPING ELECTION COMMISSIONS: IGNITING GRASSROOTS DEMOCRACY

Context:

The article highlights that **State Election Commissions (SECs)** need urgent reform

What are State Election Commissions (SECs)?

Aspect	Details
About SEC	Independent constitutional authority administering elections to local bodies (municipalities, panchayats, etc.) within states.

Before 1992	Elections to local bodies were conducted by respective State Governments.
Establishment	Amended Constitution in 1992 via the 73rd and 74th Amendments to provide legal sanctity to Local Self-Governments (LSGs).
Articles	Article 243K & Article 243ZA established SECs in every state as constitutional bodies.
Appointment	State Election Commissioner appointed by the Governor .
Tenure & Condition	Conditions and tenure determined by the Governor ; cannot be varied to the disadvantage of the Commissioner after appointment.
Removal	Can only be removed in the manner and on grounds prescribed for the removal of a High Court judge .
Significance	Ensures fair play for political parties by enforcing the Model Code of Conduct.
Powers & Functions	Superintendence, direction, and control of electoral rolls and conduct of elections to Panchayats and Municipalities.
Voter List Preparation	Does not prepare a separate voter list ; uses lists prepared by the Election Commission of India, modified for local body elections.
Delimitation Powers	Responsible for delimiting constituencies before each general election to local bodies (every 5 years).
Political Party Registration	Empowers to register and deregister political parties within the state.

Key issues with the functioning of State Election Commissions (SECs):

1. **Disempowerment:** State governments often delay delimitation and elections for panchayat raj institutions, weakening SECs’ authority and harming local governance.
2. **Urban Local Governments:** CAG’s audit revealed that 70% of urban local governments in 18 states did not have elected councils.
3. **Survey Findings:** Janaagraha’s 2023 survey found only 11 out of 34 states/UTs have empowered SECs to handle ward delimitation, covering only 35% of India’s population.
4. **Legislative Ambiguities:** Legal ambiguities and overlapping powers create confusion and conflict, with state governments sometimes passing legislation that limits SECs’ powers.
5. **Lack of Judicial Support:** Weak judicial intervention in disputes can undermine SEC autonomy, emboldening state governments to interfere.
6. **Implementation Issues:** Delays in conducting local body elections and administrative excuses can prevent timely electoral processes.
7. **Interference by State Governments:** Attempts to influence SECs, such as delaying appointments or undermining authority, compromise their independence.

Implications of these issues:

1. **Erosion of Local Democracy:** Weakens grassroots democracy and accountability.
2. **Undermining Public Trust:** Compromises public confidence in the electoral process.
3. **Reduction in Electoral Integrity:** Risks unfair practices and electoral malpractices.
4. **Centralization of Power:** Contributes to power centralization, reducing decentralized decision-making effectiveness.

Reforms needed in the State Election Commissions (SECs):

Reform	Description
Supreme Court in the 2006 Kishan Singh Tomar case	SECs should have the same independence and authority as the Election Commission of India (ECI) .
2nd ARC	The 2nd ARC suggests that the State Election Commissioner should be appointed by the Governor based on the recommendation of a collegium comprising the Chief Minister, the Speaker of the State Legislative Assembly, and the Leader of the Opposition in the Legislative Assembly.

Law Commission 255th Report on Electoral Reforms	The report recommends adding a new sub-clause to Article 324 of the Constitution to establish a separate, independent, and permanent Secretariat for the Election Commission of India, similar to the Lok Sabha/Rajya Sabha Secretariats under Article 98 . Similar provisions can be made for the State Election Commissions to ensure autonomy and fair local body elections.
Fixed Intervals for Delimitation	Delimitation of ward boundaries and seat reservations should be mandated every 10 years to prevent arbitrary delays and ensure timely elections.
Preventing Malpractices	SECs should oversee elections for critical local roles , such as mayors and presidents, to prevent malpractice.
Adequate Resources and Funding	SECs should receive direct funding from the state budget , with adequate infrastructure, technology, and staffing to manage elections effectively.
Stronger Judicial Oversight	Establish fast-track courts for timely resolution of disputes involving SECs and strengthen legal protections to prevent undue interference from state governments.

Conclusion:

These reforms aim to enhance the effectiveness, independence, and accountability of SECs in managing local elections.

Insta Links:

- State Election Commission (SEC)

Mains Link:

Q. Are the State Election Commissions in India as independent as the Election Commission of India? Discuss. (250 Words)

[Topics: Government policies and interventions for development in various sectors and issues arising out of their design and implementation.](#)

4. IN THE DARK WITHOUT VITAL DATA

Context:

India is among a select few countries that have not conducted the latest Census (44 of 233 nations). The Budget 2024-25 recently allocated ₹1,309.46 crore for the Census, a significant reduction from 2021-22 when ₹3,768 crore was allocated for the decadal exercise.

Census:

- The census provides information on size, distribution and socio-economic, demographic and other characteristics of the country's population.
- The Census was first started under British Viceroy Lord Mayo in 1872.
- It helped in framing new policies, government programs to uplift areas of improvement in the community.
- The first synchronous census in India was held in 1881.
- Every ten years: Since then, censuses have been undertaken uninterruptedly once every ten years.

Who conducts the census?

- The responsibility of conducting the decennial Census rests with the Office of the Registrar General and Census Commissioner, India under the Ministry of Home Affairs, Government of India.

The Census is one of the most credible sources of information on the following:

- Economic Activity.
- Literacy and Education.
- Housing & Household Amenities.
- Urbanization, Fertility, and Mortality.
- Scheduled Castes and Scheduled Tribes.

Limitation of avoiding a Census:

- It includes a wide range of locational, familial and individual information that serves to understand the changing population dynamic in its entirety.
- The reliability of all our large-scale surveys such as National Family Health Survey and Periodic Labour Force Survey

carried out on a Census frame that is one and a half decades old.

Need for Census:

- This decade-and-a-half has been a period of potential transformation in population count and its composition and on many other features relating to education, occupation, employment, health (COVID-19) and livelihoods.
 - Considering the significance of examining these features, delaying the Census sounds irresponsible.
- **Lack of a proper denominator** for monitoring government schemes and programmes.
- Majority of the population **unable to access various schemes**, benefits, and services.
- **The Women's Reservation Act**, reserving 33% of seats in Parliament and Assemblies for women, awaits the Census.
- A population Census is necessary **to reveal changes in familial structures, locational distribution, and occupational composition**.
- Without a Census frame, **surveys may be less reliable and representative**, affecting the validity of SDG indicators.
- Indian population features greatly influence the world population scenario.
- Current trends depend on projections and extrapolations.

Caste Census:

- Provides **empirical evidence of disparities** for equitable benefit distribution.
- Crucial for **administrative planning and resource allocation**.
- Aids in **targeting development programs** and policies for specific caste groups.
- Requires **caste-based data for constitutionally mandated policies**.
- Helps identify **beneficiaries, prevent misclassification**, and ensure equitable benefit distribution.

Way Forward

- In the prevailing SDG environment, there has been a generation of **a wide range of indicators** with disaggregation below the sub-national level.
- **SDG indicators lack standardization** by population count, compromising their segmentation by age, sex, etc.
- Numbers or survey-based estimates are **insufficient to represent changing realities**.
- **Caste auditing** establishes differential entitlements citing lack of representation and deprivation.
- **Tangible endowments are limited in diagnosing deprivation**.
- There is a **lack of systematic assessment of mobility** in education and occupation domains against caste axis.
- Scientific community should urgently advocate for a **Census to replace surveys and administrative statistics**.
- Justice Rohini Commission recommends a **nationwide socio-economic caste census for scientific criteria**.
- This is necessary for all States with their own State-level OBC lists due to varied caste composition.

5. BHARATIYA VAYUYAN VIDHEYAK 2024

Context:

The Bharatiya Vayuyan Vidheyak is set to replace the British Era Aircraft Act 1934

Need to Replace the Aircraft Act 1934

1. **Frequent Amendments:** The Act has been amended multiple times to enhance safety, and oversight, and align with international conventions, creating ambiguities and confusion for stakeholders.
2. **Redundancy Removal:** Eliminate outdated provisions.
3. **Simplification:** Improve ease of doing business and streamline processes.
4. **Modernization:** Address design, manufacture, and maintenance of aircraft and related equipment.

Important Provisions:

1. **Revised Aircraft Definition:** Balloons and gliders were removed from the definition.
2. **Empowerment for Rule-Making:**
 - **The Central Government** is empowered to make rules to implement international civil aviation conventions.
 - Examples include the Chicago Convention (1944) and the International Telecommunication Convention (1932).
3. **Enhanced Powers for Aviation Authorities:**
 - Increased powers for the Directorate General of Civil Aviation (DGCA).
 - Enhanced authority for the Bureau of Civil Aviation Security (BCAS).
 - Greater powers for the Aircraft Accident Investigation Bureau (AAIB).
4. **Emergency Powers:**

- **The Central Government** is empowered to issue orders in emergencies for public safety, such as detaining aircraft.
- 5. **License and Certification Management:** Central Government can suspend, cancel, or restrict licenses or certifications with a hearing opportunity for affected parties.
- 6. **Appeal Process:** Introduction of a second appeal between the initial appeal and final appeal to the Secretary, MoCA.

Significance of the Bill:

The Bill aligns with the **Atmanirbhar Bharat initiative** by regulating aircraft design and manufacturing. It expands coverage to include **drones, UAVs, flying taxis, and electronic gliders**. This move addresses the needs of a rapidly growing aviation market, with ICRA forecasting an **8–13% growth** in domestic air passenger traffic for FY2024.

Opposition: Some parliamentarians have opposed the Hindi name, arguing it violates Articles 348 1B, 120, and 340 of the Constitution, which mandate parliamentary bills to be in English. He **cited Section 3 of the Official Languages Act**, emphasizing the difficulty for South Indians to pronounce the Hindi name.

Government’s Response: The bill creates a new identity for India without violating constitutional provisions. The government assured that the bill’s text remains in English.

About the Chicago Convention:

Also known as the Convention on International Civil Aviation, it is an international treaty established in 1944. It set out the core principles for international air transport and created the International Civil Aviation Organization (ICAO) to oversee its implementation. The convention recognizes **nine freedoms of air**, with the **first five being officially recognized by the ICAO**. These freedoms **grant countries the right to fly over**, land in, and transport passengers and cargo between territories.

India is its member

6. THE OILFIELDS (REGULATION AND DEVELOPMENT) AMENDMENT BILL, 2024

Context:

The Oilfields (Regulation and Development) Amendment Bill, 2024, introduced in the Rajya Sabha.

The Bill aims to:

1. **It aims to amend the Oilfields (Regulation and Development) Act, 1948.**
 - Originally, oilfields, mines, and minerals were **regulated under the Mines and Minerals (Regulation and Development) Act, 1948**, which was later **split in 1957 by the Mines and Minerals (Development and Regulation) Act**.
2. The Act regulates the **exploration and extraction of natural gas and petroleum**.
3. **Ensure Policy Stability:** Stabilizes terms of petroleum leases to protect lessees from unfavourable changes.
4. **Enable International Arbitration:** Allows dispute resolution through international arbitration.
5. **Boost Investor Confidence:** Creates an investor-friendly environment to attract investments.
6. **Facilitate Efficient Development:** Encourages joint development of connected fields and shared infrastructure.

Major Provisions of the Bill:

Aspect	Current Provisions	Amended Provisions
Definition of Mineral Oils	Includes petroleum and natural gas .	Expands to include: (i) naturally occurring hydrocarbons , (ii) coal bed methane , (iii) shale gas/oil . Excludes coal, lignite, and helium .
Petroleum Lease	Mining lease for exploration, prospecting, production, and disposal of mineral oils.	Replaces mining lease with petroleum lease , covering similar activities. Existing leases remain valid.
Rule-Making Powers	Regulates lease grant, terms, conservation, production methods, and royalty collection.	Adds rules for (i) merger/combination of leases , (ii) sharing facilities, (iii) environmental protection, and (iv) dispute resolution.
Decriminalisation of Offences	Violations are punishable by up to six months imprisonment or a Rs 1,000 fine .	Penalties increased to Rs 25 lakh ; new offences include operating without a lease and non-payment of royalties. Continued violations attract up to Rs 10 lakh per day .

Adjudication of Penalties	Adjudication by an officer of Joint Secretary rank ; appeals to Appellate Tribunal under the Petroleum and Natural Gas Board Regulatory Board Act, 2006 .	Appeals to the Appellate Tribunal for Electricity under the Electricity Act, 2003 .
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Conclusion:

The amendment is significant as it **ensures energy access, security, and affordability, reduces import** dependence by boosting domestic oil and gas production, attracts investment for capital and technological advancement, supports energy transition to cleaner fuels, and establishes a robust enforcement mechanism for compliance.

7. UTTAR PRADESH’S ANTI-CONVERSION LAW MADE MORE STRINGENT

Context:

Recently, the Uttar Pradesh Legislative Assembly amended the 2021 anti-conversion law, making its provisions more stringent.

Aim of the amendments:

The amendment **strengthens the** 2021 anti-conversion law **to curb alleged “organized and well-planned”** activities by **“foreign and anti-national elements”** accused of influencing demographic changes through unlawful conversions. With **427 cases registered** under the original Act between January 2021 and April 2023, the goal is to more effectively address these concerns.

Key amendments Introduced:

Amendment Area	Previous Provisions	New Provisions
1. Increased Penalties	a) Punishment: 1 to 5 years in prison and a ₹15,000 fine.	a) Punishment: 5 to 10 years in prison and a ₹50,000 fine.
	b) Specific Cases: For conversions involving minors, women, or SC/ST,	b) Specific Cases: Penalty raised to 5 to 14 years in prison and a fine of ₹1 lakh.
2. New Offenses	a) Not specified.	a) Foreign/Illegal Funds: 7 to 14 years in prison and a ₹10 lakh fine for using illegal funds.
		b) Forced Conversion: 20 years to life imprisonment for conversion through threats, violence, or deceit.
3. Complaint Filing	a) Complaint Filer: Only the aggrieved person or close relatives could file complaints.	a) Complaint Filer: Now, any person can file a complaint.
4. Bail Provisions	a) Cognizable and Non-Bailable: Offences were bailable.	a) Cognizable and Non-Bailable: All offences are now cognizable and non-bailable.
	b) Bail Conditions: Standard bail provisions.	b) Bail Conditions: Twin conditions of bail, requiring the prosecutor’s input and the court’s satisfaction.

Comparison of Anti-Conversion Laws Across States

1. **States:** Odisha, Madhya Pradesh, Arunachal Pradesh, Chhattisgarh, Gujarat, Himachal Pradesh, Jharkhand, Uttarakhand.
2. **Notification Requirements:**
 - a. Madhya Pradesh: 60 days.
 - b. Himachal Pradesh & Uttarakhand: 30 days.
 - c. Uttar Pradesh: 60 days + police inquiry.
3. **Complaint Filing:**
 - a. Other states: Aggrieved person or family.
 - b. Uttar Pradesh: Any person can file an FIR.
4. **Bail Conditions:**

- a. Uttar Pradesh: Strict.
 - b. Other states: Less stringent.
5. Penalties:
- a. Uttar Pradesh: 5 years to life.
 - b. Other states: 2 to 10 years.

Key Constitutional Provisions related to religious conversions:

Provisions	Details
Article 25	Guarantees freedom of conscience and the right to freely profess, practice, and propagate religion , subject to public order, morality, and health. Allows regulation of secular activities associated with religion.
Article 26	Entitles religious denominations to manage their own religious affairs, subject to public order, morality, and health.
Articles 27-30	Guarantee the freedom to manage religious affairs , contribute monetarily to religion, and establish and administer educational institutions.

How Has the Supreme Court Interpreted Religious Conversions?

1. **Rev. Stainislaus vs. State of Madhya Pradesh (1977):** Article 25(1) allows the spreading of religion but not converting others.
2. **Sarla Mudgal vs. Union of India (1995) and Lilly Thomas vs. Union of India (2000):** Conversions for polygamy are invalid.
3. **M Chandra vs. M Thangamuthu & Another (2010):** Evidence of conversion and acceptance into the new community is required.
4. **Graham Staines Case (2011):** Conversion by force or incitement is unjustifiable.
5. **Right to Privacy Case (2017):** Upholds the right to freedom of religion, with state interference needing to be proportionate.
6. **Note:** No definitive ruling on “**propagate**” under Article 25 yet.

About Anti-Conversion Laws in India:

1. **About:** Aim to prevent forced, fraudulent, or induced religious conversions.
2. **Historical Context:** Pre-Independence laws restricted conversions; post-Independence central attempts failed.
3. **State-Level Laws:** Enacted in Odisha, Madhya Pradesh, Gujarat, and other states, often requiring notification or prohibiting forceful conversions.
4. **Centre’s Stand:** Affirms the right to religion excludes coercive conversions; no special law proposed.
5. **Challenges:** Constitutional concerns, burden of proof on accused, impact on interfaith marriages, misuse and targeting of minorities.
6. **Way Forward:** Define key terms clearly, uphold innocence, standardize regulations, consider a national framework, and promote interfaith dialogue.

Insta-Links:

Prelims Link:

1. [About Article 21.](#)
2. [Article 25.](#)
3. [What has the Allahabad High Court said in the Salamat Ansari-Priyanka Kharwar case?](#)

Mains Link:

The right to choose a partner or live with a person of choice was part of a citizen’s fundamental right to life and liberty. Discuss.

8. DRAFT WAQF (AMENDMENT) BILL 2024

Context:

The **proposed amendments to the Waqf Act 1995** aim to increase government control over Waqf properties, traditionally considered private assets of Muslims.

What is Waqf?

Waqf is the **permanent dedication of property by a Muslim for religious or charitable purposes**. Once designated as

Waqf, the property is managed for the benefit of the community and cannot be sold or transferred.

It is managed under the **Waqf Act, 1995**. It funds institutions like **schools, mosques, and shelters**. Managed by a **mutawali and overseen by Waqf Boards**, Waqfs are **perpetual and non-transferable**. The Central Waqf Council supervises state boards. There are **8,72,292 Waqf properties** in India, generating Rs **200 crore in revenue**.

Composition of Waqf Board:

A Waqf Board, under the state government, manages **Waqf properties**, including **prominent mosques**. Many states have separate boards for **Shia and Sunni communities**.

A Waqf Board is headed by a chairperson and has **one or two nominees from the state government, Muslim legislators and parliamentarians**, Muslim members of the State Bar Council, recognised scholars of Islamic theology, and **mutawallis of Waqfs** with an annual income of Rs 1 lakh and above.

What is the Waqf Board Act?

The Waqf Board Act, **initially enacted in 1954 and replaced by the 1995 Waqf Act**, regulates **Waqf properties**. In 2013, the **Act was further amended to grant the Waqf Board extensive powers** to designate property as **‘Waqf Property.’**

The amendment establishes a framework for managing these properties and overseeing them through a **Central Waqf Council**. The **Waqf Board Amendment Bill 2024** aims to address transparency issues and revise the composition of Waqf Boards to enhance their effectiveness.

Key Amendments in Waqf Act (Amendment Bill), 2024:

Amendments	Details
Name Change	Replacing the Waqf Act, 1995 with the Unified Waqf Management, Empowerment, Efficiency and Development Act, 1995
Transparency	Approximately 40 amendments , including mandatory verification for all property claims by Waqf Boards. Central Government Powers: Authority to audit Waqf properties
Gender Diversity	Sections 9 and 14 will be amended to include women representatives in the Waqf Board’s composition.
Revised Verification Procedures	Introduction of new verification procedures to address disputes and prevent misuse , with district magistrates potentially overseeing properties.

New Provisions	Section 3A: Requires lawful ownership for creating Waqf.
	Section 3C(1): Government property will not be deemed Waqf
	Section 3C(2): Government to decide if a property is Waqf or government land.
Limited Power	Response to concerns about unchecked powers of Waqf Boards , addressing issues of extensive land claims and disputes. Example: Tamil Nadu Waqf Board’s claim over Thiruchendurai village in September 2022.
Removal of “Waqf by Use”	Properties will need valid Waqfnama to be considered Waqf.
Board Composition	Allows non-Muslim CEOs and members on state Waqf Boards.

Criticism of the Amendment:

- Reduced Powers:** Limits Waqf Boards’ authority.
- Minority Rights Concerns:** May harm Muslim communities.
- Increased Government Control:** Excessive bureaucratic interference.
- Hampers Freedom of Religion:** Encroaches on religious autonomy.
- Potential Disputes:** New verification processes may cause complications.

Conclusion:

The **Waqf (Amendment) Bill, 2024** improves **management and transparency of waqf properties**, enhancing governance and accountability to benefit communities and promote social welfare. However, the fear around the amendment regarding the dilution of the power of the Waqf Board must be addressed.

Mains Link:

Q. How is the Indian concept of secularism different from the Western model of secularism? Discuss. (UPSC 2018)

9. ORGAN DONATION IN INDIA

Context:

The **Ministry of Health and Family Welfare** have recently released data on Organ donation in India.

Major Findings:

- Women Lead in Living Donations:** 9,784 women donated organs, surpassing 5,651 male donors.
- Record High Transplants:** Total transplants in 2023 reached 18,378, the highest ever.

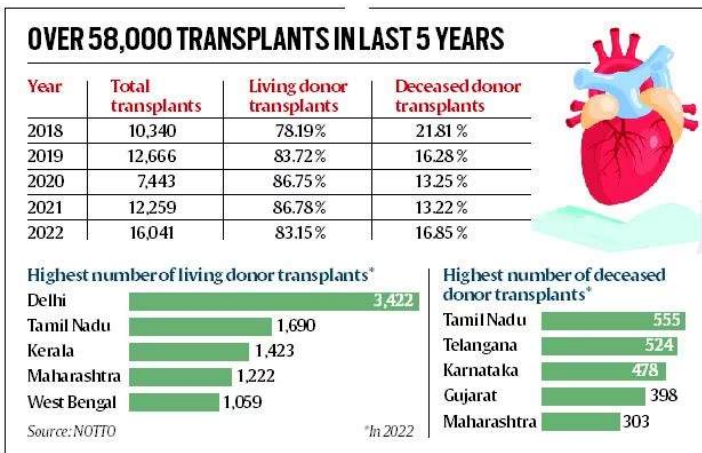
- Deceased Donations:** More deceased donors were men (844) than women (255).
- Kidney Transplants Dominant:** Most transplants were kidneys, followed by liver and heart transplants.
- State Rankings:** **Telangana** led in cadaver donations, followed by Tamil Nadu and Karnataka.
- Low Donation Rate:** The organ donation rate remains under one per million population.
- Need for Awareness:** Continued promotion of deceased organ donation is necessary.

uals above 65 years can receive organs for transplantation from deceased donors, and the requirement of state domicile for patient registration was removed.

Reforms Needed:

- Compliance with THOTA:** Authorities should ensure compliance with the **Transplantation of Human Organs & Tissues Act (THOTA), 1994**, investigating any breaches and taking appropriate action.
- Unique ID:** Health authorities must ensure the generation of a unique NOTTO-ID for both organ donors and recipients in all transplant cases to enhance transparency and traceability.
- Data Sharing:** Ensure regular collection and sharing of transplant data, including cases involving foreigners, with NOTTO to enhance transparency and accountability.

NOTTO (National Organ & Tissue Transplant Organization) is a national-level organization under the Ministry of Health and Family Welfare. It coordinates and networks for organ and tissue procurement and distribution nationwide. Additionally, it maintains a registry of organ and tissue donation and transplantation activities.



What is Organ Donation?

Organ donation is the process of giving an organ or tissue to someone in need of a transplant. It can involve living donors, who can donate one kidney or part of their liver, or deceased donors, who can donate multiple organs like the heart, lungs, liver, kidneys, pancreas, and tissues after death. This act helps save or improve the lives of patients suffering from end-stage organ failure.

Laws regarding Organ donation in India:

The primary law governing organ transplants in India is the Transplantation of Human Organs Act (THOA), 1994. India ranks third globally in the number of transplants conducted. Overall, organ transplants, including both deceased and living donors, increased from 4,990 in 2013 to 15,561 in 2022.

The Delhi High Court in January 2024, recommended a **6–8-week timeframe for completing organ transplant processes** involving living donors. It also directed the government to set **specific timelines for all stages of organ donation applications**, in line with the **Transplantation of Human Organs and Tissues (THOT) Act, 1994, and THOT Rules, 2014**.
Eligibility:

- Organ donation eligibility is primarily based on the donor’s physical condition (and not age), with both living (above 18 years) and deceased individuals being eligible.
- Consent from the family is required for deceased organ donation.
- According to the latest guidelines, individ-

Ethical aspects of organ donation:

Ethical Aspect	Description
Autonomy	Respecting the donor’s right to make informed decisions about organ donation, whether living or deceased.
Informed Consent	Ensuring donors or their families are fully informed and voluntarily consent to donation.
Beneficence	The principle of doing good by helping recipients improve their quality of life or save their lives.
Non-Maleficence	Ensuring that the donation process does not cause unnecessary harm to the donor.
Justice	Fair and equitable allocation of organs to recipients, regardless of their background or social status.
Confidentiality	Protecting the privacy and identity of both donors and recipients.
Altruism	Emphasizing the selfless nature of organ donation as an act of charity and goodwill.
Transparency	Maintaining clear, honest communication about the donation process and criteria for organ allocation.
Cultural Sensitivity	Respecting cultural, religious, and personal beliefs in the context of organ donation decisions.

Exploitation Prevention	Safeguarding against the exploitation of vulnerable individuals, especially in living donations.
Posthumous Rights	Considering the wishes and dignity of the deceased in the case of organ donation after death.

Insta Links:

Organ Donation to Foreigners in India

10. DRAFT BROADCAST SERVICES BILL 2024

Context:

The recently introduced **draft Broadcast Services Bill 2024** has raised concerns about freedom of speech. The draft is the revision of the previously proposed Broadcasting Services (Regulation) Bill, 2023, to replace the **Cable Television Networks (Regulation) Act of 1995**.

What are Broadcast Services?

Broadcast Services involve distributing audio, video, or multimedia content to a wide audience.

Examples:

1. TV Channels (e.g., CNN, BBC)
2. Radio Stations (e.g., NPR, BBC Radio)
3. Online Streaming (e.g., Netflix, YouTube)
4. Podcasts (e.g., "The Joe Rogan Experience")

These services offer news, entertainment, and educational content through various media channels.

Key Features of the Draft Bill:

Aspect	Details
Background	Revision of the 2023 draft bill to consolidate broadcasting regulations, extending to OTT and digital news.
Key Features	Definition of Digital News Broadcasters: Includes anyone publishing news/content via online platforms, excluding replica e-papers.
Code of Ethics	Validates the IT Rules 2021 code of ethics, which is currently stayed by courts.
Content Evaluation Committee (CEC)	Creators must form CECs , register with a Self-Regulatory Organisation, and follow orders from the Broadcast Advisory Council.
	Creators must ensure diversity , and provide member details to the government.
	Non-compliance fines: Rs 50 lakh (first), Rs 2.5 crore (subsequent).

OTT Platforms	Referred to as 'publishers of online curated content' ; not included under 'internet broadcasting services' but aligned with IT Rules 2021.
Regulation of Social Media Creators	Extends to independent news creators on platforms like YouTube, Instagram, and X, classifying them as digital news broadcasters.
Mandatory Registration	Digital news broadcasters must register with the Ministry of Information and Broadcasting (MIB) and disclose details about their operations and CECs.
Intimation to Government	Creators must inform MIB about their operations and CECs within a month.
Social Media Intermediary Liability	Social media companies must exercise due diligence and can face criminal liability for failing to provide necessary information about digital news broadcasters .
Exemptions for Certain Players	Allows the government to exempt certain stakeholders to avoid genuine hardship .
Global Applicability	May include foreign creators , though enforcing these regulations on them could be challenging.

Why is the Scope of the Draft Broadcasting Services (Regulation) Bill 2024 Expanded?

The bill's scope is expanded **to address sensational content by independent creators** during the 2024 Lok Sabha polls and concerns about **tech algorithms amplifying certain narratives**, aiming to ensure accountability and a level playing field.

Concerns Regarding the Draft Broadcasting Services (Regulation) Bill 2024:

1. **Threat to Freedom of Speech:** Broad definitions and regulatory scope may lead to government overreach and censorship.
2. **Vague Definitions:** Terms like **"systematic activity"** and **"digital news broadcaster"** are poorly defined, risking arbitrary enforcement.
3. **Onerous Compliance Requirements:** Independent creators face financial and administrative challenges in complying with the bill's mandates.
4. **Chilling Effect on Independent Media:** Registration and adherence to government standards could stifle critical journalism.
5. **High Penalties:** Steep fines for non-compliance could disproportionately affect smaller creators.
6. **Selective Enforcement Potential:** Exemptions for certain players may result in uneven application of

the law.

7. Impact on Social Media Platforms: Social media companies may face criminal liability, leading to increased content regulation.
8. Global Reach: Regulating foreign creators could be difficult and strain international relations.
9. Lack of Public Consultation: Limited stakeholder involvement raises concerns about transparency in the drafting process.

Case Study: Singapore's Broadcasting Law:

- Scope: Covers both traditional broadcasters and OTT content providers.
- Regulation: OTT platforms need a license under copyright law, with less stringent obligations compared to traditional TV services.

Addressing Concerns in the Draft Broadcast Services Bill 2024:

1. Refine Definitions: Clarify terms like "systematic activity" and "digital news broadcaster" to prevent broad interpretations.
2. Stakeholder Consultation: Expand consultations to include independent creators, civil society, and legal experts for diverse input.
3. Balance Regulation and Freedom: Safeguard freedom of speech while ensuring regulations are proportionate and transparent.
4. Simplify Compliance: Reduce compliance burdens for creators, possibly offering support for setting up content evaluation committees.
5. Review Penalties: Reassess penalties to ensure fairness, focusing on support and education rather than punishment.

Mains Link:

Q. Data security has assumed significant importance in the digitized world due to rising cyber crimes. The Justice B.N. Srikrishna Committee Report addresses issues related to data security. What, in your view, are the strengths and weaknesses of the Report relating to the protection of personal data in cyberspace? (UPSC 2018)

Prelims Link:

Q. In India, it is legally mandatory for which of the following to report on cyber security incidents? (UPSC 2017)

1. Service providers
2. Data centres
3. Body corporate

Select the correct answer using the code given below:

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

Ans: D

11. NATIONAL COMMISSION FOR ALLIED & HEALTHCARE PROFESSIONS ACT 2021

Context:

The Supreme Court has given the Centre and state governments a two-month deadline to implement the National Commission for Allied & Healthcare Professions Act, 2021.

What is the National Commission for Allied and Healthcare Professions (NCAHP) Act, 2021?

It is a legislative framework aimed at regulating and standardizing education and practices in the allied and healthcare professions. The Act establishes the National Commission for Allied and Healthcare Professions, which is responsible for setting policies, maintaining a central register of professionals, ensuring uniformity in qualifications, and overseeing professional conduct.

Key features of the Act:

Category	Details
Allied Health Professional	Defined as an associate, technician, or technologist trained to support the diagnosis and treatment of illnesses, diseases, injuries, or impairments.
	Must have obtained a diploma or degree.
	The degree/diploma duration should be at least 2,000 hours (over two to four years) .
Healthcare Professional	Includes scientists, therapists, or other professionals who study, advise, research, supervise, or provide preventive, curative, rehabilitative, therapeutic, or promotional health services.
	Must have obtained a degree .
	The degree duration should be at least 3,600 hours (over three to six years) .
Allied and Healthcare Professions	Specifies certain categories of allied and healthcare professions as recognized categories in the Schedule to the Bill.
	Includes life science professionals , trauma and burn care professionals, surgical and anaesthesia-related technology professionals, physiotherapists, and nutrition science professionals.
National Commission for Allied and Healthcare Professions	Established by the Act to oversee allied and healthcare professions.
Structure	Consists of a Chairperson, Vice-Chairperson, five central government members, one representative from the Directorate General of Health Services, three Deputy Directors or Medical Superintendents on a rotational basis, and 12 part-time members representing State Councils.
Functions	Create and maintain an online Central Register of all registered professionals.
	Provide basic standards for education, courses, curriculum, staff qualifications, examination, training, and maximum fee payable for various categories.
Professional Councils	The Commission will constitute a Professional Council for each recognized category of allied and healthcare professions.
	The Council will consist of a president and 4 to 24 members representing each profession in the recognized category.
	The Commission may delegate functions to the Council.
State Councils	State governments will constitute State Allied and Healthcare Councils within six months of the Act's passage.
	These councils will complement the National Commission's work and maintain a State Register.
Permission for Establishment of Institutions	Prior permission from the State Council is required to establish a new institution, open new courses, increase admission capacity, or admit a new batch of students.
	Failure to obtain permission means the qualification granted will not be recognized under the Bill.
Offences and Penalties	Practising as a qualified allied and healthcare practitioner without being enrolled in a State or National Register will result in a fine of Rs. 50,000 .

Why did the Supreme Court direct the centre and States?

The Supreme Court noted that, **despite the NCAHP Act being in force for 3-4 years**, many provisions remain unimplemented. **Only 14 out of 28 states and union territories have set up state councils**, and even these are not fully functional.

The Court directed the **Union and States to implement the Act within 2 months** and instructed the **Health Ministry to convene an online meeting within 2 weeks** to outline a roadmap. States must ensure the infrastructure is set up and the Act's provisions are operational, with a compliance report due at the next hearing.

Non-implementation of the Act has led to inconsistent qualifications, unregulated healthcare training institutions, and a rise in unapproved courses, jeopardizing patient care.

Conclusion:

The lack of implementation of the NCAHP Act highlights the urgent need for uniform standards and regulations in allied and healthcare professions to ensure patient safety and quality healthcare services.

Insta Links:

- National Commission for Allied and Healthcare Professionals Bill, 2021

12. IMPACT ASSESSMENT OF PRADHAN MANTRI MUDRA YOJANA

Key Findings of the PM Mudra Yojana Report:

1. **Overall Performance:** Since 2015, the scheme has supported 35 crore Micro and Small entrepreneur accounts.
2. **Financial Inclusion:** Women hold around 71% of the accounts (FY 2022). Sanctioned amounts for new entrepreneurs have increased.
3. **Support for Small Businesses:** 80% of loan accounts are in the Shishu category (FY 2021).
4. **Regional Variation:** The Northeast region has the lowest and decreasing number of accounts and sanctioned amounts.

Other Achievements of PM Mudra Yojana:

- **Loan sanctioned:** About ₹23 lakh crore has been sanctioned in nearly 41 crore loan accounts
 - **30 crore MUDRA Yojana** loans have been given to **women entrepreneurs**
- **Inclusive growth:** About 69% of accounts under the scheme belong to women entrepreneurs and 51% of accounts belong to entrepreneurs of SC/ST and OBC categories
- **Easy availability of credit to budding entrepreneurs:** Approximately 21% of the total loans have been sanctioned to New Entrepreneurs.
- **Employment Generation:** As per a survey conducted by the Ministry of Labour and Employment, PMMY helped generate over 1 crore net additional employment from 2015 to 2018, out of which women accounted for 69 lakh (62%)

Feature of the scheme

Features	Description
Full name	Mudra – Micro Units Development & Refinance Agency Ltd
Launch Year	2015
Ministry	Department of Financial Services, Ministry of Finance
Aim	Providing loans up to Rs. 10 lakh to non-corporate, non-farm small/micro-enterprises
Three pillars of the scheme	<ol style="list-style-type: none"> 1. Banking the Unbanked 2. Securing the Unsecured 3. Funding the Unfunded
Funding Provision	<p>MUDRA, a financial institution set up by the government, provides funding to the small business sector through institutions like Scheduled commercial banks, NBFCs, and MFIs.</p> <p>MUDRA is a refinancing Institution. MUDRA does not lend directly to micro-entrepreneurs / individuals.</p>
Loan Products	<ol style="list-style-type: none"> 1. Shishu (up to Rs. 50,000) 2. Kishore (above Rs. 50,000 and up to Rs. 5 lakh) 3. Tarun (above Rs. 5 lakh and up to Rs. 10 lakh)
Collateral	Loans under this scheme are collateral-free loans
Target Beneficiaries	Disadvantaged sections of society such as women entrepreneurs, SC/ST/OBC borrowers, minority community borrowers, and new entrepreneurs
Products and Services	Loans can be used for income-generating activities in the manufacturing, trading, services sector, and agriculture
Expansion	PMMY has been expanded over time to cover activities related to agriculture, such as fishing, dairy, and food processing, and loans for tractors and power tillers, and two-wheelers for commercial use were included in PMMY
Steps taken to improve the scheme	udyamimitra portal (for online applications); End-to-end digital lending for automated sanctions under PMMY (by some banks); Nomination of Mudra Nodal Officers in PSBs; Interest Subvention of 2% on prompt repayment of Shishu loans

Challenges faced by the scheme:

- High non-performing assets or bad loans
- Limited funds that cannot keep up with the pace of demand
- Regional disparities in the distribution of benefits
- Lack of financial literacy among beneficiaries leading to defaults
- Limited outreach to rural entrepreneurs
- Collateral requirements for loans above a certain amount make it difficult for many small enterprises to access credit
- Loan size limitations of up to Rs. 10 lakhs, which is inadequate for many small enterprises with higher capital requirements.

Key Recommendations:

1. Implement a portal for real-time beneficiary data upload.
2. Increase digitization, including chatbot use for query resolution.
3. Establish a recognition system for Micro Lending Institutions based on their scale and performance.

Conclusion:

Overall, the MUDRA scheme has been successful in providing credit to small entrepreneurs. However, it faces some significant challenges that need to be addressed to make it more effective and inclusive.

Insta Links

Pradhan Mantri MUDRA Yojana

Mains Links

What are the objectives of the Pradhan Mantri Mudra Yojana (PMMY)? Should the success of PMMY be measured in terms of the quantum of loans disbursed? Comment. (15M)

Prelims Links

Pradhan Mantri MUDRA Yojana is aimed at (UPSC 2016)

- (a) bringing small entrepreneurs into the formal financial system
- (b) providing loans to poor farmers for cultivating particular crops
- (c) providing pensions to old and destitute persons
- (d) funding the voluntary organizations involved in the promotion of skill development and employment generation

Ans: A

13. JAL JEEVAN MISSION COMPLETES FIVE-YEAR

The Jal Jeevan Mission (JJM), a central government initiative to provide piped water to every rural household by 2024, was launched in 2019.

Key Achievements

1. Over 77% of rural households in India now have piped water connections, a significant leap

from the 2019 baseline of 17%.

2. States Achieving 100% Tap Connectivity: Goa, Telangana, Haryana.
3. Union Territories Achieving 100% Tap Connectivity: Puducherry, Andaman and Nicobar Islands, Dadra & Nagar Haveli, Daman & Diu.
4. Tap water coverage increased from over 3 crore to 15 crore households.
5. 8 states and 3 Union Territories achieved 100% coverage.
6. Over 88% of schools and over 85% of Anganwadi centres receive tap water.
7. Over 2 lakh villages and 190 districts reached 'Har Ghar Jal' status.

About the mission:

Aspect	Jal Jeevan Mission
Objective	Provide 55 liters of water per person per day through Functional Household Tap Connections (FHTC) by 2024 to every Rural households
Ministry	Launched in 2019 under Ministry of Jal Shakti
Focus	It is a Demand-driven scheme with strong emphasis on Jan bhagidari (community engagement) as a crucial pillar of the project.
Objective	The mission is centered on easing the burden of water collection for rural residents, particularly women who often travel long distances for water.
Key Areas Covered	<ul style="list-style-type: none"> o Ensuring functionality of existing water supply systems and connections o Water quality monitoring, testing, and sustainable agriculture. o Coordinated use of surface water and groundwater. o Drinking water source augmentation, grey water and reuse
Additional Inclusions	<ul style="list-style-type: none"> o Prioritizing FHTCs in areas with poor water quality, drought-prone villages, Sansad Adarsh Gram Yojana (SAGY) villages, etc. o Providing FHTCs to schools, Anganwadi centers, Gram Panchayat buildings, health and wellness centers, and community buildings. o Technological solutions for removing contaminants in areas with water quality concerns.
Paani Samitis	<ul style="list-style-type: none"> o Role: Paani Samitis are responsible for planning, implementing, managing, operating, and maintaining village water supply systems. o Composition: 10-15 members, 50% women, SHG reps, health workers, Anganwadi teachers, etc. o It develops village plan with local resources and with Gram Sabha approval
Funding Pattern	The fund sharing pattern between the Centre and states is 90:10 for Himalayan and North-Eastern States, 50:50 for other states, and 100% for Union Territories.
Challenges	Rural regions face high water stress. While household connection progress is vital, sustaining water sources for the long term remains a challenge.
Partnership	The United Nations Office for Project Services (UNOPS) is collaborating with the Denmark government to support the mission in Uttar Pradesh.
Employment Impact	An average of over 29 million people employed annually during the mission's construction phase. Visit Insights IAS Daily CA for more News

A fully functional tap water connection is defined as a household **getting at least 55 litres of potable water per capita per day** all through the year

Present challenges with the mission:

Aspect	Details
State Disparities	Only a few states report high coverage rates . In contrast, populous states like Uttar Pradesh and Rajasthan have lower coverage.
Quality Concerns	Some households, despite having tap connections, use local groundwater due to inadequate tap water quality .
Reporting and Certification	Adoption numbers rely on self-reporting by villages and lack third-party certification.

Shortcomings in Reality	Despite official claims of <u>100% household tap connections (FHTC)</u> , many households lack taps, and those with taps often receive limited water
Discrepancies in Reporting	Discrepancies exist between <u>official reports and ground reality</u> , where eligible FHTC households are not fully connected to running water supply.
Water Treatment Efforts	Water treatment plants have been commissioned to address water scarcity, but the challenge lies in <u>commissioning pipes over difficult terrain</u> .
Taps Get Stolen	In some areas, <u>taps provided by the mission have been stolen</u> , and households lack sufficient storage to maintain a continuous water supply.

Suggestions:

- **Quality Over Quantity:** Prioritizing consistent, high-quality tap water adoption in rural India is crucial. States with lower adoption rates and larger populations should receive assistance to improve their numbers.
- **Third-Party Assessment:** Implement third-party assessments to verify the accuracy of reported tap water connections, ensuring transparency and accountability.
- **Focus on Lagging States:** Prioritize states with lower adoption rates and larger populations to accelerate progress toward universal tap water coverage.
- **Public Awareness:** Conduct awareness campaigns to educate rural communities on the benefits of clean tap water and proper water usage.
- **Make the Right to Water Legal:** In India, the right to water is not enshrined as a fundamental right in the Constitution.

Other steps are taken for water management in Urban Areas:

- **Atal Bhujal Yojana:** For sustainable management of groundwater resources with community participation in selected water-stressed areas.
- **National Aquifer Management Program:** For mapping of aquifers, characterization, and development of aquifer management plans.
- **National Water Policy (2012):** Include provisions like rainwater harvesting, augmenting the availability of water through direct use of

rainfall, etc.

- **Atal Mission for Rejuvenation and Urban Transformation (AMRUT):** To provide tap connections to over 1 crore households in 500 cities.

Conclusion:

On 28 July 2010, through Resolution 64/292, the United Nations General Assembly explicitly recognized the human right to water and sanitation and acknowledged that clean drinking water and sanitation are essential to the realization of all human rights.

Insta Links:

- Jal Jeevan Mission (JJM) has hit the 51% mark
- Jal Jeevan Mission

Mains Links:

The Jal Jeevan Mission will be a major step towards improving our people’s ease of living and meeting their aspirations of a New India. Analyse. (250 words)

Prelims links:

Consider the following statements: (UPSC 2020)

1. 36% of India’s districts are classified as “overexploited” or “critical” by the Central Ground Water Authority (CGWA).
2. CGWA was formed under the Environment (Protection) Act.
3. India has the largest area under groundwater irrigation in the world.

Which of the statements given above is/are correct?

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

Ans: B

14. UNIFIED PENSION SCHEME (UPS)

Context:

The **Unified Pension Scheme (UPS)** approved by the Union Cabinet promises assured pensions for government employees after retirement, starting April 2025. The Unified Pension Scheme (UPS), based on the **T.V. Somanathan Committee’s recommendations (2023)**, aims to combine the benefits of both the Old Pension Scheme (OPS) and the New Pension Scheme (NPS).

Key Features of UPS:

1. **Assured Pension:** 50% of the average basic pay from the last 12 months for a minimum of 25 years of service. Proportionate for service periods between 10 and 25 years.
2. **Assured Family Pension:** 60% of the retiree’s pension to their family after their demise.

3. **Assured Minimum Pension:** ₹10,000/month (higher than ₹9,000 under OPS and NPS).
4. **Inflation Indexation:** Dearness relief linked to the All India Consumer Price Index for Industrial Workers (AICPI-IW), similar to OPS.
5. **Lump Sum Payment:** An additional payment equal to 1/10th of the monthly salary + dearness allowance for every six months of service, alongside gratuity, without affecting the pension amount.

Differences between the Unified Pension Scheme (UPS), National Pension Scheme (NPS), and Old Pension Scheme (OPS):

Feature	Unified Pension Scheme (UPS)	National Pension Scheme (NPS)	Old Pension Scheme (OPS)
Effective Date	April 1, 2025	January 1, 2004	Pre-2004 (replaced by NPS)
Pension Type	Assured Pension	Market-linked returns	Assured Pension
Pension Calculation	50% of average basic pay of last 12 months (min. 25 years service); proportionate for lesser service (min. 10 years)	Based on market performance of funds, no assured amount	50% of last drawn basic pay
Minimum Pension	₹10,000/month (min. 10 years service)	No minimum assured pension	₹9,000/month (adjusted for inflation)
Family Pension	60% of the retiree's pension	No family pension guarantee	50% of retiree's pension
Inflation Indexation	Dearness Relief based on AICPI-IW	Not applicable (market-based returns)	Dearness Relief based on AICPI-IW
Lumpsum Payment	1/10th of monthly salary + Dearness Allowance for every 6 months of service (in addition to gratuity)	No lumpsum payment	No lumpsum payment
Fiscally Funded	Yes (contributory funded scheme)	Yes (contributory funded scheme)	No (unfunded scheme)

Concerns with the Old Pension Scheme (OPS) and the issues with the National Pension Scheme (NPS):

Concerns/Issues	Old Pension Scheme (OPS)	National Pension Scheme (NPS)
Funding	Unfunded Pension Liability: No dedicated corpus for pensions. The government provided annual budgets without a clear future plan.	Funded by employee contributions (10% of basic pay + dearness allowance) and government contributions.
Sustainability	Unsustainable: Pension liabilities increased with salary hikes and indexation. Extended life expectancy added to the burden.	Market-linked and return-based: Payouts are uncertain due to dependence on market performance.
Payout Stability	Fixed pension amount, but with increasing financial strain due to rising liabilities.	Variable pension amount, subject to market fluctuations and investment returns.
Pension Calculation	50% of last drawn basic pay, with benefits adjusted for inflation.	No guaranteed pension amount; depends on market performance and contributions.
Impact on Government Finances	Massive pension burden due to increasing liabilities and longer lifespans.	More controlled fiscal impact due to contributory nature, but with uncertain returns for employees.

Insta Links:

Old Pension Scheme (OPS): A Caution by RBI

Prelims Link:

Q. Who among the following can join the National Pension System (NPS)? (UPSC 2017)

- (a) Resident Indian citizens only
- (b) Persons of age from 21 to 55 only
- (c) All State Government employees joining the services after the date of notification by the respective State Governments
- (d) All Central Government employees including those of Armed Forces joining the services on or after 1st April, 2004

Ans: (c)

15. 10 YEARS OF PM JHAN DHAN YOJANA

Context:

The government is celebrating 9 years of completion of Pradhan Mantri Jan-Dhan Yojana (PMJDY) in revolutionizing financial inclusion in India.

What is financial inclusion?

It is ensuring access to financial services and credit for vulnerable groups at an affordable cost. In India, it's vital for development and progress. Access to a transaction account is a key step, allowing storage, payments, and transfers, acting as a gateway to broader financial services.

What is PMJDY?

The PMJDY, the world's largest financial inclusion mission, reached a significant milestone by surpassing 500 million accounts after nine years since its launch.

About the scheme:

Context: According to a recent RTI application, only 329 claims out of 647 claims filed for accident insurance cover under the PMJDY have been settled in the past two financial years.

About PMJDY

	Information
About	It aims to ensure access to financial services, namely, basic savings & deposit accounts, remittance, credit, insurance, pension in an affordable manner.
Benefits under PMJDY	No requirement to maintain any minimum balance in PMJDY accounts and interest is earned on the deposit in PMJDY accounts; Rupay Debit card is provided to the PMJDY account holder; An overdraft (OD) facility up to Rs. 10,000 to eligible account holders is available.
Insurance Facility under PMJDY	<ul style="list-style-type: none"> Account holders are eligible for two types of insurance covers – <ul style="list-style-type: none"> A life insurance cover of Rs. 2 lakhs under the Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY) An accidental insurance cover of Rs. 2 lakh under the Pradhan Mantri Suraksha Bima Yojana (PMSBY). Premium of Rs. 330 per annum and Rs. 12 per annum, respectively. More than 50% of PMJDY account holders are women No premium is charged from account holders for the accident insurance cover for death or permanent disability. To avail the insurance, the beneficiary must have performed at least one successful transaction with their debit card 90 days prior to the date of the accident.
Challenges to PMJDY	Lack of Awareness, Limited Infrastructure, Limited Resources, Dependence on Cash Transactions
Other Initiatives to Increase Financial Inclusion in India	Digital Identity (Aadhaar), National Centre for Financial Education (NCFE), Centre for Financial Literacy (CFL) Project, Expansion of financial services in Rural and Semi-Urban Areas, Promotion of Digital Payments

Key Successes of PMJDY:

Aspects:	Examples
Achievement	By July 2024, over 52 crore Jan Dhan accounts were opened. Nearly 100% of villages have banking outlets within 5 km as per the Jan Dhan Darshak App . The average deposit in PMJDY accounts grew 4.12 times from 2015 to 2024, and zero balance accounts decreased to 4.26 crores from 8.52 crores in March 2015.

Women Empowerment	Increased financial inclusion for women; over 55% of accounts belong to women
Rural & Semi-Urban Focus	Extending banking facilities to under-served regions; 67% of accounts opened in these areas
RuPay Cards	Offering insurance benefits to account holders; About 340 million were issued with ₹2 lakh accident insurance cover
Inclusion	Empowering financially vulnerable sections; Brought marginalized sections into the formal banking system
Financial Benefits	Enabling individuals to save and transfer funds securely; Savings brought into the formal financial system, remittance opportunities, freedom from usurious money lenders
Role in Welfare	Direct Benefit Transfers (DBT) using PMJDY accounts; Used to distribute welfare packages without pilferage, including COVID-19 financial assistance, PM-Kisan, MGNREGA, and insurance covers
Digital Platform	Providing easy access to banking services; the Jan Dhan Darshak app locates banking touchpoints
JAM Architecture	Facilitating direct transfer of government benefits; Part of JAM (Jan-Dhan, Aadhaar, mobile) system for subsidy delivery and benefits transfer
Formalisation of Financial System	It provides an avenue for the poor to bring their savings into the formal financial system, an avenue to remit money to their families in villages besides taking them out of the clutches of the usurious money lenders

Conclusion:

Efforts are being made to provide micro-insurance coverage to PMJDY account holders, with eligible individuals being targeted for inclusion in schemes like PMJJBY and PMSBY. To facilitate this, acceptance infrastructure is being established across the country. Moreover, steps are being taken to enhance the access of PMJDY account holders to micro-credit and micro-investment options such as flexi-recurring deposits.

Insta Links:

[Pradhan Mantri Jan Dhan Yojana](#)

Mains Links:

[Pradhan Mantri Jan Dhan Yojana \(PMJDY\) is necessary for bringing the unbanked to the institutional finance fold. Do you agree with this for the financial inclusion of the poorer section of Indian society? Give arguments to justify your opinion. \(UPSC 2016\)](#)

Prelims Links:

‘Pradhan Mantri Jan-Dhan Yojana’ has been launched for (UPSC 2015)

- (a) providing housing loans to poor people at cheaper interest rates
- (b) promoting women’s Self-Help Groups in backward areas
- (c) promoting financial inclusion in the country
- (d) providing financial help to the marginalized communities

Ans: (c)

Topics: Welfare schemes for vulnerable sections of the population by the Centre and States and the performance of these schemes.

16. MULTIDIMENSIONAL VULNERABILITY INDEX (MVI) LAUNCHED BY UN

Context:

The UN General Assembly has launched the **“Multidimensional Vulnerability Index” (MVI)**, a new tool to help **small island and developing nations access low-interest financing**. Though use is **voluntary**, the UN urges its adoption

What is Vulnerability?

Vulnerability **refers to the susceptibility of individuals or groups** to harm due to various factors, such as social, economic, environmental, or health-related circumstances. It highlights the condition of being at risk and unable to adequately protect oneself from adverse situations.

About Multidimensional Vulnerability Index (MVI):

The MVI is a **new global benchmark measuring structural vulnerability and resilience** across various **sustainable development dimensions**. It **complements GDP** and other metrics, **aiming to capture vulnerabilities and resilience** in all developing countries. Initially advocated by **small island states**, it includes factors like import dependency, climate risks, and social resilience.

Aspects	Description
About	The Multidimensional Vulnerability Index (MVI) measures structural vulnerability and lack of resilience across various dimensions of sustainable development at the national level.
Purpose	It addresses the needs of small island developing states (SIDS) and other developing nations that face unique vulnerabilities but don’t qualify for low-interest financing.
Key Indicators in the MVI	<p>The MVI includes indicators such as:</p> <ul style="list-style-type: none"> i) Import dependency ii) Exposure to extreme weather events and pandemics iii) Impacts of regional violence and refugee crises iv) Demographic pressure v) Water and arable land resources vi) Child mortality under five.
Limitations of Traditional Measures	Traditional metrics like Gross National Income (GNI) often miss the vulnerabilities of developing countries. These measures hinder them from accessing necessary development financing.
Applications of the MVI	<p>The MVI will guide:</p> <ul style="list-style-type: none"> i) Programmatic support for SIDS and other developing countries ii) Debt service strategies iii) Financing sustainable development initiatives tailored to the challenges of SIDS.

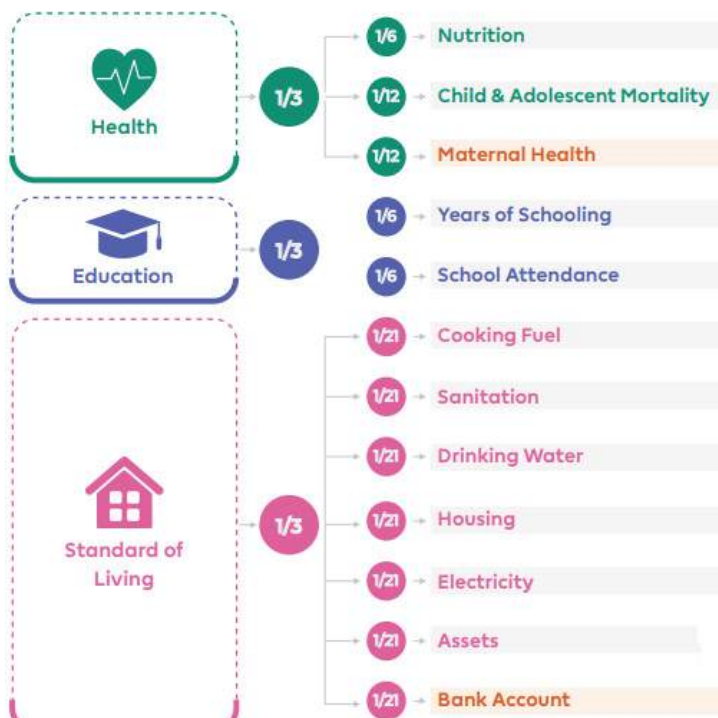
Singificance: The MVI is crucial for helping these nations access concessional financing, improve planning, manage debt, and prepare for climate impacts.

Other similar Indices:

What is National MPI?

The **National Multidimensional Poverty Index (MPI)** is a metric assessing poverty in a country by considering **health, education, and standard of living**, represented by 12 indicators. It employs the **Alkire Foster methodology**.

Indicators and their weights



The **National Multidimensional Poverty Index (MPI)**, a first-of-its-kind, estimates multiple deprivations at a household level using NFHS data. Published by NITI Aayog, it includes three dimensions and 12 indicators. Sub-indices measure the Headcount Ratio (how many are poor) and the Intensity of Poverty (how poor are the poor). The Global MPI, published by OPHI in collaboration with UNDP, is a similar index addressing worldwide multidimensional poverty.

Key findings of Niti Aayog:

- Steep decline in Poverty Headcount Ratio (HCR): HCR represents the percentage of the population below the Poverty Line.
- Positive Improvement in All 12 MPI Indicators
- Faster Decline in Poorer States: Poorer states like Uttar Pradesh and Bihar show a rapid decline in poverty, suggesting a reduction in disparities.
- SDG Target 2: India is expected to achieve Sustainable Development Goal (SDG) Target 1.2, aiming to reduce multidimensional poverty by at least half, well before 2030.
- Successful Government Initiatives: Programs like Poshan Abhiyan and Anaemia Mukh Bharat have improved healthcare access, while the Targeted Public Distribution System under the National Food Security Act (ensures food grains for over 81 crore beneficiaries), extending free food grain distribution under Pradhan Mantri Garib Kalyan Anna Yojana.

Insta Links:

[Multidimensional poverty](#)

Mains Links:

Though there have been several different estimates of poverty in India, all indicate a reduction in poverty levels over time. Do you agree? Critically examine with reference to urban and rural poverty indicators. (UPSC 2015)

Topics: Issues relating to development and management of Social Sector/Services relating to Health, Education, Human Resources.

17. COUNTING NUTRITIONAL DEFICIENCY AMONG THE POOR

Context:

The **Household Consumption Expenditure Survey (2022-23)** has highlighted significant nutritional deficiencies among India's poor.

Key Findings of the Report

- Expenditure Thresholds: Rural India needs ₹2,197 (₹1,569 for food, ₹628 for non-food); Urban India needs ₹3,077 (₹2,098 for food, ₹979 for non-food) for adequate nourishment.
- The proportion of Poor: **17.1%** in rural and 14% in urban areas are considered poor.
- Thresholds for Poorest 10%: Increase to ₹2,395 for rural and ₹3,416 for urban, raising deprivation to **23.2% (rural) and 19.4% (urban)**.
- Calorie Intake: The poorest 5% consume 1,564 kcal (rural) and 1,607 kcal (urban), below the required 2,172 kcal (rural) and 2,135 kcal (urban).

What is Nutritional Security?

Nutritional security ensures access to adequate, safe, and nutritious food for a healthy life, focusing on both the quality and quantity of food.

Why is it Necessary?

- Holistic Health: Goes beyond calorie intake to ensure a balanced nutrient supply.
- Economic Impact: Improves productivity and reduces healthcare costs, with micronutrient deficiencies costing 0.8%-2.5% of GDP.
- Cognitive Development: Enhances IQ and educational outcomes, breaking poverty cycles.
- Disease Resilience: Strengthens immune response, reducing healthcare burdens.
- Biodiversity: Promotes dietary diversity and supports agricultural biodiversity.

Key Challenges in Handling Nutrition in India

- Economic Inequality: 74% can't afford a healthy diet.
- Inadequate Dietary Intake: Shift to low-quality, processed foods lacking essential nutrients.
- Poor Sanitation: Only 69% use improved sanitation.

tion facilities.

4. **Lack of Health Infrastructure:** Low doctor (0.73) and nurse (1.74) density per 1000 people.
5. **Delayed/Inconsistent Delivery:** Only 50.3% of children receive Anganwadi services.
6. **Inadequate Monitoring:** Poor assessment of program effectiveness.

Other reasons:

1. **Green Revolution:** Focus on staple crops has led to micronutrient deficiencies.
2. **Climate Change:** Affects crop yields and increases food prices.
3. **Knowledge Gap:** Low nutritional literacy impacts dietary choices.
4. **Urbanization:** Leads to food deserts and unhealthy lifestyles.
5. **Policy Implementation:** Inefficiencies and underutilization of funds hinder progress.
6. **Food Safety:** Issues like adulteration and contamination reduce food quality.
7. **Food Loss:** Significant waste and poor storage raise food prices.

Initiatives taken by India:

Initiative	Description
Mission Poshan 2.0	Focuses on improving maternal nutrition and child feeding norms, integrating multiple schemes.
Integrated Child Development Services (ICDS) Scheme	Provides food, preschool education, and primary healthcare to children under 6 and their mothers.
Pradhan Mantri Matru Vandana Yojana (PMMVY)	Offers financial incentives to pregnant and lactating mothers for health and nutrition.
Mid-Day Meal Scheme (PM Poshan)	Supplies nutritious meals to school children; introduces millets to enhance dietary diversity.
Scheme for Adolescent Girls (SAG)	Aims to improve the nutritional and health status of adolescent girls.
Mother’s Absolute Affection (MAA)	Promotes breastfeeding to improve child health and nutrition.
Poshan Vatikas	Establishes nutrition gardens to provide locally grown nutritious food for children and mothers.

Recommendations of the Child Nutrition Report 2024:

1. **Enhance data systems** to assess Child Food Poverty severity.
2. **Reform food systems to make nutritious** foods accessible, affordable, and desirable.
3. **Utilize health systems for essential nutrition services**, including child feeding counselling.
4. **Transform food, health, and social protection** systems for children.

What more needs to be done:

1. **SBCC Plan:** Develop a targeted Social and Behavior Change Communication (SBCC) plan.
2. **Local Foods:** Promote consumption of nutritious, locally available foods.
3. **Communication:** Use local languages and various channels (radio, videos, outreach).
4. **Nutrition-Integrated Welfare:** Expand programs like PDS to include diverse, nutrient-rich foods and introduce nutrition education.
5. **Nutrition Coupons:** Provide customized food coupons for malnourished families to buy nutrient-rich foods.
6. **School Nutrition Hubs:** Revamp Mid-Day Meals with balanced diets, school gardens, and health check-ups.
7. **Nutri-Preneur Program:** Support businesses focusing on nutrition with funding and mentorship.
8. **Nutrition Surveillance:** Set up a system for real-time nutritional data and emergency responses.
9. **Nutri-Smart Agriculture:** Promote diverse, nutrient-rich crops with incentives for farmers.
10. **Community Champions:** Train local volunteers to educate and counsel on nutrition.

Insta Links:

1. [Acute malnutrition risking 30 million children’s lives](#)

Mains Link:

Q. How far do you agree with the view that the focus on lack of availability of food as the main cause of hunger takes the attention away from ineffective human development policies in India? (UPSC 2018)

Prelims Link:

Q. Which of the following is/are the indicators/ indicators used by IFPRI to compute the Global Hunger Index Report? (UPSC 2016)

1. Undernourishment
2. Child stunting
3. Child mortality

Select the correct answer using the code given below:

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

Ans: C

18. UNIVERSAL HEALTH COVERAGE IN INDIA: REDUCING THE POOR’S HEALTH BURDEN

Context:

Over the past decade, the **poorest in India have become less vulnerable to medical expenditure shocks**, largely due to the Ayushman Bharat Yojana. Expanding it to reach near **Universal Health Coverage** in India becomes important for India to reduce the Poor’s Health Burden.

Major data points from the article on the success of Ayushman Bharat Yojana:

1. **Hospitalization decreases health expenditure** from 10.8% to 9.4% of monthly household expenditure.
2. **Rural vs. Urban areas show similar decreases in health expenditure.**
3. **Consumption status declines for bottom 50% of households** facing hospitalization from 2011-12 to 2022-23.
4. **Hospitalization incidence increases from 17% to 22% for the bottom 50% of the population.**
5. **Ayushman Bharat Yojana improves healthcare affordability and accessibility for the poorest.**

About ABPM-JAY

- It is the **world’s largest health assurance scheme** (launched in 2018 by **MoH&FW**). It provides medical insurance of **Rs 5 Lakh to over 10 Cr marginalized families** (identified through SECC 2011 data) for secondary and tertiary care hospitalization.
- **Centrally sponsored scheme**
- **Funding: 60:40 & 90:10** (NE states and three Himalayan states- J&K, Himachal and Uttarakhand)
- **No limit** on family size covered or age of members.
- It covers **pre-existing diseases**
- Implementation by **National Health Authority**



Ayushman Bharat Digital Mission (ABDM)

- It aims to develop the **digital backbone** for integrated digital health infrastructure.
- launched in **2021**, it is **Central sector scheme**
- It contains: **ABHA health account numbers; ABHA App; Health Facility Registry and Unified Health Interface** (for patients and health provider interactions)
- Implementation: **National Health Authority** under **MoH&FW**.



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What is UHC?

Universal Health Coverage (UHC) refers to a healthcare system where all individuals and communities have access to the quality health services, they need without facing financial hardship. Access to quality healthcare is a fundamental right for all individuals, rather than a privilege reserved for a few.

Status:

1. The Indian Constitutional provisions (Art. 39E, 42, 47) mandate the State to secure workers' health, improve living standards, and enhance public health.
2. The United Nations designated December 12th as International Universal Health Coverage Day (UHC Day) in 2017
3. Sustainable Development Goal 3.8 aims to achieve universal health coverage
4. India aims to achieve Universal Health Coverage (UHC) by expanding the Ayushman Bharat-**Pradhan Mantri Jan Arogya Yojana** (AB-PMJAY), its flagship publicly financed health insurance (PFHI) scheme

Challenges in Implementing UHC in India:

Challenges	Description
Inequitable Access to Health Insurance	<u>Lowest health insurance coverage</u> among households under the underprivileged sections.
	NFHS-5 results show only <u>about 36% coverage</u> among lowest lowest-wealth households.
Poor Finance	India's current health expenditure stands at approximately <u>3.2% of its GDP</u> , significantly lower than the average of around <u>5.2%</u> observed among Lower- and Middle-Income Countries (LMIC).
Lack of Financial Protection	Despite schemes like Janani Shishu Suraksha Karyakram, <u>high out-of-pocket expenditure for deliveries</u> , particularly in urban areas
Inclusion and Exclusion Errors	Government Schemes are prone to <u>inclusion and exclusion errors</u> , potentially including ineligible households and excluding eligible ones.
Inadequate Availability of Services	56% of PMJAY empanelled hospitals in the public sector, and 40% in the private for-profit sector, indicating unequal service availability
Inadequate Infrastructure	Lack of proper infrastructure, including health facilities, equipment, and medical supplies, hinders UHC
	<u>The shortfall of over 79% specialists</u> at Community Health Centers compared to the requirement.
	<u>Lower bed density:</u> (number of hospital beds per 1000 population) in India is 1.0 while in low-income countries it is 1.2 , in middle-income countries it is 2.4 while in the world it is 2.7 . <u>72 per cent of hospital beds</u> in India are available in urban areas, while 28 per cent are in rural areas.
Poor Health Education	Lack of education and awareness about healthy lifestyles and preventive measures contributes to preventable illnesses and conditions.

In line with the objectives of UHC, the government has taken the following measures:

1. Ayushman Bharat: Launched in 2018. It consists of two components: Health and Wellness Centres (HWCs) and the Pradhan Mantri Jan Arogya Yojana (PMJAY) which provides health insurance coverage (declines out-of-pocket health expenditure by 21%)
2. National Health Mission (NHM): aims to provide accessible, affordable, and quality healthcare to rural and underprivileged populations (institutional deliveries in public health centres increased from 56% to 69% in rural areas)
3. National Ambulance Service-102: Setup as part of the National Health Mission operates Emergency Response Service Vehicles. The '108' service aims at responding within the 'golden hour'.
4. The National List of Essential Medicines (NLEM) and the Essential Diagnostics Lists have been notified and are periodically updated to ensure the availability of more essential, **The National Pharma Pricing Authority (NPPA)** is set up to monitor the availability of drugs, identify shortages, if any, and to take remedial steps.
5. The National Nutrition Mission has set an objective of reducing the undernutrition, problems of stunting

- by 2%.
6. Under India's G20 presidency, WHO launched the Global Initiative on Digital Health to boost investments and facilitate international health exchange.
 7. Increasing doctor population ratio: 1:854 is better than the World Health Organisation's standard of 1:1000. The number of UG (undergraduate) seats has increased from 51,348 before 2014 to 91,927 in 2022, which is an increase of 79 per cent.

Technology can be leveraged in the following ways to further augment it:

1. Telemedicine: allows remote consultation and diagnosis, enabling patients in rural and remote areas to access healthcare services. National telemedicine service of India, eSanjeevani achieved 8 crore teleconsultations in 2022.
2. Electronic Health Records (EHR): can enhance the efficiency and accuracy of healthcare delivery. The health ID provided for each patient will be a repository of his health-related information. Ayushman Bharat Digital Mission (ABDM) aims to develop the backbone necessary to support the integrated digital health infrastructure.
1. Mobile Health (mHealth): mHealth is an emerging concept involving the utilization of mobile devices and technology for health services, such as appointment scheduling, remote monitoring, and medication reminders.
2. Artificial Intelligence (AI): analyses large amounts of health data, identifies patterns and trends, and provides insights for developing new treatments and therapies thus reducing the workload of healthcare professionals and enhancing diagnostic accuracy.
3. IoT: The Internet of Things connects vital monitoring equipment giving a composite picture of the health of patients

Conclusion:

Ensuring healthcare as a right for all citizens is not only a moral imperative but also a key driver for social development and economic progress. WHO recommends reorienting health systems using the primary healthcare (PHC) approach, which can deliver 90% of essential UHC interventions. India should build on existing systems, implementing reforms and best practices incrementally for a healthier, more prosperous future.

Insta Links:

[Moving forward with a newer concept of Universal Healthcare](#)

Prelims Link:

With reference to the National Rural Health Mission, which of the following are the jobs of 'ASHA', a trained community health worker? (UPSC 2012)

1. Accompanying women to the health facility for antenatal care check-up
2. Using pregnancy test kits for early detection of pregnancy
3. Providing information on nutrition and immunisation.
4. Conducting the delivery of the baby

Select the correct answer using the codes given below:

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

Ans: (a)

19. WHO: MONKEYPOX IS A PUBLIC HEALTH EMERGENCY OF INTERNATIONAL CONCERN

Context:

The WHO has declared monkeypox a public health emergency of international concern, with 99,176 cases and 208 deaths reported across 116 countries since 2022. It has been declared a global PHEIC for the second time in two years.

What is Monkeypox?

Mpox (monkeypox) is a DNA virus from the Poxviridae family, first identified in monkeys in 1958. It spreads from animals

to humans through **direct contact**, and symptoms include **fever, headache, swollen lymph nodes, and** a rash that appears within two days of fever onset. First detected in humans in 1970 in the **Democratic Republic of Congo**.

A new **clade** (new strain of the virus), primarily **spread through sexual contact**, is causing concern due to its rapid spread. **Human-to-human transmission** occurs through close contact, including **skin-to-skin and sexual contact**. Testing is done via **PCR**. The outbreak, particularly in Africa, has prompted a global health emergency.



Smallpox, Chickenpox, and Monkeypox difference:

1. **Smallpox:** Caused by the Variola virus, it was highly severe and often fatal. It spread through respiratory droplets and contact, but it was eradicated in 1980.
2. **Chickenpox:** Caused by the Varicella-zoster virus, it is mild and common in children. It spreads easily through respiratory droplets and contact with lesions. Vaccination has reduced its prevalence.
3. **Monkeypox (Mpox):** Caused by the Monkeypox virus, it is milder than smallpox and rarely fatal. It spreads through contact with infected animals or fluids and is endemic in parts of Africa.

What is Public Health Emergency of International Concern (PHEIC)?

It is declared by **WHO under the International Health Regulations (IHR) of 2005** when an outbreak is unusual, poses a risk of international spread, and may require immediate global action. IHR is a **binding agreement involving 196 countries**. Since 2009, WHO has declared seven PHEICs, including the **H1N1 pandemic, polio, Ebola, Zika, COVID-19, and Mpox**.

Three Criteria for declaring:

1. The spread is an **“Extraordinary Event”**
2. It **“Constitutes a Public Health Risk”** to other States through the international spread of disease
3. It potentially requires a **coordinated International Response**

Why Mpox has been declared as PHEIC?

Mpox was declared a Public Health Emergency of International Concern (PHEIC) due to its rapid and unusual global spread, the **emergence of new viral strains, and the potential for widespread international transmission**.

How does PHEIC declaration help?

A PHEIC declaration **helps by alerting the global community to take coordinated action**, enhancing **international collaboration, mobilizing resources**, and implementing measures to prevent the spread of a health threat across borders.

Monkeypox (Mpox) cases in India:

It has been **relatively limited, with cases first reported in 2022**. As of now, there have been **at least 27 laboratory-confirmed cases** and one death. Initial cases were reported in Kerala from individuals with a history of international travel, and later cases were detected in Delhi among those without travel history. The prevalence remains low, but vigilance is required due to the potential for **spread through international travel and contact with infected individuals**.

Mains Link:

Q. Critically examine the role of WHO in providing global health security during the Covid-19 pandemic. (UPSC 2020)

Prelims Link:

Q. The term ‘ACE2’ is talked about in the context of (UPSC 2021)

- (a) genes introduced in the genetically modified plants
- (b) development of India’s own satellite navigation system
- (c) radio collars for wildlife tracking
- (d) spread of viral diseases

Ans: (d)

Q. Which of the following are the reasons for the occurrence of multi-drug resistance in microbial pathogens in India? (UPSC 2019)

- Genetic predisposition of some people
- Taking incorrect doses of antibiotics to cure diseases
- Using antibiotics in livestock farming
- Multiple chronic diseases in some people

Select the correct answer using the code given below.

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

Ans: (b)

20. INDIA’S SILENT EPIDEMIC: THE GROWING MENTAL HEALTH CRISIS

Context:

The National Medical Commission has formed a Task Force to address the high mental health issues among medical students, following 122 suicides in the past five years.

Background

- India has long struggled with a pervasive mental health crisis.
- The 2015-16 National Mental Health Survey revealed that 10.6% of the population aged above 18 years suffered from mental disorders, affecting an estimated 150 million people.
- More concerning is the treatment gap, estimated to be a staggering 80%, highlighting the severe shortage of mental health services and the low prioritization of mental health by policymakers.

India's Mental health interventions

- **Underdeveloped mental health infrastructure:** Only 0.3 psychiatrists per 100,000 people, below recommended ratio.
- **Lack of facilities and trained professionals:** hampers delivery of mental health services.
- **Policy Implementation Gaps:** Significant knowledge gap in policy implementation and intervention strategies.
- **Poor execution due to lack of clarity, financial constraints, and comprehensive approach.**
- **Inadequate budget allocations:** Contributes to the crisis.
- **Need for a Comprehensive Approach:** Insufficient biomedical approaches, need for social, psychological, and community-based strategies.

Positive Developments

- **National Mental Health Policy 2014 and Mental Health Act 2017:**
 - These legislative frameworks marked a significant shift towards prioritizing mental health, indicating a growing recognition of the issue at the policy level.
- **Lessons from the HIV-AIDS Control Program:**
 - India's HIV-AIDS program's success provides valuable insights for mental health interventions, suggesting a multi-sectoral approach involving government agencies, NGOs, and community organizations can be adapted.
- **Civil Society Contributions:**
 - Organizations like Banyan, Sangath, and the Centre for Mental Health Law and Policy have developed evidence-based strategies that address multiple aspects of mental health care, including rehabilitation and reintegration.

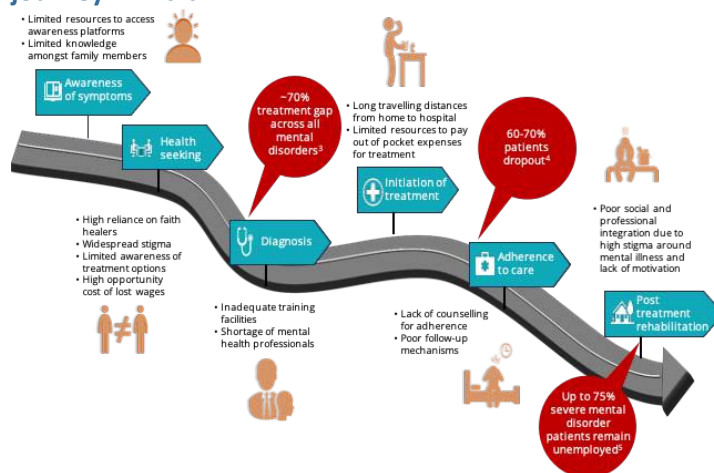
Concerns / Challenges

- **Lack of Political Will:** Mental health is a low priority, with less than 1% of total health budget allocated.
- **Implementation Challenges:** Policies lack clear guidelines and inadequate financial and physical

resources.

- **Insufficient Biomedical Approaches:** Biomedical interventions are insufficient to address complex mental health issues.

Challenges and barriers along the mental health patient journey in India:



Government Schemes

- **National Mental Health Programme:** Launched to provide mental health services at the community level, this program aims to integrate mental health care into general healthcare services.
- **District Mental Health Programme:** This initiative focuses on expanding mental health services to district levels, making them more accessible to rural populations.
- **Tertiary Care Institutions:** Institutions like the National Institute of Mental Health and Neurosciences (NIMHANS) provide specialized mental health services and training.

International Best Practices

- **Australia** has implemented a **National Mental Health Strategy** since 1992, which includes multiple national mental health plans aimed at improving mental health services and reducing the stigma associated with mental illness.
- **The UK** has introduced programs like **Improving Access to Psychological Therapies (IAPT)**, which offers evidence-based therapies for common mental health issues such as anxiety and depression.
- **Mental Health Strategy Launched by the Mental Health Commission of Canada**, focuses on promoting mental health across the lifespan, supporting recovery, and providing access to services.
- **Japan** has gradually shifted from institutional care to community-based care, with an emphasis on rehabilitation and social integration.

Way Forward

- **Nuanced Understanding of Challenges:** Understanding systemic challenges in mental health care is crucial, including cultural barriers, stigma, and resource constraints, which hinder effective treatment.

- **Comprehensive Strategy:** The HIV-AIDS program's success necessitates a comprehensive strategy involving all stakeholders, including scaling up evidence-based interventions like short-stay homes and peer-led programs.
- **Addressing Societal Factors:** Societal factors like poverty, inequality, and discrimination often exacerbate mental health issues, necessitating long-term improvements by addressing their root causes.
- **Community Engagement:** Active engagement with community leaders and affected populations in policy formulation ensures that interventions are culturally sensitive and widely accepted.

Conclusion

India's mental health crisis requires urgent attention and a concerted effort to bridge the gap between policy and implementation. A multi-sectoral approach, involving government, civil society, and community leaders, combined with innovative solutions and adequate resource allocation, will be key to addressing this critical public health issue.

21. INDIA'S FIGHT AGAINST TB: AIMING FOR A FUTURE WITHOUT TUBERCULOSIS

Context:

India faces a significant public health challenge with over 25% global TB burden, requiring 25.1 lakh cases in 2023. Government calls for collective efforts for TB elimination.

Background

- TB has long plagued populations worldwide, persisting as a major health issue despite advances in medicine and public health.
- India's fight against TB has seen significant progress, largely due to strong political will and enhanced case detection strategies. However, the battle is far from over.

Treatment Innovations

- Recent innovations in TB treatment offer hope for more effective and patient-friendly therapies. The introduction of the WHO-recommended shorter regimen known as **BPaL/M (Bedaquiline, Pretomanid, and Linezolid/Moxifloxacin)** marks a significant advancement, particularly for drug-resistant TB.
- This regimen, which **requires only 3-4 tablets daily for six months**, has **demonstrated a success rate of 89%, compared to the 68% success rate of traditional treatment regimens.**
- Additionally, BPaL/M is associated with **minimal side effects**, making it more tolerable for patients, which is crucial for improving treatment adherence and outcomes.

Adopting BPaL/M Regimen: Economic Benefits

- **Reduces TB treatment costs by 40% to 90%.**
- **Potential global savings of approximately \$740 million annually.**

- **Reduces employment and income loss from long, complex treatments.**
- **Benefits public health and reduces financial burden on patients and healthcare systems.**

Diagnostic Advancements

- Advancements in diagnostic technologies are pivotal to enhancing TB detection and treatment.
- The use of chest X-rays has proven effective in detecting 42.6% of TB cases that might otherwise be missed.
- The deployment of portable X-ray machines equipped with AI-driven tools has the potential to further reduce diagnostic delays, especially in remote and underserved areas.
- Additionally, the expansion of rapid molecular tests, which provide faster detection and drug resistance profiling compared to traditional microscopy methods, is a crucial step forward in timely and accurate TB diagnosis.

Challenges and Opportunities

- Despite these advancements, several challenges remain in the path towards TB elimination.
- The current treatment regimens remain lengthy, arduous, and fraught with severe side effects, posing a significant barrier to successful treatment adherence and completion.
- Identifying and screening vulnerable populations, particularly those with comorbidities, is critical.
- Many TB cases present without typical symptoms, complicating detection efforts.
- Additionally, there is a need to improve access to advanced diagnostic technologies in remote and rural areas, where healthcare infrastructure is often limited.
- Addressing these challenges requires a multifaceted approach, leveraging technology, targeted screening, and improved healthcare delivery systems.

Government Schemes

- The Indian government has launched several initiatives aimed at eradicating TB.
- The National TB Elimination Programme (NTEP) serves as the cornerstone of these efforts, complemented by the TB-Free India Campaign and the Nikshay Poshan Yojana, which provides nutritional support to TB patients.
- The Active Case Finding (ACF) initiative has been instrumental in identifying hidden cases of TB, while Universal Drug Susceptibility Testing (UDST) ensures that patients receive the most appropriate and effective treatment.

International Best Practices

- India can draw inspiration from international best practices in TB management.
- The WHO-recommended BPaL/M regimen is one such example, offering a shorter and more effective treatment for drug-resistant TB.
- The use of AI-driven tools in conjunction with portable X-ray machines has shown promise in TB

detection, as has the expansion of rapid molecular tests, which provide quicker and more accurate diagnosis.

- The use of rapid molecular tests, such as GeneXpert, enables the quick and accurate detection of TB and its drug-resistant forms.
- Community-based TB care models involve bringing diagnosis, treatment, and follow-up services closer to patients.
- Targeted screening programs focus on high-risk populations, such as individuals with HIV, prisoners, and migrants, who are more susceptible to TB.

Way Forward

- To achieve TB elimination, India must expedite access to the BPaL/M regimen for all eligible patients across the country.
- Targeted, multi-disease focused screening drives, utilizing health datasets and GIS mapping, could significantly improve early detection rates.
- Moreover, increased investment in advanced diagnostic technologies will be essential for improving TB detection and treatment outcomes, particularly in underserved areas.
- International best practices in TB elimination emphasize the importance of innovation, community engagement, and collaboration.
- By adopting shorter drug regimens, expanding rapid diagnostic tools, integrating AI-driven technologies, and implementing community-based care models, countries can significantly improve TB detection, treatment, and prevention efforts.

Conclusion

India's fight against TB requires sustained efforts, innovation, and strong political will to achieve elimination by 2030, setting a global example in the persistent disease.

Practice Question:

Discuss the challenges and opportunities in achieving Tuberculosis (TB) elimination in India by 2025 in light of recent advancements in diagnosis, treatment, and government initiatives. How can the adoption of innovative treatment regimens and diagnostic tools help in overcoming the existing barriers?

Topics: Important aspects of governance, transparency and accountability, e-governance applications, models, successes, limitations, and potential; citizens charters, transparency & accountability and institutional and other measures.

22. SUPREME COURT'S LANDMARK DECISION: SC/ST SUB-CLASSIFICATION REDEFINED

Context:

On August 1, 2024, the Supreme Court of India ruled in the case of State of Punjab and Ors Vs Davinder Singh and Ors that **states can sub-classify Scheduled Castes (SCs) and Scheduled Tribes (STs)** to grant additional quotas for the

more disadvantaged within these categories.

Timeline of the case:

Timeline	Description
Supreme Court in EV Chinniah case (2005)	The court held that Scheduled Castes (SCs) under Article 341(1) formed a homogeneous group and could not be subdivided
	Under Article 341(1) , the President designates SCs in states and union territories.
Punjab Scheduled Caste and Backward Classes Act, 2006	It mandated that 50% of vacancies reserved for SCs in direct recruitment be offered to Balmikis and Mazhabi Sikhs, contingent on their availability.
Punjab High Court Ruling (2010)	The Punjab and Haryana High Court (2010) struck down the provision of the Punjab act based on the EV Chinniah ruling, which relied on Article 341, stating that only the President can classify SCs.
SC in State of Punjab v. Davinder Singh (2020)	The sub-classification issue of Scheduled Castes (SCs) was referred to a seven-judge bench from a five-judge bench

Historical Context:

1. **Indra Sawhney Case (1992):** Established the 'creamy layer' concept for Other Backward Classes (OBCs) to ensure benefits reach the most disadvantaged.
2. **Differences from SC/ST:** The creamy layer concept has traditionally been applied to OBCs, and its adaptation to SC/ST groups is complex due to historical caste injustices.

What did the 7 judge bench of SC order now?

1. **Judgment Overview:**
 - a. **Sub-Classification Allowed:** States can now create sub-categories within SCs and STs for more targeted reservations.
 - b. **Creamy Layer Inclusion:** The Court emphasized the need to exclude the 'creamy layer'—more advantaged members—within SC and ST groups from affirmative action benefits.
 - c. **Empirical Study Requirement:** States must conduct studies before implementing sub-classification, and their decisions are subject to judicial review.
2. **Potential Criteria for SC/ST Creamy Layer:**
 - a. **Educational and Socio-Economic Factors:** The criteria may include educational background, similar to the OBC model but adjusted for SC/ST contexts

3. **The state cannot earmark 100% reservation** for a sub-class while allowing sub-classification
4. The State's power to sub-classify is **subject to judicial review**.
5. **Sub-classification does not violate the principle of equality** enshrined under Article 14 and the President's exclusive authority under Article 341 to identify SCs.

Constitutional Provision: Competence of States for Creating Sub-Classification

States have the authority to provide reservation benefits to SCs and STs under [Articles 15\(4\) and 16\(4\)](#), and [Articles 341\(1\) and 342\(1\)](#).

1. [Article 15\(4\)](#) empowers states to create special arrangements for socially and educationally backward classes like SCs and STs.
2. [Article 16\(4\)](#) allows States to make provisions for reservation in promotion if SCs and STs are underrepresented in state services.
3. [Articles 341\(1\) and 342\(1\)](#) permit the President, with consultation, to specify SCs and STs, including parts of these groups.

Sub-categorize Scheduled Castes and Scheduled Tribes are needed:

1. **Addressing Intra-Group Inequalities in Reservations:** Madiga Reservation Porata Samiti advocates for internal reclassification of Scheduled Caste reservations in Telangana.
2. **Equitable Distribution of Benefits:** Prevents concentration of benefits in dominant groups, promoting social inclusion.
3. **Constitutional Mandate:** Articles 15(4), 16(4), 341(1), and 342(1) empower states to create special arrangements for socially and educationally backward classes.
4. **Empowerment of State Governments:** Sub-categorization grants autonomy to tailor reservation policies to specific socio-economic conditions.
5. **Enhancing Social Mobility:** Sub-categorization empowers disadvantaged groups, fostering social mobility through education, employment, and political representation.

Challenges with Sub-Categorization of Caste:

1. **Inequality within Scheduled Castes:** Sub-categorization may not effectively address disparities, leading to marginalization of backward communities.
2. **Federalism Issue:** Constitutional dilemma over state authority to sub-categorize SCs and STs.
3. **Identification and Criteria Challenges:** Lack of consensus on criteria for sub-categorization.
4. **Data Accuracy Challenges:** Difficulty in obtaining accurate socio-economic data.
5. **Intra-group Disputes:** Sub-categorization may lead to internal conflicts and potential marginalization.

6. **Fragmentation Risk:** Risk of weakening collective identity and community strength.

Suggestions for Sub-Classifying Caste Groups:

1. **Deeper reading of Article 341** is necessary as it allows for sub-classification, allowing states to provide special measures within the SC list.
2. **Reasonable classifications**, such as sub-categorization for inter-se backwardness, are permissible under the Constitution.
3. **Sub-classification should be judged based on its merits** for fair treatment.
4. **Legal options like constitutional amendments can facilitate sub-categorization.**
5. **Comprehensive data collection on socio-economic conditions** is crucial for policy formulation.
6. **The concept of a "creamy layer" ensures reservation benefits reach those most in need.**
7. **Transparent criteria considering socio-economic status**, education, and regional disparities are essential for sub-categorization.
8. **Balancing diversity with community unity is crucial** for effective policies.

Committee Recommendations:

1. [Justice P. Ramachandra Raju Commission \(1996\)](#): Recommended sub-categorization of Scheduled Castes in Andhra Pradesh
2. [National Commission for Scheduled Castes \(NCSC\)](#): Advocated for measures to address intra-group disparities and
3. [National Commission for Scheduled Tribes \(NCST\)](#): Highlighted the need to prioritize existing schemes and government benefits to reach the most backward sections of Scheduled Tribes before considering sub-categorization.
4. [Usha Mehra Committee \(2008\)](#): Proposed the inclusion of [Clause \(3\) in Article 341](#) through a constitutional amendment, empowering state legislatures to enact reclassification of the Scheduled Caste category, subject to Presidential confirmation.
5. Justice G. Rohini headed the Commission for the Sub-categorisation of Other Backward Classes (OBC): Report submitted in August 2023

Conclusion:

Sub-categorizing Scheduled Castes is crucial for addressing internal disparities and ensuring targeted social justice. However, it requires careful consideration of constitutional provisions, data accuracy, and potential challenges to uplift marginalized communities effectively

Insta Links

- Sub-categorization of Other Backward Classes

Mains Links

What are the two major legal initiatives by the State since Independence addressing discrimination against Scheduled Tribes (STs)? (UPSC 2017)

Prelims Links:

Consider the following organizations/bodies in India: (UPSC 2023)

1. The National Commission for Backward Classes
2. The National Human Rights Commission
3. The National Law Commission
4. The National Consumer Disputes Redressal Commission

How many of the above constitutional bodies?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: A

With reference to the 'Changpa' community of India, consider the following statements: (UPSC 2014)

1. They live mainly in the State of Uttarakhand.
2. They rear the Pashmina goats that yield a fine wool.
3. They are kept in the category of Scheduled Tribes.

Which of the statements given above is/are correct?

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

Ans: B

23. US ANTITRUST RULING AGAINST GOOGLE

Context:

On August 5, US District Judge Amit Mehta ruled that **Google violated antitrust laws by maintaining a monopoly in “general search services” and “search text ads”** through exclusive deals with companies like Apple and Samsung.

What are “Anti-trust” issues?

Antitrust laws and regulations are **designed to promote fair competition and prevent anti-competitive practices** in the marketplace. “Anti-trust” issues refer to situations where companies or organizations **engage in activities that hinder competition**, limit consumer choice, or create monopolies or dominant market positions.

How does Google violate Anti-trust laws?

Google has been accused of **violating antitrust laws** by maintaining **its search engine monopoly** through exclusive agreements, **paying billions to companies like Apple and Samsung** to ensure Google’s dominance,

The Alliance of Digital India Foundation also has accused Google of stifling competition.

What are Big-Tech Firms?

Big Tech firms are global tech giants with significant market capitalization, extensive user base, and diverse product portfolio, dominating their respective sectors and digital platforms and services.

1. **Google** (controls the majority of online search traffic and digital advertising revenue)
2. **Amazon** (dominates e-commerce and cloud computing)
3. **Apple** (iPhone, iPad, and MacBook,)
4. **Facebook** (Meta) (Leads the social media landscape)
5. **Microsoft** (software, hardware, and cloud services)

Need for Regulations:

1. **Arbitrary Pricing:** Big Tech’s influence on pricing rules in the digital space, leads to concerns about fairness and competition.

2. **Regulatory Vacuum:** Challenges faced by regulators in keeping pace with rapid tech innovation, leading to reactive rather than proactive measures.
3. **Data Collection and Privacy Concerns:** Big Tech’s extensive data collection practices raise privacy, surveillance, and data security issues.

Specific concerns related to the functioning of Big Tech Firms:

Concerns	Description
Prioritizing In-House Services	Allegations against <u>Alphabet, Apple, and Meta</u> for steering customers towards their <u>in-house services over competitors’</u> , potentially limiting consumer choice. E.g., Apple prioritizes its App Store and Safari browser in its services.
Non-Compliance with DMA of EU	<u>Alphabet, Amazon, Apple, ByteDance, and Microsoft</u> were designated as ‘gatekeepers’ under the <u>Digital Markets Act (DMA) (in 2023)</u> and investigated for non-compliance.
Discriminatory Approach	The European Commission is investigating <u>Google for potential bias in search results</u> , focusing on whether the company favours its own services over competitors.
	<u>Competition Commission of India</u> has launched a probe into Google’s Play Store pricing policy for alleged discriminatory practices.
Reducing Choices for Customers	In October 2020, the US Department of Justice accused Google of <u>unlawfully maintaining monopolies</u> in search and search advertising markets through anti-competitive practices. They claimed it harmed consumers by limiting <u>search quality, reducing choices, and stifling innovation</u> .
Ecosystem Captivity	The European Commission is investigating <u>whether Apple allows users to uninstall pre-installed apps</u> , change default settings, and choose alternatives easily on iOS. They’re concerned that Apple’s practices might limit user choice within its ecosystem, <u>leading to ecosystem captivity</u> .
Concerns Over ‘Binary Choice’ of Meta	Meta introduced a <u>subscription model in the EU, EEA, and Switzerland</u> , allowing users to use Facebook and Instagram without ads or continue using them for free with personalized ads. Regulators found the <u>model’s “binary choice” insufficient</u> in providing a real alternative for users who don’t consent, failing to prevent data accumulation by gatekeepers.
Antitrust Concerns	E.g., <u>Facebook (Meta) is facing antitrust lawsuits</u> and probes for acquiring potential competitors like Instagram and WhatsApp, along with concerns about its control over digital advertising and social networking markets.
	Amazon is under antitrust scrutiny for <u>its treatment of third-party sellers, predatory pricing allegations, and potential conflicts</u> of interest as both a retailer and a marketplace operator.

Existing governance frameworks in place to regulate technologies for responsible use:

- **Competition Act, 2002 and Competition Commission of India (CCI):** The Competition Act, 2002 is the primary legislation governing antitrust issues (unfair competitive practices) in India for regulating Big Tech companies.
 - CCI is responsible for checking monopolistic practices and ensuring fair competition.
 - g., Recently CCI imposed heavy penalties on misuse of Google’s dominant position in the online search market
- **Competition Amendment Bill, 2022:** It mandates the Competition Commission of India (CCI) to establish regulations for assessing if an enterprise has significant business operations in India. This strengthens the Commission’s review process, particularly in digital and infrastructure sectors, previously under-reported due to lower asset or turnover values not meeting jurisdictional thresholds.
- **Information Technology Act, 2000:** The Act provides a legal framework for electronic governance by giving recognition to electronic records and digital signatures.
 - However, the act is old and doesn’t cover all aspects of technology misuse.
- **National Regulatory Frameworks:** E.g. The National Strategy for Artificial Intelligence (2018)
- **Industry Self-regulation:** Technology companies often develop their own codes of conduct and industry standards to govern the responsible use of technologies. Self-regulation can provide flexibility and adaptability to rapidly evolving technologies.
 - However, it may lack enforceability and uniformity across different industries and regions.
 - E.g. self-regulation of OTT platforms
- **Multi-stakeholder Initiatives:** Collaborative efforts involving governments, businesses, civil society organizations, and academia play a crucial role in technology governance. These initiatives focus on

dialogue, knowledge sharing, and best practice development.

- Examples include the Global Network Initiative (GNI) and the Partnership on AI (PAI).
- The RBI’s ‘Payments Vision 2025’ aims to regulate big tech and fintech in the payments sector.

Regulation of tech companies in other countries:

Country	Mechanism	Description
Europe	Digital Markets Act (DMA) and Digital Services Act (DSA)	The Digital Markets Act (DMA) aims to <u>ban harmful business practices</u> by large digital players, creating a fairer and more competitive economic space. The Digital Services Act (DSA) targets various online services, including websites, internet infrastructure services, and online platforms.
USA	Anti-trust legislation	The United States has <u>adopted anti-trust legislation</u> to address the dominance of Big Tech companies. These measures include giving states greater power in competition cases and increasing funding for federal regulators.
Australia	Competition watchdog recommendations	The competition watchdog in Australia has <u>recommended tighter regulations for Facebook and Google</u> to improve media competition. Additionally, the <u>Online Safety Act grants</u> the power to force social media companies to delete posts constituting online bullying and imposes fines on companies and hosts involved in the alleged abuse.

Global cooperation can contribute to the development of global standards for technology governance in the following ways:

1. Information Sharing and Best Practices: E.g, India can adopt legislation similar to the EU’s Digital Services Act to regulate India’s service marketplace.
2. Harmonization of Standards: Global cooperation can facilitate the harmonization of standards across countries and regions g., Algorithmic Accountability, to identify, assess and penalise harmful algorithmic amplification by Tech companies
3. Capacity Building and Technical Assistance: Global cooperation supports capacity-building efforts in developing countries by providing technical assistance and knowledge transfer.
4. Norm Setting and Policy Guidance: These norms can address issues such as AI ethics, privacy protection, autonomous systems, and digital rights.
5. Multilateral Governance Mechanisms: For regulating the flow of funds, drugs, etc. using the Dark Web and other unregulated technology networks.

The Standing Committee on Finance submitted its report on ‘Anti-Competitive Practices by Big Tech Companies’ in December 2022.

Key observations and recommendations include:

- **Regulate Digital Markets**: Assess competitive behaviour before monopolization.
- **Introduce Digital Competition Act**: Ensure fair digital ecosystem.
- **Avoid Self-Preferencing**: SIDIs should not favour their services over competitors.
- **Handle User Data**: SIDIs should handle user data responsibly.
- **Revamp CCI**: Strengthen CCI with a specialized digital markets unit.
- **Enable Third-Party Applications**: SIDIs should allow third-party applications without data transfer.
- **Avoid Bundling and Tying**: SIDIs should not force users to subscribe to additional services.
- **Avoid Anti-Steering**: SIDIs should not restrict business users from steering customers to offers outside the platform.

Conclusion

Collaborative efforts can help address the challenges posed by emerging technologies, promote ethical and responsible technology use, and ensure a globally inclusive and sustainable digital future.

Insta Link:

[RBI to regulate big-tech and fintech](#)

Mains Link:

[There is growing support for regulating big tech companies such as Facebook and Google. Discuss the reasons. \(15M\)](#)

Prelims Link:

With reference to ‘consumers’ rights/privileges under the provisions of law in India, which of the following statements is/are correct? (UPSC 2012)

1. Consumers are empowered to take samples for food testing.
2. When a consumer files a complaint in any consumer forum, no fee is required to be paid.
3. In case of death of consumer, his/her legal heir can file a complaint in the consumer forum on his/her behalf.

Select the correct answer using the codes given below:

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

Ans: C

WHO focus on specific global issues such as health and Education

Key UN reforms



24. G4 NATIONS: UNSC 'ILL-EQUIPPED' TO ADDRESS GLOBAL CHALLENGES

Context:

The G4 nations, represented by India, Brazil, Germany, and Japan, have called for **urgent reforms to the United Nations Security Council (UNSC)**, emphasizing that without addressing the current lack of representation, particularly in the permanent membership category, the UNSC is "**ill-equipped**" to handle modern global challenges.

Major Arguments of G4 Nation:

1. The G4 nations propose expanding the **UNSC membership from 15 to 25-26 members**, including **six new permanent members**, with **two from Africa**, **two from Asia-Pacific**, one from Latin America and the Caribbean, and one from Western Europe and other states.
2. **The G4 stresses** the importance of **Africa's representation**, noting that **Africa's agenda constitutes over 70% of UNSC discussions**, yet the continent lacks a permanent voice in decision-making.
3. The G4 also urge for the inclusion of the **Common African Position in the "Pact for the Future,"** to be discussed at the upcoming UN General Assembly.

What is the United Nations (UN)?

The United Nations (UN) is an international organization **established in 1945** (with the UN Charter) after World War II. **United Nations Day**, observed on October 24th annually since 1947, commemorates the organization's establishment in 1945. **UN's founding principles are:**

1. Collective security
2. Disarmament
3. Peacekeeping

The UN's structure comprises:

1. **General Assembly** as the primary policymaking body
2. **The UN Security Council (UNSC)** responsible for peace and security
3. **Specialized agencies like UNICEF and**

Issues in the Functioning of the UNSC:

1. **Overrepresentation:** European bias due to UK, France, Russia, and Latin America.
2. **Under-representation:** Latin America, Caribbean Group, Arab World, and Africa lack permanent members.
3. **Veto Power Misuse:** All five permanent members misused veto power for national interests.
4. **Non-transparent:** UNSC operates non-consultatively.
5. **North-South Inequality:** Only China represents global south, four nations for global north.
6. **Reflecting Colonial Mindset:** Permanent veto power granted to major powers, ignoring newly independent states.
7. **Fund Disbursal:** Decision-making skewed towards powerful nations, impacting global financial stability.
8. **Contemporary Faultlines:** COVID-19, Russia's invasion, and Gaza conflict strain UN principles.
9. **US-China Rivalry:** Shift in values challenges traditional multilateralism.
10. **Multiple Crisis Confronting Multilateralism:** Trust deficits, utility crises, and global emergencies strain multilateral cooperation.

Suggestions for Reforming UN:

Suggestions	Details
Development Reform	Implement bold changes to the UN development system.
	Establish new country teams and frameworks for sustainable development.
Management Reform	Simplify processes , work towards gender parity , and enhance efficiency.
Peace and Security Reform	Restructure peace and security operations to meet modern challenges effectively.

Security Council Reforms	Address representation gaps by including permanent members from underrepresented continents and emerging powers.
	<u>Role of G-20</u> : Encourage multilateral groupings as a new form of multilateralism and transform them into multi-stakeholder partnerships.
India	India's <u>NORMS reform (New orientation for a reformed multilateral system)</u> in the changing architecture of global governance, including the UNSC, is way ahead
	India has stressed <u>democratic status and global influence</u> , emphasizing the importance of an Inclusive World Order: It advocates for the UN to reflect emerging powers. It further calls for <u>democratizing decision-making processes</u>

- **Greater acceptance** with France and the U.S. supporting India's permanent and non-permanent seats.

Limitations:

- **Uncertainty in Selection Process:** Model doesn't specify member states for permanent seats, leading to ambiguity and disputes.
- **Delayed Veto Exercise:** Model's delay introduces uncertainty, hindering immediate decision-making.
- **Potential Resistance from Current Permanent Members:** Proposed reforms may dilute veto powers, diluting their influence.
- **Complex Decision-Making Process:** Requiring 14/15 members for decisions could lead to gridlock and inefficiency.

The article should be read in continuation of the previous article: [Future of United Nations: UN Reforms](#)

Conclusion:

The United Nations (UN) is well-positioned to tackle **complex challenges** like climate change, cybersecurity threats, and economic inequality. However, **reforms are needed to streamline bureaucracy, reduce inefficiencies, and ensure equitable representation. Despite these challenges, the UN remains crucial in global governance, humanitarian assistance, and crisis management.**

Key Highlights of the India's Proposed Model:

Highlights	Details
Enlarged Membership	11 Permanent members, and <u>14/15 non-permanent members with a 2-year term</u> to be elected based on current practice.
Equitable Regional Representation	Representation of <u>6 new permanent members</u> shall come from Africa (2), Asia-Pacific (2), Latin America and Caribbean (2), Western Europe and Other Member States (1).
Working Methods of Council	An affirmative <u>vote of 14/15 of 25/26 members</u> will be required for a decision.
Veto	<u>No veto rights to new permanent members</u> until decided by a review, held fifteen years after reform came into force.
Relationship between UNSC and UNGA	The council should <u>hold regular consultations with the President of UNGA</u> , submit annual reports and special reports to UNGA, etc.

About G4:

It consists of Brazil, Germany, India, and Japan, and aims to secure permanent seats on the UNSC. They mutually endorse each other's bids for permanent membership and regularly convene during the UN General Assembly sessions.

Insta Links:

- [If not reformed, the UN will be overtaken by other organisations](#)

Mains Links:

[What are the main functions of the United Nations Economic and Social Council \(ECOSOC\)? Explain different functional commissions attached to it. \(10 M\) \(UPSC 2017\)](#)

Prelims Links:

With reference to the "United Nations Credentials Committee", consider the following statements: (UPSC 2022)

1. It is a committee set up by the UN Security Council and works under its supervision.
2. It traditionally meets in March, June and September every year
3. It assesses the credentials of all UN members before submitting a report to the General Assembly for approval.

Which of the statements given above is/are correct?

- (a) 3 only
- (b) 1 and 3

Benefits of the proposed Model:

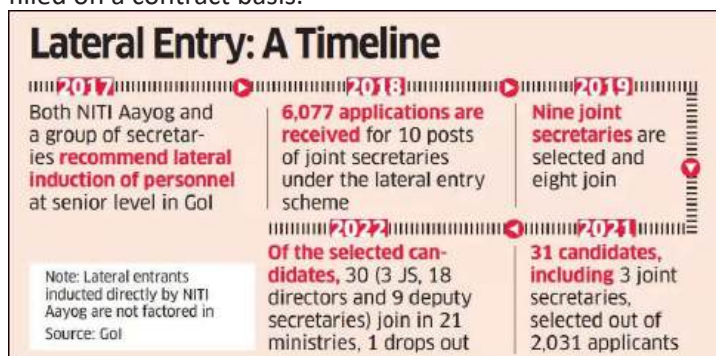
- **Increased membership** from 15 to 25-26 for diverse representation.
- **Equitable regional representation** from underrepresented regions.
- **Democratic election of new permanent members** by the General Assembly.
- **Flexibility on veto rights** for new permanent members.
- **Enhanced working methods** with an affirmative vote of 14/15 members.
- **Improved relationship with UNGA** through regular consultations and report submissions.

- (c) 2 and 3
 - (d) 1 and 2
- Ans: (a)

25. LATERAL ENTRY INTO THE CIVIL SERVICES

Context:

The central government has made its **largest push for lateral entry into civil services**, with the UPSC advertising **45 posts across various ministries**. These positions include **10 joint secretaries and 35 director/deputy secretaries**, to be filled on a contract basis.



About Lateral Entry:

The term lateral entry relates to the appointment of specialists, mainly those from the private sector, in government organisations.

Committees' recommendations on lateral entry:

- The idea has been advocated by Surinder Nath Committee (2003), Hota Committee (2004) and Second ARC (2008).
- NITI Aayog, in its three-year Action Agenda (2017—2020), recommended the induction of personnel at middle and senior management levels in the central government.

Aim: This move aims to **bring fresh talent and expertise into governance**, with a focus on improving policy-making.

Positive implications of lateral entry recruitment

1. **Enhanced Performance:** Bringing in target-oriented talent from the private sector can boost government efficiency.
2. **Increased Competition:** Introducing outside talent encourages competition, reducing complacency among civil servants.
3. **Proven Success:** NITI Aayog's positive experience with lateral entry highlights its effectiveness.
4. **Diverse Values:** Lateral entry infuses the government with values of economy, efficiency, and effectiveness, fostering a performance-driven culture.
5. **Specialized Knowledge:** Governance is increasingly complex, requiring specialized skills that generalist officers may lack. Specialists are essential for ad-

ressing modern administrative challenges.

6. **Filling the Gap:** Lateral entry helps bridge the shortage of IAS officers, filling critical gaps in the government workforce.
7. **Cultural Shift:** It promotes a shift away from bureaucratic red-tapism, encouraging a culture of efficiency and effectiveness.
8. **Participatory Governance:** Lateral entry allows private sector and non-profit stakeholders to actively participate in the governance process, promoting a more inclusive approach.

Negative implications of lateral entry recruitment

Negative Implications	Details
Non-application of Reservation Provisions	The government has said that the Reservation criteria do not apply to single-post jobs , potentially depriving underrepresented groups of opportunities in higher government positions.
Conflict of Interest Situations	Appointing individuals from private companies in related ministries may raise ethical concerns and questions of conflict of interest.
	Private sector professionals may struggle to transition from a profit-oriented approach to a public service mindset required in government roles.
Corruption Risk	Short-term lateral entry could lead to varying interests and motivations , potentially resulting in corrupt practices.
Lack of Training and Experience	Outside talent may lack the extensive field experience that civil services provide, potentially delaying administrative work.
Difficulty in Measuring Performance	The complex nature of government roles makes it challenging to assess the performance of lateral entrants.
Cumbersome Decision-Making Process	Lateral entrants may face difficulties adapting to the system without proper training , and by the time they build the necessary networks, their term may end.

Way forward:

1. **Objective Criteria:** Assign lateral entrants to meaningful portfolios with clear role requirements to ensure motivation and effectiveness.
2. **Relax Age Barrier:** Lower the age requirement for lateral entry to attract younger talent, similar to past practices with figures like Montek Singh Ahlu-

walia and Bimal Jalan.

3. **Transparent Process:** Ensure a transparent selection process, with UPSC’s involvement to provide legitimacy.
4. **Training:** Develop intensive training programs for private-sector entrants to help them navigate the complexities of government work.

Conclusion:

Lateral entry is beneficial but requires careful consideration of entry criteria, assignments, training, and systemic reforms to succeed.

Insta Links:

Lateral Entry

Mains Link:

Q. “Lateral entry into administration is a reform that needs to be better implemented”, do you agree? Give your opinion with a suitable justification. (250 words)

26. UNION GOVERNMENT ROLLS OUT REVAMPED GRIEVANCE HANDLING GUIDELINES

Context:

The Union Government has introduced **Comprehensive Guidelines for Handling Public Grievances** to streamline and improve the redressal process.

Key features include:

1. **Unified Platform:** CPGRAMS (www.pgportal.gov.in) for all grievances.
2. **Nodal Officers:** Appointed in each Ministry/Department for efficient grievance management.
3. **Grievance Cells:** Dedicated cells in every Ministry/Department with knowledgeable staff.
4. **Timely Redressal:** Grievances to be resolved within 21 days; interim replies for longer cases.
5. **Escalation Process:** Appellate officers for further review.
6. **Feedback Mechanism:** SMS and email updates, with appeal options for dissatisfied citizens.
7. **AI Analysis:** Feedback is analyzed using AI tools for improvements.
8. **Monthly Index:** Assessment index for ranking Ministries/Departments.
9. **Training:** Capacity building for grievance officers via state Administrative Training Institutes.

What do you understand by ‘Public Grievance’?

‘Public Grievance’ refers to the **complaints, concerns, or dissatisfaction expressed by citizens regarding the functioning of public services**, government policies, or administrative actions. It represents the grievances and grievances of the general public, highlighting their expectations of efficient and accountable governance.

- **Data:** According to the **Annual Report 2020-21 of the Department of Administrative Reforms and Public Grievances**, the number of public grievances received by the Government of India increased from 2,29,612 in 2015 to 18,31,507 in 2020, indicating the significance of public grievances in a democratic society.

Why is public grievance significant in a democratic society?

1. **Accountability:** Ensures the government is answerable and transparent.
2. **Citizen Empowerment:** Allows citizens to voice concerns and influence governance.
3. **Service Improvement:** Identifies and corrects flaws in public services.
4. **Trust Building:** Enhances public confidence in government actions.
5. **Participatory Governance:** Encourages citizen involvement in decision-making, e.g., Mahila Samakhya’s role in India.

Different levels of institutional mechanisms available for addressing Public Grievances in India:

Level	Mechanisms	Examples
Central Level	DARPG & DPG	CPGRAMS: 80% resolved in 60 days (2020)
	CPGRAMS	PMO Grievance Redressal System

State Level	State Public Grievance Redressal Commissions	Odisha OGRS: Streamlined grievance process
	State Grievance Portals	
Constitutional Bodies	National Commission for SCs	
	National Commission for STs	
Statutory Bodies	Lokpal/Lokayukta	Madhya Pradesh Lokayukta: Addressed corruption
	NHRC/SHRCs	NCDRC/SCDRCs: Consumer dispute resolution
Judiciary	High Courts & Supreme Court	

About CPGRAMS:

Aspect	Details
About CPGRAMS	A platform for registering complaints against Central and State authorities.
Genesis	Launched in 2007 by DARPG.
Achievements	Resolved 60 lakh grievances (2022-2024). Reduced redressal timeline from 30 to 21 days.
Reforms (2022)	Universal CPGRAMS 7.0, automatic flagging, AI/ML use.
Other Initiatives	PRAGATI : ICT-based grievance platform by MeitY.
	INGRAM : Portal for consumer grievances by the Department of Consumer Affairs.
	Sevottam : Model to improve public service quality (2006).

Conclusion:

Public grievance is a critical aspect of a democratic society as it allows citizens to voice their concerns, seek redressal for grievances, and hold the government and other institutions accountable. It promotes transparency, fairness, and inclusivity in governance.

Topics: [India and its neighbourhood- relations.](#)

27. BANGLADESH CRISIS: OUSTER OF SHEIKH HASINA’S GOVERNMENT

Context:

Sheikh Hasina has **resigned as Bangladesh’s Prime Minister amid violent protests**. The Bangladesh Army, **led by General Waker-Uz-Zaman**, has taken control and is in the process of forming an interim government.

What led to the protest and fall of the government?

Sheikh Hasina’s government collapsed due to protests over **a job quota system favouring descendants of independence fighters, student dissatisfaction, crackdown on opposition, and alleged human rights abuses**, leading to her resignation.

What was the Army’s role?

Bangladesh Army is said to have refused to intervene in the student’s protest, thereby leaving no choice for the Government, but to resign.

Over the years, the Bangladesh Army has played a **significant role in the country’s politics**, directly or indirectly controlling it for **15 years after the assassination of Sheikh Mujibur Rahman (the country’s founding figure) in 1975**. The army’s influence persisted until **Sheikh Hasina, Mujib’s daughter, rose to power in 2008**. In 2024, following widespread protests, the army **once again intervened**, taking responsibility for forming an interim government after Hasina’s resignation.

Impact of Sheikh Hasina’s Exit on India:

- Loss of a Trusted Partner:** India lost a reliable ally in Sheikh Hasina, who was sensitive to India’s security concerns and collaborated on counter-terrorism.
- China’s Influence:** Hasina’s exit may strengthen China’s influence in Bangladesh, complicating India’s regional strategy, especially with other challenging neighbours.

- 3) **Border Security Concerns:** The new government could be less friendly, increasing border security issues for India, especially given the existing tensions with Pakistan and China.
- 4) **Islamist Extremism:** Hasina’s departure may lead to a resurgence of Islamist extremism in Bangladesh, which could threaten India’s security.
- 5) **Transit and Connectivity:** India’s logistical supply routes to its Northeast may be impacted if the new government revises transit agreements.
- 6) **Potential Anti-India Stance:** The Bangladesh Nationalist Party (BNP), if it comes to power, might adopt an anti-India stance, straining bilateral relations.

India’s Stand During the Crisis:

1. India views the **Bangladesh protests as an internal matter**.
2. **Despite Hasina’s undemocratic practices**, India has supported her, creating tensions with the West, which has criticized her authoritarian methods.

What should India do?

1. **Supporting Allies:** India must navigate distancing itself from Hasina while engaging her opponents to maintain regional influence.
2. **Geopolitical Risks:** With Hasina gone, India must be cautious of Pakistan and China’s potential influence on Bangladesh, working with global partners to ensure stability.
3. **Beyond 1971:** India must move beyond the 1971 liberation narrative and engage with diverse political forces in Bangladesh based on mutual long-term interests.
4. **Partition’s Legacy:** The crisis underscores unresolved tensions from Partition, reminding both nations of the ongoing impact on their relationship.
5. **Regional Dynamics:** India’s strategy must recognize the independent agency of its neighbours, requiring patience and adaptability in its foreign policy approach.

Dimensions of India-Bangladesh Relations:

Dimensions	Description
Historical Ties	Initially forged during the 1971 Liberation War , bilateral relations have evolved positively under Sheikh Hasina’s leadership since 1996, culminating in significant agreements such as the Ganga water-sharing treaty
Economic Cooperation	Bilateral trade growth, reaching USD 14 billion in 2023-24 . Bangladesh is India’s biggest trade partner in South Asia and India is the second biggest trade partner of Bangladesh in Asia . Joint feasibility study for Comprehensive Economic Partnership Agreement (CEPA)
Infrastructure	Resolved Land Boundary Agreement (LBA) and maritime disputes. Inauguration of Akhaura-Agartala Rail Link . BIMSTEC Master Plan for Transport Connectivity. Matarbari Port development connecting Dhaka and Northeast India.
Energy	Bangladesh’s electricity imports from India. Cooperation in the Rooppur Nuclear Power Plant project . India-Bangladesh Friendship Pipeline will transport one million Metric Tonnes Per Annum (MMTPA) of High-Speed Diesel from Siliguri, West Bengal, to Parbatipur, Dinajpur district, Bangladesh.
Defence Cooperation	Shared border of 4096.7 km . Joint military exercises (Army – Exercise Sampriti, Navy – Exercise Bongo Sagar).
Multilateral Cooperation	Engagement in SAARC, BIMSTEC, and IORA forums. According to the India Tourism Statistics Report 2022 of the Ministry of Tourism, Bangladesh has been the second-largest tourist-generating market for India in the year 2021.

Other major challenges for India in its neighbourhood:

Country	Major Challenges for India
Pakistan	Strained relations due to the Kashmir conflict and cross-border terrorism.
	Economic crisis, political instability, and China-Pakistan Economic Corridor (CPEC) ties .
	Recent terrorist attacks , allegedly sponsored by Pakistan.

Nepal	Political Instability Affecting Policy Consistency
	Growing economic ties with China , especially through the Belt and Road Initiative (BRI).
	Ongoing border disputes , including Kalapani.
Sri Lanka	Economic recovery with India’s support.
	Ongoing issues like the Katchatheevu island dispute , Tamil minority treatment, and implementation of the 13th Amendment.
Maldives	Shift towards Pro-China stance after recent elections.
	Calls for reducing Indian military presence and the “India-Out” campaign .
Myanmar	Military coups and civil unrest led to instability.
	Challenges include the Rohingya refugee influx , increased Chinese influence, and balancing strategic interests with human rights concerns.
Bhutan	Efforts to diversify foreign relations and reduce economic dependence on India.
	Unresolved Doklam issue involving China.
	Need to update India-Bhutan relations to reflect Bhutan’s evolving aspirations.
Afghanistan	Taliban’s return to power reshaping regional geopolitics.
	India’s investments in Afghan development are at risk.
	Maintaining strategic influence through humanitarian assistance.

Insta Links:

- [India-Bangladesh relations](#)

Mains Links:

Q. Analyse internal security threats and transborder crimes along Myanmar, Bangladesh and Pakistan borders including Line of Control (LoC). Also discuss the role played by various security forces in this regard. (USPC 2018)

Q. Project ‘Mausam’ is considered a unique foreign policy initiative of the Indian Government to improve relationships with its neighbours. Does the project have a strategic dimension? Discuss. (UPSC 2015)

Prelims Links:

With reference to river Teesta, consider the following statements: (UPSC 2017)

1. The source of river Teesta is the same as that of Brahmaputra but it flows through Sikkim.
2. River Rangeet originates in Sikkim and it is a tributary of river Teesta.
3. River Teesta flows into Bay of Bengal on the border of India and Bangladesh.

Which of the statements given above is/are correct?

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

Ans: (b)

[Topics: Bilateral, regional and global groupings and agreements involving India and/or affecting India’s interests.](#)

28. INDIA-JAPAN RELATIONS

Context:

Japan’s Foreign Minister, Kamikawa Yoko, highlights the **deep historical ties and democratic values shared between Japan and India**. Kamikawa’s visit to India aims to strengthen the **“Japan-India Special Strategic and Global Partnership”** in key areas like defense, economics, people-to-people exchanges, and **Women, Peace, and Security (WPS)**.

Key points highlighted in the visit are:

1. **Historical Ties:** Japan and India share deep historical connections and democratic values.
2. **Strategic Partnership:** Strengthened **“Japan-India Special Strategic and Global Partnership”** in defense, economy, and more.

3. **Defense Cooperation:** Focus on security collaboration, including joint military exercises and technology sharing.
4. **Economic Collaboration:** Progress on key projects like High-Speed Rail and investments in Green and Digital Transformation.
5. **People-to-People Exchanges:** Expanded cultural and tourism exchanges, with events like “Japan Month” and “India Month.”
6. **Women, Peace, and Security (WPS):** Emphasis on women’s leadership in peace initiatives and collaboration in crisis response.
7. **Global Cooperation:** Commitment to multilateral frameworks like the Quad for a “Free and Open Indo-Pacific.”

India-Japan Relations:

India-Japan	Examples
Shared Values	Democracy, Freedom, and Rule of Law
Defence and Security Cooperation	<u>India and Japan Vision 2025</u> : Work together for peace and prosperity in the Indo-Pacific region and the world
	Relationship elevated to <u>Special Strategic and Global Partnership</u> (2014)
	“2+2” Dialogue
	Inclusive and Rule-based International order in Indo-Pacific
	<u>FOIP</u> (Free and Open Indo-Pacific).
	Acquisition and Cross-Servicing Agreement with India
	<u>Military exercises</u> : Dharma Guardian (army), Veer Guardian (Air Force), MILAN, JIMEX (Navy), and Malabar
Strengthening India’s Act East Policy	Japan supports <u>strategic connectivity</u> linking South Asia to Southeast Asia through synergy between the “ <u>Act East</u> ” policy and “ <u>Partnership for Quality Infrastructure</u> .”
Economic Cooperation	Japanese help during <u>India’s Balance of Payments (BOP) crisis</u> in 1991
	Bilateral trade over US \$20 billion (2022)
	Japan was the <u>4th largest investor</u> in India in FY2020.
	Industries Competitiveness Partnership
	Comprehensive and Economic Partnership Agreement (CEPA) since 2011
Culture	Buddhism
Healthcare	Narrative of AHWIN (Japan’s) for AYUSHMAN Bharat.
Investment and ODA	India has been the <u>largest recipient of Japanese Official Development Assistance (ODA)</u> Loan for decades (e.g., Delhi Metro, Western Dedicated Freight Corridor, High-Speed Railways).
Global Partnership	Both are members of G4, Asia-Africa Growth Corridor, Supply chain resilience initiatives, and QUAD.
Space	<u>LUPEX Mission</u> (India’s lunar lander and Japanese rover will explore the moon).
Nuclear Cooperation	<u>India-Japan Nuclear Deal 2016</u> will help India build six nuclear reactors in southern India.
Digital Infrastructure Cooperation	Cooperation in promoting joint projects for digital transformation (5G, Open RAN, Telecom Network Security, submarine cable systems, Quantum Communications).
Challenges	<u>Climate change and WTO talks</u> (Japan siding with developed countries). Japan’s frosty relations with Russia (Kuril Island dispute).
Conclusion	Relations between two powers can greatly support stability in the world.
	Japan can help in India’s rise, e.g., India’s quest to become a <u>global semiconductor Chip Manufacturing hub</u> .

Insta Links

70 YEARS OF INDIA-JAPAN TIES

Mains Links

The India-Japan relationship is facing challenges due to the changing global geopolitical scenario. Analyse the challenges

and suggest measures to address them. (250 Words)

Prelims Links

Consider the following countries: (UPSC 2018)

1. Australia
2. Canada
3. China
4. India
5. Japan
6. USA

Which of the above are among the ‘free-trade partners’ of ASEAN?

- (a) 1, 2, 4 and 5
- (b) 3, 4, 5 and 6
- (c) 1, 3, 4 and 5
- (d) 2, 3, 4 and 6

Ans: C

29. 3RD VOICE OF GLOBAL SOUTH SUMMIT: INDIA’S ‘GLOBAL COMPACT’

Context:

On August 17, India hosted the **3rd Voice of Global South Summit (VOGSS)**, proposing a ‘Global Development Compact’ to share its development experiences with other developing countries.

What is Global South?

The Global South includes countries often termed “**de-veloping**” or “**underdeveloped,**” distinct from the richer Global North. The **UN Conference on Trade and Development** notes that Global South countries often **face lower development levels**, high income inequality, rapid population growth, and significant external dependence. According to the World Bank, the GDP of the Global South **grew from 20% of world GDP in the 1970s-1990s to about 40% by 2012**. The term **Global South was first coined in 1969** by political activist **Carl Oglesby**.

What is ‘Global Compact’?

A Global Compact is **an initiative that brings together countries or organizations to commit to shared goals and principles**, often focusing on sustainable development, human rights, and global cooperation.

What is VOGSS?

The **Voice of Global South Summit (VOGSS) unites Global South countries** to share perspectives on issues aligned with the philosophy of ‘**Vasudhaiva Kutumbakam.**’ India hosted the **1st and 2nd VOGSS in January and November 2023**.

Key Highlights of the 3rd VOGSS:

- **Theme:** “An Empowered Global South for a Sustainable Future.”

- **Virtual Participation:** 123 countries joined; China and Pakistan were not invited.
- **Global Development Compact (GDC):** India proposed the GDC to address development finance concerns, focusing on trade, sustainable growth, and technology sharing.
- **Funding:** India will launch a \$2.5 million fund for trade promotion and a \$1 million trade policy training fund for capacity building.

India’s Role in the Global South:

Aspect	Details
Integrating Factor	The Global South needs a central figure to unify its negotiation process.
	India is a natural contender , actively fulfilling this role.
	In January 2023, India hosted the 1st Voice of Global South Summit with 47 African, 29 Latin American and Caribbean, 31 Asian, 11 Oceania, and 7 European countries.
India’s Foreign Policy Principles	India’s history of non-alignment and recent actions, such as distributing COVID vaccines , being neutral in Russia-Ukraine war, Gaza war, etc., bolster its credibility.
	India is seen as more credible than powers like the US and China in the Global South.
India’s Initiatives for global south	Social Impact Fund: India will contribute \$25 million for accelerating Digital Public Infrastructure (DPI) in Global South.
	Global South Young Diplomat Forum: Launched to promote education and capacity building.
	Vision of Aarogya Maitri: One World-One Health is India’s mission for health security E.g. Jan Aushadhi Kendras’ in African and Pacific Island countries.
Bridge Between North and South	As a democracy with diverse cultural and socio-economic backgrounds , India is well-placed to address equity and sovereignty concerns.
	India can facilitate dialogue between the North and South.
	Examples include India’s role in the Quad and adding the African Union to the G20 to represent developing nations’ concerns.

What is India’s Global South Vision?

India’s Global South Vision emphasizes fostering **strategic partnerships with nations in the Southern Hemisphere**, aiming for **a more equitable and inclusive global order**. It focuses on economic cooperation, **multilateralism, and**

solidarity among developing countries to address common challenges and promote sustainable development.

Challenges Faced by the Global South:

1. **Outdated global governance** and financial institutions.
2. **Technology divides** between North and South.
3. Ongoing threats from **terrorism, extremism, and separatism**.

Conclusion

In all, the **energy and the environmental crisis as well as the geopolitical contestation** will have a significant impact on the Global South.

Amidst this, **India** is in somewhat of a sweet spot to **negotiate middle paths to these challenges**. Therefore, it is likely that India will **emerge as the definitive capital and voice of the Global South**.

Insta Links:

1. India’s Strategic Focus: Centering Africa in the Global South Vision
2. India-Africa ties

Mains Link:

1. **How does India see its place in the economic space of rising natural resource-rich Africa? (UPSC 2014)**
2. **Increasing interest of India in Africa has its pros and cons. Critically Examine. (UPSC 2015)**

Prelims Link:

Consider the following statements: (UPSC 2016)

1. The India-Africa Summit
 2. held in 2015 was the third such Summit
 3. was actually initiated by Jawaharlal Nehru in 1951
- Which of the statements given above is/are correct?

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

Ans: A

30. PM’S VISIT TO UKRAINE

Context:

Prime Minister Narendra Modi’s visit to Ukraine on August 23, 2024, was largely seen as a diplomatic balancing act rather than a significant peace effort.

Key Highlights of the Visit

1. Cooperation in **agriculture and food industry**.
2. **Humanitarian grant assistance** for community development projects.
3. **Cultural cooperation** and agreement on medicines

and drugs.

4. Provided four **BHISHM** (Bharat Health Initiative for Sahyog Hita & Maitri) Cubes containing medicines and equipment for first-line care.

India-Ukraine Relations:

Area	Details
Diplomatic Relations	India recognized Ukraine as an independent country in December 1991 after the breakup of the Soviet Union. Warm and friendly relations, cooperation in education, legal assistance, and outer space.
Defence Relations	Ukraine has supplied military technology to India since its independence. India uses Ukraine-made R-27 air-to-air missiles for SU-30MKI fighters . India has started supplying weapons to Ukraine to enhance defence cooperation.
Trade	India is Ukraine’s largest export destination in the Asia-Pacific region and fifth largest overall. Pharmaceuticals are India’s main export to Ukraine.
Culture	Over 30 Ukrainian cultural associations promote Indian dance across Ukraine. Approximately 18,000 Indian students, primarily in medical fields, study in Ukraine. Indian professionals work in pharmaceuticals, IT, engineering, and more.
Agriculture	Pre-war Ukraine was one of the biggest sources of sunflower oil for India .
Post-war Recovery	Both countries are exploring Indian companies’ involvement in Ukraine’s reconstruction and recovery efforts.
Other	Opportunities in medical education and other sectors .

India’s Stand on the Ukraine-Russia Conflict:

1. Advocates **peaceful resolution through dialogue and diplomacy**.
2. Asserted that **India is not neutral, choosing the side of peace**.
3. Expressed concern **without openly condemning Russia**.
4. Emphasised the **importance of the UN Charter and territorial sovereignty**.
5. Highlighted the **economic impact of the war on the Global South**.
6. Strongly favours a **return to dialogue and diplomacy**.

Why is India regarded as the best mediator?

- Won credibility as **a neutral mediator** despite diplomatic

tensions.

- **Prevented attack on Zaporizhzhia nuclear power station** in Ukraine.
- Involved in discussions to intervene with Russia **during Black Sea grain shipment**.
- **Mexico suggested India, Pope Francis, and UN Secretary-General mediate Russia-Ukraine crisis.**
- **Good relations with Moscow and West can pressure Russia to end Ukraine war.**
- **Peace-making** could help India **gain a permanent UN Security Council seat.**

Challenges ahead for India to be a mediator:

- **Understanding dynamics between Russia and Ukraine, Russia and European players,** and Ukraine and European partners.
- Demonstrating **effective negotiation skills** in bilateral and multilateral formats.
- Considering India’s risk-taking abilities in its immediate region, entering a geopolitical crisis of this size is different.
- Despite criticism, India maintains a **close relationship with Russia** due to its strategic ties in nuclear, space, defence, energy, and connectivity sectors.
- Russia does not transfer military technologies to any other country.
- India cannot afford a closer strategic relationship with Russia and China.

Conclusion:

The Russia-Ukraine crisis has entered a new phase, in which Indian diplomacy could aid in a range of realistic ways to address the stated challenges.

Insta Links:

[Globe-changing reverberations of the Ukraine war](#)

Mains Link:

[Q. The Ukraine conflict seems to have reached a deadlock. How can Indian diplomacy participate and contribute to the peace efforts in the Russia-Ukraine war? Examine. \(15M\)](#)

31. US-INDIA RELATIONS: STEADY TIES IN A SHIFTING POLITICAL LANDSCAPE

Context:

India’s relationship with the **US has thrived under both Republican and Democratic administrations.** As the US faces potential leadership changes with either Donald Trump or Kamala Harris, India’s ties with Washington are expected to remain strong due to their well-established foundation.

Key Points from the article:

- **Consistent Growth:** India’s relationship with the US has strengthened over the years, from President

Bill Clinton to Joe Biden. Both the Trump and Biden administrations have advanced this partnership, and India’s leaders across party lines have supported deepening these ties.

- **Geopolitical Position:** The US is India’s most significant global partner, surpassing China and Russia in economic and technological engagement. Despite internal and external challenges, the US-India relationship remains a priority.
- **Policy Continuity:** Both Trump and Harris are likely to continue supporting strong US-India relations. Harris’s stances on immigration, trade, technology, and Eurasian security suggest alignment with key Indian interests. Her focus on legal immigration, trade relief, and technology collaboration could benefit India.
- **Strategic Cooperation:** The shared interest in countering Chinese influence and building a multipolar Asia will likely persist. Harris’s previous engagement with Asia and commitment to NATO and Ukraine align with India’s strategic goals.

Evolution of India-US relations over time:

Era/Period	Key Developments
From Estrangement to Engagement - The Cold War Thaw	<ul style="list-style-type: none"> - Cold War Era: India and the US were on opposite sides; India pursued non-alignment while Pakistan aligned with the US. - 1990s Thaw: Relations began to warm with India’s economic liberalization and the end of the Cold War. - 2000 Visit: President Bill Clinton’s visit marked the first presidential visit in over 20 years. - 2004 NSSP: The signing of the Next Steps in Strategic Partnership (NSSP) strengthened ties. - Increased Dialogue: Strategic dialogues and economic cooperation began to grow.
Nuclear Breakthrough - A New Era of Trust	<ul style="list-style-type: none"> - 2008 Civil Nuclear Agreement: Ended India’s nuclear isolation and recognized it as a responsible nuclear power. - Global Integration: Paved the way for India’s integration into the global nuclear order. - Defense and High-Tech Cooperation: Increased cooperation in defence and high-technology sectors. - US Commitment: Demonstrated the US’s commitment to elevating India’s global stature.

<p>Defense Ties - From Buyer to Partner</p>	<ul style="list-style-type: none"> - Early 2000s Growth: Defense cooperation grew significantly. - 2016 Major Defense Partner: The US designated India as a Major Defense Partner. - 2018 STA Tier 1: India received license-free access to a wide range of military and dual-use technologies. - Foundational Agreements: LEMOA (2016), COMCASA (2018), and BECA (2020) enabled deeper military cooperation. - Joint Exercises & 2+2 Dialogue: Strengthened strategic ties through joint exercises like Malabar and the establishment of the 2+2 Ministerial Dialogue.
<p>Economic Synergy - Beyond Trade to Strategic Cooperation</p>	<ul style="list-style-type: none"> - 2023-24 Trade: Bilateral trade reached USD 118.28 billion; US is India's largest trading partner and significant source of FDI. - Expanded Cooperation: Beyond trade, areas like clean energy, digital economy, and healthcare are key. - SCEP 2021: US-India Strategic Clean Energy Partnership. - Covid-19 Vaccine Collaboration: Demonstrates evolving economic ties.
<p>Collaborating in the Digital Age</p>	<ul style="list-style-type: none"> - Technology Cooperation: Focus on emerging technologies like AI, quantum computing, and 5G. - 2009 Endowment Fund: US-India Science and Technology Endowment Fund fostered innovation. - Recent Initiatives: US-India Artificial Intelligence Initiative and Critical and Emerging Technology Initiative (iCET) launched in 2022.
<p>Geopolitical Alignment - Partners in the Indo-Pacific</p>	<ul style="list-style-type: none"> - China's Rise: Brought India and the US closer strategically. - Quad Revival: Quadrilateral Security Dialogue (Quad) with Japan and Australia. - Indo-Pacific Strategy: India's inclusion in the US Indo-Pacific strategy. - Joint Statements & Initiatives: Emphasis on a "free and open Indo-Pacific" and initiatives like the Supply Chain Resilience Initiative.

<p>High-Tech Partnership</p>	<p>Semiconductor supply chain agreements; Introduced Indo-U.S. Quantum Coordination Mechanism to facilitate better collaboration among academia and industries;</p>
<p>Defence Cooperation</p>	<ul style="list-style-type: none"> · Strategic Defence partnership; India – US Defence Acceleration Ecosystem (INDUS-X); · MoU between GE and HAL for manufacturing GE-F414 jet engines in India (with 80% technology transfer) to be used in Tejas Mk2 · Purchase of 16 armed MQ-9B SeaGuardian UAVs; · Defence acceleration ecosystems; · Ship repair agreements; · Placement of Indian liaison officers at US commands
<p>Space Cooperation</p>	<ul style="list-style-type: none"> · India signing the Artemis Accords for lunar and space exploration; · NASA provides advanced training to Indian astronauts; · Strategic Framework for human spaceflight cooperation by 2023 end · NASA and ISRO have agreed to launch a joint mission to the International Space Station in 2024
<p>Trade and Consular Issues</p>	<p>Resolution of WTO disputes and market access; Establishment of new consulates in India (Bengaluru and Ahmedabad) and the US (India's consulate in Seattle); Relaxation in H1B visa norms</p>
<p>Clean Energy</p>	<ul style="list-style-type: none"> · US-India New and Emerging Renewable Energy Technologies Action Platform to accelerate cooperation in green hydrogen and other emerging technologies. · The U.S. Agency for International Development is to support Indian Railways to become a "net-zero" carbon emitter by 2030. · India joins the Mineral Security Partnership (MSP) to advance critical energy minerals supply chains globally, adhering to environmental and social standards.
<p>Innovation partnership</p>	<p>Created a new Joint Task Force of the Association of American Universities and leading Indian educational institutions to expand research and university partnerships.</p>

Other areas of India-US Partnership

Highlights	Description
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Insta Links:

- India-US Economic Relations

Mains Links:

Q. What introduces friction into the ties between India and the United States is that Washington is still unable to find India a position in its global strategy, which would satisfy India’s National self-esteem and ambitions’. Explain with suitable examples. (UPSC 2019)

Prelim Links:

Q. India Government Bond Yields are influenced by which of the following? (UPSC 2021)

1. Actions of the United States Federal Reserve.
2. Actions of the Reserve Bank of India.
3. Inflation and short-term interest rates.

(a) 1 and 2 only

(b) 2 Only

(c) 3 Only

(d) 1, 2 and 3

Answer: D

Topics: [Effect of policies and politics of developed and developing countries on India’s interests, Indian diaspora.](#)

32. CONTRIBUTIONS OF INDIAN DIASPORA TO US SOCIETY

Context:

A BCG and Indiaspora report highlight that, **despite being only 1.5% of the U.S. population, Indian Americans have made significant contributions to American society.**

The **United States** has a four million-plus strong Indian diaspora, the **second-largest immigrant group in the US**. The **high-achieving Indian Americans have gained attention like never before.**

Contributions:

Category	Contributions
Economic Impact	CEOs of Indian origin head 16 Fortune 500 companies.
	Notable leaders: Satya Nadella (Microsoft), Shantanu Narayen (Adobe).
Cultural Influence	Diwali and Holi widely celebrated.
	Renowned chefs: Vikas Khanna.
	Wellness practices: Deepak Chopra.
Innovation, Research, and Development	13% of US scientific publications co-authored by Indian Americans.
	Prominent figures: Har Gobind Khorana, Abhijit Banerjee, Manjul Bhargava.
Government and Public Services	Kamala Harris: First woman Vice President of Indian descent.
	Bobby Jindal: First Indian American Governor.

Rise and significance of Indian diaspora in the U.S.:

- **Presence and Dominance:**
 - The Indian diaspora excels in **politics, administration, entrepreneurship, technology, medicine, science, and academia.**
 - They are the **most educated and highest-earning Asian group** in the U.S.
- **Skilled Labor:**
 - Indian professionals, **especially in IT and engineering**, are crucial to U.S. businesses through the H-1B visa program.
 - **High-profile figures** like Sundar Pichai, Satya Nadella, and Parag Agarwal enhance India’s reputation as a tech powerhouse and a source of top talent.

Impact:

1. **Changed perceptions:** The success of the Indian-American community has significantly changed the U.S. perception of Indians and India. E.g., As part of “**soft diplomacy**,” Indian-Americans played a **pivotal role** in the fructifica-

- tion of the historic **Indo-US nuclear deal in 2005**.
- Strengthened the India-US relationship:** The fifth largest economy in the world, India today, is seen in the US as a strong bilateral partner **sharing common democratic values**.
 - Economic:** The U.S. is the top remittance source (\$26B of \$113B in 2022-2023).
 - Brain Gain:** ~20% of Indian unicorns have U.S.-educated co-founders, e.g., Rahul Chari (PhonePe), Harsh Jain and Bhavin Seth (Dream11).
 - Political:** Effective diplomacy and lobbying, e.g., Indo-US civil nuclear deal.
 - Cultural Diplomacy & Soft Power:** 1 in 10 Americans practices yoga (2023); Spread of Indian cuisine and Ayurveda.
 - Indo-US Scientific Collaboration:** Projects like NISAR and iCET.

Conclusion

The uncompromisable role of the Indian-American community has become inevitable to the **all-round development of the US**, and this has significantly **transformed the perceptions of and dealings with India**.

Insta Link:

- Indian Diaspora: The roots of global success
- Indian Diaspora

Mains Link: UPSC 2017

Indian Diaspora has an important role to play in Southeast Asian countries’ economies and societies. Appraise the role of the Indian Diaspora in Southeast Asia in this context.

GENERAL STUDIES – 3

Topics: Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

1. WORLD BANK REPORT 2024: MIDDLE-INCOME TRAP

Context:

The World Bank **Report 2024** report offers a roadmap to help developing countries **escape the Middle-Income Trap**, where countries with GDP per capita **between \$1,136 and \$13,845** face growth slowdowns and struggle to reach high-income levels.

What is a Middle-Income Trap?

The World Bank **defines the middle-income trap** as a situation where a middle-income country struggles to become a high-income economy due to rising costs and declining competitiveness. There are concerns that India may fall into this trap, potentially stalling at a per capita income **of USD 5,000-6,000** on its path to becoming a developed economy.



Key Highlights of the Report:

- **Wealthy countries often hit a growth slowdown** at around \$8,000 per capita (10% of U.S. GDP per person).
- **Since 1990, only 34 middle-income countries (MICs)** have transitioned to high-income status.
- **As of end-2023, 108 MICs host 75%** of the global population and generate over 40% of global GDP.
- **Challenges for MICs include ageing populations**, rising protectionism, and the need for faster energy transitions.
- **India, a Lower MIC since 2007**, has a GNI per capita of **\$2,540 and may take 75 years to reach one-quarter of U.S. income per capita** at current trends.

Why Countries Fall into the Middle Income Trap

1. **Struggles of Developing Countries:** Middle-income nations often lag due to competition with low-wage producers and lack of innovation, stalling growth.
2. **Structural Shift:** Transitioning sectors or growth drivers risk stagnation in per capita income, especially if innovation capabilities are lacking.
3. **Rising Income Inequality:** High-income inequality, exemplified by large wealth gaps, restricts consumer spending and economic progress.

Reasons for India’s Susceptibility to Middle-Income Trap:

Reason	Description
Rising Protectionism	Increasing global protectionism may prevent India from benefiting from hyper-globalization , unlike China, South Korea, and Japan.
Structural Transformation	India’s high dependency on agriculture (45-50% of the population) and premature deindustrialization hinder the shift from primary to secondary and tertiary sectors.
State Control	Persistent state control , including retrospective taxation and unstable policies, limits private sector growth and investment.
Human Capital Formation	The quality of education and employability of graduates is below international standards, with around 55% of graduates deemed unemployable.
Climate Change	Frequent climate-related disasters and reliance on monsoon-dependent agriculture pose significant risks, consuming resources and impacting productivity.

Key Recommendations of the Report:

- Adopt the **3I (Investment, Infusion, Innovation) strategy**.
- **Stimulate business dynamism** by rewarding value-adding firms.
- **Provide equal opportunities** to women, minorities, and disadvantaged groups.
- **Reflect environmental costs** in energy prices to enhance economic efficiency.

What more can be done?

Action Needed	Description
Greater Divestitures	Privatize inefficient public enterprises to raise funds, improve productivity, and attract foreign investment.
Boost Middle Class	Cut taxes or replace income tax with a consumption tax to increase disposable income and simplify the tax system.
Increase Labor Force Participation	Invest in education and skill development ; support initiatives like the New Education Policy and Skill India Mission .
Accelerate Infrastructure Pipeline	Invest in and speed up the execution of infrastructure projects , such as roads and power, to enhance connectivity and quality of life.
Build on Manufacturing Momentum	Enhance India’s role as a global manufacturing hub with initiatives like PLI; improve ease of doing business and labour laws.
Boost Private Investment	Attract more foreign and domestic investment through support for infrastructure and manufacturing projects.
Implement Structural Reforms	Undertake targeted reforms to improve productivity and competitiveness in sectors like finance, urban planning, and e-commerce.
Increase Capital Accumulation	Boost investment to achieve the USD 30 trillion economy goal, with government support for infrastructure and manufacturing.

Mains Links:

Q. Define potential GDP and explain its determinants. What are the factors that have been inhibiting India from realizing its potential GDP? (UPSC 2020)

Prelims Links:

Q. Which of the following gives the 'Global Gender Gap Index' ranking to the countries of the world? [UPSC 2017]

- (a) World Economic Forum
- (b) UN Human Rights Council
- (c) UN Women
- (d) World Health Organization

Answer: (a)

2. RBI KEEPS REPO RATE UNCHANGED

Context:

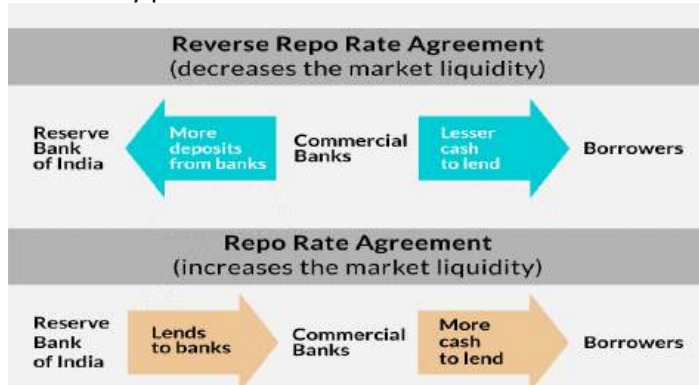
The Reserve Bank of India (RBI) has refrained from cutting the repo rate despite stable inflation rates. The repo rate, which influences loan EMIs, has remained unchanged since February 2023.

RBI Monetary Policy Meeting Summary:

1. **Repo Rate:** Held steady at 6.5% for the ninth consecutive time.
2. **Inflation Drivers:** Core inflation is moderate, but food prices have pushed headline inflation to 5.1%.
3. **Policy Stance:** MPC continues with a disinflationary approach while supporting growth.
4. **Rates:** Standing Deposit Facility at 6.25%, Marginal Standing Facility and Bank Rate at 6.75%.
5. **Growth Projections:** Real GDP growth for 2024-25 is projected at 7.2%, with CPI inflation forecasted at 4.5%.

What is the Repo Rate and who maintains it?

The repo rate is the interest rate at which the RBI lends money to commercial banks. It impacts economic activity: a lower rate stimulates borrowing and spending, while a higher rate discourages it. The RBI's monetary policy aims to maintain price stability, target a 4% inflation rate, and promote economic growth by adjusting the repo rate accordingly. Lowering the rate stimulates borrowing post-pandemic, while raising it curbs excessive spending during inflationary periods like the Russia-Ukraine conflict.



Other Tools for Controlling Interest rates

1. **Open Market Operations (OMO):** The RBI buys or sells government securities to adjust money supply and interest rates.
2. **Cash Reserve Ratio (CRR):** The percentage of deposits banks must hold with the RBI, influencing their lending capacity.
3. **Statutory Liquidity Ratio (SLR):** The percentage of deposits banks must invest in government securities, also affecting liquidity and interest rates.

Reasons for Not Cutting Interest Rates:

Reasons	Description
1) Sticky Inflation:	Despite a gradual decline, <u>inflation hasn't reached the 4% target</u> since January 2021, hovering around 5%
2) Commitment to Durable Inflation Targeting:	The RBI aims for <u>sustained inflation around 4%</u> , not just occasional dips below this level.
3) Strong Economic Growth:	India's GDP growth rate has been robust, with forecasts <u>revised upwards to 7.2%</u> for the current financial year, suggesting no urgent need for rate cuts to stimulate activity.
4) Fiscal Deficit Concerns:	The RBI's decision may be <u>influenced by the forthcoming Union Budget and government borrowing plans</u> , which could impact inflation or interest rates.

Understanding the Impact of High Interest Rates:

Positives:

1. **Taming Inflation:** High rates discourage borrowing and spending, reducing the money supply and easing inflationary pressures.
2. **Financial Stability:** Attract foreign investments, strengthening the rupee and foreign exchange reserves, boosting financial stability.
 1. E.g. India's foreign exchange reserves surged past \$600 billion in 2023 amidst high interest rates, providing a cushion against global uncertainties.
3. **Promoting Savings:** Higher interest rates on deposits incentivize saving, increasing domestic capital availability for investment and growth.
 1. E.g. Fixed deposit rates above 7% in India have encouraged individuals to save more, leading to higher bank deposits.
4. **Curbing Asset Bubbles:** Discourage excessive speculation in assets like real estate and stocks, promoting financial market stability.
 1. Example: High interest rates during

2010-11 helped cool down the overheating real estate market in India, preventing a potential bubble.

5. **Encouraging Financial Discipline:** High rates promote prudent borrowing and lending practices among businesses and individuals, reducing risk-taking and defaults.

Negatives:

1. **Slower Economic Growth:** Expensive borrowing can dampen investment and consumer spending, potentially slowing economic growth.
 1. E.g. High interest rates during 2019-20 contributed to a slowdown in India's GDP growth rate.
2. **Increased Debt Burden:** Existing borrowers face higher interest payments, straining finances and potentially leading to defaults.
3. **Impact on Investment:** High rates can discourage investments in key sectors like infrastructure and manufacturing, hindering long-term growth.
4. **Pressure on Businesses:** High borrowing costs can squeeze profit margins and hamper business expansion plans, potentially impacting job creation.
 1. E.g. Small and medium enterprises (SMEs) often face challenges in accessing credit at high interest rates.
5. **Impact on Consumer Spending:** High interest rates on credit cards and personal loans can reduce discretionary spending, impacting retail sales and overall consumption.
 1. E.g. High interest rates on auto loans have led to a slowdown in car sales in India.
6. **Currency Appreciation:** High interest rates can attract foreign capital, leading to currency appreciation, which can hurt export competitiveness.
 1. E.g. The Indian rupee's appreciation in 2023 due to high interest rates posed challenges for export-oriented sectors like textiles and IT.

Conclusion

The RBI's decision to maintain high interest rates reflects its efforts to balance inflation control with growth considerations. It will continue to monitor economic data and adjust rates as needed to achieve a harmonious outcome for the Indian economy.

Other steps announced by RBI in this MPC Meeting:

1. **Rationalization of Export and Import regulations** under the Foreign Exchange Management Act (1999) to boost ease of doing business.
2. **Establishment of a Digital Payments Intelligence Platform (DPIP)** using advanced technology to combat payment fraud.
3. **Formation of a committee chaired by A.P. Hota** to explore setting up a digital public infrastructure for DPIP.
4. **Integration of UPI Lite into the e-mandate framework** with an auto-replenishment feature for the UPI Lite wallet.
5. **Revision of bulk deposit definition to include Single Rupee term deposits of ₹3 crore** and above for Scheduled Commercial Banks (excluding Regional Rural Banks (RRBs)) and Small Finance Banks. For Local Area Banks, the threshold is ₹1 crore and above as applicable for RRBs.

About MPC:

The **Monetary Policy Committee (MPC)**, established under the **amended RBI Act of 1934**, comprises **six members**: three from the RBI and three appointed by the government. It decides the policy repo rate aimed at meeting the inflation target. Each member holds one vote, with the Governor having a casting vote in case of a tie.

Insta Links:

- [Variable Rate Repo \(VRR\)](#)
- [What is the RBI's MPC?](#)

Mains Link:

[Do you agree with the view that steady GDP growth and low inflation have left the Indian economy in good shape? Give reasons in support of your arguments. \(UPSC 2019\)](#)

Prelims Link:

[Which of the following statements is/are correct regarding the Monetary Policy Committee \(MPC\)? \(UPSC 2017\)](#)

1. It decides the RBI's benchmark interest rates.
2. It is a 12-member body including the Governor of RBI and is reconstituted every year.
3. It functions under the chairmanship of the Union Finance Minister.

Select the correct answer using the code given below:

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

Ans: (a)

Q. If the RBI decides to adopt an expansionist monetary policy, which of the following would it not do? (UPSC 2020)

1. Cut and optimize the Statutory Liquidity Ratio
2. Increase the Marginal Standing Facility Rate
3. Cut the Bank Rate and Repo Rate

Select the correct answer using the code given below:

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

Ans: (b)

3. BANKING LAWS (AMENDMENT) BILL, 2024

Context:

A bill proposing changes to banking laws, including allowing up to four nominees for a bank account, was introduced in the Lok Sabha recently.

Objective of the Bill:

The Banking Laws (Amendment) Bill, 2024, aims to **strengthen banking governance**, enhance reporting consistency to the Reserve Bank of India (RBI), and **improve protection for depositors and investors**. The Bill seeks to **elevate audit quality** in Public Sector Banks and **extend the tenure of directors in cooperative banks**, excluding the chairperson and whole-time director. These changes are **designed to ensure better oversight and accountability** within the banking sector.

Key Provisions of the Bill:

Key Provisions	Description
Nominee Option	Allows account holders to designate up to four nominees for their bank accounts and lockers.
Simultaneous and Successive Nominations	Includes provisions for both simultaneous and successive nominations .
Substantial interest in shareholding	The threshold in shareholding has been increased from Rs 5 lakh to Rs 2 crore for directorships .
Provision for Cooperative Banks	Extends tenure of directors in cooperative banks from 8 years to 10 years
Transfer to Investor Education and Protection Fund (IEPF)	Unclaimed dividends, shares, interest, or redemption of bonds will be transferred to the Investor education and protection fund (IEPF) . Individuals can claim these later.
Amendments to Existing Laws	Proposes amendments to the RBI Act, 1934, the Banking Regulation Act, 1949, the State Bank of India Act, 1955 , and the Banking Companies (Acquisition and Transfer of Undertakings) Acts of 1970 and 1980.

Banking Sector in India:

India's banking sector includes 137 scheduled commercial banks offering nationwide services, co-operative and local area banks serving various regions, and around **9,516 NBFCs and All India Financial Institutions** targeting specific lending needs. Banking correspondents and outlets in every village **ensure 99.97%** coverage of inhabited villages, significantly

enhancing rural banking accessibility.

Banking Landscape is governed by

Category	Description
Governance	Governed under Banking Regulations Act, 1949 . Can be categorized into Scheduled Commercial Banks (SCBs) and Non-Scheduled Commercial Banks.
Scheduled Commercial Banks	Listed in the Second Schedule of the RBI Act, 1934 . Must maintain minimum paid-up capital and reserves of ₹5 lakh. Prioritize depositor welfare.
Public Sector Banks	Constituted under the State Bank of India Act, 1955 and Banking Companies (Acquisition and Transfer of Undertakings) Acts of 1970/1980. 12 banks currently.
Private Banks	Licensed under Banking Regulation Act, 1949 .
Private Sector Foreign Banks	Headquartered outside India but operate in India. Must follow RBI regulations and parent organization rules .
Regional Rural Banks (RRBs)	Established by the Narasimham Working Group (1975) and under Regional Rural Banks Act, 1976 . Aim to provide credit for agriculture and rural sectors. Ownership : 50% Central Government, 35% Sponsor Bank, 15% State Government.
Small Finance Banks	Licensed under Banking Regulation Act, 1949 . Aim to enhance financial inclusion by serving under-served sections including small businesses and farmers.
Payment Banks	Public limited companies licensed under Banking Regulation Act, 1949 . Restricted to accepting demand deposits and providing payment and remittance services.

Insta Links

- RBI financial stability report

Mains Links

Q. Enumerate the steps taken so far to expedite and enable the resolution of NPAs in India. Critically analyse the potential of National Asset Reconstruction Company Ltd (NARCL) as the “Bad Bank” in addressing the issue of NPAs.

Q. How far can financial inclusion help in containing the high level of NPAs of banks in India? Substantiate your views with two examples. (200 words)

Prelims Links

Q. Which of the following statements best describes the term ‘Scheme for Sustainable Structuring of Stressed Assets (S4A)’, recently seen in the news? (UPSC CSE 2017)

- (a) It is a procedure for considering the ecological costs of developmental schemes formulated by the Government.
- (b) It is a scheme of RBI for reworking the financial structure of big corporate entities facing genuine difficulties.
- (c) It is a disinvestment plan of the Government regarding Central Public Sector Undertakings.
- (d) It is an important provision in The Insolvency and Bankruptcy Code’ recently implemented by the Government.

Answer: B

4. LIMITATIONS OF E-COMMERCE IN INDIA

Context:

Union Commerce Minister Piyush Goyal expressed **concern over the rapid expansion of e-commerce in India**, highlighting potential social disruptions and questioning predatory pricing by giants like Amazon.

What is E-Commerce?

E-commerce (**electronic commerce**) refers to the **buying and selling of goods** or services using the **Internet**, along with the transfer of money and data to execute these transactions. It allows businesses and consumers to conduct transactions without the need for physical interaction.

Example: Amazon is a popular example of an e-commerce platform.

The recent report shows e-commerce, making up **7.8%** of total retail sales in 2022, is growing at a **27% CAGR from 2018 to 2030**.

Issues with E-Commerce:

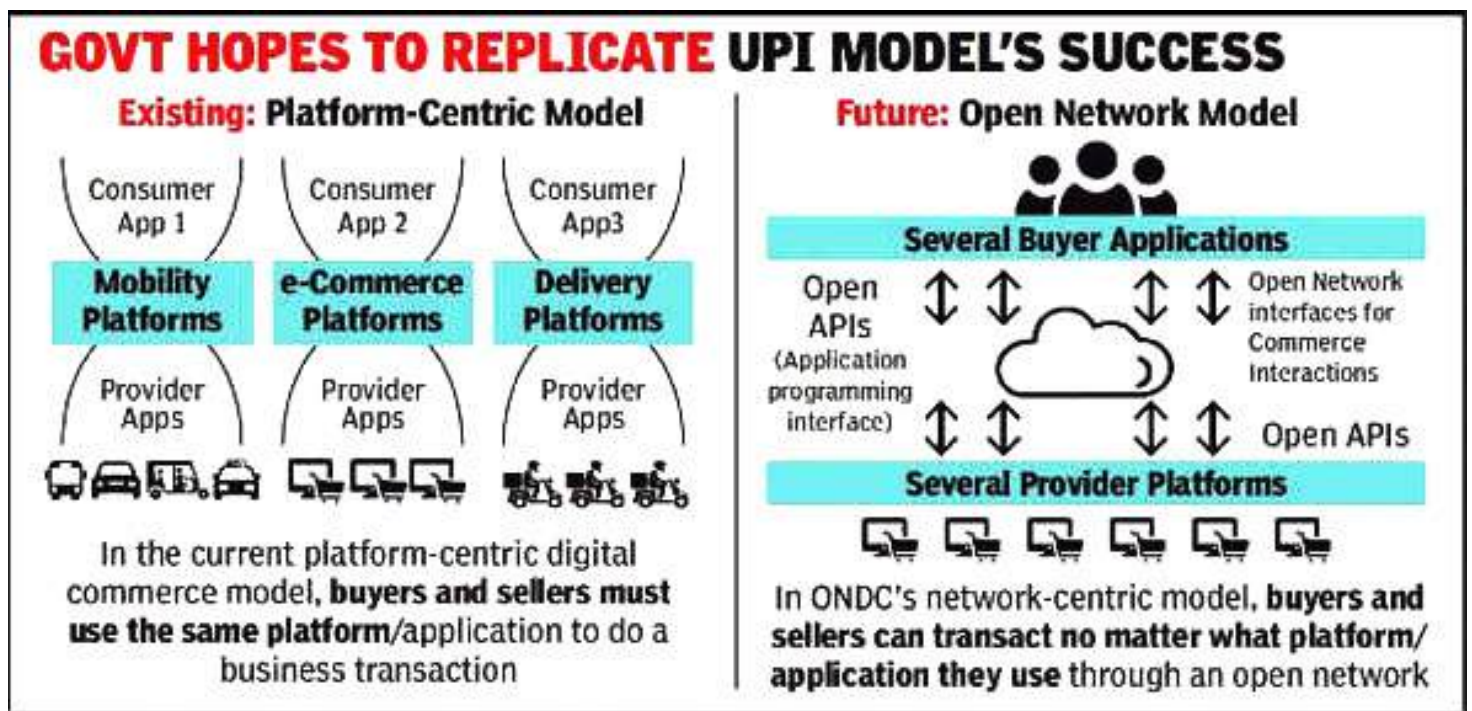
Impact	Description
Predatory Pricing	E-commerce platforms may offer deep discounts to eliminate competitors , potentially leading to monopolies. Once competition diminishes, consumers may lose the cost-effectiveness benefits previously offered.
Reduced Options for Consumers	The decline of local shops can increase travel costs and limit shopping choices if consumers avoid online shopping.
Loss of Employment	The reduced competition and decline in traditional retail sectors may lead to job losses in these industries.
Privacy Issues	There is a risk of abuse of consumer data and privacy violations due to inadequate protection measures.
Breach of Law	Some e-commerce platforms, like Amazon in India, are engaging in direct consumer sales despite existing regulatory restrictions on B2C transactions.

In this context, the government launched ONDC to provide a level playing field to retailers as well as benefit consumers.

What is ONDC?

Open Network for Digital Commerce (ONDC) **connects e-marketplaces**, enabling sellers and brands to list and sell products directly to customers, bypassing middlemen. It transitions from a **platform-centric model to an open-source network** for buying and selling goods and services.

- **Objectives of ONDC are:**
 - Democratization and decentralization of e-Commerce
 - Inclusivity and access for sellers
 - Increased choices and independence for consumers.
 - Making goods and services cheaper.
- It is an initiative of the **Department for Promotion of Industry and Internal Trade (DPIIT)** under the Ministry of Commerce and Industry.
- It is a **not-for-profit company** incorporated under Section 8 of the Companies Act 2013 that manages and operates the ONDC Network.



ONDC can transform the e-landscape of India through:

1. **Empowering consumers:** ONDC increases transparency, giving consumers more information to make informed choices and access a wider range of sellers, potentially lowering prices.
 - **Eg:** Recently ONDC integrated Chennai metro ticketing into its platform.

2. **Boosting competition:** ONDC breaks down the dominance of existing platforms, creating a level playing field that incentivizes competition among sellers, leading to more product variety and lower prices.
 - **Eg:** McKinsey reports ONDC can boost self-employment in India.
3. **Innovation:** ONDC's open-source architecture encourages innovation within the e-commerce ecosystem.
4. **Cost efficiency:** ONDC's decentralized structure can streamline operations and reduce redundancies, leading to cost savings.
 - **Eg:** ONDC doesn't charge any platform fees, unlike platforms like Swiggy.
5. **Boosting small businesses:** ONDC removes entry barriers for MSMEs and local vendors, promoting greater participation and inclusivity in the digital marketplace.
 - **Eg:** ONDC boosts up the formalization of the Indian economy.

However, it faces several obstacles such as:

1. **Complexity factor:** ONDC's intricate mechanisms make it less user-friendly than systems like UPI, potentially hindering easy adoption.
 - **Eg:** Integration of different sectors into a single platform leads to confusion.
2. **Dispute resolution concerns:** ONDC's focus on online buying and selling without managing the entire transaction lifecycle may increase disputes over deliveries, product quality, and after-sales service.
3. **Lack of robust grievance redressal mechanism:** The unclear responsibility for customer service and complaint handling may deter users from joining the platform.
 - **Eg:** No dedicated Ombudsman or grievance redressal cell.
4. **Challenges from existing e-commerce platforms:** Established e-commerce giants have strong consumer loyalty through programs and incentives, requiring ONDC to develop compelling strategies to attract and retain customers.
 - **Eg:** Options like Flipkart Plus and golden membership for loyalists.
5. **Price advantage uncertainty:** As a facilitator, ONDC might not directly influence pricing or offer discounts comparable to established players with bulk deals and partnerships.
 - **E.g.:** Big billion-day sales by firms like Amazon and Flipkart.

Way ahead:

1. **Enhancing digital infrastructure:** Government investments in broadband connectivity to bridge the digital divide, especially in rural and remote areas.
2. **Promoting digital literacy:** A digital education policy in regional languages will empower consumers and sellers to use ONDC effectively.
3. **Targeted outreach programs:** Well-funded outreach programs can attract and onboard small sellers, particularly MSMEs promoting platform adoption.
4. **Dispute resolution framework:** An efficient single-window mechanism is essential for addressing information asymmetry, quality concerns, and buyer-seller disputes.

Regulations of E-Commerce:

1. **Consumer Protection (E-Commerce) Rules, 2020:** These rules set guidelines for e-commerce platforms to ensure transparency, protect consumer rights, and address grievances.
2. **Consumer Protection Act, 2019:** This act provides a comprehensive framework for consumer rights protection, including provisions for e-commerce transactions and dispute resolution.

Conclusion:

As **Nandan Nilekani's committee** suggested ONDC can replicate the success of UPI in India with a collaborative effort between the government, industry players, and civil society.

Insta links:

[Open Network for Digital Commerce \(ONDC\)](#)

Mains Link:

[Discuss the significance of ONDC. \(150 Words\)](#)

Prelims Links:

Consider the following: (UPSC 2022)

1. Aarogya Setu
2. CoWIN

3. DigiLocker
4. DIKSHA

Which of the above are built on top of open-source digital platforms?

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

Ans: D

Topics: Major crops cropping patterns in various parts of the country, different types of irrigation and irrigation systems storage, transport and marketing of agricultural produce and issues and related constraints; e-technology in the aid of farmers.

5. AGRICULTURAL INNOVATION TAKES CENTRE STAGE IN UNION BUDGET

Context:

The Union Budget prioritizes agricultural research to enhance productivity and climate resilience. Funding for agriculture and allied activities **rose by 8% to ₹1.52 trillion**, with the Ministry of Agriculture and Farmer Welfare receiving a **4.5%** increase from last year's estimates.

About Agricultural education and research:

They are critical **components of the development of the agriculture sector in India.**



Importance of agricultural education and research in the development of the agriculture sector

- **Improved Farming Techniques:** Adoption of new technologies and techniques boosts crop yields and reduces costs, boosting productivity and profitability.
- **Better Seed Varieties:** Seeds resistant to pests and diseases and weather conditions increase crop yields.
- **Increased Food Security:** Improved crop yields and introduction of new crops boost food production.
- **Environmental Sustainability:** Adoption of practices that conserve soil, water, and natural resources promotes better environmental outcomes.
- **Job Creation:** New technologies and techniques in agriculture create new job opportunities.

Challenges for effective implementation of agricultural education and research

1. Under-investment in R&D:

- a. The budget for **autonomous research bodies under the Ministry was cut by 2%**, indicating a gap between the goal of improving agricultural research and actual funding.
- b. ICRIER research shows India's agricultural research intensity (ARI) has fallen **from 0.75% in 2008-09 to 0.4%**, lower than Brazil's **1.8%** and China's **0.6%**.

2. Impact of Climate Change:

- a. Agriculture is highly affected by climate change, impacting food security. In 2023-24, overall GDP grew by **8.2%**, but agricultural GDP only grew by **1.4%**, down from **4.7%** the previous year, partly due to poor monsoon conditions from El Niño.
- b. Climate change is expected to cause more extreme weather, like uneven monsoons, floods, and droughts. The Economic Survey predicts wheat yields could drop by **19.3%** by 2050 and 40% by 2080, worsening food insecurity and inflation.
- c. **Extreme weather and supply-chain disruptions** were key factors driving food inflation last year.

Other Challenges:

1. **Lack of Infrastructure:** The lack of basic infrastructure, such as roads, electricity, and water supply, in **rural areas**, makes it difficult for researchers to **conduct field studies and for educators** to reach out to farmers.
2. **Limited Access to Technology:** Farmers often lack access to new technologies due to limited **availability and affordability**.
3. **Knowledge and Skill Gaps:** The Agriculture sector is predominantly made up of **smallholder farmers** who often lack the knowledge and skills to adopt new farming practices and technologies.
4. **Limited Participation:** Women and marginalized communities often face **social and economic barriers** that limit their participation in agricultural education and research programs.

Measures taken to promote Agricultural education and research

1. **Previous Budget (2023-24):**
 - **Agriculture Accelerator Fund:** The fund will be set up to **encourage agri-startups** by young entrepreneurs in rural areas. It will also bring in modern technologies to transform agricultural practices and increase productivity and profitability.
 - In 3 years, **1 crore farmers will be supported by Natural Farming**, for which **10,000 Bio Input Research Centres** will be opened.
 - **The Indian Millets Research Centre**, Hyderabad will be promoted as a Center of Excellence.
2. The government of India established a full-fledged **Department of Agricultural Research and Education in 1973**
3. **Role of ICAR: ICAR manages** various research programmes, such as horticultural research, soil fertility, agricultural mechanisation and pest management, aimed at improving the productivity and profitability of Indian agriculture.
 - ICAR established **Krishi Vigyan Kendras** for the vocational training of farmers.
 - It also assists farmers with access to improved technologies, efficient use of resources and technical support services.
4. **National Agricultural Higher Education Project:** NAHEP launched by ICAR in 2017, with the objective of enhancing competitiveness while designing a market-oriented course curriculum, plans to develop 117 pilot courses to be offered by various agriculture universities.
5. **Digital Agriculture Mission:** This has been initiated for 2021 -2025 by the government for projects based on **new technologies** like artificial intelligence, blockchain, remote sensing and GIS technology, use of drones and robots etc.

Conclusion

Agricultural education and research are crucial for the development of the agriculture sector. Therefore, it is vital to invest in agricultural education and research to support the long-term growth of the agriculture sector in India. The continued investment is critical to ensure sustainable agricultural growth and improved livelihoods for farmers in India.

Insta Links:

- Indian agriculture in the present times

6. LIVESTOCK SECTOR IN INDIA

Context:

The **broiler chicken industry** in India has become highly organized and vertically integrated through several key developments

Developments Include:

- **Vertical Integration:** Streamlined supply chain control by major players, reducing costs and improving efficiency.
- **Backward Integration:** Acquisition or merger with suppliers or producers of raw materials.
- **Forward Integration:** Acquisition or merger with distributors or retailers.
- **Modern Infrastructure:** Investments in large-scale farms, processing units, and cold storage facilities enhance production capacity and product quality.
- **Professional Management:** Adoption of stringent quality control and modern marketing strategies boosts productivity.
- **Economic Scale:** Large companies benefit from economies of scale, making chicken more accessible.
- **Regulatory Compliance:** Adherence to standards and improved animal welfare practices increases consumer confidence.

About Livestock:

The livestock sector involves the **breeding and raising of animals such as cattle, sheep, goats, and poultry for meat, dairy, wool, and other products**. It is a major part of agriculture, providing food, employment, and income.

Contribution of Livestock to the Indian Economy:

- **From 2014-15 to 2020-21, the livestock sector grew at a 7.9% CAGR** and increased its share of total agricultural GVA from **24.3% to 30.1%**.
- Livestock supports rural employment, provides food, serves as insurance during crop failures, and reflects social status.
- Dairy, the largest agri commodity, contributes 5% to the national economy and directly employs 80 million farmers.
- Livestock contributed **16% to the income of small farm households** as against an average of 14% for all rural households.
- Livestock provides livelihood **to two-thirds of the rural community**. It also employs about **8.8 % of the population** in India. India has vast livestock resources.

Role of livestock in the Social transformation of households in India

Role of Livestock in Social Transformation	Economic Transformation
Food Security: Provides meat, milk, and eggs;	Income: Contributes to small farm household income.
Additional Income: Produces wool, and hides; leather has high export potential.	Source of Income/Employment: Key for landless and small farmers; support during lean seasons.
Women Empowerment: Improves nutrition and income; empowers women.	Bridging Gender Gap: 75% of livestock farmers are women, 90% in Punjab and Haryana.
Children’s Health: Enhances cognitive development and school performance.	Boosting Agricultural Yield: Manure used as natural fertilizer, helps in weed control.
Clean Energy: Biogas and biomass from waste replace fossil fuels.	Resilience to Climate Shocks: Provides buffer income during crop failures.
Social Security: Animals enhance social status; better for landless families.	Stimulate Entrepreneurship: Government support promotes rural entrepreneurship and value addition.
Draft Power: Bullocks are crucial for ploughing, carting, and transport.	

Challenges existed in the livestock sector:

1. **Productivity:** Low milk yield; half of the global average.
2. **Diseases:** Frequent outbreaks of infectious diseases.
3. **Greenhouse Gases:** Livestock accounts for **63.4%** of agricultural sector emissions.
4. **Inadequate Credit Facilities:** Limited financial support compared to its GDP contribution.
5. **Inadequate Infrastructure:** Poor slaughtering facilities; many unregistered.
6. **Lack of Knowledge:** Insufficient knowledge of rearing practices.
7. **Marketing Issues:** Unorganised market and poor input-output market function.
8. **Insurance:** Only 6% of livestock are insured; limited extension services.

Government Schemes Related to the Livestock Sector:

1. Animal Husbandry Infrastructure Development Fund (AHIDF): Offers 3% interest subvention and 25% credit guarantee for borrowers.
2. National Livestock Mission (NLM): Focuses on improving breeds, entrepreneurship, and feed/fodder development.
3. Livestock Health and Disease Control (LH&DC) Scheme: Supports state efforts in controlling animal diseases through vaccination.
4. **National Animal Disease Control Programme (NADCP):** Aims to control Foot & Mouth Disease and Brucellosis with comprehensive vaccination.
5. Rashtriya Gokul Mission: Promotes breed improvement and conservation of indigenous cattle.

Conclusion:

The government **should integrate existing schemes like the National Livestock Mission** with others to support smallhold-

ers. Emphasis on **R&D will boost productivity**. Bringing medical services to farmers and ensuring financial sustainability will reduce livestock mortality. Financial support for purchasing animals, building community institutions, and enhancing skills and knowledge about animal rearing is crucial. Promoting livestock insurance in rural areas is also needed.

Mains Link:

Q. Livestock rearing has a big potential for providing non-farm employment and income in rural areas. Discuss suggesting suitable measures to promote this sector in India. (UPSC 2015)

Prelims Link:

Q. Which of the following is the chief characteristic of 'mixed farming'? (UPSC 2012)

- (a) Cultivation of both cash crops and food crops
- (b) Cultivation of two or more crops in the same field
- (c) Rearing of animals and cultivation of crops together
- (d) None of the above

Ans: (c)

[Topics: Infrastructure: Energy, Ports, Roads, Airports, Railways etc.](#)

7. BIO-ECONOMY IN INDIA

Context:

Union Minister Dr Jitendra Singh emphasized that the **next Industrial Revolution will be driven by the bio-economy**, with India's biotech sector growing rapidly.

The sector has **expanded 13-fold over the last decade**, reaching over \$130 billion in 2024, and is projected to hit \$300 billion by 2030.

What is Bio-Economy?

The **bio-economy** refers to an **economic system that focuses on the sustainable production, utilization, and transformation of biological resources**, including renewable biological materials, products, and processes. India's bio-economy signifies a promising pathway to holistic development.

Status of India's Bio-economy:

1. **Value:** India's bio-economy jumped from \$8 billion in 2014 to \$100 billion (**2.6 per cent share** of India's GDP in 2023) and the country now targets \$150 billion by 2025.
2. **Market share:** India has a 3-5% market share in the global biotechnology industry and it ranks 12th in the world in biotech and 3rd in Asia-Pacific.
3. **Approved plants:** India has the second highest number of USFDA-approved manufacturing plants outside the US.
4. **Startups:** On average, at least three biotech startups were incorporated every day in 2021 (a total of

1,128 biotech startups set up in 2021) and the industry crossed USD 1 billion in research and development spending.

5. **The Indian Diagnostics and medical devices market** is likely to see a huge jump both in terms of consumption and exports. Covid-19 helped the nation to create the right ecosystem to manufacture, source, and export as well.

Potential contribution of bio-economy:

1. **Growth and Employment:** The bio-economy has the potential to create numerous jobs across sectors, from agriculture and manufacturing to research and development.
 - a. E.g. Bt cotton adoption led to a significant increase in cotton production, benefiting farmers' income.
2. **Exports and Trade:** Bio-based products, pharmaceuticals, and agricultural exports contribute significantly to India's export earnings.
 - a. India is the world's largest provider of generic drugs, accounting for **20% of global generic drug exports**.
3. **Innovation and Research:** Investments in biotechnology research and innovation bolster economic competitiveness and contribute to cutting-edge technologies.
 - a. E.g. New segments like smart proteins, protein and peptide-based materials, contact lenses, etc.
4. **Bio-Services sector:** which includes Contract Research Organizations (CROs) and Contract Development and Manufacturing Organizations (CDMOs), along with the **BioIT segment**, is projected to experience substantial growth from **\$6.4 billion to \$26.6 billion**.
 - a. This remarkable expansion represents a **near quadrupling of the segment's value**.
5. **BioPharma segment:** India can leapfrog in the Vaccines and Therapeutics segment. These two together account for nearly **50 per cent share of the BioPharma** and the Diagnostics labs, medical devices, and services segment estimated to reach **\$60 billion**.
6. **Awaiting potential:** India has a huge wealth of bio-resources, an unsaturated resource waiting to be harnessed and an advantage in biotechnology especially due to the vast biodiversity and the unique **bio-resources in the Himalayas**.

Positive impacts of bio-economy on citizen lives in India:

- **Healthcare Access:** The bio-economy improves healthcare accessibility through affordable generic drugs, diagnostic tools, and medical technologies. E.g. PM Janausadhi Kendra.
- **Nutritional Security:** Innovations in agriculture and food processing enhance nutritional quality and address food security challenges. **E.g. fortification of rice with vitamin A.**
- **Environmental Sustainability:** The adoption of bio-based products, sustainable agriculture practices, and biofuels reduces environmental degradation

and fosters a greener economy. E.g. **20 % Ethanol blending in petrol.**

- **Inclusive Growth:** The bio-economy's multi-sectoral nature can support the growth of micro, small, and medium-sized enterprises, promoting inclusive economic development.

Challenges in the Bio-Economy Sector:

- **Regulatory Issues:** Uncertain regulations and lack of uniform standards.
- **Research Limitations:** Limited advanced research centres and inadequate R&D funding.
- **Ethical Concerns:** Ethical issues like genetic modification under Responsible Research and Innovation principles.

Initiatives and Policies to Boost Bio-Economy:

- **BIRAC's Role:** The Biotechnology Industry Research Assistance Council (BIRAC) fosters biotech innovation in India through schemes like the Biotechnology Ignition Grant Scheme and BioNEST incubators.
- **Policy Measures:**
 - National Biofuel Policy (2018): Promotes sustainable biofuel production.
 - National Biopharma Mission: Aims to accelerate biopharma growth.
 - National Mission on Bioeconomy: Focuses on enhancing the bio-economy sector.
- **BioRRAP:** The Biological Research Regulatory Approval Portal (BioRRAP) serves as a single gateway for regulatory approvals in biological research, streamlining processes and boosting innovation.

Conclusion

Biotechnology is hailed as India's sunshine sector, with a ripple effect on the economy. It has ushered the country into a new growth phase, globally recognizing its immense potential to impact and revolutionize lives.

Insta Links:

India's Biotech Sector

Mains Links:

Q. How can biotechnology help to improve the living standards of farmers? (UPSC 2019)

Topics: Science and Technology- developments and their applications and effects in everyday life Achievements of Indians in science & technology; indigenization of technology and developing new technology.

8. CABINET GREENLIGHTS GAME-CHANGING BIOTECH MANUFACTURING BOOST

Context:

The Union Cabinet approved the **BioE3 Policy (Biotechnol-**

ogy for Economy, Environment, and Employment) to drive a biotech manufacturing revolution, akin to the IT sector's transformation in the 1990s.

Aim:

The **BioE3 Policy** aims to revolutionize biotechnology in India by **boosting sustainable bio-manufacturing across sectors** like healthcare, agriculture, and environmental conservation. It fosters innovation, supports national priorities, and enhances employment through advanced biotechnological processes.



Features of the BioE3 (Biotechnology for Economy, Environment, and Employment) Policy:

It focuses on **promoting biotechnology-based manufacturing in India**, aiming to catalyze a technological revolution.

Here are the important features:

1. **High-Performance Biomanufacturing:** Focuses on manufacturing products through advanced biotechnological processes, including medicines, materials, and bio-based products for agriculture and industry.
2. **Strategic Thematic Sectors:** The policy covers six thematic areas:
 1. Bio-based chemicals, biopolymers, and enzymes.
 2. Smart proteins and functional foods.
 3. Precision biotherapeutics.
 4. Climate-resilient agriculture.
 5. Carbon capture and utilization.
 6. Marine and space research.
3. **Fostering Innovation:** Encourages the development of bio-based products that can address environmental, agricultural, and industrial challenges.
4. **Capacity Building:** Supports the creation of internships for students in grades 11th and 12th, as well as fellowships for graduate and post-graduate research.
5. **Focus on National Priorities:** Addresses critical areas such as sustainable agriculture, environmental conservation, and biotechnology innovation to meet national needs.
6. **Government Backing:** Merged various schemes into a single initiative called "**Vigyan Dhara,**" which allocates significant resources for science, technology, research, and innovation.

What is Biotechnology?

It is a technology that utilizes biological systems, living organisms or parts of this to develop or create different products.

Genomic technologies are defined as technologies used to manipulate and analyze genomic information.

Examples of Biotechnology

1. Medical Biotechnology
2. Genetic engineering
3. Industrial Biotechnology
4. Environmental Biotechnology

Potential of Biotechnology in Healthcare and Agriculture:

Potential of Biotechnology	Details
Gene Therapy	Replaces/modifies defective genes with healthy ones. Cures diseases like Parkinson’s, cystic fibrosis, haemophilia, muscular dystrophy, sickle cell anaemia.
Pharmacogenomics	Studies genetic response to drugs, optimizing therapy with fewer adverse effects. Helps develop better vaccines, powerful medicines.
Stem Cell Therapy	Uses stem cells to repair diseased or injured tissues. Treats cardiovascular and neurodegenerative diseases (Parkinson’s, Alzheimer’s, Huntington’s).
Molecular Diagnostics	Techniques like Recombinant DNA, PCR, and ELISA enable early diagnosis for better treatment.
Edible Vaccines	Uses transgenic plants to produce vaccines. Treats diseases like cholera, hepatitis B, and foot and mouth disease.
GM Crops	Enhances pest resistance, tolerance to abiotic stresses (cold, drought), and nutritional value (golden rice). Increases photosynthesis efficiency.
Increase in Crop Production	Improves crop yield through better disease control and stress tolerance. Reduces losses for farmers.
Biofortification	Enhances micronutrient content in crops through genetic modification or enriched fertilizers.
Tissue Culture	Regenerates disease-free plants in labs, providing high-quality planting materials.
Fresher Produce/Increased Shelf-Life	Extends the shelf life of food, reducing waste and ensuring access to fresher produce.
Aesthetic Flowers	Improves flowers’ smell, size, and ornamental qualities of shrubs and trees.
Breeding of Animals	Uses artificial insemination for enhanced breeding in livestock like sheep and cattle.
Other Applications	Hybrid seeds, biofertilizers, biopesticides, stress-resistant crops, and improved animal production through better growth, nutrition, and health.

Few challenges associated with Biotechnology

- Biotechnology can threaten the survival of certain species by **interfering with natural ways of breeding**
- As biotechnology allows crops to intake more nutrients from the soil, this will result in **loss of soil fertility**
- Biotechnology can lead to biological weapons that terrorists could use for **destruction(Bio wars)**
- Altering DNA in humans can result in the **commercialization of these techniques thus it can turn human life into a commodity.**
- **Protecting patient privacy** is becoming an increasing concern due to the latest advances in technology that are making it possible to decipher the human genome.
- The development in genomics and techniques for creating artificial genes present serious **threats to humans and the environment in general**
- **Lack of public awareness** of the modern tools of biotechnology

Conclusion

Biotechnology has numerous advantages but it also has some disadvantages. Biotechnology could be utilised in solving future problems like food and water insecurity, hereditary diseases, etc but its ethical, and social issues need to be taken into account while its usage

Insta Links:

- Applications of Biotechnology in various fields

Topics: [Awareness in space.](#)

9. INDIA'S SPACE PROGRAMME: KEY UPDATES SINCE CHANDRAYAAN-3

Key Achievements Post-Chandrayaan-3:

Achievements	Details
Aditya L1 Mission	Launched on September 2, 2023; reached orbit around Earth-Sun Lagrange point (L1) by January 2024 for solar observation.
Gaganyaan TV-D1	The first abort mission on October 21, 2023, successfully tested the Crew Escape System for India's human spaceflight program.
XPoSat	Launched on January 1, 2024; second space-based observatory studying polarized radiation from space.
INSAT-3DS	Launched on February 17, 2024; critical for testing GSLV reliability before the NASA-ISRO NISAR mission.
Reusable Launch Vehicle (RLV-TD)	Conducted successful landing experiments in 2024, paving the way for future orbital return flight tests.
Small Satellite Launch Vehicle (SSLV)	Completed development with successful third flight on August 16, 2024; now ready for industry use.

Roadmaps and Future Plans

Gaganyaan Program	Focus on human spaceflight with astronaut training; the first uncrewed mission is expected in late 2024.
Next-Generation Launch Vehicle (NGLV)	Developing a heavy-lift vehicle for space station and lunar exploration goals.
Lunar Exploration	25-year roadmap, including plans for an Indian on the Moon by 2040 and long-duration lunar missions.
NSIL Missions	Collaborations with SpaceX and private sector partnerships for LVM-3 development and satellite launches.
National Space Policy 2023	The government has approved the Indian Space Policy (ISP) 2023, to boost private sector participation and increase investments in the space sector from private companies

Private Sector Participation

Agnikul Cosmos	Launched SoRTeD-01 , using a semi-cryogenic engine , marking a significant achievement for India's private sector.
Skyroot Aerospace	Progressing towards launching Vikram 1 with advancements in space technology development.
IN-SPACe	Issued new guidelines, and licenses, and allowed 100% FDI in most space sectors, except for specific ceilings in satellite manufacturing and operations.

Bottlenecks in the Indian space sector:

- **Access to Capital:** Limited funding for downstream companies, as upstream activities receive major investments.
- **Human Resource Constraints:** A need for technically inclined marketing personnel, but they tend to prefer established businesses with market-level salaries.
- **Monopolization:** High capital requirements make it challenging for many players to enter the industry, leading to potential monopolization.
- **Funding Disparity:** India's space budget is significantly smaller compared to countries like

Recommendations:

A recent report by the Indian Space Association, NASSCOM and Deloitte India suggested adopting OECD's framework for segmenting the space value chain into upstream, downstream and Auxiliary categories

- **Upstream:** All activities, products and infrastructure that ensure development, testing, launching, operations and monitoring of space assets

- **Downstream:** All applications, services and devices relying on satellites to create business value including Earth Observation, Satellite, SATCOM, etc
- **Auxiliary:** Additional space-related activities such as space insurance, awareness, education and training

Conclusion

The Indian space sector has an opportunity to create a vibrant ecosystem for start-ups and private enterprises. India needs to focus on building a comprehensive space policy, providing access to capital for early-stage startups, access to satellite technology for industry, improved training for satellite operations, and allowing private players to use the Indian Space Research Organisation's (ISRO) testing facilities.

Insta Links

- [Milestones in India's Space Programme](#)
- [Startups are powering India's Space Odyssey 2.0](#)

Mains Link:

Q. What is India's plan to have its own space station and how will it benefit our space programme? (UPSC 2019)
 Q. Discuss India's achievements in the field of Space Science and Technology. How the application of this technology has helped India in its socioeconomic development? (UPSC 2016)

Prelims Links

Consider the following statements: (UPSC 2016)

The Mangalyaan launched by ISRO

1. is also called the Mars Orbiter Mission
2. made India the second country to have a spacecraft orbit the Mars after USA
3. made India the only country to be successful in making its spacecraft orbit Mars in its very first attempt

Which of the statements given above is/are correct?

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

Ans: C

[Topics: Conservation related issues, environmental pollution and degradation, environmental impact assessment.](#)

10. MICROPLASTICS FOUND IN HUMAN BRAIN TISSUE

Context:

Studies reveal alarming levels of microplastics in human brain tissue, underscoring the urgent need to address plastic pollution.

About Microplastics:

- **Microplastics** are defined as synthetic solid particles sized ranging from 1 micrometre to 5 millimetres (mm), which are insoluble in water.
- They are particularly harmful to the oceans as they don't readily break down into harmless molecules and adversely affect the health of marine organisms, which mistake plastic for food.

Key findings:

1. **Microplastics in Brain Tissue:** Detected in brain samples at higher concentrations than other organs.
2. **Health Risks:** Linked to oxidative stress, cardiovascular issues, and potential cognitive impairments.
3. **Environmental Ubiquity:** Found in various human organs including lungs, placentas, and reproductive organs.
4. **Regulatory Gaps:** No current standards for microplastics in food or water in the US.
5. **Rising Levels:** The concentration of microplastics in the brain has increased over time.
6. **Animal Studies:** Show links to fertility issues, cancer, and endocrine disruption.
7. The concentration of plastic particles including microplastics in the ocean has **skyrocketed in the oceans since the mid-2000s**, and it continues to increase.
8. **If the world fails to take any drastic action** about the issue, there will be a **2.6-fold increase in plastic flowing** into aquatic environments by 2040.

Microplastics Impact

- **On Humans:** Cancer, endocrine and immune system disruption, brain cell damage, impaired learning, negative maternal and fetal health effects.
- **On Aquatic Ecosystems:** Bioaccumulation, immune and digestive system compromise, altered gene expression, growth inhibition.
- **On Benthic Organisms:** Disrupts trophic energy transfer and nutrient remineralization.
- **On Environment:** Enters food chains, and accelerates soil water evaporation.

Mechanisms:

- **Mechanical:** Lacerations and blockages in organisms.
- **Chemical:** Leaching of absorbed chemicals like DDT and PCBs; disruption of the ocean carbon cycle.

Initiatives Taken to tackle microplastics:

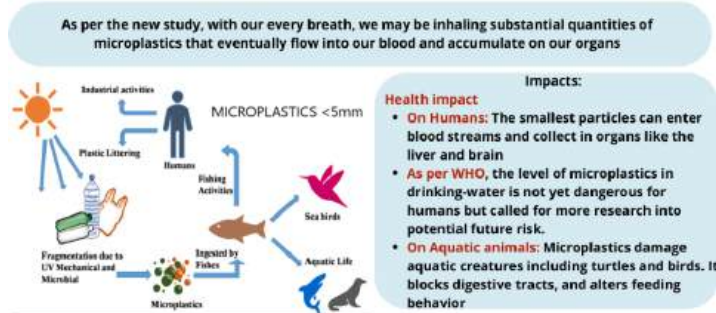
Global Initiatives:

- [Global Partnership on Marine Litter \(GPML\)](#)
- [GloLitter Partnerships Project](#)
- [London Convention, 1972](#)

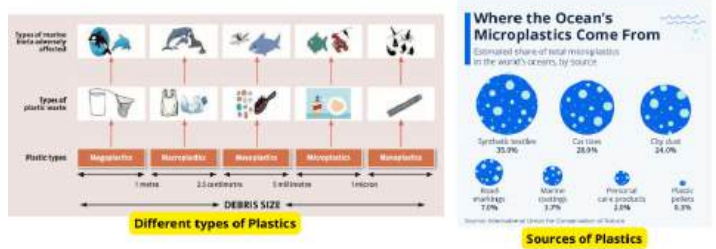
India-Specific Initiatives:

- Elimination of single-use plastic
- Plastic Waste Management Rules, 2016
- Un-Plastic Collective

Microplastics



Environmental Impact: According to the IUCN, at least 8 million tonnes of plastic end up in the oceans every year and make up about 80% of all marine debris



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Insta Links:

- Scientists detect 'microplastics' in the human heart for the first time: Report
- Microplastics in Ganga

11. VOLUNTARY VEHICLE MODERNIZATION PROGRAM

Context:

The Ministry of Road Transport and Highways has launched the **Voluntary Vehicle Modernization Program, also known as the Vehicle Scrapping Policy.**

Aim: The policy aims to **voluntarily scrap unfit commercial and passenger vehicles** based on fitness, not age. It phases out polluting vehicles through **Registered Vehicle Scrapping Facilities (RVSFs) and Automated Testing Stations (ATSs).** Manufacturers will offer discounts **for up to two years against a Scrappage Certificate.**

Other major points:

1. **Incentives for Scrapping:** Discounts will be offered to encourage the scrapping of End-of-Life Vehicles, promoting safer, cleaner, and more efficient vehicles on the roads.
2. **Commercial Vehicles:** Discounts of up to 3% of the ex-showroom price for vehicles over **3.5 tonnes GVW**, and **1.5%** for vehicles under **3.5 tonnes GVW.**
3. **Passenger Vehicles:** Discounts of **1.5%** of the

ex-showroom price or Rs 20,000, whichever is less, for vehicles scrapped in the last six months.

4. **Additional Government Incentives:** These discounts are in addition to scrap value, Motor Vehicle tax concessions, fee waivers for registration certificates, and other incentives linked to the Scrappage Certificate.

What is the vehicle scrapping policy?

The Vehicle Scrapping Policy is a **government-funded programme to scrap old and unfit vehicles** and replace them with modern and new vehicles on Indian roads. The primary goal of the policy is to create an ecosystem for **phasing out unfit and polluting vehicles** to achieve a **lower carbon footprint** in the country.

THE ECONOMICS

- Can yield between ₹35,000 & ₹40,000 for four-wheeled (after scrapping cost and margins)
- ₹5 to ₹1.5 lakh for trucks
- Up to ₹25,000 for two-wheelers

Voluntary Vehicle-Fleet Modernization Program (V-VMP)

- Private vehicles **older than 20 years** will be deregistered from June 1, 2024, if they fail the fitness test or their registration certificate is not renewed
- Heavy commercial vehicles **older than 15 years** will be deregistered from April 1, 2023.
- Setting up of **Registered Vehicle Scrapping Facility**
- Formalize vehicle scrapping industry and bring in more investment
- While treating a vehicle as scrap, the **policy considers age of the vehicle, its quality of brakes, engine performance etc.**

V-VMP came into effect from April 1, 2022



Significance of Vehicle Scrapping:

1. **Eco-friendly Development:** Promotes the phasing out of unfit vehicles, supporting a sustainable circular economy.
2. **Economic Impact:** Expected to attract Rs 10,000 crore in investments and create 35,000 jobs.
3. **Pollution Reduction:** Can lower vehicular emissions by 15-20%; old vehicles emit significantly more pollutants.
4. **Improved Fuel Efficiency:** Reduces maintenance costs.
5. **Industry Benefits:** Provides low-cost raw materials and formalizes the scrapping ecosystem.

Challenges:

1. **Inadequate Scrapping Facilities:** Only 60+ RVSFs and 75+ ATSs are operational across the country.
2. **Hazardous Waste Disposal:** Informal sector involvement without modern equipment poses environmental and health risks.

Other initiatives to curb vehicular pollution:

Initiative	Description
Go Electric Campaign	Promotes the adoption of electric vehicles (EVs) and encourages the use of electric cooking and other appliances.
FAME India Scheme Phase II	Provides financial incentives for the adoption of electric vehicles, focusing on public transportation and charging infrastructure.
Electric Vehicles (EV) Policy 2020	Delhi’s policy aims to accelerate the adoption of EVs by providing subsidies, creating charging infrastructure, and promoting battery recycling.
Hydrogen Fuel Cell-Based Bus and Car Project	Develops and deploys hydrogen-powered vehicles to reduce emissions and promote clean energy in transportation.
National Electric Mobility Mission 2020	Aims to achieve national fuel security by promoting hybrid and electric vehicles and establishing manufacturing hubs.

Insta Links:

Vehicle scrappage policy

12. RAJASTHAN’S WATER WOES: RECORD FLUORINE LEVELS SPARK CRISIS

Context:

A study by the **National Remote Sensing Centre (NRSC)** has found that fluoride contamination in groundwater **is highest during dry**, pre-monsoon months, particularly in Rajasthan, with Jaisalmer being the most affected area in India.

Excess fluoride **can lead to skeletal fluorosis, dental decay**, and other health issues, especially in children. The permissible fluoride limit is **1.50 mg/litre**; however, contamination in Rajasthan reached **1.41 mg/litre pre-monsoon and 1.44 mg/litre post-monsoon**. are notably high in dry, western Indian regions, with significant risks of health hazards.

Other heavy metals leading to groundwater contamination and their impact:

Heavy Metal	Impacts
Arsenic	Skin lesions, cancer, developmental effects, cardiovascular disease, diabetes.
Lead	Brain development issues in children, learning disabilities, behavioural problems, anaemia, kidney damage, hypertension.

Cadmium	Kidney damage, bone disease, respiratory issues, cardiovascular diseases, carcinogenic.
Mercury	Nervous system damage, tremors, memory loss, cognitive impairments, kidney damage, developmental issues in children.
Chromium (Hexavalent)	Respiratory problems, skin irritation, lung cancer, kidney damage, carcinogenic.
Nickel	Allergic reactions, lung and nasal cancers, dermatitis, respiratory and cardiovascular issues.
Copper	Gastrointestinal issues, liver damage, kidney problems, anaemia, neurological damage.
Zinc	Gastrointestinal disturbances, anemia, impaired immune function, lower cholesterol levels, pancreatic impact.

Key Status about Groundwater (GW):

1. **India is the largest user of Groundwater (GW)** (accounting for 1/4th of total withdrawal)
2. **87% of GW** is used for Irrigation
3. **Currently, 67% of GW units** are safe (extraction < 70% of recharge), 14% Overexploited and 4% at the Critical
4. **Extraction is very high in Haryana, Punjab** (78% of wells are overexploited), Rajasthan
5. **Climate Concerns:** In southwest India, increasing temperatures might hinder groundwater replenishment.

Groundwater Contamination Causes:

- **Natural Sources:** Substances like arsenic in rocks and soils can contaminate groundwater (e.g., Ganges Plain arsenic contamination).
- **Septic Systems:** Poorly managed septic tanks release harmful bacteria, nitrates, and chemicals.
- **Pesticides and Fertilizers:** Runoff from agricultural chemicals pollutes groundwater (e.g., Yamuna’s floodplains contamination).
- **Landfills:** Leachate from landfills pollutes groundwater (e.g., Delhi’s landfill site contamination).
- **Sewage:** Leaking sewers and sewage sludge can cross-contaminate water supplies (e.g., high pharmaceutical residues in Germany).
- **Other Sources:** Over-pumping, chemical spills, illegal dumping, and atmospheric contaminants.

Improving Groundwater Quality:

1. **Community Measures:** Promote tree planting, rain-water harvesting, and community-based watershed management.
2. **Policy Measures:** Regulate bore wells, construct water tanks, raise awareness, and enforce pollution control.

3. **Legal Measures:** Clean and maintain urban water bodies, install decentralized treatment plants, and prevent pollution.
4. **Technological Measures:** Implement artificial groundwater recharge, use stormwater for new water bodies, and build water harvesting structures.

Legal and regulatory frameworks for groundwater:

Framework	Description
Article 21	Recognizes the fundamental right to clean water under the right to life.
Central Ground Water Authority	Established by the Environment (Protection) Act, 1986, responsible for framing groundwater policies and programs.
Supreme Court	Upholds the 'public trust doctrine,' (2004) treating groundwater as a public resource, not private ownership.
Government Schemes	Initiatives like Atal Bhujal Yojana, Jal Shakti Abhiyan, and Aquifer Mapping and Management Programme for groundwater management.
Indian Easement Act, 1882	Historically determined groundwater rights are often linked to land ownership.
Central Ground Water Board	Established in 1970, it develops groundwater policies and programs.
Model Groundwater Bills	Revised multiple times, empowers state boards to create laws and manage water resources.
National Green Tribunal	Directs the Central Ground Water Authority to regulate extraction and mandates permission for extraction.
Polluter Pays Principle	Addresses groundwater contamination case-by-case, with polluters bearing

Conclusion:

Groundwater demand will rise despite its shrinking availability, necessitating increased attention and compensatory recharge efforts.

Insta Links

Growing water crisis and One water Approach (OWA)

Mains Links

Bring out the problems associated with groundwater irrigation in India. Critically analyse the role of Participatory Irrigation Management (PIM) in improving agricultural production on a sustainable basis. (15M)

13. TRAGEDY IN KUNO: CHEETAH'S DEATH LINKED TO SUSPECTED DROWNING

Context:

Pavan, a cheetah **from South Africa and Namibia**, has died, marking the eighth fatality among the **20 cheetahs brought to India**.

About Cheetah:

1. **'Cheetah' (Acinonyx Jubatus Venaticus)** originates from Sanskrit and means 'the spotted one'.
2. The Cheetah is the **fastest land animal in the world**.
3. Its historical range includes the **majority of Sub-Saharan Africa** and extends eastward to **India**.
4. It is the **only large carnivore** that went 'Extinct' in India **due to overhunting and habitat loss**.
5. The **last cheetah died in the Koriya district** of present-day Chhattisgarh in 1947 and the species was declared extinct in 1952
6. According to the Wildlife Institute of India's (WII) **"Action Plan for Reintroduction of Cheetah in India,"** 50 wild cheetahs that are ideal for starting a new cheetah population would be imported as a founder stock over five years initially.

Cheetah is Back

The fastest land animal in the world, Cheetah, declared extinct in India in 1952, will find a new home in the Kuno-Palpur National Park (KNP), African cheetahs are being brought under an intercontinental translocation project between India and Africa (mainly from South Africa and Namibia). It comes under the 'Action Plan for Introduction of Cheetah in India' under which 50 of these big cats will be introduced in the next five years.

Cheetah relocation Sites

- Kuno Palpur Area: 244 sq km, Part of Kaimore district, Madhya Pradesh
- Palpur Area: 1,177 sq km, Part of Kaimore district, Madhya Pradesh

Asiatic Cheetah with 'red eyes'

Cheetah

- Small, rounded head with black "tear marks"
- Partially exposed claws

Leopard

- Relatively Small, angular head

Jaguar

- Large, rounded head
- Relatively short tail

Cheetah: IUCN (Asiatic- Critically Endangered; African- Vulnerable)

- African Cheetah are bigger in size as compared to Asiatic Cheetah, have darker color. Asiatic Cheetah (only 40-50 survive in Iran) usually have 'Red Eyes'.

Leopard: IUCN: Vulnerable

- India has about 12000 leopard (largest number in MPI) and there has been "60% increase in the population count of leopards in India from 2014 estimates"

Jaguar: IUCN: Near Threatened

- The largest cat in the Americas, the jaguar has the strongest bite force of all wild cats, enabling it to bite directly through the skull of its prey. Melanistic (black) jaguars are common and are often called black panthers.
- A black panther is the melanistic colour variant of the leopard (Panthera pardus) and the jaguar (Panthera onca).

Other features:

- Solid black spots**
- Small, densely packed rosettes**
- Large rosettes with central spot**

Cheetah Tear Marks Act Like Sunglasses: Cheetahs primarily hunt during the day, unlike other big cats, the tear marks help to reflect away the sun's glare, making it easier for them to focus on hunting their prey.

Evaluation of the Cheetah Reintroduction Program in India

Successes:

1. **Reintroduction Milestone:**
 - The program marked the historic reintroduction of cheetahs into India after they

were declared extinct in the country in 1952.

- The initial release and adaptation of cheetahs in Kuno National Park signified a significant step in wildlife conservation.
2. **Local Economic Impact:**
 - The project contributed positively to local communities by generating jobs and boosting land values around Kuno.
 - No incidents of human-cheetah conflict were reported, suggesting successful co-existence.
 3. **Initial Breeding Success:**
 - The birth of four cheetah cubs in India, despite challenges, highlighted the potential for future breeding success.

Challenges:

- **High Mortality Rate:** Only free-ranging cheetah survived in Kuno, leaving 24 cheetahs, including 12 adults and cubs.
- **Inadequate Home Range Establishment:** Cheetahs struggle to establish permanent home ranges, limiting their long-term survival.
- **Integrity and Ethical Issues:** Use of captive-raised cheetahs and ethical concerns about India's international wildlife commitments affect the program's credibility.
- **Environmental and Ecological Challenges:** Lower prey density and carrying capacity pose challenges to sustaining a large, genetically viable cheetah population.
- **Need for a Meta-Population Approach:** Transition to managing a meta-population across central and western India is complex and resource-intensive.

Conclusion:

The **Cheetah Reintroduction Program in India has achieved some notable successes**, such as initial reintroduction efforts and positive economic impacts. However, significant challenges remain, including high mortality rates, environmental and ethical concerns, and the need for a broader, more sustainable approach to cheetah conservation. The program's **future success will depend on addressing these challenges** and adapting strategies to ensure the long-term viability of cheetahs in India.

Insta Links:

Prelims Link:

Q. Consider the following: (UPSC 2012)

1. Black-necked crane
2. Cheetah
3. Flying squirrel
4. Snow leopard

Which of the above are naturally found in India?

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

Ans: (b)

Topics: Disaster and management.

14. DISASTER MANAGEMENT (AMENDMENT) BILL 2024

Context:

The Minister of State for Home Affairs introduced the Disaster Management (Amendment) Bill, 2024 in the Lok Sabha, to amend the Disaster Management Act, 2005

Aim of the Bill:

The Bill aims to introduce changes for effective pre-planning of disaster events, integration of disaster preparedness in developmental plans, and give clarity of roles and responsibilities to the authorities handling disasters (aligning with **recommendations of the 15th Finance Commission**)

Key Features of the Disaster Management (Amendment) Bill, 2024:

Feature	Description
Creation of Disaster Database	Establishes a disaster database at national and state levels , including disaster assessments, fund allocation, expenditure, preparedness and mitigation plans, and risk registers.
Prepare Disaster Plan	Empowers NDMA and SDMA to prepare disaster plans , replacing the National Executive Committee and State Executive Committees . Plans must be reviewed every three years and updated every five years.
Creation of Urban Disaster Management Authority	Proposes the creation of Urban Disaster Management Authorities for state capitals and large cities with municipal corporations (excluding Delhi and Chandigarh).
Statutory Recognition	Grants statutory status to the National Crisis Management Committee and the High-Level Committee.
State Disaster Response Force	Allows state governments to form State Disaster Response Forces to enhance state-level disaster response.
New Section 60A	Empowers Central and State governments to direct individuals on disaster management actions and impose penalties up to ₹10,000 for non-compliance.

How Measures in the Disaster Management (Amendment) Bill, 2024 Will Help in Disaster Management?

- **Enhanced Disaster Database:** Provides detailed data on disaster assessments and risk, such as

tracking the impact of floods in Bihar or cyclones in Odisha, aiding better planning and response.

- **Urban Disaster Authorities:** Creates dedicated authorities in cities like Mumbai and Delhi, improving response to urban crises such as building collapses or air pollution emergencies.
- **Revised Disaster Planning:** NDMA and SDMAs can develop more integrated plans, as seen in coordinated responses to the 2023 Gujarat earthquake, enhancing efficiency and coverage.
- **Statutory Recognition:** Strengthens bodies like the National Crisis Management Committee, leading to improved coordination in large-scale disasters such as the 2019 Kerala floods.
- **State Disaster Response Force:** Empowers states to form specialized forces, like the proposed response team in West Bengal for riverbank erosion, improving local readiness and response.
- **Penalties for Non-Compliance:** Ensures adherence to disaster management protocols, for instance, enforcing building safety standards to prevent disasters similar to the 2013 Uttarakhand floods.

Disaster Management Act, 2005: **Key Features**

Feature	Description
3-Tier Institutional Structure	National Level: NDMA, led by the Prime Minister. State Level: SDMAs, headed by Chief Ministers. District Level: DDMAs, led by District Collectors, Magistrates, or Deputy Commissioners.
National Disaster Response Force	Established for specialist response to disaster situations.
National Disaster Response Fund	Created to fund and manage response efforts during threatening disaster situations.

Insta Links:

National Disaster Management Act, 2005

15. REVIEW OF DAM DESIGN TO HANDLE GLACIAL LAKE OUTBURST FLOODS (GLOFS)

Context:

Following the **Teesta-III Hydroelectric dam collapse in October 2023**, the Central Water Commission (CWC) is reviewing the design flood of vulnerable dams to ensure they can handle **Glacial Lake Outburst Floods (GLOFs)**

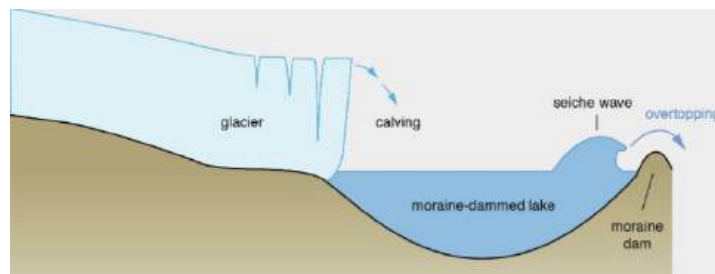
What are Glaciers?

Glaciers are **large masses of ice that form from the accumulation and compaction** of snow over long periods. They flow slowly downhill under their weight and gravity, shaping the landscape and playing a crucial role in Earth’s climate and hydrology by storing and releasing freshwater. **Glaciers cover ~10% of the Earth’s land surface**, but they

are shrinking rapidly across most parts of the world, leading to cascading impacts on downstream systems.

What is Glacial Lake Outbursts (GLO)?

A Glacial Lake Outburst (GLO) occurs when a **glacial lake, formed by melting ice and snow, suddenly releases a large volume of water**. This can happen due to the failure of natural ice or moraine dams holding the lake, often triggered by factors like **heavy rainfall, earthquakes, or the melting of surrounding ice**. The sudden release of water can lead to devastating floods downstream, causing significant damage to communities, infrastructure, and ecosystems.



Reasons for Glacial Lake Outburst Floods (GLOFs):

1. **Geological:** Earthquakes, breaches of moraine dams.
2. **Morphological:** Mass movements into glacial lakes, water seepage through glacial structures.
3. **Physical:** Excessive precipitation, cryoseism (non-tectonic seismic events in the glacial cryosphere).
4. **Anthropogenic:** Climate change and global warming.

Mounting GLOF Risks in the Himalayas:

1. **Glacial Retreat:** **Rising temperatures** lead to accelerated glacial melt, creating glacial lakes. The **increased volume of water** in these lakes raises the risk of GLOFs, threatening downstream communities.
2. **Glacial Lake Dynamics:** The formation of moraine-dammed lakes, often unstable, poses a significant risk. When the moraine dam weakens or breaches due to factors **like earthquakes or increased meltwater pressure, it can trigger a GLOF.**

India’s Vulnerability to GLOFs:

1. **ISRO’s Atlas:** Identified over 28,000 glacial lakes in the Himalayan basins.
2. **Sikkim:** 733 glacial lakes identified; 10 classified as vulnerable.
3. **Uttarakhand:** 13 out of 486 glacial lakes are vulnerable.
4. **Jammu and Kashmir:** Highest number of vulnerable lakes, with significant threats also in Arunachal Pradesh and Sikkim.

Urgent Call for heightened awareness and proactive measures:

1. **Preventing Catastrophic Floods:** GLO events can

unleash massive floods downstream, causing loss of life, extensive damage to infrastructure, and economic devastation.

- a. For instance, the **1994 GLO in the Bhutanese Himalayas** resulted in a catastrophic flood disaster.
2. **Safeguarding Vulnerable Communities:** Many communities reside in downstream areas of glacial lakes, making them highly vulnerable to GLO events.
 - a. Effective awareness measures are essential to protect these communities from harm.
3. **Threat to Livelihoods:** Many communities in the Himalayan region depend on agriculture and livestock farming. GLOFs can damage agricultural fields, threaten livestock, and disrupt livelihoods, leading to food insecurity.
4. **Preserving environmental integrity:** GLO events disrupt ecosystems downstream, leading to long-term environmental damage.
 - a. Mitigation efforts aim to minimize such ecological impacts and maintain environmental balance.
5. **Infrastructure Resilience:** Designing infrastructure with resilience against GLOFs, such as building **protective barriers** and **establishing safe evacuation routes**, is essential to minimize the impact on vulnerable communities.
6. **Community Engagement:** Raising awareness and involving local communities in disaster preparedness and response strategies is pivotal. Communities need to be equipped with the knowledge and tools to protect themselves during GLOF events.

NDMA guidelines in mitigating the risks associated with GLOFs:

Guideline	Details
1. Identifying Potentially Dangerous Lakes	Use field observations, historical data, geomorphologic and geotechnical analysis.
2. Use of Technology	Promote synthetic-aperture radar imagery for detecting changes in water bodies and develop remote monitoring methods.
3. Channelling Potential Floods	Implement controlled breaching, pumping, siphoning, or creating tunnels through barriers.
4. Uniform Codes for Construction Activity	Develop frameworks for construction and land use planning in vulnerable zones.
5. Enhancing Early Warning Systems (EWS)	Increase the number of operational GLOF EWS; currently, only a few exist in the Himalayas.
6. Training Local Manpower	Train locals for search and rescue, shelter planning, and relief distribution.
7. Comprehensive Alarm Systems	Combine acoustic alarms with modern communication technologies like smartphones.

Measures to Mitigate GLOF Disasters:

- **Monitoring:** Intensify meteorological monitoring and real-time data collection at glacier lakes and downstream rivers.
- **Technology:** Use satellites and drones for regular monitoring of glacier lakes.
- **Safety Standards:** Revise and enforce strict safety standards for infrastructure in mountainous areas.
- **Construction Regulation:** Apply stringent quality control and regulations for construction near rivers.
- **Scientific Research:** Expand research on glacier behaviour and climate change impacts in the Himalayas.

Conclusion

By understanding these risks and implementing comprehensive mitigation strategies, we can reduce the potential devastation caused by GLO events, protect vulnerable communities, and preserve the environment, ultimately contributing to a more resilient and sustainable future.

Mains Links:

Q. Dam failures are always catastrophic, especially on the downstream side, resulting in a colossal loss of life and property. Analyze the various causes of dam failures. Give two examples of large dam failures. (UPSC 2023)

16. RECENT INDUSTRIAL ACCIDENTS HIGHLIGHT SAFETY CONCERNS

Context:

A major blast at Escientia’s pharma plant in Andhra Pradesh’s Atchutapuram SEZ resulted in 17 deaths and numerous injuries, with another fire injuring 10 workers the same day. This follows a previous explosion in the same SEZ and a deadly incident in 2020.

What are Industrial and Chemical Disasters?

They are **defined as the sudden release of toxic chemicals** causing **severe disruption and widespread losses** beyond a society’s coping ability. India has reported **over 130 major chemical accidents** in the past decade, resulting in over 250 fatalities, according to the National Disaster Management Authority (NDMA).

Examples of Major Industrial Disasters are:

1. **Bhopal Gas Tragedy (1984):** A gas leak from Union Carbide’s plant in Bhopal killed over 3,000 people and caused long-term health issues.
2. **Chasnala Mine Disaster (1975):** A mine collapse in Jharkhand due to flooding resulted in over 375 deaths.
3. **Sukinda Valley Disaster (2008):** Toxic waste and acid rain from chromium mines in Odisha led to severe environmental and health impacts.

4. **Latur Earthquake (1993):** An earthquake in Maharashtra caused industrial damage and significant loss of life.
5. **Gujarat Gas Tragedy (2001):** A gas leak from a pipeline in Gujarat resulted in multiple fatalities and injuries.
6. **Vishakhapatnam Gas Leak (2020):** A styrene leak from the LG Polymers plant in Andhra Pradesh caused at least 12 deaths and numerous injuries.
7. **Kolkata's Dharmatala Fire (2018):** A fire at a chemical warehouse in Kolkata caused fatalities and extensive damage.

Key Factors Contributing to Industrial Accidents in India:

Factors	Description
Inadequate Regulation and Monitoring	Fragmented regulations with overlapping jurisdictions and loopholes weaken safety oversight and enforcement.
Lack of Comprehensive Chemical Risk Database	Absence of a central database hinders hazard assessment and development of safety protocols.
Insufficient Worker Training and Awareness	Untrained, contractual workers lack safety and emergency response training, increasing risks, especially with hazardous chemicals.
Poor Investment in Worker Safety	Cost-cutting measures neglect safety equipment and infrastructure, such as ventilation and fire safety.
Lack of Maintenance	Poor maintenance practices, as seen in incidents like the Visakhapatnam gas leak and Neyveli boiler blowout, compromise safety.

Legal Measures Against Industrial and Chemical Disasters:

Measures	Description
UN Convention on the Transboundary Effects of Industrial Accidents (1992)	Provides a framework for international cooperation, information sharing, and emergency planning.
Flexible Framework for Accident Prevention and Preparedness (CAPP) (2006)	Offers guidance to build chemical accident prevention programs, tailored to specific needs.
OECD Programme on Chemical Accidents (1990)	Focuses on preventing accidents through best practices and information sharing in chemical safety.
India	

Bhopal Gas Leak (Processing of Claims) Act, 1985	Addresses claims related to the Bhopal gas leak disaster.
Environment Protection Act (EPA), 1986	Regulates environmental safety and pollution control.
Public Liability Insurance Act (PLIA), 1991	Mandates insurance for industries handling hazardous substances to provide financial relief.
National Environment Appellate Authority Act, 1997	Establishes NEAA to handle appeals regarding restrictions on industrial activities.
Hazardous Waste (Management, Handling, and Transboundary Movement) Rules, 1989	Requires risk identification, preventive measures, and hazard reporting.
National Disaster Management Authority (NDMA) Guidelines	Provides direction for chemical disaster management and detailed disaster management plans.
Occupational Safety, Health, and Working Conditions Code, 2020	Defines employer/employee duties, safety standards, and worker rights including gender equality.
ILO Recommendations on Industrial Disaster Prevention	Requires identification of hazardous materials, maintaining an inventory of major hazard workplaces, and centralized data management.

Way forward:

1. **Enhanced Regulatory Framework:** Develop a national framework with defined roles for agencies to enforce safety regulations.
2. **Improved Monitoring and Enforcement:** Implement stricter penalties and more frequent inspections by qualified personnel.
3. **Establishing a Chemical Risk Database:** Create a centralized database to document risks associated with industrial chemicals.
4. **Investing in Worker Training:** Introduce comprehensive training programs and drills to improve worker awareness of safety protocols.
5. **Adopting Best Practices and Technologies:** Encourage the use of environmentally sound technologies (ESTs) to reduce hazards and manage waste.
6. **Incentives for Safety Upgrades:** Provide financial aid such as tax breaks or subsidies to support infrastructure upgrades and new technologies.

Mains:

Q. With growing energy needs should India keep on ex-

panding its nuclear energy programme? Discuss the facts and fears associated with nuclear energy. (UPSC 2018)

Prelims:

Q1. In India, why are some nuclear reactors kept under “IAEA safeguards” while others are not? (USPC 2020)

- (a) Some use uranium and others use thorium
- (b) Some use imported uranium and others use domestic supplies
- (c) Some are operated by foreign enterprises and others are operated by domestic enterprises
- (d) Some are State-owned and others are privately owned

Ans: (b)

Topics: Challenges to internal security through communication networks, role of media and social networking sites in internal security challenges, basics of cyber security; money-laundering and its prevention.

17. CONVENTION AGAINST CYBERCRIME

Context:

The UN member states have adopted the Convention Against Cybercrime after nearly three years of negotiations.

What is Cybercrime?

Cybercrime refers to criminal activities conducted via the Internet or involving computer systems. It includes:

- Hacking: Unauthorized access to computer systems or networks.
- Phishing: Fraudulent attempts to obtain sensitive information by pretending to be a trustworthy entity.
- Online Fraud: Scams or deceitful schemes to steal money or personal information.
- Malware: Software designed to harm or exploit computers and networks.
- Cyberstalking: Harassment or stalking conducted online.

Cybercrimes fall under State subjects as per the Seventh Schedule of the Constitution of India.

What is the Convention Against Cybercrime?

It is a treaty adopted by the United Nations to create a global legal framework for combating cybercrime. It aims to address various cybercrimes, including online fraud, scams, harassment, child sexual abuse imagery, and money laundering, by establishing common standards for investigation and prosecution across member states.

Key Points:

- Objective: To provide a unified approach to prevent and combat cybercrime internationally, ensuring cooperation among countries in investigating and prosecuting such crimes.

- Adoption: The convention was adopted by all UN member states after extensive negotiations. It reflects a global consensus on the need for a robust response to cybercrime.
- Ratification: The treaty will enter into force once ratified by at least 40 UN member states.

Key Provisions:

- Domestic Legislation: Requires states to criminalize unauthorized access to information and communications systems.
- Child Protection: Mandates that states criminalize the production, distribution, and sale of online child sexual content.
- Human Rights: Ensures that treaty implementation aligns with international human rights obligations.
- Data Collection: Allows states to collect or record data for convictions and compel service providers to provide incriminating information.

Key issues with the UN Cybercrime Treaty:

1. Human Rights Concerns: Criticized for potentially enabling authoritarian regimes to suppress dissent and violate freedoms.
2. Surveillance Risks: Lacks oversight on data access and sharing, raising global surveillance concerns.
3. Implementation Challenges: Poor drafting may endanger security researchers and journalists, and allow secretive IT interventions.
4. Lack of Oversight: No measures for judicial oversight or proper handling of electronic evidence.

India’s Position on the Convention:

- Data Transfer Clause: India opposed a clause promoting bilateral or multilateral data transfer arrangements, prioritizing data sovereignty.
 - India supports transferring personal data with prior written authorization and safeguards.
- Points of Contact: India supports designating 24/7 points of contact for cybercrime investigations and cooperation.

Budapest Convention:

The Budapest Convention, established by the Council of Europe in 2001 and effective in 2004, is the only binding international treaty on cybercrime. It facilitates cross-border cybercrime investigations and serves as a model for national cybercrime laws and international cooperation. It also includes a protocol on xenophobia and racism online. While it highlights the limitations of the Mutual Legal Assistance Treaty (MLAT) for digital issues, India has chosen not to join the convention despite ongoing calls for its participation.

Countermeasures taken by India against cyber threats:

- Creation of **National Critical Information Infrastructure Protection Centre** for Critical Information

- Infrastructure (CII) protection.
- Establishment of **Defence Information Assurance and Research Agency** for cyber security issues.
- CERT-Fin to collaborate with financial sector regulators** and stakeholders on cyber security issues.
- Establishment of **cyber security infrastructure – CERT-IN**
- IT Act 2000 provides legal framework against cybercrimes** related to “electronic commerce.”
- National Cyber Security Policy 2013** aims to create a secure cyber ecosystem, ensure global security compliance, and strengthen regulatory framework.

Others

- I4C (Indian Cyber Crime Coordination Center)** was set up in 2016 to look into every kind of cybercrime.
- The Indian Common Criteria Certification Scheme (IC3S)** is to evaluate and certify IT Security Products and Protection Profiles.
- Cyber Swachhta Kendra** was introduced for internet users to clean their computers and devices by wiping out viruses and malware.
- Cyber Surakshit Bharat Initiative** was launched to spread awareness about cybercrime and build capacity for safety measures for Chief Information Security Officers (CISOs) and frontline IT staff across all government departments.

Global Effort: Bletchley Declaration:

The Bletchley Declaration, named after the historic code-breaking site, signifies a **global commitment to addressing AI’s ethical and security challenges**, particularly generative AI. Signed at the AI Safety Summit (in 2023), it highlights the increasing global recognition of AI risks and involves major world powers like China, the EU, India, and the US.

Insta Links:

- [Cybersecurity Challenges in India](#)

Mains Link:

Keeping in view India’s internal security, analyse the impact of cross-border cyber-attacks. Also, discuss defensive measures against these sophisticated attacks. (UPSC 2021)

Prelims Link:

With the present state of development, Artificial Intelligence can effectively do which of the following? (UPSC 2020)

- Bring down electricity consumption in industrial units
- Create meaningful short stories and songs
- Disease diagnosis
- Text-to-Speech Conversion
- Wireless transmission of electrical energy

Select the correct answer using the code given below:

- (a) 1, 2, 3 and 5 only

- (b) 1, 3 and 4 only

- (c) 2, 4 and 5 only

- (d) 1, 2, 3, 4 and 5

Ans: B

GENERAL STUDIES – 4

18. THE ETHICS OF HUNGER STRIKES AS A MODE OF PROTEST

Context:

Hunger strikes as a form of protest have been a contentious method, raising numerous ethical questions about the treatment of strikers and the state’s response.

Definition: Hunger strikes are **deliberate refusals to eat, often employed** to achieve political or social goals.

Historically, hunger strikes have been used in various cultures, such as **pre-Christian Ireland’s troscad** and in ancient Indian texts like **Kalhana’s Rajatarangini**. The practice became prominent in the late 19th century, with significant examples from Russian political prisoners, the suffragette movement, and **Gandhiji’s hunger strike against injustices**.

Key Features:

- Physiological Defiance:** Hunger strikes use the body’s natural processes as a direct challenge to authority.
- Alternative Protest Method:** In situations where other forms of protest are unavailable, hunger strikes become a potent tool.
- Emotional Appeal:** The self-imposed suffering of hunger strikers is designed to evoke a response from the public and authorities.

Examples:

- Global:** Irish republican Thomas Ashe, suffragette Marion Wallace Dunlop, and Japanese anarchist Akaba Hajime.
- India:** Freedom fighters like Mahatma Gandhi, Jatin Das (Died after a 63-day hunger strike), Bhagat Singh, and modern activists like Irom Sharmila (Manipur), Potti Sriramulu (hunger strike led to the formation of the state of Andhra Pradesh) and Anna Hazare (hunger strike against corruption in 2011)

Recent Examples:

- Manoj Jarange-Patil:** Fasts demanding Maratha community reservations.
- Sonam Wangchuk:** 21-day hunger strike for Ladakh’s constitutional safeguards.
- Khader Adnan:** Palestinian prisoner who died after an 87-day hunger strike in 2023.

Ethical Considerations:

- State Response:** The use of force-feeding by authorities, which can lead to severe health complications or death, raises significant ethical issues.

2. **Health and Safety:** Providing medical care against the striker's will or allowing a striker to die poses moral dilemmas for both medical professionals and the state.
3. **Autonomy vs. State Control:** Balancing the striker's autonomy with the state's responsibility to preserve life.

Benefits:

1. **Highlighting Injustices:** Hunger strikes can draw significant attention to causes and injustices.
2. **Non-violent Resistance:** It is seen as a powerful form of non-violent protest.
3. **Historical Significance:** They have a proven track record in various movements and resonate culturally as a form of sacrifice and protest.
4. **Moral High Ground:** By enduring personal suffering, hunger strikers highlight the injustice they protest against.

Challenges:

- **Moral Dilemmas:** Ethical questions about the appropriateness of force-feeding and providing medical care against the will of the striker.
- **Health Risks:** Prolonged starvation leads to severe health risks, including death.
- **Preservation of Life:** Ethical principles emphasize the importance of preserving life, which can be compromised by hunger strikes.
- **State's Role:** The state's approach to handling hunger strikes can lead to human rights abuses.
- **Coercion:** Hunger strikes can pressure authorities and manipulate public sentiment, raising concerns about fairness and legitimacy.
- **Impact on Others:** The emotional burden on family and friends and the potential need for others to intervene raise ethical issues.
- **Legal and Medical Ethics:** Authorities and health-care professionals face dilemmas balancing respect for autonomy with the duty to preserve life, such as issues around forced feeding versus neglect.

Steps Taken:

- **Legal and Medical Guidelines:** Various guidelines exist, such as the World Medical Association's 1975 **Tokyo Declaration**, which condemns force-feeding.
- **Geneva Convention:** Sets standards for wounded combatants, but its application to hunger strikers is unclear, complicating health professionals' roles.
- **Indian Context:** Madras High Court ruled that hunger strikes are not an offence under Section 309 (attempt to suicide).

Views of various Ethical Thinkers:

Thinker	Views on Hunger Strikes
John Stuart Mill	Advocated for individual freedom and the right to protest , including through hunger strikes, as long as it doesn't harm others.

Gandhi	Preferred " fasting " over " hunger strikes " and viewed it as a means of self-reform rather than a tool for political demands. He believed fasting should be used to appeal to personal or moral reform rather than to coerce political change.
Swami Vivekananda	Emphasized practical spirituality and the need for effective means of social reform . He might see hunger strikes as a legitimate form of protest if it aligns with moral and spiritual principles but would also consider its broader social impact.
Dr. B.R. Ambedkar	Criticized hunger strikes as "unconstitutional" and favoured legal methods for social and economic goals.

Insta Links:

- Ahmadabad Mill Strike, 1918

19. P.R. SREEJESH

Context:

PR Sreejesh's journey from **a small farmer's son in Kerala**, where his father **sold a cow to buy him a hockey kit**, to winning a **bronze medal for India** at the Tokyo Olympics is truly inspiring. His career highlights include leading India to victory in numerous tournaments and becoming a key player in the 2024 Paris Olympics.

Ethical Values from P.R. Sreejesh

- Embodying dedication, perseverance, humility.
- Reflecting commitment to excellence.
- Showing respect for sport.
- Expressing gratitude for support.
- Underscoring hard work, resilience, and integrity.

20. MOHANLAL PLEDGES RS 3 CRORE FOR WAYANAD REHABILITATION

Actor Mohanlal, in his role as a Lieutenant Colonel, visited **landslide-hit Wayanad and pledged Rs 3 crore** for rehabilitation efforts. He inspected affected areas, interacted with rescue teams, and emphasized the scale of the disaster. His **Vishwashanthi Foundation** will also aid in rebuilding local infrastructure.

Ethical Values of Actor Mohanlal:

1. **Compassion:** Demonstrates empathy by supporting disaster-stricken areas and pledging significant financial aid.
2. **Responsibility:** Takes an active role in disaster relief and recovery efforts.

3. Leadership: Leads by example through personal involvement and mobilizing resources for humanitarian causes.
4. Commitment: Shows dedication to both his professional duties and community service.

21. AI NEEDS CULTURAL POLICIES, NOT JUST REGULATION

Context:

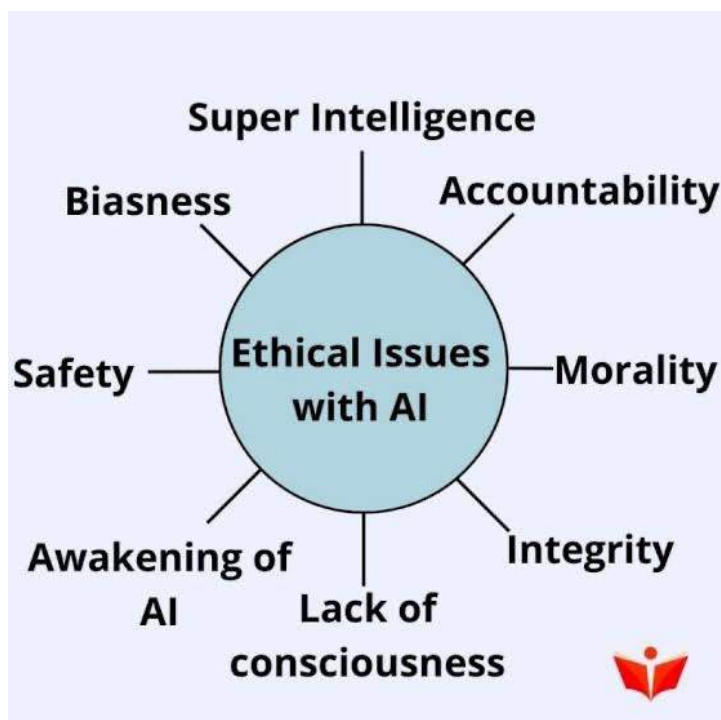
To **fully realize AI's potential and ensure its equitable benefits**, we need more than just regulation; we must promote high-quality data as a public good.

What is Artificial Intelligence (AI)?

Artificial Intelligence (AI) is the **ability of a computer or robot to perform tasks that typically require human intelligence**, such as reasoning, learning, and problem-solving. **Machine Learning (ML) and Deep Learning (DL)** allow AI to learn from large data sets.

What is Ethical AI?

Ethical AI involves **developing and using AI systems** in ways that align with **ethical principles, societal values, and human rights**, ensuring benefits while minimizing harms and biases.



AI's Potential for Ethical and Moral Behaviour:

Aspect	AI's Potential for Ethical and Moral Behaviour
Views	

Understanding Ethics and Morality	For e.g., AI systems can be trained to identify hate speech and offensive content to maintain a respectful online environment.
Bias Mitigation	AI can be programmed to mitigate biases and avoid unfair discrimination .
Decision-Making	AI can make ethical decisions based on <u>predefined rules and data</u> . (but lacks <u>true moral understanding</u>)
Counterview	
Learning from Data	AI learns from data, which might include biased or unethical information, leading to unintended consequences.
Ethics in AI: Kantian Perspective	Applying Kantian ethics to AI decision-making within governance raises concerns. Delegating decisions to algorithms could undermine human moral reasoning and responsibility. Isaac Asimov's 'Three Laws of Robotics' also highlights the challenges in translating ethics into AI rules.
Programming Ethics into AI: A Complex Task	Programming ethical AI is more challenging than programming AI for tasks like chess due to the intricate nature of ethical considerations.
Autonomy and Intent	AI lacks consciousness and intent , making its actions neither inherently moral nor immoral. E.g. , A robot that assists the elderly with daily tasks completes them efficiently but without genuine care or compassion.
Accountability and Liability	As AI assumes decision-making roles, accountability questions arise. If AI-based decisions turn out to be unethical, who bears responsibility? Punishing AI is problematic as it lacks emotions. Deciding who is accountable—AI developer, AI user, or AI itself—poses a significant challenge
Unintended Consequences	E.g., Social media algorithms , while aiming to show relevant content, might inadvertently create echo chambers and reinforce biases.
Continuous Learning	AI's ability to learn and adapt can lead to ethical shifts over time, requiring ongoing evaluation.
Human Oversight	The ethical behaviour of AI often requires human oversight and intervention . E.g. , Content moderation platforms use AI to flag potentially inappropriate content, but human moderators make final decisions.

Steps Taken for Ethical AI:

Steps	Description
International	Global Alliance for Social Entrepreneurship: Launched AI for Social Innovation initiative at WEF 2024 with Microsoft to promote positive AI impact and responsible guidelines. Examples: China, Canada, and Singapore have AI regulations
	EU AI Act: Comprehensive regulation for AI risk governance and citizen protection
	California: Bill for AI safety testing to prevent misuse.
	UK AI Safety Summit: The 2023 summit focused on AI safety and international cooperation.
	Tech Giants: Microsoft, Meta, Google, Amazon, and Twitter have responsible AI teams for ethical oversight
National	Advisory on AI Models: MeITY issued guidance on AI models and deepfakes in 2024.
	IndiaAI Mission: Promotes AI innovation through public-private partnerships, improving data quality and ethical AI.
	Responsible AI for Youth: National program launched for youth.
	National Strategy on AI: NITI Aayog’s 2018 strategy for safe, inclusive AI adoption across sectors with the “AI for All” mantra.

Conclusion:

Ethics integration into AI is intricate, and its implications must be approached with care. While AI can contribute to decision-making, ensuring its ethical behaviour requires addressing complex challenges and considering liability scenarios.

For Generative AI: What are the potential applications and ethical concerns? [Click Here](#)

Insta Links:

- A new global standard for AI ethics

22. NETWORK OF WOMEN IN MEDIA, INDIA (NWMI) GUIDELINES

Context:

The Network of Women in Media, India (NWMI) has released guidelines to improve safety and equity in newsrooms. These guidelines address issues like poor working conditions, harassment, and unfair practices.

Common issues identified include:

1. Widespread **workplace humiliation and harassment**.
2. **Tolerance of abusive behaviour** from senior staff, often excused by past experiences.
3. **Disparaging comments** based on personal attributes like caste, gender, and sexuality.
4. Severe attacks primarily **target women and LGBTQIA+ individuals**.

Key recommendations include:

1. **Adherence to legal work hours**, with overtime recognition.
2. **Fair and transparent salaries**, adjusted for inflation and comparable industries.
3. **Minimum of 30 days paid leave**, including mental health and menstrual leave.
4. **Establishment of professional HR departments** with clear policies on acceptable behaviour.
5. **Transparent performance appraisals** and a zero-tolerance policy for toxic behaviour.
6. **Regular communication and training** on workplace policies.
7. **Prompt filling of vacancies** to avoid overburdening staff.
8. Journalists should **work no more than 144 hours** over four consecutive weeks. A mandatory day off each week.
9. **Enforce a zero-tolerance policy for toxic behaviour**, with disciplinary action against violators, regardless of position or popularity.

These measures aim to **create a respectful and equitable work environment for journalists**.

Related Information:

Values of Ethical Journalism:

Ethical Value	Description	Thinker/Expert
Truthfulness	Commitment to accuracy and honesty in reporting, avoiding distortion of facts.	Walter Lippmann
Objectivity	Reporting news without bias, ensuring fair representation of all sides of an issue.	Bernard Goldberg
Integrity	Upholding strong moral principles, avoiding conflicts of interest and corruption.	Ralph Waldo Emerson
Accountability	Taking responsibility for errors, and being transparent with corrections and clarifications.	Thomas Jefferson
Respect for Privacy	Protecting individuals' privacy, particularly in sensitive stories, while balancing public interest.	John Stuart Mill
Independence	Maintaining editorial independence from external influences, including political and corporate pressures.	George Orwell
Fairness	Ensuring equitable treatment of subjects and audiences, avoiding prejudiced or discriminatory content.	John Rawls
Transparency	Being open about journalistic processes, sources, and potential biases.	Bill Kovach and Tom Rosenstiel
Empathy	Showing compassion and understanding towards subjects, especially in human-interest stories.	Maya Angelou
Social Responsibility	Recognizing the role of media in shaping public opinion and upholding democratic values.	Noam Chomsky
Justice	Advocating for fairness, equality, and the protection of rights within media practices.	Martin Luther King Jr.
Professionalism	Adhering to high standards of journalistic practice, including thorough research and ethical sourcing.	David Randall
Human Dignity	Ensuring that all individuals are treated with respect and dignity in reporting and representation.	Immanuel Kant

23. MORAL PRESSURE AND HUMAN RIGHTS COMPLIANCE

Context:

In a world increasingly plagued by **prejudice and fanaticism, the centrality of human rights is more crucial than ever.**

What are Human Rights?

Human rights are **moral principles or norms** for certain standards of human behaviour and are regularly protected in municipal and international law.

Issues with Human Rights Compliance at global level

- **Authoritarian Regimes:** These regimes often disregard international human rights norms, leading to oppressive practices. Ex- North Korea, China, and Russia
- **State Sovereignty:** Countries may reject external pressures due to their right to self-governance.
- **Selective Enforcement:** Human rights violations are often addressed selectively based on geopolitical interests.
- **Lack of Implementation:** Even with adopted standards, policy changes remain superficial. Ex - Myanmar has faced global condemnation for its treatment of the Rohingya, but substantive policy changes remain limited.
- **Ineffective Sanctions:** Economic sanctions or military interventions can exacerbate humanitarian crises. Ex – On Syria or Venezuela
- **Resistance to Shaming:** Efforts to name and shame violators may lead to only cosmetic changes or denial of allegations.

Promotion and protection of human rights:

- **Article 51 A (g)** mandates citizen protection and improvement of the environment and compassion for living creatures.

- **Protection of Human Rights Act, 1993** establishes a National Human Rights Commission at Union level.
- **Universal Declaration of Human Rights**, adopted by UNGA, establishes rights and freedoms of all human race.
- **Human Rights Day celebrated globally** on 10th December.
- **Freedom in the World 2021 report** downgrades India's status from 'Free' to 'Partly Free'.
- **Human Rights Council**, UN inter-governmental body, promotes and protects human rights.
- **Amnesty International**, an international organization, campaigns for human rights.

Steps taken for the preservation of human rights:

1. **Governance systemic reforms and affirmative initiatives**: particularly in the Health and Economic sectors.
2. **Inclusive growth**: It is also antidotal to violation of human rights.
3. **Banking network**: 400 million getting into banking networks and over 200 million families benefiting out of free cooking gas connections.

Challenges to human rights:

1. **Conflicting definition of what forms human rights**: E.g. while the world has condemned Chinese persecution of the Uighur community for human rights violations, China sees it as anti-terror/ anti-separatist measures.
2. **Silence**: Silent and voiceless existence of the majority of our citizens
3. **Corruption**: Human rights get compromised in the face of corruption.

Importance of Human rights:

1. **Flourishing of Democracy**: Human rights are quintessential for flourishing democracy.
2. **Democratic values**: They are of no significance in the absence of human rights.
3. **Dignity**: Nurturing human rights is the nectar of dignity and dignified human existence.
4. **Positive ecosystem**: Flourishing human rights generates a positive ecosystem that facilitates optimal utilisation of human talent.
5. **Development**: It brings about holistic development.
6. **Indian culture**: The pro-human rights foundational spirit of Indian culture, is reflected in **Brihad Aranyaka Upanishad**.

Actions to Improve Human Rights Compliance:

1. **Strengthen International Pressure**: Increase coordinated global efforts through sanctions, diplomatic pressure, and public condemnation to hold violators accountable.
2. **Enhance Accountability Mechanisms**: Improve international legal frameworks and institutions to

effectively investigate and prosecute human rights violations.

3. **Support Grassroots Activism**: Encourage and support local human rights organizations and activists to address abuses from the ground up.
4. **Promote Transparency**: Advocate for greater transparency in human rights practices and data reporting to expose abuses and drive accountability.
5. **Foster Global Cooperation**: Build alliances among nations, NGOs, and international bodies to create a unified front against human rights violations.

Insta Links:

NHRC

Mains Links:

Q. Critically examine the roles and responsibilities of the National Human Rights Commission. (10M)

24. UNVEILING ETHICAL DILEMMAS IN MALAYALAM CINEMA INDUSTRY

Context:

The Justice K Hema Committee report reveals that a small, influential group of 10-15 men controls the Malayalam film industry, often issuing bans and ignoring women's harassment complaints.

To know about the Hema Committee Report: [Click Here](#)

Several ethical issues within the Malayalam film industry:

1. Report reveals **widespread sexual harassment and abuse**, including physical advances, rape threats, and coercive casting practices.
2. **Power imbalance**: Influential men control the industry, suppressing dissent and ignoring women's complaints.
3. **Ineffective Internal Complaints Mechanisms**: ICCs are criticized for their control by the same power structures.
4. **Systemic gender discrimination**: Women face discrimination in hiring, working conditions, and opportunities.
5. **Unlawful Bans and Blacklisting**: Actors and crew members can be banned without due process.
6. **Inadequate Support and Facilities for Women**: Female workers lack basic facilities and protection against harassment.
7. **Cultural Hegemony and Subjugation**: Dominance of a few marginalizes less powerful individuals.
8. **Fear of Retribution**: Women fear stigma and retaliation for reporting harassment.
9. **Lack of Transparency**: The process of banning individuals is opaque, leading to informal blacklisting.

Examples from India and Global:

India

1. Pay Disparity: Female actors like Deepika Padukone earn less than male co-stars.
2. Casting Couch: Actresses like Kangana Ranaut have reported coercion for roles.
3. Fewer Female Directors: Limited opportunities for women directors in Bollywood.
4. Stereotyping: Women are often portrayed in stereotypical roles.
5. Sexual Harassment: #MeToo movement exposed cases like Vikas Bahl.

Global

1. Pay Gap: Jennifer Lawrence highlighted lower pay compared to male co-stars.
2. Underrepresentation: Women directed only 10% of the top 250 films in 2019.
3. Harvey Weinstein Scandal: Revealed widespread sexual misconduct.
4. Objectification: Women are often reduced to physical appearance in films.
5. Career Barriers: Female directors face challenges in major projects, despite successes like Kathryn Bigelow.

Potential solutions to the ethical issues highlighted in the Malayalam film industry:

Ethical Issue	Potential Solutions
Sexual Harassment and Abuse	<ul style="list-style-type: none"> - Establish robust anti-harassment policies and protocols. - Implement mandatory training for all industry members on sexual harassment and consent. - Create confidential reporting mechanisms and support systems for survivors.
Power Imbalance	<ul style="list-style-type: none"> - Promote transparency in decision-making processes. - Implement checks and balances to prevent power concentration. - Encourage diversity and representation in leadership roles.
Ineffective Internal Complaints Mechanisms	<ul style="list-style-type: none"> - Form independent tribunals with external oversight to handle complaints. - Ensure ICCs are composed of impartial members with no conflicts of interest. - Regularly review and audit the effectiveness of ICCs.
Gender Discrimination	<ul style="list-style-type: none"> - Enforce equal opportunity policies in hiring and promotions. - Conduct gender sensitivity training. - Ensure equitable pay and working conditions for all genders.
Unlawful Bans and Blacklisting	<ul style="list-style-type: none"> - Establish clear, formal procedures for issuing bans with documented reasons. - Create an appeals process for banned individuals. - Publicly disclose the criteria and procedures for bans.
Inadequate Support and Facilities for Women	<ul style="list-style-type: none"> - Improve basic facilities such as restrooms and safety measures on set. - Implement policies to ensure a safe working environment for all genders. - Provide support services like counselling and legal assistance.
Cultural Hegemony and Subjugation	<ul style="list-style-type: none"> - Foster an inclusive and equitable workplace culture. - Promote dialogue and awareness about cultural and systemic biases. - Support initiatives and organizations advocating for marginalized groups.
Fear of Retribution	<ul style="list-style-type: none"> - Protect whistleblowers and ensure confidentiality. - Create safe spaces for individuals to report without fear of retaliation. - Implement legal protections for those who report misconduct.
Lack of Transparency	<ul style="list-style-type: none"> - Increase transparency in industry practices and decisions. - Publicly report on the outcomes of investigations and actions taken. - Ensure accessible and clear communication channels for all stakeholders.

Thinkers Views:

1. Satyajit Ray: Advocated for transparency and integrity in all professional practices.
2. Swami Vivekananda: Emphasized the need for self-awareness and ethical leadership, advocating for equality and justice.
3. Rabindranath Tagore: Criticized social hierarchies and championed democratic and egalitarian values
4. Sarojini Naidu: Promoted women’s rights and the need for proper support and conditions for women.
5. Martha Nussbaum: Emphasized capabilities and equality, advocating for gender justice and women’s rights.

25. PAVEL DUROV'S ARREST: UNPACKING THE ETHICAL STORM SURROUNDING TELEGRAM'S CEO

Context:

The article highlights the **tension between free speech and responsibility** on platforms like Telegram, focusing on the recent arrest of its **CEO, Pavel Durov, in France**.

Durov's strong stance on absolute free speech has attracted both dissidents and harmful content like **extremism and child pornography**, sparking debates on whether his approach threatens public safety. Telegram's moderation practices are criticized for not using full end-to-end encryption and failing to curb illegal activities. The arrest has ignited global discussions on free speech, with figures like **Elon Musk and Edward Snowden defending Durov**.

Ethical issues concerned in the case:

1. **Balancing Free Speech and Harm:** The tension between upholding free speech and preventing the spread of harmful content like extremism and child pornography.
2. **Platform Responsibility:** The ethical responsibility of Telegram to moderate and prevent illegal activities on its platform.
3. **Privacy vs. Law Enforcement:** The dilemma between protecting user privacy and complying with law enforcement requests to access content for public safety.
4. **Impact of Absolute Free Speech:** The potential consequences of prioritizing absolute free speech, which can enable criminal activities.
5. **Government Oversight:** The ethical implications of government intervention and the potential for censorship in regulating online content.
6. **Accountability of Tech Leaders:** The responsibility of tech leaders like Durov in managing the misuse of their platforms.

Other such examples:

India:

1. **WhatsApp:** Misinformation leading to mob violence; introduced message limits.
2. **TikTok Ban:** Concerns over data privacy and harmful content; banned by the government.
3. **Twitter:** Clashes with the government over content removal during farmers' protests.

World:

1. **Facebook (Cambridge Analytica):** Data privacy breach influencing elections.
2. **Twitter (Trump Suspension):** Account banned after Capitol riot; raised censorship concerns.
3. **China:** Government controls internet access, blocking major platforms.
4. **Myanmar:** Facebook criticized for spreading hate

speech leading to violence against Rohingya.

Solutions:

1. **Stronger Regulation:** Implement clear guidelines for content moderation while respecting free speech.
2. **Transparent Policies:** Platforms should adopt transparent content policies and communicate them clearly to users.
3. **Improved Moderation:** Use advanced AI and human moderators to detect and remove harmful content promptly.
4. **Collaboration with Authorities:** Cooperate with law enforcement to prevent illegal activities while protecting user privacy.
5. **Public Awareness:** Educate users on the responsible use of social media and the dangers of misinformation.
6. **International Standards:** Develop global standards for content moderation to ensure consistency across platforms.

Insta Links:

- Article 19: Right to freedom

26. AI'S ETHICAL DILEMMA: BALANCING CORPORATE GAINS WITH RESPONSIBILITY

Context:

Recent events highlight corporate governance issues in AI companies like OpenAI, emphasizing the need for robust and ethically sound governance structures as AI technologies advance.

Background

- **Traditional corporate governance** has long been dominated by the **principle of shareholder primacy**, which prioritizes maximizing shareholder value above other concerns.
- However, in recent years, there has been a **shift towards a stakeholder approach in corporate governance**, which considers the interests of all parties affected by a company's operations, including employees, customers, communities, and the environment.
- This shift has been particularly relevant for corporations involved in developing technologies, such as AI.

Current Governance Issues

- **Lack of ethical oversight:** Corporate structures often prioritize profit over ethical considerations in AI development, leading to potential societal harm, such as inadequate privacy and bias mitigation safeguards for facial recognition technologies.
- **Insufficient stakeholder representation:** Current governance models often overlook diverse perspectives, leading to narrow decision-making and

ignoring broader societal impacts, as seen in the limited involvement of ethicists and affected communities in AI product development.

Concerns / Challenges

- **Monetary Interests Over Social Objectives:** In practice, monetary interests often overshadow social objectives, even in companies with alternative governance models.
- **Shareholder and Investor Pressure:** Shareholder pressure and employee stock options can hinder public benefit corporations' objectives, focusing on short-term profits over long-term social benefits and complicating ethical considerations.
- **Risk of 'Amoral Drift':** Alternative governance structures may not prevent 'amoral drift', where companies abandon ethical commitments for financial gain, especially in the rapidly evolving AI industry.

International Practices in Corporate Governance for AI

- **EU AI Act:**
 - The European Union has been at the forefront of developing comprehensive regulations for AI through the proposed AI Act.
 - The Act categorizes AI systems based on risk and imposes stricter regulations on high-risk AI applications.
 - It also mandates transparency, accountability, and human oversight to ensure that AI systems are aligned with fundamental rights and societal values.
- **OECD AI Principles:** The Organisation for Economic Co-operation and Development (OECD) has established AI Principles that emphasize inclusive growth, sustainable development, and well-being.
- **AI Ethics Committees:**
 - Many companies and governments are incorporating AI ethics committees into their governance structures.
 - For instance, Microsoft's AI and Ethics in Engineering and Research (AETHER) Committee reviews AI projects to ensure they adhere to ethical guidelines.
- **Data Ethics Boards:**
 - Companies like Google have established data ethics boards to oversee the ethical use of AI and data.
 - These boards provide guidance on issues such as data privacy, algorithmic fairness, and the societal impact of AI technologies.

Way Forward

- **Regulating AI Corporations:** Innovative regulatory frameworks should be developed to oversee AI corporations, ensuring that they operate within ethical boundaries and contribute to societal well-being.
- **Framing Ethical Standards:** Ethical standards for AI governance need to be clearly defined and supported by regulatory backing to ensure compliance and accountability.
- **Enhancing Long-Term Profit Gains:** Companies should be encouraged to adopt public benefit purposes, which can enhance long-term profit gains by fostering trust and credibility with stakeholders.
- **Reducing Compliance Costs:** To encourage the adoption of social responsibility objectives, it is essential to reduce compliance costs for corporations, making it easier for them to align their operations with ethical standards.
- **Multistakeholder Models:** The United Nations has advocated for multistakeholder approaches in AI governance, involving governments, private sector, academia, and civil society.
- **Establish AI ethics boards:** Integrate independent ethics committees into corporate structures, similar to the Ethics Committee of Lok Sabha, to review AI projects and ensure alignment with ethical guidelines and social responsibility.
- **Implement stakeholder-inclusive governance:** Redesign board compositions to include representatives from various stakeholder groups, including ethicists, social scientists, and community leaders, ensuring diverse perspectives in decision-making processes.

Conclusion

AI companies can develop profitable and socially responsible technologies through innovative governance models, ethical oversight, and stakeholder engagement, emphasizing the importance of robust corporate governance.

CONTENT FOR MAINS ENRICHMENT

Topic in News	Usage in Answers
<p>1. IAS OFFICER MANISH BANSAL</p>	<p>Context: The Sot River, a crucial water source in Sambhal, Uttar Pradesh, dried up due to decades of neglect and encroachment. In 2022, IAS officer Manish Bansal took charge and initiated a comprehensive river rejuvenation project. The district administration conducted surveys, cleared illegal encroachments, and desilted the riverbed with the help of MGNREGA workers.</p> <p>Within six months, the 110 km river was revived, restoring its natural flow and eliminating waterlogging. The project included planting 10,000 bamboo saplings to prevent soil erosion and constructing micro-check dams to regulate water flow.</p> <p>The project to revive the Sot River exemplifies several ethical values:</p> <ol style="list-style-type: none"> 1. Community Collaboration: Effective teamwork between officials and locals. 2. Environmental Stewardship: Commitment to restoring and preserving natural resources. 3. Integrity: Addressing and removing illegal encroachments. 4. Perseverance: Completing a significant environmental project in a short timeframe. 5. Public Service: Prioritizing the well-being of the community and future generations. 6. Innovation: Implementing creative solutions like desilting and micro check dams. 7. Responsibility: Ensuring sustainable practices for long-term benefits
<p>2. DARK TOURISM</p>	<p>Context: The Kerala Police have urged people not to visit landslide-hit Wayanad for sightseeing, warning against “dark tourism” amid ongoing rescue efforts.</p> <p>What is Dark tourism?</p> <p>It is also known as grief tourism, which involves visiting places associated with death, tragedy, or suffering. Examples include:</p> <ol style="list-style-type: none"> 1. Auschwitz: A Nazi concentration camp in Poland where millions perished during the Holocaust. 2. Chornobyl: The site of the 1986 nuclear disaster in Ukraine. 3. Hiroshima: The Japanese city was devastated by an atomic bomb in 1945. 4. 9/11 Memorial: A tribute to the victims of the September 11 attacks in New York City. <p>These sites attract visitors seeking to understand and reflect on historical tragedies.</p> <p>Dark tourism raises several ethical issues:</p> <ol style="list-style-type: none"> 1. Exploitation: Turning sites of tragedy into commercial attractions can be seen as profiting from suffering. 2. Respect: Visitors may show disrespect, such as taking inappropriate selfies at solemn sites. 3. Impact on Communities: Increased tourism can disrupt local communities and their mourning processes. 4. Voyeurism: There is a risk of sensationalizing and trivializing the experiences of victims. 5. Consent and Sensitivity: It is crucial to handle these sites with sensitivity and obtain consent from affected communities for tourism activities.
<p>3. VINESH PHOGAT’S INSPIRING JOURNEY TO THE OLYMPICS</p>	<p>Indian wrestler Vinesh Phogat’s Olympic journey was marked by resilience despite recent setbacks. Although disqualified from the Paris 2024 Olympics for exceeding the weight limit by 100 grams, Phogat’s achievements remain remarkable. Just a day before, she defeated Japan’s Yui Susaki, the reigning Olympic champion, to become the first Indian woman wrestler to reach an Olympic final.</p> <p>Key ethical values from Vinesh Phogat’s life:</p> <ol style="list-style-type: none"> 1. Resilience: Overcoming setbacks and criticism to continue pursuing her goals. 2. Determination: Persisted despite injuries, controversies, and disqualification. 3. Courage: Took a stand for justice and faced challenges head-on esp. during wrestler’s protest 4. Commitment: Dedicated herself to wrestling and the future of young wrestlers. 5. Selflessness: Fought not only for her career but for the betterment of others in her sport.

<p>4. ARUNACHAL PRADESH: FREE SCHOOL FOR ORPHANS</p>	<p>Lama Thupten Phuntsok founded Manjushree Vidyapeeth in Tawang, Arunachal Pradesh, in 1998 to support orphaned and underprivileged children. What began with just 17 students in a small shed has grown into a thriving school housing over 300 children, providing them with free education, shelter, and food. The school has helped many students become professionals and has received several awards and government support.</p> <p>Ethical aspects of Lama Thupten Phuntsok’s Manjushree Vidyapeeth:</p> <ol style="list-style-type: none"> 1. Child Welfare: Providing education, shelter, and food to orphaned and underprivileged children. 2. Community Support: Addressing local challenges and contributing to the community’s well-being. 3. Equity: Offering opportunities and vocational training regardless of a child’s background. 4. Sustainability: Reliance on diverse funding sources, including donations and sponsorships, for long-term support.
<p>5. MOVIE LAAPATAA LADIES SCREENED AT SUPREME COURT</p>	<p>Context: Kiran Rao’s film Laapataa Ladies was screened at the Supreme Court of India recently.</p> <p>Laapataa Ladies, set in 2001, follows the story of two brides swapped in a train.</p> <p>Laapataa Ladies explores several ethical aspects through its narrative, including:</p> <ol style="list-style-type: none"> 1. Gender Equality: The film addresses the issues of gender roles and expectations in society, challenging traditional norms and advocating for equality between men and women. 2. Human Rights: The storyline highlights the basic rights of individuals, particularly women, emphasizing their right to make choices about their lives and bodies. 3. Social Justice: The film sheds light on the marginalization and exploitation of women, urging for a more just and fair society where everyone has equal opportunities. 4. Cultural Sensitivity: By setting the story in a fictitious state, the film draws attention to the cultural nuances and the ethical treatment of individuals within different societal structures. 5. Moral Responsibility: The characters in the film face moral dilemmas, particularly in dealing with the consequences of the bride swap, raising questions about responsibility and ethical decision-making. 6. Empathy and Compassion: The narrative encourages viewers to empathize with the characters’ situations, promoting understanding and compassion for those facing challenging circumstances. 7. Individual Autonomy: The film touches on the importance of personal autonomy and the right to self-determination, especially for women in a patriarchal society.
<p>6. NAGALAND’S DRTPS INITIATIVE</p>	<p>Context: Nagaland became the first state in India to adopt a Disaster Risk Transfer Parametric Insurance Solution (DRTPS) by signing an MoU with SBI General Insurance.</p> <p>The insurance aims to protect critical infrastructure and reduce economic losses from extreme weather events over a three-year period (2024-2027).</p> <p>Parametric insurance provides a predefined payout when specific events, like natural disasters, occur, ensuring quick financial support and enhancing the state’s resilience.</p> <p>The significance of this initiative lies in its ability to enhance Nagaland’s financial resilience and safeguard livelihoods against the increasing frequency of extreme weather events. Providing quick payouts after disasters helps ensure rapid recovery and reduces economic losses, setting a precedent for disaster risk management in India.</p>
<p>7. GRAIN ATM</p>	<p>Context: The WFP and the Government of Odisha launched India’s first 24/7 ‘Grain ATM,’ called ‘Annapurti,’ in Bhubaneswar.</p> <p>This initiative allows Public Distribution System beneficiaries to access food grains anytime under the National Food Security Act. The machine, which can dispense up to 50 kilograms of grain in five minutes after biometric authentication, reduces waiting times by 70% and can be powered by solar panels. This partnership aims to enhance food security across Odisha, providing consistent access to essential grains for all beneficiaries.</p>

<p>8. THE SILENT BICYCLE REVOLUTION</p>	<p>Context: India’s schoolgirls are quietly leading a cycling revolution, driven by state-run free bicycle schemes. In rural areas, cycling among girls has more than doubled over a decade, boosting school attendance and reducing dropout rates. This movement, though underreported, is transforming lives, especially in states like Bihar, West Bengal, Assam, and Chhattisgarh, where bicycles are empowering girls with mobility and education.</p> <p>Impact of the Cycling Revolution:</p> <ol style="list-style-type: none"> 1. Increased School Attendance: More girls are attending school regularly. 2. Reduced Dropout Rates: Fewer girls are dropping out of school. 3. Empowerment: Enhanced confidence and mobility for girls. 4. Gender Gap Reduction: A rise in cycling in India had occurred among rural girls - increasing more than two times from 4.5% in 2007 to 11% in 2017 - narrowing the gender gap in education and transportation. 5. Educational Access: Improved access to education in rural areas. 6. Economic Mobility: Potential for better employment opportunities in the future. 7. Social Change: Challenging traditional gender roles and promoting self-reliance. <p>American suffragist Susan B Anthony famously said that the <i>bicycle “has done more to emancipate women than anything else in the world. It gives women a feeling of freedom and self-reliance”</i>.</p>
<p>9. BENEFITS OF BAMBOO CULTIVATION</p>	<p>Once called the “poor man’s timber,” bamboo is now “green gold” for Indian farmers, proving more profitable than crops like sugarcane and cotton. Bamboo farming is spreading beyond the Northeast to regions like Madhya Pradesh, Chhattisgarh, and Gujarat. India has 136 native bamboo species. Indian Forest Act, 2017 reclassified bamboo as “grass,” easing restrictions on its cultivation. States like Maharashtra offer financial incentives for bamboo farming.</p> <p>Benefits:</p> <ul style="list-style-type: none"> • Environmental: Bamboo is an efficient carbon converter, producing 35% more oxygen than most plants. • Economic: High-yielding varieties like “Beema Bamboo” can yield profits of ₹75,000-80,000 per hectare annually. • Health: Bamboo-based foods are rich in fiber and low in calories, with some therapeutic uses. • Energy: Bamboo can be used for biofuels, paper production, and as a wood alternative in construction.
<p>10. AUSTRALIA GRANTS WORKERS ‘RIGHT TO DISCONNECT’</p>	<p>Context: Recently, Australia has granted millions of workers the legal right to disconnect from their jobs outside work hours, unless deemed unreasonable. This law, similar to those in Europe and Latin America, allows workers to ignore after-hours contact from employers, promoting work-life balance.</p> <p>Advantages of the ‘Right to Disconnect’:</p> <ol style="list-style-type: none"> 1. Promotes work-life balance. 2. Reduces employee burnout and stress. 3. Enhances mental well-being. 4. Increases productivity during work hours. 5. Fosters fairness and respect for personal time. <p>Issues concerning the ‘Right to Disconnect’:</p> <ol style="list-style-type: none"> 1. Confusion over what constitutes “reasonable” contact. 2. Challenges for industries needing urgent out-of-hours communication. 3. Uncertainty in employer-employee interactions outside work hours. 4. Difficulties in enforcing and regulating the policy across varied job roles. 5. Free Market Concerns: Belief that work demands should be self-regulated by market forces without government intervention. 6. Challenges for Startups: Startups often require flexible, long working hours, and such laws could limit growth by restricting this flexibility.

FACTS FOR PRELIMS

GS-1

Art & Culture

1. KERALA'S JEWISH COMMUNITIES

Context:

The recent death of the last Paradesi Jewish woman in Kerala, marks a significant moment in this community's history.

- Kerala's Jewish community, once thriving, has dwindled to near extinction.
- From a peak population of 20,000-50,000 in the 1940s, India's Jewish population is now estimated at 4,000-5,000, mostly Marathi-speaking Bene Israel on the Konkan coast.

Kerala had two main Jewish communities: the Malabar Jews, who trace their origins back to the time of King Solomon, and the Paradesi Jews, who migrated from the Iberian Peninsula in the 15th and 16th centuries.

The Paradesi Jews, once active in Kerala's spice trade, became a distinct group, adopting local customs but eventually separating themselves from the older Malabar Jewish community.

Kerala's Jewish communities rarely faced persecution and many thrived under Dutch, Hindu, and later British rule.

However, since the 1950s, most Kerala Jews have migrated to Israel, leaving only a handful of Malabar and Paradesi Jews in Kerala today.

2. STONEHENGE'S CENTRE STONE

Context:

Recent geochemical analysis reveals that Stonehenge's central Altar Stone, a six-tonne sandstone slab, originated from the Orcadian Basin in northern Scotland, over 800 km from its current location in southern England.

- This discovery challenges previous beliefs that the stone came from southwest Wales, suggesting that the construction of Stonehenge involved a much broader geographical collaboration than previously thought.
- The journey of the Altar Stone, whether by land or sea, underscores the significant effort and purpose behind its transport, indicating a highly integrated Neolithic Britain.

The exact reasons for and methods of this transportation remain unclear, but the findings suggest that Stonehenge was known and valued across a much wider area than

previously understood, highlighting the complexity and ingenuity of prehistoric societies.

3. NATIONAL FILM AWARDS

Context:

The 70th National Film Awards for 2022, highlighted significant achievements in Indian cinema across various categories. Marathi cinema received notable recognition, including:

- **Best Marathi Film:** Vaalvi (The Termite), won the Best Marathi Film award.
- **Best Documentary and Best Narration:** Murmurs of the Jungle, secured awards for Best Documentary and Best Narration/Voice-Over.
- **Best Arts/Culture Film:** The Marathi film Varsa (Legacy), Suryawanshi, won Best Arts/Culture Film.
- **Best Biographical/Historical Film:** Aanakhi Ek Mohenjo Daro won the Best Biographical/Historical Film award.

The National Film Awards, established in 1954 and originally called "State Awards," initially presented 2 President's Gold Medals, 2 certificates of merit, and 12 silver medals for regional films.

Since 1973, the awards have been administered by the Directorate of Film Festivals.

They are given in three main categories: Feature Films, Non-Feature Films, and Best Writing on Cinema.

Additionally, the Most Film Friendly State award is presented to a state that has significantly supported the growth of the film industry.

History

4. HISTORY OF CLOCK

Context:

Throughout history, timekeeping has evolved from basic sundials and water clocks to advanced atomic and nuclear clocks.

Period	Clock Type	Description
Ancient Times	Sundials, Water Clocks, Hour-glasses	Used sunlight to cast shadows, and the flow of water or sand to measure time.
Middle Ages	Mechanical Clocks	Introduced the verge escapement mechanism, followed by spring-driven and pendulum clocks, enhancing accuracy.

18th Century	Marine Chronometer	Invented by John Harrison, revolutionized navigation by providing precise timekeeping at sea for determining longitude.
19th Century	Electric Clocks	Emerged using batteries or motors, moving away from purely mechanical components.
20th Century	Quartz Clocks	Used quartz crystals oscillating at a fixed frequency for accurate time measurement.
Modern Times	Atomic Clocks	Use lasers to excite atoms, achieving extreme accuracy in time measurement.

Current advancements include **optical clocks, which use higher-frequency radiation for even greater precision, and researchers are working on nuclear clocks, which could potentially offer even higher accuracy by using the nuclei of atoms as resonators.**

Society

5. DHANGARS

Context:

The **Dhangar community in Maharashtra, a nomadic group of shepherds** are seeking **recognition of their traditional grazing routes through forests.**

- They have also **long advocated for Scheduled Tribe (ST) status.**
- Their recent protest called for **“grazing corridors” to allow them to continue their traditional herding practices without being penalized for encroaching on protected forest areas.**

The **Dhangars, who are listed as a Vimukta Jati and Nomadic Tribe (VJNT) in Maharashtra,** face challenges due to forest department restrictions, **which conflict with their traditional lifestyle.**

The **Dhangar community, has significant political influence in parts of Maharashtra** but lacks a unifying issue in recent elections.

Geography

6. COPPER

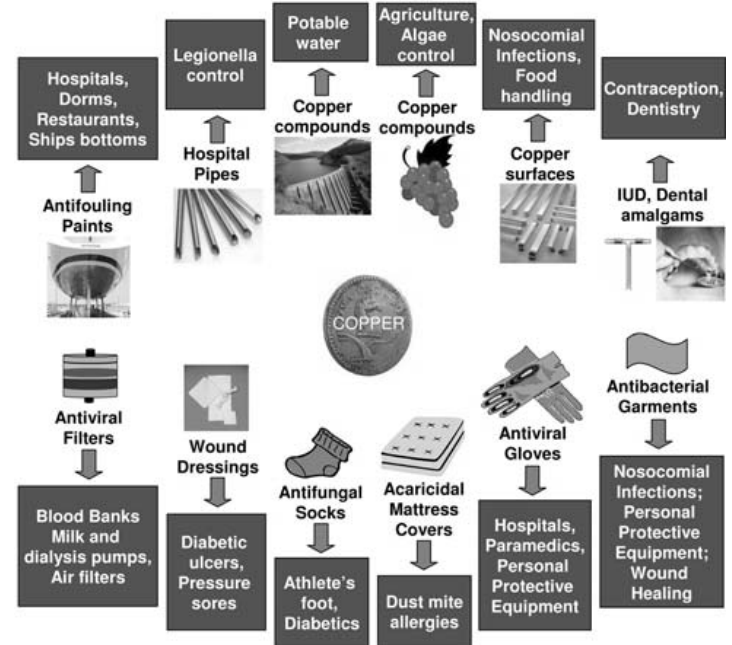
Context:

Many miners are seeking to **register copper from the Democratic Republic of Congo (DRC) for delivery against London Metal Exchange (LME) contracts.**

- This **move would provide financing opportuni-**

ties for producers in an oversupplied market and generate fee income for the LME, which has not accepted new Russian metal.

Copper is an **excellent conductor of electricity and heat, making it essential for electrical wiring and electronics.** The top copper-producing countries include **Chile, Peru, China, the United States, and the Democratic Republic of the Congo (DRC).**



7. WAINGANGA-NALGANGA RIVER LINKING PROJECT

Context:

The **Maharashtra government** has approved an **irrigation project to address drought relief in the Marathwada region.**

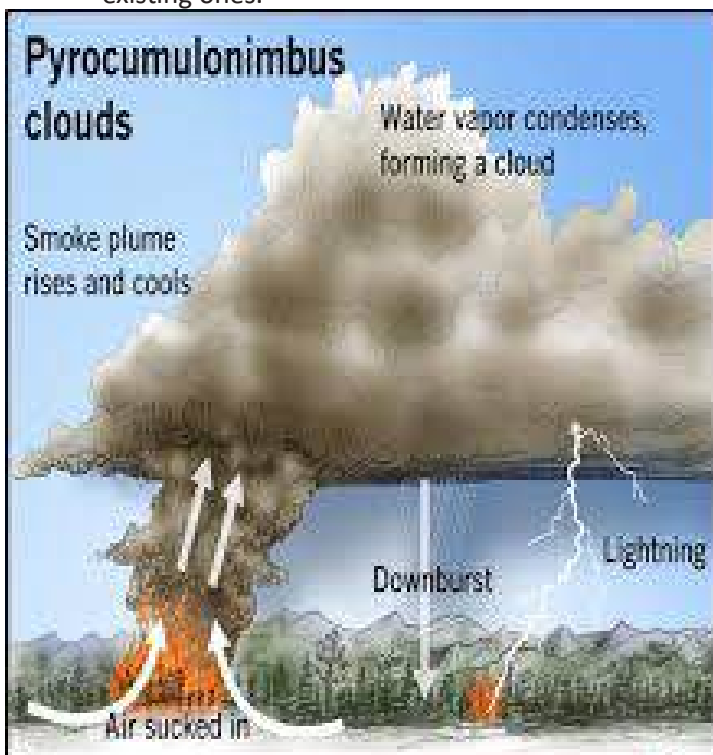
- The **Wainganga-Nalganga** river linking project aims to **irrigate around four lakh hectares of land, providing significant relief to drought-affected farmers.**
- **The project will transfer water from the Godavari River to the Wainganga Project in Buldhana district.**
- The water will be used for **irrigation, drinking, and industrial purposes across 15 talukas in the Vidarbha district.**

8. PYROCUMULONIMBUS CLOUDS

Context:

Pyrocumulonimbus clouds, formed during extremely hot wildfires or volcanic eruptions, are becoming more common due to rising global temperatures.

- These clouds develop when intense heat from a fire causes surrounding air, carrying water vapor, smoke, and ash, to rise rapidly into the atmosphere.
- As the air cools and condenses, a pyrocumulonimbus cloud forms, which can evolve into a pyrocumulonimbus cloud if conditions are right.
- These towering clouds, which can reach heights of 50,000 feet, generate thunderstorms but little rain, potentially sparking new wildfires and spreading existing ones.



9. VERTICAL RISE OF STABLE LANDFORMS

Context:

A recent study has uncovered the reasons behind the vertical rise of stable landforms like the Western Ghats, the Guiana Shield, and the Drakensberg Mountains.

- The study links these topological features to the breakup of continental plates.

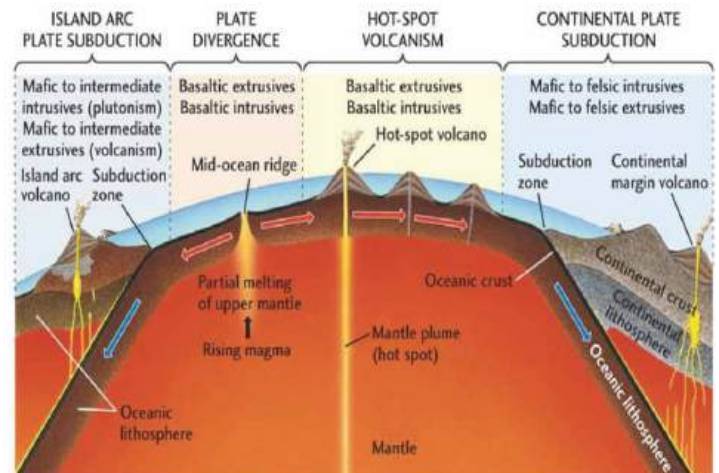
The process of Vertical rise:

- When continents split, the Earth's crust and upper mantle, known as the lithosphere, thins out, leading to the formation of steep coastal escarpments at rift margins.
- This process triggers "deep mantle waves," which move along the continent's base and remove

layers of rock, causing the land to rise—a process called isostasy.

- The study explains that this mechanism not only forms escarpments but also causes stable, distant regions (cratons) to rise vertically.
- This process is also linked to the rapid rise of diamonds from deep within the Earth.

Additionally, the study highlights that such land uplift can influence climate by increasing erosion, which draws down carbon dioxide from the atmosphere, and can create physical barriers that drive the evolution of new species by forcing organisms to adapt to different environments.



10. TANTALUM

Context:

The Central Government has notified 24 critical and strategic minerals, including Tantalum, under the MMDR Act, 1957.

The Geological Survey of India (GSI) is prioritizing the exploration of these minerals, with six projects initiated between 2021 and 2025 across various states. These projects focus on Tantalum and associated minerals like Tin, Niobium, and Lithium. Additionally, the government has eliminated customs duty on Tantalum ores and concentrates in the Union Budget 2024-25 to strengthen the supply chain.

About Tantalum:

What is Tantalum?	It is a grey, heavy, and <u>highly corrosion-resistant element</u> with the <u>atomic number 73</u>
Discovery	Tantalum is a <u>rare metal</u> which was first discovered in <u>1802 by Swedish chemist Anders Gustaf Ekenberg.</u>
Properties	Grey, heavy, highly corrosion-resistant
	Forms an <u>oxide layer when exposed</u> to air
	<u>Ductile</u> , allowing stretching into thin wires
	Extremely <u>resistant to chemical attack</u> at temperatures <u>below 150°C</u>
	<u>High melting point</u> , exceeded only by tungsten and rhenium.

Uses of Tantalum	Capacitors in the electronic sector for compact energy storage.
	Component in chemical plants, nuclear power plants , aircraft, and missiles.
	Substitute for platinum due to its high melting point.
	Used in medical applications for surgical equipment and implants .
	Composite with tantalum carbide (TaC) used in high-speed machine tool cutting edges .
Significance of Discovery	The discovery in the Sutlej River sand suggests a potential domestic source, reducing import dependence and benefiting India's electronics and semiconductor industry.
	India imports almost all of its Tantalum, mainly from the United States, the United Kingdom, and Germany. Democratic Republic of the Congo is the largest producer in the world.
Reserve in India	Tantalum ore is available in India in the form of tantalite-columbite ore in mines in Bihar, Rajasthan, and Karnataka .

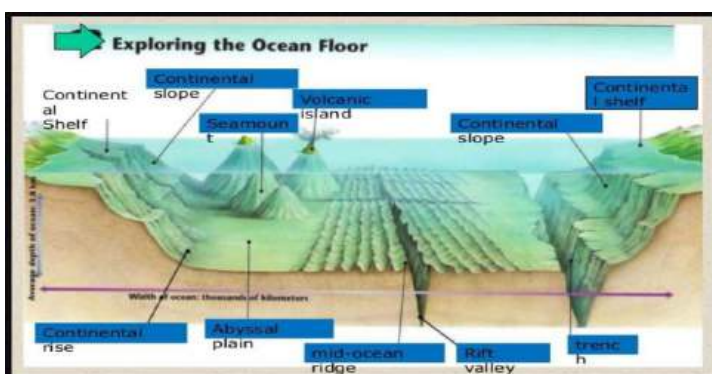
11. GEOGRAPHICAL STRUCTURES IN THE INDIAN OCEAN

Context:

Three underwater geographical structures in the Indian Ocean have been named after **Indian historical figures and concepts: the Ashoka Seamount, Chandragupt Ridge, and Kalpataru ridge.**

- These names, proposed by India, were recently **approved by the International Hydrographic Organization (IHO) and UNESCO's Intergovernmental Oceanographic Commission (IOC).**
- These structures **were discovered by the National Centre for Polar and Ocean Research (NCPOR), Goa**, during international survey explorations.

Including these, **there are now seven structures in the Indian Ocean named after Indian scientists or figures, with previous names honoring physicist CV Raman, oceanographer NK Panikkar, geologist DN Wadia, and the research vessel Sagar Kanya.**



12. WATERSPOUT

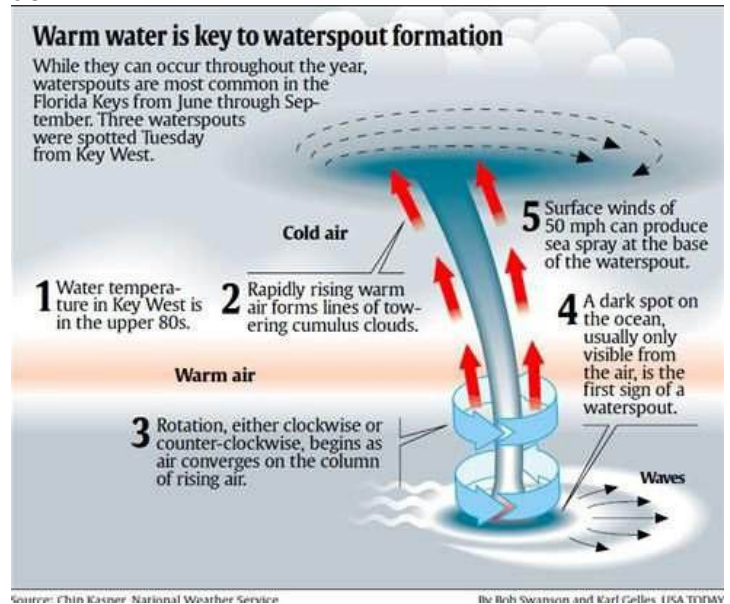
Context:

Recently a tragic incident where a **luxury yacht off the coast of Sicily, Italy, sank during a violent storm, is possibly caused by a waterspout.**

A waterspout is a **rotating column of air and mist over water, similar to a tornado but generally weaker.**

Waterspouts can be either tornadic, associated with severe thunderstorms, or fair-weather, forming during calm conditions.

The **waterspout that likely caused the sinking is believed to be a tornadic type**, which can cause significant destruction.



13. MASS WASTING

Context:

Frequent **mass wasting in Tibet's Sedongpu Gully**, upstream of the Brahmaputra, has become a concern for India, especially the Northeast.

Since 2017, **warming and seismic activity have triggered landslides**, adding millions of cubic meters of debris to the **Yarlung Tsangpo River**, posing a risk of river choking and flash floods downstream in Assam and Bangladesh. Increasing sedimentation could exacerbate flood hazards, affect navigation, and threaten livelihoods.

What is Mass Wasting?

Mass wasting, also known as mass movement, is the downhill movement of soil, rock, and debris under the influence of gravity. It occurs when the **force of gravity exceeds the strength of the materials on a slope**, causing them to shift downward. This process can be triggered by factors such as weathering, water saturation, earthquakes, volcanic activity, and human actions like deforestation or mining. Types of mass wasting include **landslides, rockfalls, avalanches, and soil creep, varying in speed and volume.**

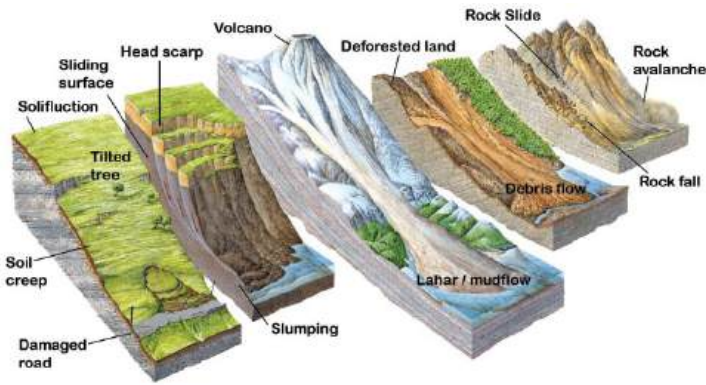


Figure 4.5 Mass movement

14. CREATION OF FIVE NEW DISTRICTS IN LADAKH

Context:

The Union Home Minister announced the creation of **five** new districts in Ladakh—**Zaskar, Drass, Sham, Nubra, and Changthang**—to improve governance. Currently, Ladakh has only two districts: **Leh and Kargil**.

A committee will be formed to assess details such as boundaries and structures for the new districts. The decision follows demands for **Statehood and Sixth Schedule protection** by local groups, though some continue to push for greater autonomy and protection for Ladakh's culture, land, and jobs.

Significance of Creating New Districts

1. **Ladakh, being sparsely populated and geographically challenging**, faces administrative difficulties in reaching remote areas.
2. **New districts aim to enhance public welfare** outreach and promote overall development in Ladakh.

Procedure for Creating New Districts in India

1. **State Power:** State governments have the **authority to create, alter, or abolish districts** through either executive orders or laws passed in the State Assembly.
2. **Centre's Role:** The Centre is involved only when **renaming districts or railway stations**. The process requires clearance from various departments after the state submits a proposal.

GS-2

Functioning of Parliament and State Legislatures

15. ANTICIPATORY BAIL UNDER SC/ST ACT

Context: The Supreme Court ruled that **insults or intimidation of SC/ST members** are offences under the **SC/ST Act (under Section 18 of the SC and ST (Prevention of Atroci-**

ties) Act, 1989) only if based on caste. It emphasized that **not every intentional insult results in caste-based humiliation**.

The court also noted that courts can **conduct preliminary inquiries** to determine if complaints disclose caste-related offences under the Act.

Background:

This ruling came **while granting anticipatory bail to Shajan Skaria, a YouTube editor**, accused of **derogatory remarks against an MLA**. The court clarified that anticipatory bail can be granted if prima facie evidence of a caste-based offence is lacking.

About Anticipatory bail:

It is a **court order directing release on bail for someone fearing arrest** for a **non-bailable** offence. It is governed by **Section 438 of CrPC**, now reformed under **Section 482 of Bhartiya Nagarik Suraksha Sanhita (2023)**.

About SC/ST (Prevention of Atrocities) Act, 1989:

It aims to **prevent crimes against SC/ST members**, establishes Special Courts, and provides victim relief. Key features include punishing offences like manual scavenging, devadasi dedication, and denial of public access, as well as penalizing public servants neglecting their duties under the Act.

16. CENTRAL FINANCIAL ASSISTANCE (CFA)

Context:

The Indian Union Cabinet has approved **central financial assistance (CFA) for north-eastern state governments** to support their **equity participation in Hydro Electric Projects (HEPs)**.

- This initiative, managed through **joint ventures between state entities and central public sector undertakings (CPSUs)**, aims to **boost hydroelectric capacity in the North Eastern Region (NER) by approximately 15,000 MW**.
- The CFA will cover up **to 24% of the state government's equity, capped at ₹750 crore per project, and applies only to viable hydro projects**.

Social Justice

17. LITERACY AND FULL LITERACY DEFINED BY MOE

Context:

The **Ministry of Education (MoE)** has redefined 'literacy' and 'full literacy' in light of the New India Literacy Programme (NILP), which aims for **full literacy by 2030**.

Definitions:

Term	Definition
Literacy	The ability to read, write, and compute with comprehension , along with critical skills like digital and financial literacy.
Full Literacy	Achieving 95% literacy in a State/UT, is considered equivalent to 100% literacy.

About New India Literacy Programme (NILP): **Also known as ULLAS, NILP is a five-year**, centrally sponsored scheme (2022-27) aiming to **educate non-literate individuals aged 15 and above**, focusing especially on females and backward states. It targets **5 crore learners using online systems and volunteer teachers**, aligning with NEP 2020 goals

Judiciary

18. SENIOR ADVOCATES

Context:

The **process for designating senior advocates in India has evolved to promote transparency and merit.**

- **Senior advocates, as defined by the Advocates Act, 1961**, are distinguished lawyers recognized for **their excellence and contributions to the legal profession.**
- The Supreme Court recently designated 39 lawyers, including 10 women, as senior advocates based on revised guidelines from May 2023.
- The 2018 guidelines introduced a **point-based system for evaluation, focusing on an advocate's legal practice, judgments, and publications.**
- The new guidelines in 2023, however, **reduced the weightage for publications and emphasized judgments and legal achievements**, while maintaining that **secret ballot voting should only be used in exceptional cases.**
- The **changes were in response to the Centre's concerns about subjectivity and the proliferation of low-quality publications affecting the designation process.**

Governance

19. NATS 2.0 PORTAL

Context:

The Union Education Minister launched the **National Apprenticeship Training Scheme (NATS) 2.0 Portal.**

- The portal aims to **enhance the skilling and employability of youth in various sectors like IT, manufacturing, and automobiles.**
- It will help **apprentices register and apply for opportunities, while establishments can manage vacancies and contracts.**

About NATS 2.0 Portal:

- The **NATS 2.0 portal, developed by the Ministry of Education with AICTE support**, manages the **entire apprenticeship lifecycle.**
- This initiative supports the **National Education Policy (NEP) 2020's goals of integrating vocational and general education.**

20. ONE DAE ONE SUBSCRIPTION

Context:

The **Department of Atomic Energy (DAE)** launched the **'One DAE One Subscription' (ODOS).**

- This **initiative unites DAE and its 60 subunits under a single umbrella**, providing **access to national and international research papers and scientific journals.**
- The ODOS will allow **DAE scientists, engineers, students, and researchers to access a broader range of knowledge and publish in open-access journals.**
- This initiative aims to make knowledge more accessible and will eventually **merge with the larger 'One Nation One Subscription' (ONOS) initiative.**

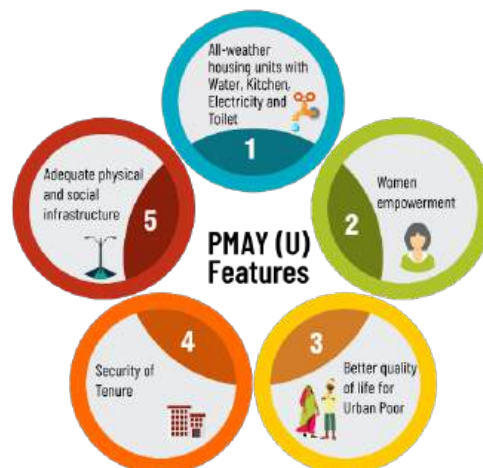
The agreements **include perpetual rights to journals and cover Article Processing Charges (APC)** for publishing in open-access journals.

21. PRADHAN MANTRI AWAS YOJANA-URBAN (PMAY-U) 2.0

Context:

The Union Cabinet has approved the Pradhan Mantri Awas Yojana-Urban **(PMAY-U) 2.0**, which aims to **provide financial assistance to help one crore urban poor and middle-class families build, purchase, or rent affordable housing over five years.**

- The scheme, **targets families with no permanent house and offers subsidies on home loans for economically weaker sections (EWS), low-income groups (LIG), and middle-income groups (MIG).**
- The program also includes **support for rental housing and innovative construction** technologies to ensure better living conditions in urban areas.



22. INDIA RANKINGS 2024

Context:

Union Minister for Education, released the India Rankings 2024, which are based on the National Institutional Ranking Framework (NIRF).

- **The rankings, reflecting the recommendations of the National Education Policy (NEP) 2020**, assess higher education institutions (HEIs) in India across five broad parameters: **Teaching, Research, Graduation Outcomes, Outreach & Inclusivity, and Perception.**
- This edition saw the inclusion of **new categories such as State Public Universities, Open Universities, and Skill Universities, expanding the total ranking categories to 16.**

Key highlights of India Rankings 2024 include:

- **IIT Madras** retained its top position in the Overall and Engineering categories.
- **IISc Bengaluru** topped the Universities and Research Institutions categories.
- **IIM Ahmedabad** led in Management, while **AIIMS New Delhi** topped the medical category.
- **Hindu College** in Delhi secured the 1st position among colleges for the first time, replacing Miranda House.

23. FIRST INFORMATION REPORT (FIR)

Context:

In response to **widespread protests following the rape and murder of a trainee doctor in Kolkata**, the Union Health Ministry directed **that heads of government hospitals must file a First Information Report (FIR) within six hours of any violence against healthcare workers on duty.**

- This directive, **issued by the Directorate General of Health Services (DGHS)**, addresses the **increasing violence faced by doctors and healthcare staff**, often from patients or their attendants.
- **Public health is a 'State' subject** and there is **no Central law for preventing violence against healthcare workers (VAHCW).**

First Information Report (FIR) is a written document prepared **by the police when they receive information about the commission of a cognizable offence**

It is a **report of information that reaches the police first in point of time and that is why it is called the First Information Report.**

24. BHAVISHYA

Context: The **Department of Pension and Pensioners' Welfare (DOPPW)** introduced **"Bhavishya," a centralized pension processing software, to address delays, errors, and financial losses in pension processing for central government employees.**

- The software **integrates 99 Ministries/Departments, 1020 Offices, and 8320 Drawing and Disbursing Officers (DDOs)**, with over 2,50,845 Pension Payment Orders (PPOs) issued by August 2024.

"Bhavishya" streamlines the pension process by auto-registering retirees, enforcing strict timelines, and providing transparency and accountability.

The system **automates pension calculations, offers real-time updates via email/SMS, and enables paperless processing through e-PPOs, which are integrated with the Public Financial Management System (PFMS) and banks.**

The software **also supports Digilocker for easy access to pension documents and issues pensioner identity cards.**

25. PORTALS IN NEWS

Portal	Description	Objectives	Key Features
PROMPT	Portal for Online Monitoring of Projects – Thermal, developed with NTPC's assistance.	Real-time tracking and analysis of thermal power projects ; enhance transparency, accountability, and resource optimization.	Real-time tracking, improved project execution, reduces delays and cost overruns, ensures efficient electricity demand management.

JAL VIDYUT DPR	Centralized digital platform developed by CEA for monitoring survey and investigation activities for Hydro Electric Projects and Pumped Storage Projects (PSPs).	<u>Improve project management and coordination</u> ; enhance efficiency and transparency in DPR preparation.	Comprehensive view of project development statuses, real-time tracking, seamless communication, and quicker appraisals and approvals.
DRIPS	Disaster Resilient Infrastructure for Power Sector portal, developed by CEA.	Enhance <u>disaster preparedness and response; improve coordination and efficiency in managing power sector disruptions.</u>	Centralized system for identifying and deploying resources , comprehensive inventory of power system equipment and critical supplies.

26. COURT OF ARBITRATION FOR SPORT (CAS)

Context:

The **Court of Arbitration for Sport (CAS)** criticized **United World Wrestling’s rules** for **penalizing athletes for failing a second-day weigh-in, calling them “draconian.”**

- However, **CAS denied Indian wrestler Vinesh Phogat any relief after she was disqualified for being 100 grams over the weight limit** on the second day of the 50kg wrestling event at the Paris 2024 Olympics.

The **ruling highlighted the fairness of the elimination but criticized the severity of the punishment.**

The **Court of Arbitration for Sport (CAS), established in 1984**, operates under the **International Council of Arbitration for Sport (ICAS)**. It is an independent **institution focused on resolving sports-related disputes through arbitration or mediation**, adapting procedural rules to the sports world’s needs.

27. JAN POSHAN KENDRAS

Context:

Union Minister launched a **pilot program to transform 60 Fair Price Shops (FPS) into Jan Poshan Kendras**, which will **offer nutrition-rich food items and additional income for FPS dealers.**

- This initiative, **part of the government’s first 100 days program**, aims to **improve food security, curb malnutrition, and increase transparency.**
- Alongside this, several digital tools were launched, including the **FPS Sahay application for paperless financing, Mera Ration App 2.0 for enhanced beneficiary services, and a Quality Management System for better quality control.**
- Additionally, **NABL accreditation of three laboratories and a new Contract Manual for the Food Corporation of India were introduced** to enhance standards and transparency in the Public Distribution System.

28. SEAPLANE OPERATION GUIDELINES

Context: The Union Minister for Civil Aviation introduced **new guidelines for seaplane operations in India.** The guide-

lines aim to **integrate seaplanes into India’s aviation sector**, creating jobs and promoting economic growth.

Key points include:

1. **UDAN 5.4:** Launching fresh bids for routes to improve connectivity.
2. **Seaplane Guidelines:** Incorporate seaplanes under the **Non-Scheduled Operator Permit (NSOP)** and extend **Viability Gap Funding (VGF)** for initial support.
3. **Future Plans:** The government is focusing on safety, flexibility, and innovation, including research into electric seaplanes to reduce carbon emissions.



UDAN 5.0



Context: The Ministry of Civil Aviation in India has launched the **5th round of the Regional Connectivity Scheme (RCS) - Ude Desh Ka Aam Nagrik (UDAN)**

About UDAN Scheme

It was launched as a Regional Connectivity Scheme (RCS) under the Ministry of Civil Aviation in 2016, to provide affordable, economically viable and profitable air travel on regional routes to the common man even in small towns.

	UDAN 1.0	UDAN 2.0	UDAN 3.0	UDAN 4.0	UDAN 5.0
Focus Category	Category 1 (19-78 Seats)	1 (19-78 Seats)	1 (19-78 Seats)	1 (19-78 Seats)	2 (20-80 Seats) and 3 (>80 Seats)
Distance Length Cap	500 km	500 km	800 km	1,200 km	Now no restriction on the distance between the origin and destination of the flight
Viability Gap Funding Cap	70% for Cat-1, 90% for Hilly States, J&K, Ladakh, NE and Island regions	Same	Same	Same	60% for Priority Areas, 20% for Non-Priority Areas
Number of Airports	70 airports	325 airports	688 airports	766 airports	766 airports
Exclusivity	3 years	3 years	3 years	1 year	1 year Visit insights IAS
Implementation Period	10 years	10 years	10 years	10 years	10 years Daily Current Affairs

29. FSSAI ORDERS REMOVAL OF A1, A2 MILK CLAIMS

Context:

The Food Safety and Standards Authority of India (FSSAI) has directed food businesses and e-commerce platforms to **remove claims of ‘A1’ and ‘A2’ milk** from packaging and websites.

A1 and A2 Milk Category:

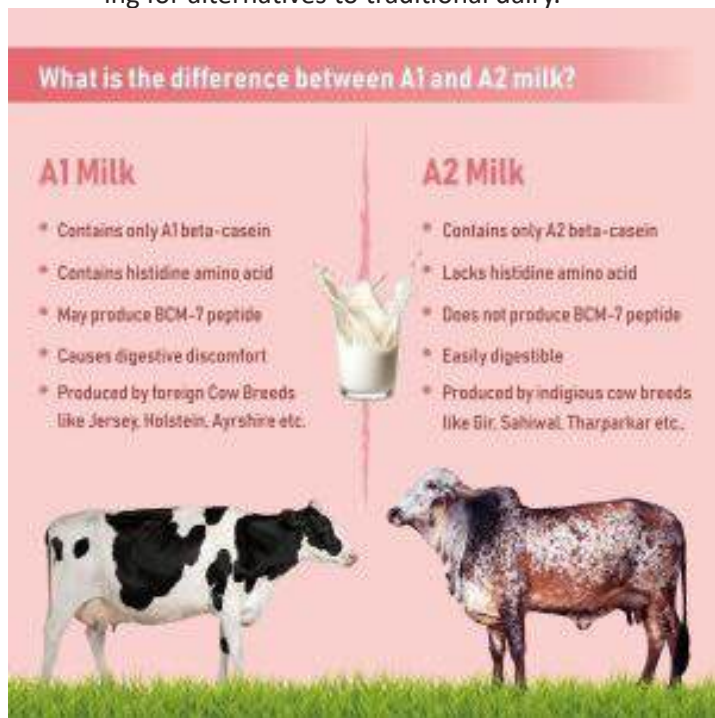
Milk contains different forms of **casein protein**, with A1 and A2 beta-casein being the primary ones.

- **A1 beta-casein:** Found mainly in cow breeds from northern Europe, such as Holstein and Friesian.
- **A2 beta-casein:** Found in milk from breeds like Guernsey and Jersey cows from the Channel Islands and southern France.

Regular milk contains both A1 and A2 proteins, while A2 milk is distinct as it contains only the A2 variant.

Benefits of A1 and A2 Milk Product Category

- **Digestive Health:** Supporters of A2 milk claim it is easier to digest for some people, potentially reducing issues like bloating, gas, and discomfort, which are sometimes associated with A1 milk.
- **Lactose Intolerance:** While not directly related to lactose, some individuals with lactose intolerance report better tolerance with A2 milk due to differences in protein composition.
- **Marketing Claims:** A2 milk is often marketed as a healthier option, which appeals to consumers looking for alternatives to traditional dairy.



Concerns about A1 and A2 Milk Product Category

- **Lack of Scientific Consensus:** There is limited robust scientific evidence confirming the significant health benefits of A2 milk over regular milk, and much of the claims remain controversial.
- **Cost:** A2 milk is often more expensive than regular milk due to specialized breeding and production processes.
- **Marketing Gimmick:** Critics argue that the A1 vs. A2 distinction is a marketing strategy rather than a genuine nutritional difference, misleading consumers without clear regulatory backing.

The claims about A1 and A2, based on differences in **beta-casein protein**, are **not recognized by the** Food Safety and Standards Act, 2006. Companies **have six months** to phase out **pre-printed labels**. FSSAI emphasized the importance of eliminating misleading claims, with industry leaders supporting the move.

30. PRADHAN MANTRI JANJATI ADIVASI NYAYA MAHA ABHIYAN (PM-JANMAN)

Context:

The Union Ministry of Tribal Affairs launched an **IEC campaign**, targeting the **Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan (PM-JANMAN)**. The campaign aims to ensure **100% saturation of government schemes in Particularly Vulnerable Tribal Group (PVTG) areas**, covering over **44 lakh individuals in 194 districts** across the country.

Key activities include the distribution of entitlements, health camps, and awareness campaigns in tribal languages, reaching villages, Gram Panchayats, and Talukas. Officers will supervise the campaign to ensure the effective implementation of schemes.

Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan (PM JANMAN)

Key Points	Details
Initiative Name	Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan
Objectives	Address socio-economic challenges faced by Particularly Vulnerable Tribal Groups (PVTGs) in India.
Ministries Involved	9 Ministries, including the Ministry of Tribal Affairs.
Focus Areas	11 critical interventions , encompassing various sectors such as housing, infrastructure, healthcare, education, and connectivity.
Key Components	Provision of pucca houses – Connecting roads – Water supply projects – Mobile medical units – Hostels – Vocational education – Anganwadi Centers – Multipurpose centres – Electrification – Solar off-grid systems – Solar lighting – Setting up Village Development Knowledge Centers (VDVKs) – Installation of mobile towers
Target Duration	The mission will operate over the next three years.

Beneficiary Scope	75 Particularly Vulnerable Tribal Groups (PVTG) communities in 18 states and the Union Territory of Andaman and Nicobar Islands.
Overall Goal	Improve the overall well-being of PVTG households by targeting basic facilities, including housing, water, sanitation, education, health, connectivity, and livelihood opportunities.
Contribution of Other Ministries	Ayush and Skill Development ministries will establish wellness centres. Ayush facilities will be provided through mobile medical units. Skill and vocational training will be offered in PVTG habitations .

31. NATIONAL MEDICAL REGISTER PORTAL

Context:

The Union Minister for Health, launched the **National Medical Register (NMR) Portal, a comprehensive digital database for all registered allopathic (MBBS) doctors in India.**

- The **National Medical Register (NMR)** is mandated under **Section 31 of the National Medical Commission (NMC) Act, 2019.**
- It requires the **Ethics & Medical Registration Board (EMRB) of NMC** to maintain an **electronic registry of licensed medical practitioners**, including **their names, addresses, and qualifications.**
- The NMR will be **linked with doctors' Aadhaar IDs** to verify authenticity and facilitate the verification process among State Medical Councils (SMCs).
- Its significance includes **strengthening the digital healthcare ecosystem, ensuring transparent access to quality medical professionals, and consolidating public trust in healthcare.**

32. RETIRED SPORTSPERSON EMPOWERMENT TRAINING (RESET) PROGRAMME

Context:

The Union Minister launched the **Retired Sportsperson Empowerment Training (RESET) Programme on National Sports Day (29th August).** The initiative **aims to empower retired athletes** by providing them with **career development skills** and making them more employable.

The **RESET Programme will bridge generational gaps** by leveraging the experience of **retired sportspersons to nurture future talent.** Eligible athletes, **aged 20-50**, who have achieved significant national or international success, can apply through a dedicated portal. The programme, led by **Lakshmbai National Institute of Physical Education**

(LNIPE), will offer courses in hybrid mode and include internships and placement assistance.

About National Sports Day:

It is celebrated on **August 29, and honours hockey legend Major Dhyan Chand's birth anniversary.** Established in 2012, the day promotes physical fitness and a healthy lifestyle while fostering a strong sports culture in India. **Major Dhyan Chand, known as the 'magician of hockey,'** was a standout field hockey player from 1926 to 1949, earning **three Olympic gold medals (1928, 1932, 1936).** He and his brother Roop Singh, known as the **'hockey twins,'** greatly contributed to India's hockey success. Dhyan Chand retired as a Major in 1956 and was awarded the Padma Bhushan.

Prelims Link:

Q. Consider the following pairs with regard to sports awards: (UPSC 2023)

1. Major Dhyan Chand Khel Ratna Award	For the most spectacular and outstanding performance by a sportsperson over period of last four years
2. Arjuna Award	For the lifetime achievement by sportsperson
3. Dronacharya Award	To honour eminent coaches who have successfully trained sportspersons or teams
4. Rashtriya Khel Protsahan Puraskar	To recognize the contribution made by sportspersons even after their retirement

How many of the above pairs are correctly matched?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: (b)

International Relations

33. INDO-PACIFIC ECONOMIC FRAMEWORK (IPEF)

Context:

India has been elected as the Vice-Chair of the Supply Chain Council under the Indo-Pacific Economic Framework (IPEF).

- The council was established as **part of the IPEF Supply Chain Resilience Agreement, which aims to mitigate risks of economic disruptions due to supply chain shocks, enhance crisis coordination, and reduce dependence on China.**
- The **council's mission is to undertake targeted,**

action-oriented initiatives to bolster supply chains for sectors and goods vital to national security, public health, and economic well-being.



34. GENEVA CONVENTIONS OF 1949

Context:

Recently Secretary of State of the US commemorated the **75th anniversary of the adoption of the Geneva Conventions of 1949.**

The Geneva Conventions are a set of **international treaties that establish legal standards for humanitarian treatment during war.** They form the **core of international humanitarian law (IHL) and aim to limit the suffering of people who are not or no longer participating in hostilities, such as civilians, wounded soldiers, and prisoners of war.**

Adoption and History:

- The first Geneva Convention **was adopted in 1864 to protect wounded soldiers on the battlefield.**
- The **current four Geneva Conventions were adopted on August 12, 1949,** after World War II, to **address the horrors of the war and provide comprehensive protection in armed conflicts.**

The Four Conventions:

- First Geneva Convention: Protects wounded and sick soldiers on land during war.
- Second Geneva Convention: Extends protection to wounded, sick, and shipwrecked military personnel at sea.
- Third Geneva Convention: Focuses on the treatment of prisoners of war.
- Fourth Geneva Convention: Protects civilians, including those in occupied territories, from inhumane treatment.

Additional Protocols:

- Two Additional Protocols **were adopted in 1977 to strengthen protections in both international and non-international armed conflicts.** A third protocol was added in 2005 to recognize the **Red Crystal as an additional emblem alongside the Red Cross and Red Crescent.**

35. ORANGUTAN DIPLOMACY

Context:

Malaysia has revised its controversial “Orangutan diplomacy” policy, initially proposed by the Plantation and Commodities Minister.

- The original plan **suggested gifting critically endangered orangutans to countries that purchase Malaysian palm oil, inspired by China’s “panda diplomacy.”**
- However, **this approach faced significant backlash from wildlife conservationists, who criticized it as hypocritical and harmful, given the link between palm oil production and deforestation, which threatens orangutan habitats.**
- In response to the criticism, **Malaysia has now altered the policy.** Instead of sending orangutans abroad, **importers of Malaysian palm oil will be offered the opportunity to “sponsor” orangutans.**
- The funds from these **sponsorships will be used for conservation efforts within Malaysia, ensuring that the orangutans remain in their natural habitats.**

This revised approach **aims to demonstrate Malaysia’s commitment to sustainable palm oil production and environmental conservation,** especially in light of **growing international pressure,** such as the European Union’s ban on deforestation-linked imports.

36. PACIFIC POLICING INITIATIVE

Context:

The establishment of a **\$270 million Pacific Policing Initiative (PPI) agreed upon at the Pacific Islands Forum (PIF) took place recently.**

- The initiative **has three main components: a central police development hub in Brisbane, Australia; four regional police training centres; and a multi-national Pacific Police Support Group** to respond to emergencies like **natural disasters and transnational crime.**
- The initiative, **driven by Pacific Island countries with significant funding from Australia, reflects the strength of Pacific regionalism.**
- It emphasizes the **importance of balancing Australia’s resources with the local knowledge and priorities of Pacific Island nations.**
- The **PPI represents a shift towards a Pacific-led approach to security, contrasting with past initiatives that did not fully align with regional priorities.**

The agreement underscores the **commitment of PIF members to collaborate while respecting national sovereignty,** highlighting the **practical success of regionalism in enhancing collective security capabilities.**

GS-3

Indian Economy

37. FULLY ACCESSIBLE ROUTE (FAR)

Context:

The Reserve Bank of India's (RBI) recent decision to **exclude new 14-year and 30-year government securities (G-Secs) from the Fully Accessible Route (FAR)** may unsettle bond markets, potentially causing yield spikes for these securities.

- Experts warn that this **exclusion could erode investor confidence, reduce participation, and increase yields due to diminished foreign portfolio investor (FPI) demand.**
- FPIs generally prefer **stable regulatory environments, and changes can lead to uncertainty and adjustments in investment strategies.**
- Despite this, **large domestic investors are expected to absorb the fresh supply of these tenors.**
- RBI's move **aims to mitigate the potentially destabilizing effects of large capital flows in fixed-income markets by limiting investments in the more liquid segments.**

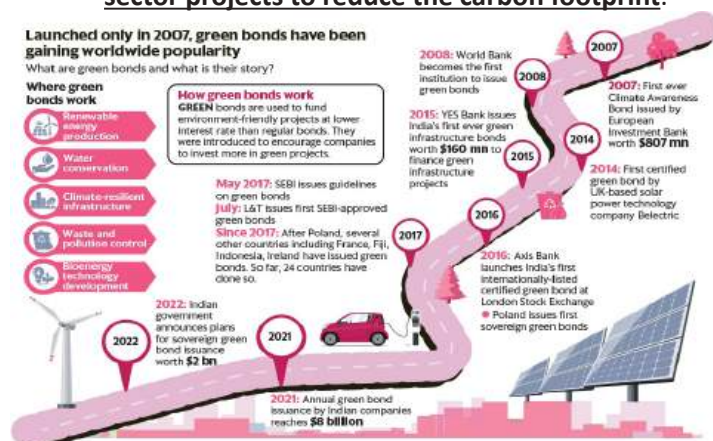
The Fully Accessible Route (FAR) regulations impose **no limits on investments by Non-Resident Indian retail investors.** NRIs can invest in Government Securities both on repatriable and non-repatriable bases, depending on the terms and conditions of the investment scheme.

38. SOVEREIGN GREEN BOND

Context:

The **second sovereign green bond auction of FY25 received a muted response**, with the Reserve Bank of India (RBI) **selling only ₹1,697 crore worth of 10-year green bonds** at a cut-off rate of **6.90%**, against a notified amount of **₹6,000 crore.**

- Traders were **unwilling to pay a premium (greenium) for the bonds**, which signifies the **additional value placed on green bonds for their environmental impact.**
- The funds from these bonds are **intended for public sector projects to reduce the carbon footprint.**



39. YEN CARRY TRADES

Context:

The **yen carry trade** has recently gained attention due to the **sharp appreciation of the yen following the Bank of Japan's (BoJ) interest rate hike and reduction in bond purchases.**

- This **prompted investors to unwind their positions to avoid losses**, leading to a **selloff in US tech stocks and impacting global markets, including Asia.**

What is a Carry Trade?

- A trading strategy where **investors borrow in a country with low interest rates and reinvest in assets of another country with higher returns.**
- It is a significant **source of flows in the global currency market.**

Yen Carry Trade:

- The **Japanese yen is a popular currency for carrying trades due to Japan's prolonged zero-interest rate policy.**
- Investors borrow yen at **low interest rates and invest in higher-yielding foreign assets, such as US equities.**

Current Focus on Yen Carry Trade:

- The **yen appreciated by over 3% against the dollar after the BoJ raised interest rates to 0.25% and reduced bond purchases.**
- This **move is seen as a shift towards normalizing monetary policy, prompting investors to unwind and carry trades to avoid losses.**

Impact of Unwinding Yen Carry Trades:

- **Unwinding has led to a severe selloff in US tech stocks**, spilling over to Asian markets, including India.

Impact on Indian Equities:

- Unclear how much yen carry trade money has **flowed into India, but it's likely some has.**
- Japanese foreign portfolio **investors hold significant assets in Indian equities.**
- A stronger yen could worry Indian companies with **unhedged yen borrowings.**

40. DEBT FOR DEVELOPMENT SWAPS (DEBT SWAP)

Context:

IMF recently released, the **"Debt for Development Swaps" framework** that aims to guide stakeholders on effectively using **debt swaps to achieve development goals.**

What are Debt Swaps?

Debt swaps are financial agreements where a country exchanges its existing debt for new obligations, typically linked to funding specific development projects or goals.

Types of Swaps:

1. **Bilateral Swaps:** Involves the writing off of official bilateral debt.
2. **Commercial Debt Swaps:** Targets debt held by private creditors.

Examples:

1. **Debt-for-Nature Swap:** For example, in 1987, the U.S. and Bolivia reached a deal where Bolivia's debt was reduced in exchange for funding environmental conservation projects.
2. **Debt-for-Education Swap:** For instance, in 2002, Germany and Indonesia entered into an agreement where Indonesia's debt was reduced to fund educational programs.
3. **Debt-for-Health Swap:** Debt relief is provided in exchange for investments in public health initiatives, such as building hospitals or funding disease prevention programs.

These swaps help reduce the debt burden while also promoting social or environmental development.

41. CONTINUOUS CLEARING OF CHEQUES

Context:

The **Reserve Bank of India (RBI)** has announced the **implementation of Continuous Clearing of Cheques under the Cheque Truncation System (CTS)**, aimed at **speeding up the cheque clearing process**.

- Currently, **CTS takes up to two working days to clear cheques**.
- With the new system, **cheques will be scanned, presented, and cleared within hours on a continuous basis during business hours**, significantly reducing the clearing time.

This change is **intended to improve efficiency, reduce settlement risk, and enhance customer experience**.

42. OVERNIGHT INDEX SWAP (OIS) MARKET

Context:

The **Reserve Bank of India (RBI)** is **reviewing the investment limit for foreign investors in the Overnight Index Swap (OIS) market**.

- The **OIS market allows investors to hedge against interest rate fluctuations**, and its activity has **increased since Indian bonds were included in JPMorgan's emerging market debt index**.

This shift is **expected to enhance liquidity, improve price**

discovery, and reduce transaction costs in this segment.

43. RAPID INNOVATION AND START-UP EXPANSION (RISE) ACCELERATOR

Context:

The Atal Innovation Mission (**AIM**), in partnership with Australia's CSIRO, has launched a call for **applications from start-ups and MSMEs in India and Australia for the Climate Smart Agritech cohort of the India Australia Rapid Innovation and Start-up Expansion (RISE) Accelerator**.

- This program, **aims to support businesses in developing technologies that enhance agricultural productivity and resilience in the face of climate challenges**.

The **RISE Accelerator, established in 2023**, helps **start-ups and MSMEs expand into international markets by offering online and in-person sessions, market insights, coaching, and field trials**.

44. ALL INDIA INITIATIVE ON CREATIVE ECONOMY (AIICE)

Context:

The **Indian Chamber of Commerce (ICC)** launched the **All India Initiative on Creative Economy (AIICE)** to harness the **potential of India's \$30 billion creative economy**, as reported in the 2023 Global Innovation Report.

- The initiative aims to **support local artisans, handloom workers, and MSMEs**.
- **With 8% of India's workforce employed in creative occupations**, the initiative seeks to **elevate crafts-workers from poverty and promote policy changes for their benefit**.

The Creative Economy refers to the **sector of the economy that involves the creation, production, and distribution of goods and services that are rooted in creativity, culture, and the arts**. This includes industries such as **film, music, design, fashion, and other creative sectors**.

45. PERPETUAL BOND

Context:

Canara Bank issued India's first Additional Tier I perpetual bonds since recent rule changes, **attracting strong investor interest with a lower-than-expected coupon of 8.27%**.

- This marks a **revival in demand for these bonds, which had declined due to regulatory challenges**.
- **The Securities and Exchange Board of India's (SEBI) recent valuation tweak**, allowing mutual funds to value these bonds based on the **call option, has made them more attractive**.

A perpetual bond is a type of **debt security that does not**

have a fixed maturity date. Unlike traditional bonds that have a **set date when the principal amount is repaid, perpetual bonds continue to pay interest indefinitely.**

46. UNIFIED LENDING INTERFACE

Context:

RBI Governor announced that the **Unified Lending Interface (ULI)**, designed for **seamless and quick credit access, particularly for MSMEs and farmers, is currently in the pilot stage.**

- The platform integrates **diverse data sources to reduce loan appraisal times and simplify processes.**
- It is expected to be launched nationwide soon, with the **potential to transform the lending space, similar to how UPI revolutionized payments.**

The Unified Lending Interface (ULI) is a proposed system **aimed at standardizing and simplifying the lending process for both lenders and borrowers.**

Technology: The implementation of ULI involves advanced technologies **such as APIs (Application Programming Interfaces), data integration tools, and secure digital platforms.**

47. WGC RAISES INDIA'S GOLD CONSUMPTION FORECAST TO 850 TONNES

Context:

The World Gold Council (WGC) has **increased India's gold consumption projection for 2024 to 850 tonnes from 750 tonnes.** This revision is due to **favourable monsoon conditions and a reduction in gold import duty.** The rise in demand, mainly driven by jewellery purchases, is expected to continue through **Diwali-Dhanteras.** Additionally, interest in gold ETFs is growing

About Gold:

It is a significant global commodity. In 2022, **Switzerland, the United States, and the United Arab Emirates** were the leading exporters of gold. Major importers included Switzerland, China, the United Arab Emirates, the United Kingdom, and India. The top producers of gold are **China, Australia, and Russia.** In India, the **largest resources of gold ore** (primary) are located in **Bihar (44%), followed by Rajasthan (25%) and Karnataka (21%).** India is the world's **second-largest consumer of gold, after China,** reflecting its substantial demand for this precious metal.

About WGC:

The World Gold Council (HQ: London; est. 1987) is an international trade association for the gold industry. It has offices in **India, China, Singapore, the UAE and the United States.** The organization's members are **gold mining companies.**

Prelims Link:

Q. Consider the following statements regarding Gold Ore Reserves

1. The largest reserves of gold ores in India is located in Bihar
2. Globally the largest reserves of gold ores are located in South Africa

Which of the above statements is/are correct?

- [A] 1 only
- [B] 2 only
- [C] Both 1 and 2
- [D] Neither 1 nor 2

Answer: A (1 only)

48. PAYMENT PASSKEY SERVICE

Context:

Mastercard has debuted its **Payment Passkey Service in India,** offering a secure, non-OTP-based solution for online transactions.

What is Payment Passkey Service?

The Payment Passkey Service is a **secure, non-OTP-based method** for managing online transactions. Here's how it works:

1. **Authentication Method:** Instead of using traditional passwords or one-time passwords (OTPs), this service relies on biometric authentication (fingerprints, facial scans) or PINs available on the user's device.
2. **Tokenization:** The service uses tokenization to replace sensitive financial information with secure, encrypted tokens. This means your actual financial data is not shared during transactions, enhancing security.
3. **Transaction Process:**
 - When making a purchase, the consumer selects their Mastercard at checkout.
 - For payment confirmation, the service utilizes the biometric authentication features on the user's device.
 - Upon successful authentication, the transaction is completed instantly.

Benefits:

- **Simplified Transactions:** Users avoid the hassle of remembering or sharing passwords and OTPs.
- **Enhanced Security:** By not exposing financial data and using secure tokens, the service reduces the risk of fraud.
- **Faster Checkout:** Streamlines the payment process, making online shopping quicker and more efficient.

Infrastructure

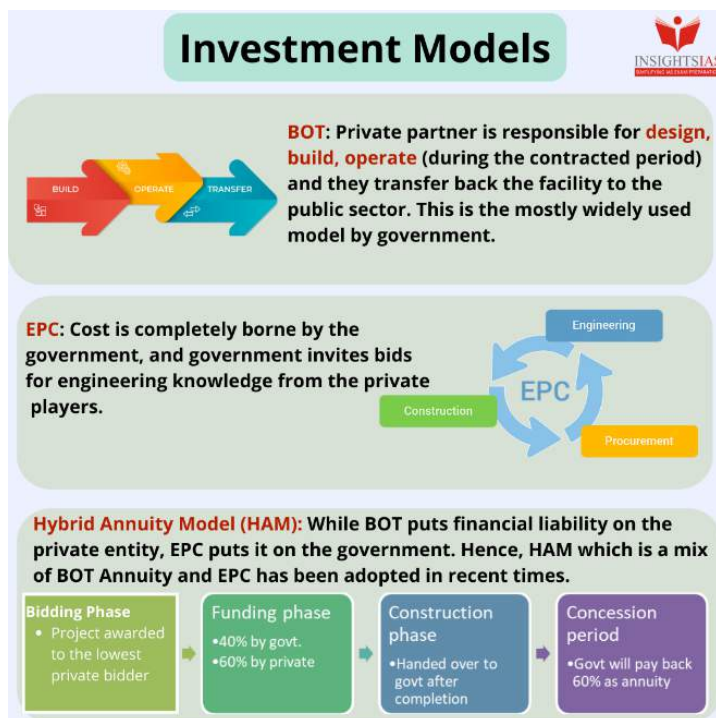
49. HIGH-SPEED ROAD CORRIDOR PROJECTS

Context:

The Indian government has approved eight high-speed road corridor projects, spanning 936 km, to enhance logistics efficiency and connectivity across the country.

Key projects include:

- **Agra-Gwalior National High-Speed Corridor:** An **88 km, 6-lane**, access-controlled corridor to be developed on a **build-operate-transfer (BOT) mode.**
- **Kharagpur-Moregram National High-Speed Corridor:** A **231 km, 4-lane corridor** to be developed in **Hybrid Annuity Mode (HAM).**
- **Tharad-Deesa-Mehsana-Ahmedabad National High-Speed Corridor:** A **214 km, 6-lane** corridor on BOT mode.
- **Ayodhya Ring Road:** A 68 km, access-controlled ring road on HAM.
- **Pathalgaon-Gumla Section of Raipur-Ranchi National High-Speed Corridor:** A 137 km section on HAM.
- **Kanpur Ring Road:** A 47 km, 6-lane road in Engineering, Procurement, and Construction (EPC) mode.
- **Northern Guwahati Bypass:** A 121 km corridor on BOT mode, including a major bridge over the Brahmaputra.
- **Nashik Phata-Khed Corridor:** A 30 km elevated corridor near Pune on BOT mode.



Agriculture

50. OPEN MARKET SALE SCHEME

Context:

The government recently announced that grain-deficient states can directly purchase rice from the Food Corporation of India (FCI) under the Open Market Sale Scheme (Domestic) (OMSS [D]) for ₹2,800 per quintal without participating in e-auctions, effective August 1.

- This move aims to reduce surplus stocks before the new procurement season.
- The government has achieved 100% coverage of fortified rice distribution to combat anaemia and nutrition deficiency.

About the Open Market Sale Scheme:

The **Food Corporation of India (FCI)** sells surplus stocks of wheat and rice through e-auctions in the open market to enhance food grain supply and regulate wheat prices.

These auctions are part of the **Open Market Sale Scheme (OMSS)**, conducted weekly on the **National Commodity and Derivatives Exchange Limited (NCDEX) platform**, which facilitates trading in various agricultural and other commodities in India.

51. KASTURI COTTON BHARAT

Context:

The **Ministry of Textiles in India** has launched the **Kasturi Cotton Bharat programme** to enhance the traceability, certification, and branding of Indian cotton.

- The programme employs QR-based certification technology and blockchain for end-to-end traceability of Kasturi Cotton Bharat tagged bales.
- A microsite with QR code verification and a blockchain platform has been developed for this purpose. The programme is promoted both nationally and internationally.

Kasturi Cotton Bharat:

A collaborative effort by the **Ministry of Textiles, the Cotton Corporation of India, trade bodies, and industry.**

Enhance the global competitiveness of **Indian cotton through self-regulation, branding, traceability, and certification, creating a sustainable ecosystem for stakeholders.**

Implementing Agency: The Cotton Textiles Export Promotion Council (**TEXPROCIL**) is designated as the apex body for implementing traceability, certification, and branding.

52. CLEAN PLANT PROGRAMME

Context:

The Union Cabinet has approved the **Clean Plant Programme (CPP)**, aimed at revolutionizing India's horticulture sector.

- The CPP, part of the Mission for Integrated Development of Horticulture, will enhance the quality

and productivity of fruit crops by providing **virus-free, high-quality planting material**.

- The program includes the **establishment of nine state-of-the-art Clean Plant Centers (CPCs)** across India, which will **produce and maintain clean planting materials**.
- It also introduces a **robust certification and legal framework** to ensure accountability and traceability in planting material production.
- The CPP **aims to boost farmers' incomes, improve consumer produce, increase India's fruit exports, and promote sustainable agricultural practices**.

The program will engage women farmers and address diverse agro-climatic conditions, with **implementation overseen by the National Horticulture Board and ICAR**.

53. NITROGEN-USE EFFICIENCY IN INDIAN RICE VARIETIES

Context:

A study has identified **significant variations in nitrogen-use efficiency (NUE) among popular Indian rice varieties**.

- This finding **could lead to the development of new rice varieties that require less nitrogen while maintaining high yields**, potentially **reducing costs associated with imported fertilizers and decreasing nitrogen-related pollution**.
- Nitrogen-use efficiency **refers to the crop yield relative to the amount of nitrogen (both natural and artificial) available to it**.
- The study found that **some rice varieties are five times more efficient in nitrogen use** than others, although **higher NUE doesn't always correlate with the highest yields**, which farmers typically prefer.

The researchers emphasize the **need to shift focus from merely increasing crop yields**, as done **during the Green Revolution, to improving NUE to reduce fertilizer waste and environmental pollution**.

54. NATIONAL PEST SURVEILLANCE SYSTEM (NPSS)

Context:

The Union Government launched the **AI-based National Pest Surveillance System (NPSS) to help farmers connect with agriculture scientists for pest control**.

- The **NPSS aims to reduce farmers' reliance on pesticide retailers** by **fostering a scientific approach to pest management**.
- Through the platform, **farmers can upload photos of affected crops, which will be analyzed by experts to provide accurate pest control advice**.
- **The system is designed to ensure the correct use of pesticides, improve crop yields, and protect soil health**.

The NPSS will **benefit around 14 crore farmers and is part of a broader effort to bring technological innovations in agriculture directly to the fields**.

55. ERI SILK

Context:

The **North Eastern Handicrafts and Handlooms Development Corporation (NEHHDC)** has **achieved the Oeko-Tex certification for Eri Silk, the world's only vegan silk**.

- This certification, awarded directly from Germany, **highlights Eri Silk's ethical and eco-friendly production process, where the moth naturally exits the cocoon**, unlike other silk types where the moth is killed.
- The **Oeko-Tex certification confirms that Eri Silk is free from harmful substances** and produced under environmentally friendly conditions.
- This accomplishment **enhances the global recognition of Eri Silk, a Geographical Indication (GI) product of Assam, and paves the way for its expansion into international markets**.

India is unique in producing **all five major types of commercially important silk**, which are derived from different species of silkworms. These types include Mulberry, Oak Tasar, Tropical Tasar, Muga, and Eri.

Among these, Mulberry silk is cultivated, while the others, known as vanya silks, are wild silks.

56. ISDRA2NPB

Context:

A **team of researchers from the ICAR-National Rice Research Institute in India** and Pennsylvania State University in the U.S. has developed a new, **miniature genome-editing tool that holds promise for agricultural applications**.

- The **new tool, based on a protein called ISDra2TnpB** from the **bacterium *Deinococcus radiodurans***, is **less than half the size of these proteins**, making it more **suitable for plant genome editing**.
- This **TnpB-based system offers a significant improvement in editing efficiency**, particularly in **plants where traditional tools have been less effective**.
- Researchers have successfully used it on **both monocots (like rice) and dicots (like Arabidopsis)**, **although the efficiency was lower in dicots**.
- The system can **perform both base editing and transcription activation**, opening new possibilities for crop improvement, **such as reducing plant height to make crops like rice less prone to cyclone damage**.

The new tool's potential **lies in its ability to precisely modify plant genomes, potentially removing undesirable traits or introducing beneficial ones**.

57. AGRICULTURAL INFRASTRUCTURE FUND

Context:

The Union Cabinet has expanded the scope of the Agricultural Infrastructure Fund (AIF), a ₹1 lakh crore scheme, to include financial support for Farmers' Producers Organisations (FPOs).

- This redesign aims to enhance the financial security and creditworthiness of FPOs, making the scheme more attractive, impactful, and inclusive.
- The expansion is expected to foster a stronger agricultural infrastructure ecosystem.
- The expanded scheme is anticipated to further drive agricultural growth, improve productivity, and boost farm incomes.

The Agricultural Infrastructure Fund (AIF) is a financial initiative launched by the Government of India in July 2020 as part of the broader Atmanirbhar Bharat (Self-reliant India) campaign.

The fund aims to provide financial support for the creation and enhancement of agricultural infrastructure, which is crucial for improving farm productivity, reducing post-harvest losses, and increasing farmers' income.

Science & Technology

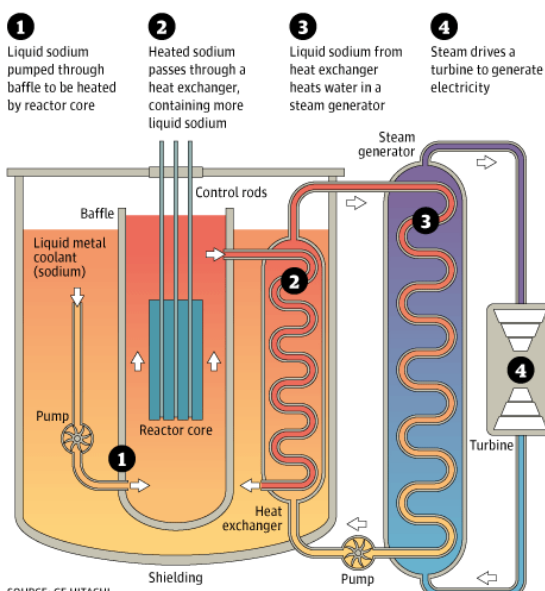
58. KALPAKKAM FAST BREEDER REACTOR

Context:

The Atomic Energy Regulatory Board (AERB) has approved the 'First Approach to Criticality' for India's first 500 MWe Prototype Fast Breeder Reactor (PFBR) at Kalpakkam, Tamil Nadu.

- This approval involves loading fuel into the reactor core and initiating 'Low Power Physics Experiments'.

Inside a fast reactor



59. NANO-MIND TECHNOLOGY

Context:

In a ground-breaking experiment, researchers at the Center for Nanomedicine at the Institute for Basic Science (IBS) and Yonsei University in South Korea have demonstrated the ability to control specific brain regions in mice using magnetic fields.

- This innovation, called Nano-MIND (Magnetogenic Interface for NeuroDynamics) technology, uses magnetic fields and magnetized nanoparticles to wirelessly and precisely modulate specific deep brain neural circuits.
- The technology enables the selective activation of targeted brain circuits, surpassing current brain manipulation methods.
- The potential applications of Nano-MIND in understanding brain functions, developing sophisticated artificial neural networks, advancing brain-computer interface (BCI) technologies, and creating new treatments for neurological disorders.
- This advancement in neuroscience could revolutionize research and treatment methodologies for brain-related conditions by providing a more precise and less invasive approach.

How it works?

In their experiments, the researchers successfully activated neurons in various brain regions, such as the medial preoptic area (MPOA) to stimulate maternal behaviours in non-maternal female mice, and the lateral hypothalamus to regulate feeding behaviours, significantly altering appetite and feeding patterns.

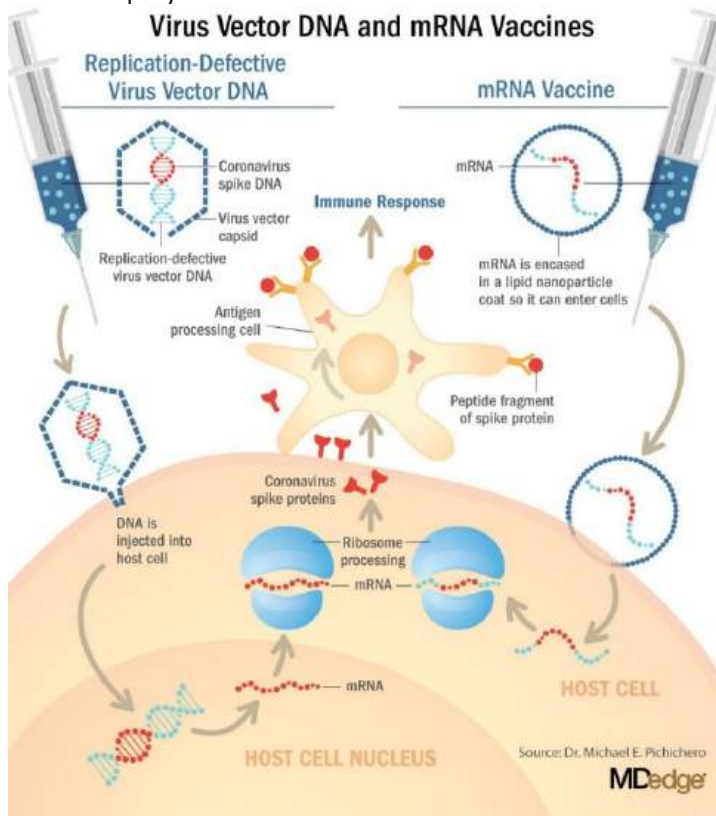
60. MRNA VACCINE DEVELOPMENT AGAINST HUMAN AVIAN INFLUENZA (H5N1)

Context:

A new initiative to develop and distribute mRNA vaccines for human avian influenza (H5N1) in low- and middle-income countries (LMICs), in collaboration with the World Health Organization (WHO) and the Medicines Patent Pool (MPP).

- The project is part of the mRNA Technology Transfer Programme, established in 2021 to enhance vaccine production capacity in LMICs.
- Once successful, the knowledge and materials will be shared with other manufacturers to expedite vaccine development and strengthen pandemic preparedness.
- The initiative aligns with ongoing efforts to improve the sharing of influenza viruses and vaccine access under the Pandemic Influenza Preparedness Framework.

The mRNA Technology Transfer Programme has already developed a platform for COVID-19 vaccine candidates, which is now being adapted for other diseases, enhancing global vaccine equity.



61. GENETIC SCREENING

Context:

Athletes worldwide are **increasingly turning to genetic screening to enhance their performance.**

- This emerging science **offers valuable insights into personal traits like food allergies, vitamin and mineral needs, and other physiological factors.**
- The Board of Control for Cricket in India has been using genetic tests since 2017 to improve players' physical capabilities, including speed, endurance, recovery time, and muscle-building.

Genetic screening is a tool used to **identify individuals at higher risk for developing certain disorders or carrying specific genes for these disorders.**

It involves **testing genetic material**—chromosomes, genes, or proteins—to detect changes that might increase disease risk.

By identifying **altered genes**, genetic screening helps **determine risk and offers preventive measures and early treatment options.**

62. KINDLINS

Context:

A study explored the role of **Kindlins—adapter proteins involved in cell signalling—in various cancers.**

- These proteins are **critical for transferring extra-cellular cues to biochemical signals within cells, influencing multiple signalling pathways essential for cellular homeostasis.**
- Mutations in Kindlins, **caused by carcinogens like nicotine and UV rays, can disrupt this balance and contribute to cancer progression.**

How the study was conducted?

- Kindlin 1 regulates immune microenvironment in breast cancer.
- Kindlin 2 governs cancer-specific metabolic processes and HIPPO signalling.
- Kindlins are crucial in tumour progression, metastasis, and epithelial-mesenchymal transition (EMT).
- Kindlins are involved in essential mechano-sensitive pathways and their dysfunction is linked to adverse survival outcomes.
- Kindlins are identified as potential targets for innovative cancer treatments, offering new strategies to address chemoresistance and tumour relapse.

63. WHO GLOBAL TRADITIONAL MEDICINE CENTRE (GTMC)

Context:

India will donate USD 85 million over ten years (2022-2032) to support the WHO Global Traditional Medicine Centre (GTMC) in Jamnagar, Gujarat.

- The centre aims to **serve as a key hub for evidence-based Traditional Complementary and Integrative Medicine (TCIM) to improve global health and well-being.**
- The interim office is **already operational, focusing on capacity-building and training.**
- This collaboration aligns with **India's efforts to position traditional medicine globally**, contributing to sustainable development goals through various joint initiatives with WHO.

64. FASTAGS

Context:

New rules for FASTags, effective from August 1, **mandate that FASTags older than five years must be replaced, and KYC updates are required every three years.**

- The rules aim to **improve toll payment processes and reduce congestion.**
- Key updates include **linking vehicle details (registration and chassis numbers) with FASTags, verifying databases, and uploading clear photos of the**

car's front and side.

- Additionally, FASTags must be linked to a mobile number.

How it works?

- FASTag is a pan India interoperable ETC system rolled out by Government of India for National Highways under the National Electronic Toll Collection programme.
- Simple to use and reloadable tag employing radio-frequency identification technology enabling automatic deduction of toll charges so that there is smooth passage through toll plaza without stopping for cash transaction.
- Tag is affixed on vehicle's windscreen after the tag account is active and is operational at many toll plazas across national and State highways in the country.
- It is linked to a prepaid account from which the applicable toll amount is deducted.

65. AXIOM-4 MISSION

Context:

India has selected two Indian Air Force Group Captains, for the Axiom-4 mission to the International Space Station (ISS).

- This mission marks the fourth private astronaut mission to the ISS and is part of a joint ISRO-NASA effort envisioned during the Prime Minister's state visit to the U.S. in June 2023.
- The Indian crew members will undergo training in the U.S. starting the first week of August, preparing to undertake scientific research, technology demonstrations, and space outreach activities aboard the ISS.
- This mission aims to enhance India's human space program and strengthen ISRO-NASA collaboration.

66. DARK PATTERNS

Context:

A study revealed that 52 out of the top 53 Indian apps use deceptive design practices called dark patterns, affecting user autonomy and informed decision-making.

- These apps, including popular ones like Netflix, Ola, and Swiggy, employ tactics such as privacy deception, interface interference, drip pricing, and false urgency.
- The study highlighted that these problematic apps have been downloaded 21 billion times.
- The most prevalent deceptive pattern is privacy deception, found in 79% of the apps.
- Health-tech apps show the highest incidence of deceptive patterns, followed by travel booking and e-commerce.

Examples of dark patterns:

- **Forced continuity-** ex – free trial
- **Deliberate Misdirection** – Focusing the users' attention on more expensive option, hiding the cheaper one.
- **Bait and Switch** – Use a convention or pattern in which the user falsely assumes something.
- **Hidden Costs** – added during the check out
- **Roach Hotel** – easy to sign up, difficult to sign out
- **Obscured Pricing-** Making it hard to compare prices
- **Roadblock** – a pop-up window interrupting the intended action.
- **Check box treachery**

67. ANALOGUE RESEARCH STATION

Context:

Scientists have proposed Ladakh as the ideal location for India's first analogue research station to simulate conditions on the Moon and Mars.

- This proposal aligns with ISRO's ambitious space program goals, such as the Gaganyaan mission and plans for lunar and interplanetary exploration.

Ladakh's dry, cold, and arid desert, along with its rocky terrain, makes it geomorphologically similar to the lunar and Martian landscapes.

The region's features include rocky ground, loose rock, flat land, ground ice, permafrost, rock glaciers, dunes, and drainage networks, mirroring early Mars and the Moon.

68. VAMPIRE STAR

Context:

Researchers from the Indian Institute of Astrophysics (IIA) have discovered a "vampire star" in the star cluster M67 in the constellation Cancer.

- These vampire stars, known as blue straggler stars (BSS), defy standard stellar evolution models and appear younger than they are.
- The star, named WOCS 9005, rejuvenates by siphoning material from a companion star.
- This detection was made possible using data from the UltraViolet Imaging Telescope on AstroSat, India's first space observatory.
- Spectroscopic analysis revealed the star's atmosphere is rich in heavy elements like barium, yttrium, and lanthanum, indicating it has been polluted by material from its binary companion, which has since become a white dwarf.
- This discovery provides significant insight into the complex mass transfer process in binary star systems.

69. ANTIBIOTIC RESISTANT BACTERIA

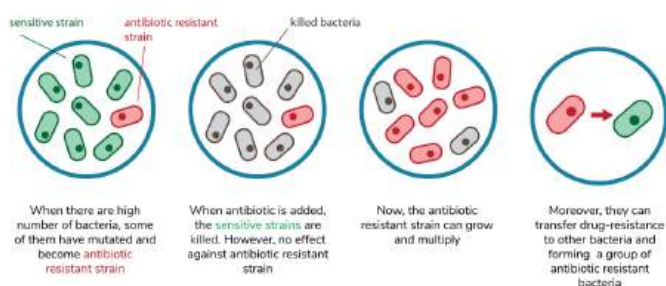
Context:

A recent study in Nigeria has found colistin-resistant bacteria in newborn babies and their mothers, even though neither had been treated with colistin.

- Colistin is a critical antibiotic used as a last resort for severe infections, and its resistance is a growing concern due to its limited use in healthcare settings.
- This resistance likely emerged from the widespread use of colistin in agriculture, particularly in live-stock feed.
- The use of antibiotics in farming, especially for growth promotion rather than treatment, contributes significantly to antimicrobial resistance.

Drug resistant bacteria

How does it happen?



70. SUB-ZERO TEMPERATURE BATTERIES

Context:

The Council of Scientific and Industrial Research (CSIR) has developed a new battery designed to function effectively in sub-zero temperatures, which is particularly beneficial for defence forces and civilians in high-altitude regions.

- The innovative battery features a durable cathode catalyst and an anti-freezing electrolyte, making it suitable for extreme cold conditions where conventional batteries fail.
- Researchers at CSIR-Central Mechanical Engineering Research Institute created a hybrid cathode material combining cobalt and iron alloys with nanoparticles.
- This enhancement improves the battery's durability and performance in both liquid and solid-state zinc-air batteries, even in very low temperatures.
- The new battery's portability, flexibility, and light-weight nature make it a versatile energy solution for various users, including military personnel and remote communities.

The technology is part of a broader effort to develop efficient energy storage systems, addressing limitations of traditional lithium-ion batteries and exploring alternatives like metal-air batteries and electro-catalytic techniques for

low carbon footprint solutions.

71. ANAEMIA MUKT BHARAT

Context:

The Indian government is implementing the Anaemia Mukht Bharat (AMB) strategy to reduce anaemia among six key groups: children aged 6-59 months, children 5-9 years, adolescents 10-19 years, women of reproductive age, pregnant women, and lactating women.

- The strategy includes six interventions such as iron-folic acid supplementation, deworming, behaviour change communication campaigns, anaemia testing and treatment, fortified food provision, and addressing non-nutritional causes of anaemia.

6 Beneficiaries –

1. Children (6-59 months)
2. Children (5-9 years)
3. Adolescent boys (10-19 years)
4. Adolescent girls (10-19 years)
5. Pregnant and lactating women
6. In women of reproductive age group (15-49 years)

6 Interventions:

1. Prophylactic Iron Folic Acid supplementation
2. Deworming
3. Intensified year-round behaviour Change Communication Campaign (Solid Body, Smart Mind) including delayed cord clamping.
4. Testing of anaemia using digital methods and point of care treatment
5. Mandatory provision of Iron Folic Acid fortified foods in public health programmes
6. Intensifying awareness, screening and treatment of non-nutritional causes of anemia in endemic pockets, with special focus on malaria, haemoglobinopathies

6 Institutional Mechanism:

1. National Anaemia Mukht Bharat initiative
2. Intra Ministerial Coordination
3. Strengthen Supply chain logistics
4. Convergence with other ministries
5. National Centre of Excellence and Advance research on Anaemia Control
6. Anaemia Mukht Bharath dashboard and Digital Portal One Stop Shop for Anaemia

72. SUCRALOSE

Context:

A recent Indian study highlights the benefits of replacing sucrose with sucralose, a non-nutritive sweetener, in beverages for adults with Type 2 diabetes.

- A randomized controlled trial showed no adverse effects on glucose or HbA1c levels and indicated

slight improvements in body weight, waist circumference, and BMI.

About Sucralose:

Sucralose, a substituted disaccharide, is a non-nutritive sweetener that is synthesized by selective chlorination of sucrose at three of the primary hydroxyl groups, involving inversion of configuration at carbon-4, from the gluco- to the galactoanalogue.

Name of LCS	Source
1. Sucralose	• Made from adding chlorine to sugar molecules.
2. Saccharin	• The oldest artificial sweetener. • Made from benzoic sulfonimine and is up to 700 times sweeter than table sugar.
3. Acesulfame	• Made from acesulfame potassium.
4. Aspartame	• Made from the amino acids phenylalanine and aspartic acid. Also includes methanol.
5. Neotame	• Similar to aspartame and made from phenylalanine and aspartic acid.
6. Stevia	• Extracted from the leaves of the stevia plant. • The extracts are processed before they're packaged and sold, putting them in the same category as an artificial sweetener.
7. Sugar alcohols	• Sugar molecules with an alcohol attached. Naturally occur in some fruits.

73. TRIBO-ELECTRIC NANOGENERATOR (TENG) TECHNOLOGY

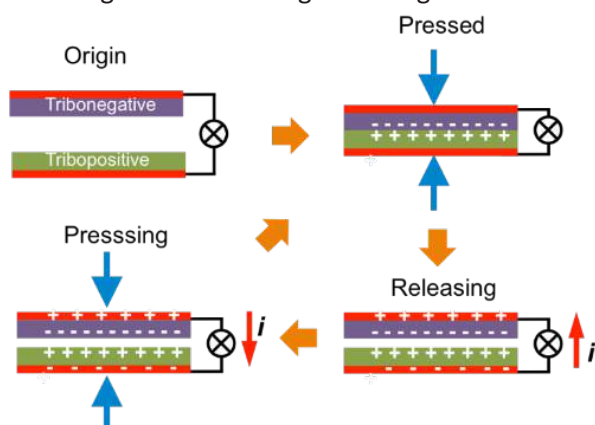
Context:

IIT Indore has developed advanced footwear for the armed forces, integrating Tribo-Electric Nanogenerator (TENG) technology that generates electricity from human motion.

- This innovation powers small electronic devices and features GPS and RFID technology for real-time tracking of soldiers, enhancing safety and operational efficiency.
- Beyond military use, these shoes have potential applications in civilian, industrial, and athletic sectors, offering benefits like location tracking and performance analysis.

About Triboelectric nanogenerators (TENGs):

Triboelectric nanogenerators (TENGs) are devices capable of converting mechanical movement into electrical energy. These devices are composed of active materials that generate electric charges and conductive electrodes responsible for collecting and transferring the charges.



74. HYPERVIRULENT SUPERBUG

Context:

A dangerous strain of the superbug Klebsiella pneumoniae (hvKp), which is highly virulent and drug-resistant, has been detected in 16 countries, including the United States, according to a recent World Health Organization (WHO) report.

- This superbug can cause severe and rapidly progressing infections even in healthy individuals, leading to high rates of complications and death.
- Initially discovered in Asia in the 1980s, hvKp was once vulnerable to antibiotics, but it has now developed resistance to many, including carbapenems, a last-resort class of antibiotics.
- It causes pneumonia, urinary tract infections, bloodstream infections, and the nervous-system infection meningitis.

75. BIO-BITUMEN

Context:

The Indian government, plans to allow up to 35% bio-bitumen mixing with petroleum-based bitumen to reduce foreign exchange outflows.

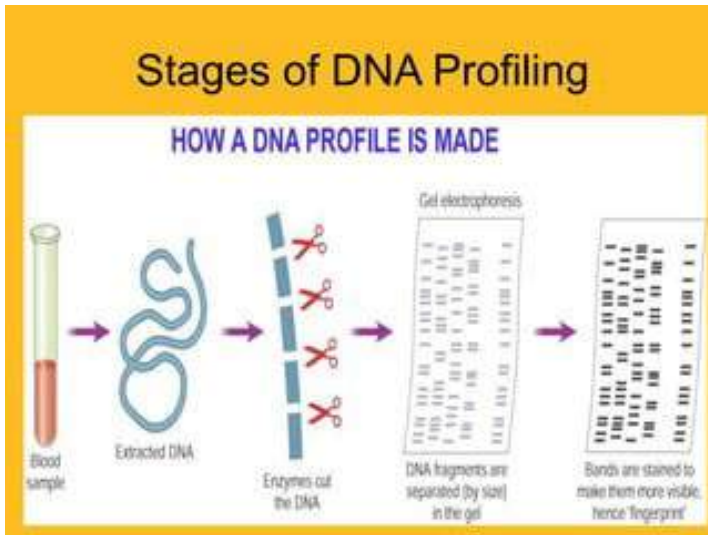
- Bio-bitumen, derived from paddy straw (parali), can also produce bio-gas and biochar.
- This initiative aims to decrease bitumen imports, reduce air pollution from stubble burning, and create economic opportunities for farmers and MSMEs.
- Bio-bitumen, costing less than petroleum-based bitumen, offers eco-friendly benefits like reduced greenhouse gas emissions and supports projects across India for its implementation in road construction.

76. DNA PROFILING

Context:

Recently the Madras High Court overturned a conviction based on DNA evidence, highlighting the need for corroborative evidence.

- DNA profiling, though increasingly accurate, is not infallible and should not be the sole basis for establishing guilt or innocence in the justice system.
- DNA profiling involves analyzing specific locations in the 0.1% of human DNA that varies between individuals.
- However, issues such as sample contamination and the probabilistic nature of DNA analysis can affect reliability.



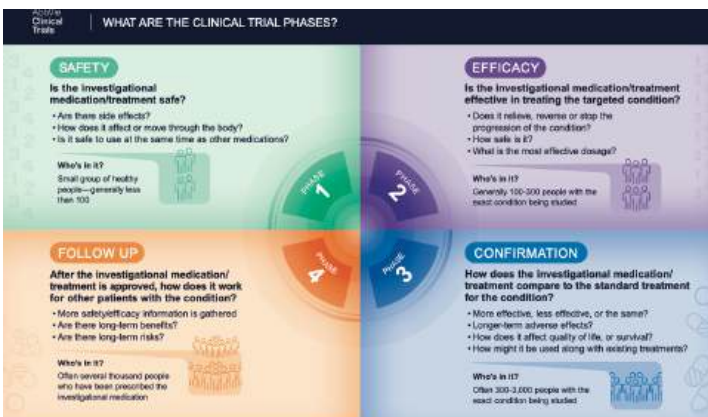
77. CLINICAL TRIAL

Context:

The Central Government of India has announced that it will waive the requirement for local clinical trials for certain new drugs if they have already been approved in select countries, including the United States, United Kingdom, Japan, Australia, Canada, and the European Union.

- This decision aims to make foreign-manufactured drugs more accessible and affordable in India.

The waiver applies to five categories of drugs: orphan drugs for rare diseases, gene and cellular therapy products, drugs used in pandemic situations, drugs for special defense purposes, and drugs that offer significant therapeutic advancements over existing treatments.



78. DIGITAL WATERMARKING

Context:

OpenAI is reportedly developing a new method for detecting AI-generated content, including text and images, using a technique known as “AI watermarking.”

- This process involves embedding a unique, recognizable signal or watermark into the output of an AI model.

- The watermark is subtle and often invisible to the human eye but can be detected by specialized algorithms.
- OpenAI’s “anti-cheating” technology aims to modify the way AI models, like ChatGPT, generate content by embedding these watermarks.
- This will help identify AI-generated materials and prevent misuse, such as fraudulent activities.

Although the technology promises up to 99.9% effectiveness, OpenAI has not yet released it publicly due to its complexity and potential broader implications.

79. PERSEID METEOR SHOWER

Context:

The Perseid meteor shower, which began in July and will continue until late August.

- The shower, visible to the naked eye in the northern hemisphere, occurs when the Earth passes through debris left by the comet Swift-Tuttle.
- The comet, which orbits the Sun every 133 years, poses no threat to Earth, as its debris mostly burns up in the atmosphere.

During the peak, over 60 meteors per hour may be visible, though local weather conditions could affect visibility.

The Perseids are a prolific meteor shower associated with the comet Swift-Tuttle that are usually visible from mid-July to late August.

80. DYSBIOSIS

Context:

The overuse and misuse of antibiotics pose significant dangers, particularly to the microbiome, the complex community of microorganisms in the human body.

- While antibiotics are vital for treating infections, they also indiscriminately kill beneficial bacteria, leading to a disruption known as dysbiosis.
- Dysbiosis can have severe and long-lasting effects on health, contributing to conditions like inflammatory bowel disease, weakened immune function, and metabolic disorders such as obesity and diabetes.
- It also affects various “gut-organ axes,” impacting the brain, liver, skin, and respiratory systems.

Misuse of these “miracle” drugs can turn them into poisons, disrupting the delicate balance of the microbiome and leading to a range of health problems.

81. TECHNOLOGICAL DOPING

Context: There is a growing concern about “technological doping” in professional sports, where advancements in technology enhance an athlete’s performance beyond their

natural capabilities, potentially creating unfair advantages.

- The term gained attention when Speedo's LZR Racer swimsuits, developed with NASA, led to 13 world records in 2008 before being banned.
- Wearable technology, now used by around 500 million people globally, provides athletes with data to improve performance, but it raises questions about whether improvements are due to the technology or a placebo effect.

For instance, new running shoes like Nike's Vaporflys, which helped Eliud Kipchoge break the two-hour marathon record, have sparked debates about their fairness. Despite outperforming other shoes, the exact biomechanical reasons for their superiority remain unclear.

Way Forward:

- To address this issue, regulatory bodies like World Athletics have introduced rules to ensure fairness, such as limiting the stack height and requiring that shoes be available to the public before competition.
- There is a need for regular biomechanical testing and expert input to ensure that technological advancements do not undermine the integrity of sports by creating inequalities based on affordability and access to high-tech gear.

82. SPINTRONIC

Context:

Researchers at the Institute of Nano Science and Technology (INST) in India have developed a groundbreaking transparent layer between two insulating materials, enabling the movement of electrons in a two-dimensional plane at room temperature with their spins aligned.

- This advancement in spintronics—a field focused on manipulating the spin of electrons alongside their charge—could lead to ultrafast, low-power electronics, including next-generation quantum devices and data storage solutions.
- The team created a two-dimensional electron gas (2DEG) at the interface of LaFeO₃ and SrTiO₃, which exhibited unique properties like negative magnetoresistance and the anomalous Hall effect.
- These phenomena open up possibilities for new device architectures, such as transparent spintronic devices that could be integrated into displays or solar cells.

The research marks a significant step toward developing quantum devices with enhanced functionalities, paving the way for advanced electronics and quantum computing.

83. AMPLITUDE OF THE SOLAR CYCLE

Context:

Astronomers from the Indian Institute of Astrophysics (IIA) have developed a new method to predict the amplitude of upcoming solar cycles, which is crucial for space weather forecasting.

- By analyzing 100 years of solar data from the Kodaikanal Solar Observatory, they discovered a correlation between the width of supergranular cells on the solar surface during the solar cycle's minimum and the number of sunspots at the next solar maximum.
- This method, based on the width of these cells observed in the chromosphere, can help forecast space weather, which significantly impacts communication, power transmission, and satellite operations.

84. PROKARYOTES

Context:

A new research suggests that as oceans warm, prokaryotes will decline less in biomass compared to other marine life, leading to their increased dominance.

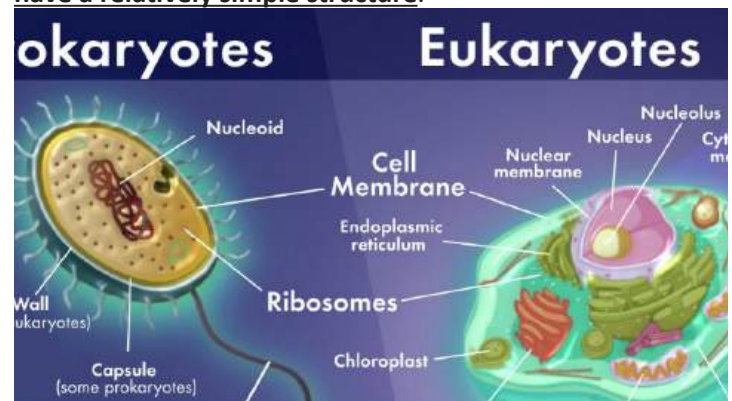
- Prokaryotes, which include bacteria and archaea, play a vital role in marine ecosystems, supporting food chains and balancing carbon emissions.
- This shift could reduce fish populations, crucial for global food supply, and diminish the ocean's ability to absorb carbon emissions.

About Prokaryotes:

Prokaryotes are organisms whose cells lack a nucleus and other organelles.

Prokaryotes are divided into two distinct groups: the bacteria and the archaea, which scientists believe have unique evolutionary lineages.

Most prokaryotes are small, single-celled organisms that have a relatively simple structure.



85. THRIVING COMMUNITIES OF MICROBES IN MICROWAVE OVENS

Context:

A new study reveals that microwave ovens, whether used in homes, offices, or laboratories, host diverse communities of microbes.

- This **challenges** the **common belief that microwave radiation kills all bacteria, which can cause food-borne illnesses.**
- The study, **which involved sampling 30 microwave ovens,** found **747 different genera of bacteria,** with human-skin bacteria like **Bacillus, Micrococcus, and Staphylococcus being dominant.**

86. EOS-08 EARTH OBSERVATION SATELLITE

Context:

ISRO successfully launched the **EOS-08 Earth Observation Satellite** using the Small Satellite Launch Vehicle (**SSLV-D3**) from the **Satish Dhawan Space Centre in Sriharikota.**

- This **marked the third and final developmental flight of the SSLV,** which accurately placed the EOS-08 into a 475 km circular orbit.
- **EOS-08 is a unique mission featuring advanced payloads for infrared observation, GNSS-based remote sensing, and UV radiation monitoring.**
- The **SSLV is designed for cost-effective, flexible, and rapid satellite launches,** capable of carrying payloads ranging from **10 to 500 kg.**

87. CALIFORNIUM

Context:

Recently Bihar police, **seized a metallic lump they suspected was Californium,** a highly **radioactive and expensive material.**

- It was later found to be fake.

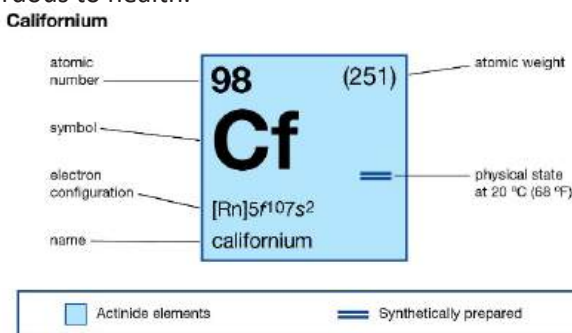
About Californium:

The **element with atomic number 98** is a **silvery-white, synthetic, and highly radioactive substance.**

Named after the University of California, this element is a **strong neutron emitter and is extremely expensive.**

Its **applications include use in portable metal detectors, identification of gold and silver ores, and assisting in starting nuclear reactors.**

However, it **poses significant health threats due to its radioactivity,** which can damage genetic material and is hazardous to health.



88. MICRO-AND NANO-PLASTICS AS EMERGING FOOD CONTAMINANTS

Context:

The Food Safety and Standards Authority of India (**FSSAI**) has launched a project to **address the rising concern of microplastic contamination in food.**

- The initiative, **titled “Micro-and Nano-Plastics as Emerging Food Contaminants,”** aims to **develop and validate methods for detecting microplastics in various food products and assess their prevalence and exposure levels in India.**
- The **project is being conducted in collaboration with leading research institutions across India.**
- The project will **focus on creating standard protocols for microplastic analysis,** comparing results **across different laboratories, and generating crucial data on microplastic exposure among consumers.**

FSSAI’s initiative follows global studies, **including a report by the Food and Agriculture Organization (FAO),** highlighting the **presence of microplastics in common food items like sugar and salt.**

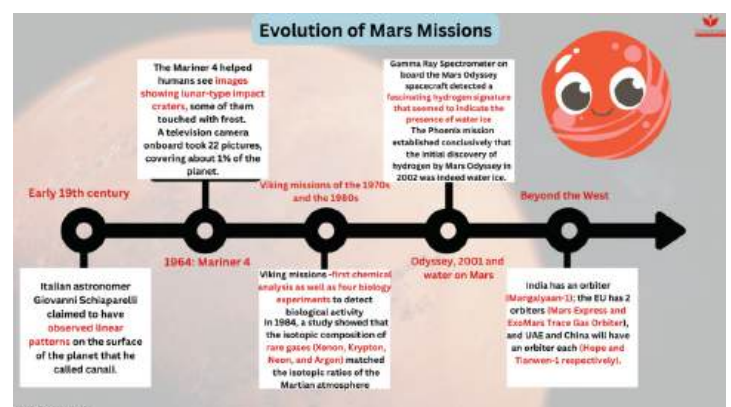
89. LIQUID WATER ON MARS

Context:

Scientists have discovered **liquid water deep within Mars’ crust for the first time.**

- Using data from NASA’s Mars Insight Lander, **which recorded seismic waves from Marsquakes and meteorite impacts,** researchers identified a **layer of fractured igneous rock, likely granite, filled with liquid water at depths of 10 to 20 kilometers.**
- **This water is thought to have seeped from the surface billions of years ago** when Mars had rivers and lakes.

The discovery could provide insights into Mars’ water cycle, climate evolution, and the potential for habitable environments.



90. HAYFLICK LIMIT

Context:

Biomedical researcher **Leonard Hayflick**, who discovered that **normal somatic cells can divide (and thus reproduce) only a certain number of times**, died recently.

- He gave the concept of **Hayflick limit** that normal **somatic cell can only divide a finite number of times (around 40-60 times) before they stop dividing, leading to aging.**
- This **discovery challenged the previous belief that cells could be immortal and that aging was solely due to external factors like disease and diet.**

The **“ultimate Hayflick limit” suggests that human lifespan is capped at about 125 years**, beyond which it cannot be extended through lifestyle or genetic interventions.

The **discovery of telomeres, the protective ends of DNA strands that shorten with each cell division, provided further insight into the aging process.**

Although **telomerase, a protein that can replenish telomeres**, has been found, **its practical application in extending human lifespan is still a distant possibility.**

91. MERCURY BOMB

Context:

Recent study has found the **potential environmental threat posed by melting Arctic permafrost**, which could **release significant amounts of mercury into the environment causing Mercury bomb.**

- As **the permafrost thaws due to climate change**, mercury that has **been trapped in the soil for millennia is being released, particularly along rivers like the Yukon in Alaska.**
- While the immediate threat is minimal, **the mercury could gradually accumulate in the food chain, posing long-term risks to human health, especially in Arctic communities.**

The **study analyzed deeper soil layers in riverbanks and found consistent mercury levels** with higher estimates from previous research.

92. QUANTUM NONLOCALITY

Context:

A recent study has revealed that **a universal standard for measuring quantum nonlocality**, which describes a **strange connection between distant quantum objects, is impossible.**

- **Quantum nonlocality**, a concept first **introduced by physicist John Stewart Bell in 1964**, challenges **classical physics’ idea of local realism.**
- It has **significant applications in secure communication, random number generation, and cryptographic key creation.**

- The study, shows that **nonlocal quantum correlations vary depending on the type, making each nonlocal resource unique and incapable** of being universally measured or compared.

This finding **underscores the complexity and uniqueness of quantum nonlocality**, expanding its **potential applications and understanding in quantum mechanics.**

93. SUPER BLUE MOON

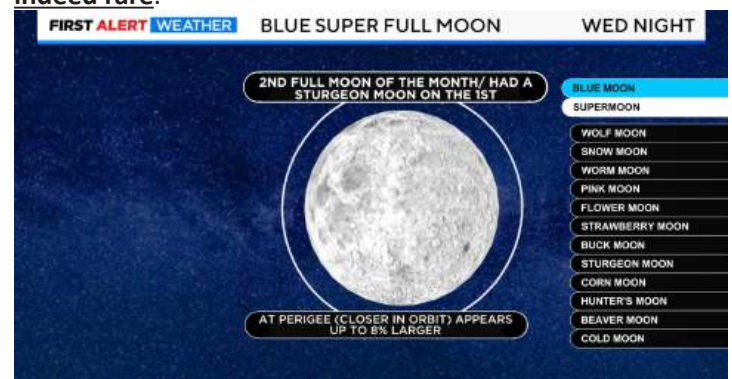
Context:

Recently a special astronomical event known as a **“Super Blue Moon”** “occurred. This event combines **two rare phenomena: a “blue moon” and a “super moon.”**

Blue Moon: Contrary to what the term suggests, **a blue moon isn’t necessarily blue in color.** It refers to a **second full moon within a single calendar month, or, less commonly, the third full moon in a season with four full moons.** This phenomenon happens every two or three years.

Super Moon: This occurs when a **full moon is at its closest point to Earth in its elliptical orbit, known as perigee.** This proximity makes the moon **appear about 14% larger and 30% brighter compared to when it’s at its farthest point, or apogee.**

While the term “blue moon” might imply a rare occurrence, **the sighting of a supermoon and blue moon together is indeed rare.**



94. JUICE MISSION

Context:

The **European Space Agency’s** Jupiter Icy Moons Explorer (JUICE) probe is set to perform a **ground-breaking double slingshot manoeuvre.**

- The **probe will first use the moon’s gravity to redirect its trajectory toward Earth**, followed by using **Earth’s gravity to slow down, setting it on course for its journey to Jupiter.**
- **This complex manoeuvre, a first in space exploration, is risky due to the potential for errors that could derail the mission.**
- If successful, **JUICE will reach Jupiter and its moons—Callisto, Europa, and Ganymede—by 2031, using additional gravity assists from Venus and Earth along the way.**

The mission aims to:

1. **Map Moons' Surfaces:** Create detailed maps of Jupiter's moons, particularly **Ganymede, Callisto, and Europa**, and investigate their subsurface water bodies for potential habitability.
2. **Study Jupiter:** Develop a comprehensive understanding of **Jupiter's origin, history, and evolution.**
3. **Focus on Ganymede:** Examine **Ganymede, the largest moon in the Solar System** with its own magnetic field.
4. **Assess Habitability:** While the mission cannot detect life, **it will assess whether conditions such as water, essential biological elements, energy, and stability exist around Jupiter**, which could support life.

95. ANAPHYLAXIS

Context:

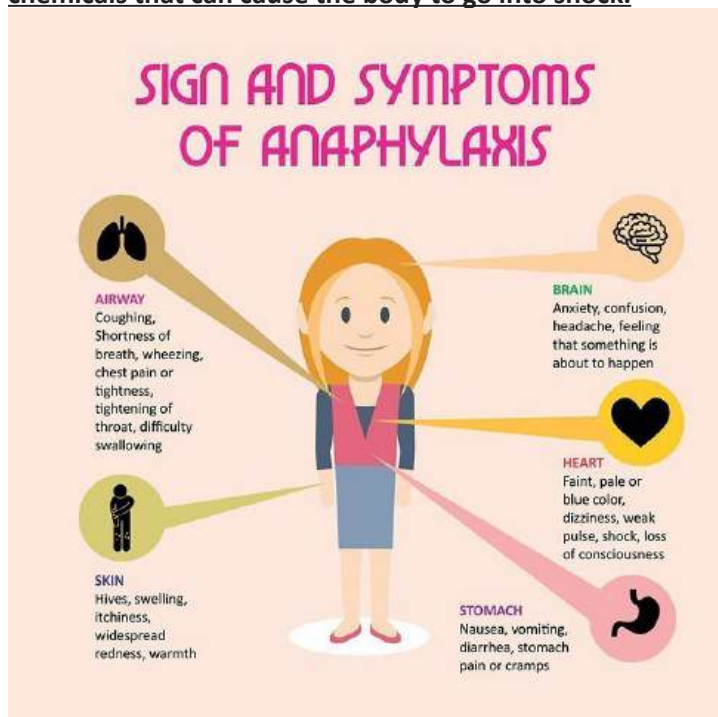
The **U.S. FDA approved the first nasal spray, Neffy**, for **treating severe allergic reactions, offering a needle-free alternative to traditional injectors like EpiPen.**

- Developed by ARS Pharmaceuticals Inc., **Neffy is intended for emergency use in adults and children over 66 pounds experiencing anaphylaxis.**

Anaphylaxis is a **severe, life-threatening allergic reaction.** It can **happen seconds or minutes after you've been exposed to something you're allergic to.**

Peanuts or bee stings are examples.

In anaphylaxis, **the immune system releases a flood of chemicals that can cause the body to go into shock.**



96. KAKRAPAR ATOMIC POWER STATION (KAPS)

Context: India's **second indigenous 700 MW nuclear power reactor, KAPS-4**, located at the Kakrapar Atomic Power Sta-

tion (**KAPS**) in Gujarat, has begun **operating at full capacity.**

- The **Nuclear Power Corporation of India Limited (NPCIL)** confirmed that **KAPS-4, which had been operating at 90% capacity**, has now reached its **full power of 700 MWe.**
- This milestone follows **the successful operation of its twin unit, KAPS-3**, demonstrating the **effectiveness of India's home-grown 700 MW Pressurised Heavy Water Reactor (PHWR) design.**

The power level increase was approved by the Atomic Energy Regulatory Board (AERB). India is **currently constructing 14 more reactors of the same design, expected to be operational by 2031-32.**

97. ELEMENTAL ABUNDANCE MEASUREMENTS OF LUNAR SOIL

Context:

The **Alpha Particle X-ray Spectrometer (APXS)** on the **Pragyan Rover of the Chandrayaan-3 mission** has provided the **first in-situ elemental abundance measurements of lunar soil in the South Polar Region of the Moon.**

- Conducted by **scientists from the Physical Research Laboratory (PRL) and ISRO**, these measurements support the **Lunar Magma Ocean (LMO) hypothesis**, which suggests that the Moon's **primordial crust formed as lighter minerals floated to the surface.**
- **APXS detected higher levels of magnesium-rich minerals**, indicating **contributions from deeper lunar layers**, likely due to **material ejected during the formation of the South Pole-Aitken (SPA) basin.**
- The data showed **that the lunar soil is a mix of two rock types: Ferroan Anorthosite (rich in plagioclase) and the Magnesian Suite**, with unexpected levels of **olivine and pyroxene, minerals typically found in the Moon's inner layers.**

98. HEAVIEST ANTIMATTER PARTICLE DISCOVERED

Context:

Scientists discovered the **heaviest antimatter particle**, named **antihyperhydrogen-4**, at the **Relativistic Heavy Ion Collider** in New York.

What is Antimatter?

Antimatter is a **type of matter composed of antiparticles**, which have the same mass as ordinary matter particles but possess opposite electric charges. For example, the antimatter counterpart of an **electron** (which has a negative charge) is the **positron**, which has the same mass as an electron but a positive charge. Similarly, the **antiproton** is the antimatter equivalent of a **proton**, having the same mass but an opposite, negative charge.

- **Matter:** A hydrogen atom is made of one proton (positively charged) and one electron (negatively

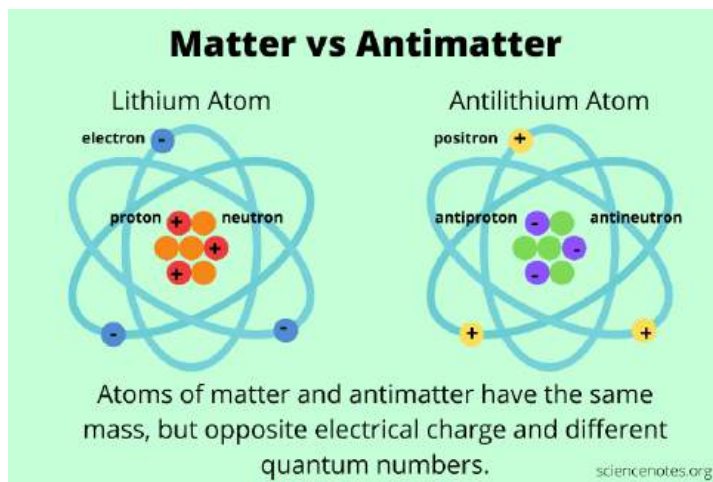
charged).

- **Antimatter:** The antimatter version, antihydrogen, consists of one antiproton (negatively charged) and one positron (positively charged).

Difference from Matter:

The key difference between **matter and antimatter lies in the charges of their particles**. When matter and antimatter come into contact, they **annihilate** each other, releasing energy in the process. This process is governed by the same fundamental forces, but the charge reversal leads to the annihilation phenomenon.

Despite equal amounts of matter and antimatter being produced at the universe's birth, **matter dominates today**. **Scientists are still exploring why this imbalance occurred.**

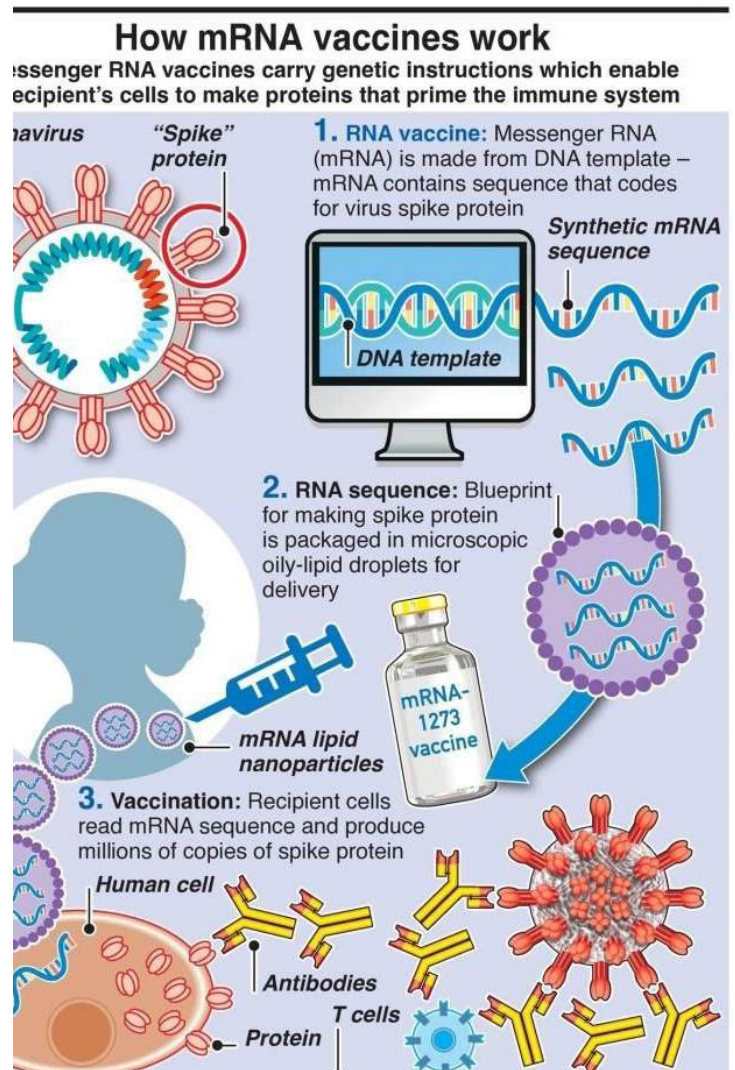


99. LUNG CANCER VACCINE

Context:

The **world's first mRNA lung cancer vaccine, BNT116**, has begun clinical trials **across seven countries, including the UK, the US, Germany, Hungary, Poland, Spain, and Turkey.**

- This vaccine targets **non-small cell lung cancer (NSCLC)**, the most common form of the disease, by **instructing the body to attack cancer cells and prevent their recurrence.**
- The vaccine uses **messenger RNA technology, similar to COVID-19 vaccines, to prompt the immune system to recognize and fight NSCLC cells.**



100. INDIA CELEBRATES ITS FIRST-EVER NATIONAL SPACE DAY

Context:

National Space Day, **celebrated on August 23**, was officially **designated by the Indian government to honor the success of the Chandrayaan-3 mission**, which achieved a historic landing on the Moon's surface.

- The theme for 2024, **"Touching Lives while Touching the Moon: India's Space Saga,"** emphasizes the **broader societal impact of space exploration.**
- The **Chandrayaan-3 mission made India the fourth country to land on the Moon and the first to do so in the southern polar region.**

101. RHUMI-1

Context:

India's **first reusable hybrid rocket, RHUMI-1**, was successfully **launched by the Tamil Nadu-based start-up Space Zone India.**

- The rocket **is designed to advance research on**

climate change and atmospheric conditions.

- It carried **three CUBE satellites and 50 Pico satellites** to **collect data on cosmic radiation, UV radiation, air quality, and other environmental factors.**
- The rocket, which reached an altitude of about 35 kilometres, **features a hybrid motor and an electrically triggered parachute deployer.**
- This initiative aims to **make space missions more sustainable and cost-effective, reflecting India's growing role in space innovation.**

102. TANAGER-1

Context:

NASA, in collaboration with various organizations, **has launched the Tanager-1 satellite aboard a SpaceX Falcon 9 rocket.**

- **Tanager-1 is designed to track methane and carbon dioxide emissions** using **imaging spectrometer technology developed by NASA's Jet Propulsion Laboratory.**
- This technology can **identify and quantify greenhouse gases** by measuring the **unique spectral "fingerprints" left by different compounds in the Earth's atmosphere.**

Methane, a potent greenhouse gas contributing significantly to global warming, is particularly targeted due to its role in **forming ground-level ozone,** which poses health risks and is linked to premature deaths. Reducing methane emissions is critical, **especially since fossil fuel operations are responsible for a large share of human-caused methane emissions.**

103. LEPTOSPIROSIS

Context:


After the Nipah threat subsided in Kerala, a **deadly** Leptospirosis outbreak emerged, causing 121 confirmed deaths and over 1,170 cases under treatment.

About Leptospirosis, or "rat fever":

Leptospirosis is a zoonotic disease caused by **leptospire bacteria,** transmitted from animals to humans, usually through skin cuts. It's common in **tropical, high-rainfall areas,** with **human-to-human transmission** being rare. The Ministry of Health and Family Welfare runs a program for its prevention and control.

It spreads through bacteria in contaminated water, particularly during monsoons. The surge in cases is attributed to **heavy rainfall and poor waste management,** increasing rat populations. Experts stress the need for early detection, personal hygiene, protective gear, and doxycycline distribution. Additionally, Kerala faces outbreaks of **hepatitis A and dengue,** underscoring the need for better water quality and public health strategies.

KEEP RATS AT BAY

<p>Cause of infection When one comes into contact with urine of infected rats or cattle or the water contaminated by it</p> <p>Who are more susceptible People who work in muddy or marshy land where rats are abundant</p> <p>Symptoms Fever, severe pain on calf muscles, redness of eyes</p> <p>➤ If there is delay in getting medical attention, it will affect the functioning of kidney and will eventually lead to the death of the patient</p> <p>Precautions Fill the holes in walls to prevent rats from making it home</p>	 <p>➤ Keep tubers, rice, coconut and other items out of reach of rats</p> <p>➤ Dispose of waste properly</p> <p>➤ Take doxycycline tablets as per doctor's instruction. This prevents the growth and spread of the bacteria causing the infection</p>
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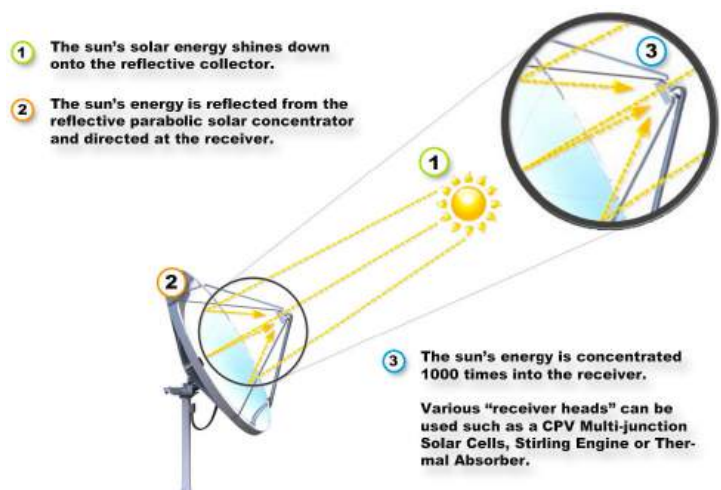
104. SOLAR PARABOLOID TECHNOLOGY

Context:

Solar paraboloid technology, a form of **concentrating solar power (CSP),** is emerging as a **promising renewable energy solution.**

- It uses **parabolic mirrors to focus sunlight onto a receiver,** generating **high temperatures (up to 300°C) for electricity or industrial heat.**
- This **technology offers higher efficiency than traditional photovoltaic systems,** potentially lowering electricity costs.

However, challenges such **as high upfront costs and technical complexity remain.**



105. COMBINATION DRUGS

Context:

The **Indian government has banned 156** fixed-dose combination (**FDC**) **drugs,** citing them **as "irrational" with no therapeutic benefit.**

- FDCs are **combinations of two or more drugs in a single dose**, often used to **simplify treatment regimens**.
- However, **these combinations can lead to unnecessary drug use, contributing to issues like antibiotic resistance**.

FIXED-DOSE COMBINATION

<ul style="list-style-type: none"> ■ Levocetirizine + Phenylephrine+ Paracetamol+ Ambroxol – Relieves cold ■ Ofloxacin+ Ornidazole – Used for Infections ■ Glimperide +Metformin+ Ploglitazone – A combination diabetes medicine that helps control blood 	<ul style="list-style-type: none"> ■ Terbinafine+ Clobetasoal +Ofloxacin+ Ornidazole – Used to treat skin infections ■ Aceclofenac + Paracetamol + Rabeprazol – A combination of three drugs used to relieve pain and inflammation
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106. ORAL CHOLERA VACCINE

Context:

Bharat Biotech launched Hillchol (BBV131), an oral cholera vaccine developed in partnership **with Hilleman Labs**.

- This vaccine addresses the **global shortage of Oral Cholera Vaccines (OCVs), with demand exceeding 100 million doses annually**.
- The vaccine is a two-dose oral treatment, **aiming to combat cholera globally. Phase I and II trials were conducted in Bangladesh, and Phase III in India**.

Cholera is an acute, diarrheal disease caused by the bacterium *Vibrio cholerae*. It is characterized by severe diarrhea and dehydration, which can lead to rapid and life-threatening fluid loss if not treated promptly.

107. CODON DEOPTIMIZATION TECHNOLOGY

Context:

Indian Immunologicals Ltd (IIL), in collaboration with Griffith University, Australia, has developed a needle-free intranasal COVID-19 booster vaccine using codon deoptimization technology.

- This **live-attenuated vaccine, which modulates viral attenuation by adjusting genetic codons, is designed to be safe and quick to produce**.

Codon-pair deoptimization **involves increasing the frequency of underrepresented codon pairs without changing codon usage or amino acid sequences**. It is a highly **efficient virus attenuation** strategy that utilizes **suboptimal codon pairs to achieve attenuation of recoded viruses**.

108. QUASARS

Context:

Astronomers have discovered the brightest object ever observed in the universe, a quasar named J0529-4351, using the European Southern Observatory's Very Large Telescope (VLT).

- This quasar, which has been visible since 1980 but only recently identified as such, **is over 500 trillion times brighter than the Sun and grows by consuming the equivalent of one sun per day**.
- The quasar, **located over 12 billion light-years from Earth**, is powered by a **supermassive black hole with a mass of 17 billion suns**.
- Its **massive accretion disc, measuring seven light-years in diameter, is the largest known in the universe**.

Quasars (short for "quasi-stellar objects") are among the **brightest and most energetic objects in the universe**. They are the **extremely luminous cores of distant galaxies**, powered by supermassive black holes at their centres.

109. CHANDIPURA VIRUS

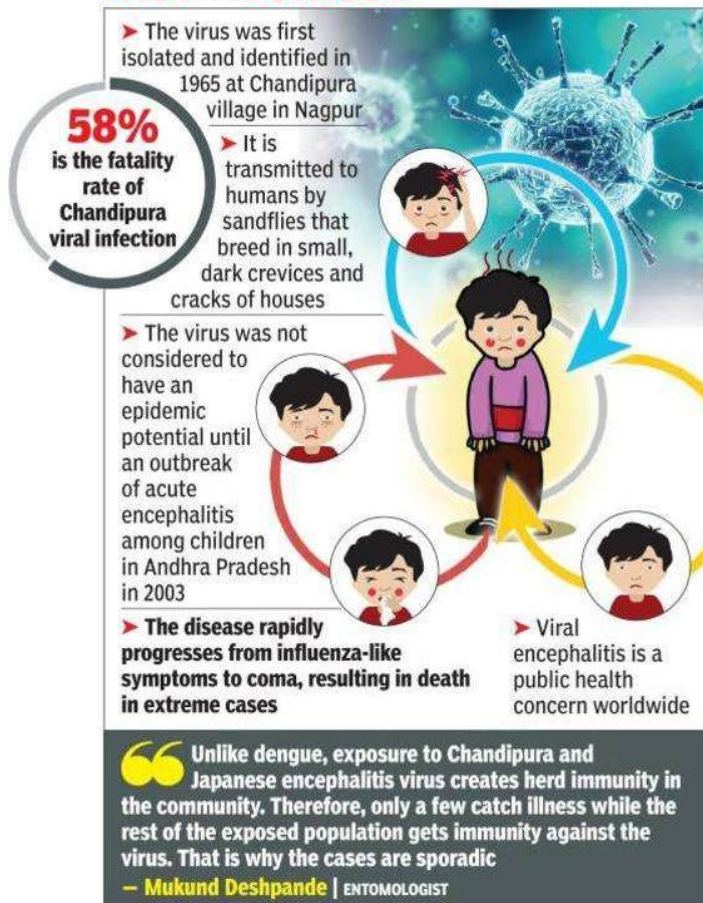
Context:

The **current Chandipura virus (CHPV) outbreak** in India is the **largest in 20 years**, with 245 cases of **acute encephalitis syndrome (AES)**.

- **Most cases have occurred in Gujarat, with a few in Rajasthan.** WHO advises **enhancing surveillance in high-risk areas but has not recommended travel or trade restrictions.**
- There is **no specific treatment or vaccine for CHPV**, but **early and intensive care can improve survival.**

The Chandipura virus (CHPV) is a member of the **Rhabdoviridae family** and is known to cause outbreaks of **acute encephalitis syndrome (AES), particularly in India.**

FAST & FURIOUS



► The virus was first isolated and identified in 1965 at Chandipura village in Nagpur

► It is transmitted to humans by sandflies that breed in small, dark crevices and cracks of houses

► The virus was not considered to have an epidemic potential until an outbreak of acute encephalitis among children in Andhra Pradesh in 2003

► The disease rapidly progresses from influenza-like symptoms to coma, resulting in death in extreme cases

► Viral encephalitis is a public health concern worldwide

58% is the fatality rate of Chandipura viral infection

“ Unlike dengue, exposure to Chandipura and Japanese encephalitis virus creates herd immunity in the community. Therefore, only a few catch illness while the rest of the exposed population gets immunity against the virus. That is why the cases are sporadic
 — Mukund Deshpande | ENTOMOLOGIST

Environment & Ecology

110. SAFFRON

Context:

Kashmir's saffron crop, a highly prized spice, **is severely affected by prolonged dry spells and climate change.**

The saffron spice, known as **kong in Kashmiri, zaffran in Urdu, and kesar in Hindi**, is extracted from the **stigma of the saffron flower (Crocus sativus L).**

Highly valued, Kashmiri kesar sells for around Rs 3 lakhs per kilogram. Obtaining just **one gram of kesar requires about 160-180 flowers, making its production labour-intensive.**

111. STURGEON

Context:

A **WWF report** reveals that **poaching and trafficking are critically endangering four sturgeon species in the Lower Danube**, a key stronghold in south-eastern Europe.

- Sturgeons are **exploited for caviar and meat**, leading to global population declines.

The most frequently poached species is the **Endangered sterlet (Acipenser ruthenus), followed by**

Protection Status:

- **IUCN Red list: Two sturgeon species are already extinct** in the Danube, and the remaining **four are listed as Threatened by the IUCN.**
- **CITES: Appendix-II.**



112. WOODY ENCROACHMENT

Context:

India's open ecosystems, **such as savannahs and grasslands, face an unusual threat from increased tree cover**, a phenomenon **known as woody encroachment.**

- This encroachment, **driven by human activities that disrupt the natural disturbance regimes** (like grazing and fire), is **changing these ecosystems and threatening their biodiversity.**
- A study highlighted that **increased tree cover in areas like the African savannah** has significantly **reduced native grassland bird populations by more than 20%.**
- Grasslands and savannahs, **covering nearly 40% of the Earth's landmass, are home to many endemic and at-risk species.**
- However, **threats like conversion to agriculture,**

large-scale development projects, and overgrazing are contributing to their decline, with trees now emerging as a significant threat.

- **Higher atmospheric CO₂ levels due to climate change promote the growth of deep-rooted woody plants**, exacerbating the problem.

To combat woody encroachment, **long-term ecological monitoring and more scientific evidence are needed.**

113. FOUR-RINGED BUTTERFLY

Context:

A **four-ringed butterfly, the great four-ring (Ypthima cantliei)**, has been rediscovered in **India after 61 years**, according to a study published by the **Bombay Natural History Society (BNHS).**

- The **butterfly was recorded in 2018 in Namdapha National Park, Arunachal Pradesh.**

The great four-ring, part of the **Satyrinae subfamily, was last reported in 1957 from Margherita, Assam.**

This butterfly **features dull brown-grey wings with distinctive yellow-ringed eye spots and is larger than other Ypthima species, which are mostly found in China.**

114. METHANE MITIGATOR

Context: India has **discovered and isolated indigenous methanotrophs**, bacteria that naturally **mitigate methane, a potent greenhouse gas.**

- Researchers have identified **novel methanotrophs from rice fields and wetlands in Western India**, including a new genus and species named **Methylocucumis oryzae.**
- These bacteria are **efficient in oxidizing methane, converting it to CO₂ and water.**
- Methylocucumis oryzae is **notable for its large size, unique oval shape, and strict temperature requirements, as it cannot grow above 37°C.**

This methanotroph has also been found to **enhance rice plant growth, promoting earlier flowering and increased grain yield.**

115. MIOMBO FOREST

Context:

The **United Nations Food and Agriculture Organization (FAO) and the Italian Agency for Development Cooperation (AICS)** have launched two significant projects **to protect the Miombo forest and enhance food security in Mozambique and Zimbabwe.**

- **Miombo Forest Project:** This project focuses on **sustainable management, biodiversity conserva-**

tion, and community-based practices in the Miombo forest, benefiting 5,000 families.

- **Zim-Moza Agriculture Value Chain & Trade Development Project (Zim-Moza ATDP):** This project aims **to improve agricultural value chains and trade between Mozambique and Zimbabwe.**

Both projects **align with Sustainable Development Goals (SDGs) and aim to promote resilience against environmental and economic challenges.**

Miombo Biome:

- **Type:** **Tropical and subtropical grasslands, bushlands, and savannahs.**
- **Distribution:** Found in **Angola, the Democratic Republic of Congo, Malawi, Mozambique, Tanzania, Zambia, and Zimbabwe.**



116. INDIAN SIRIS

Context:

The **century-old Indian Siris tree** in East Godavari district, Andhra Pradesh, recently **collapsed during the Godavari floods.**

- Known for featuring in **over a hundred movies, the tree's fall became viral online as people shared their memories of it.**
- The **Andhra Pradesh State Forest Department is now working to revive the tree through a 45-day chemical treatment**, given the soil fertility and root system.

Indian Siris (Albizia lebbeck):

- **Native Range:** India and Southeast Asia.
- **Family:** Fabaceae.
- **Characteristics:** Deciduous tropical tree.
- **Climate and Soil:** Thrives in warm, humid climates and can grow in clay, loam, and sandy soils.



117. ANTARCTICA'S DEEP-WINTER HEAT-WAVE

Context:

Antarctica is experiencing a record-breaking deep-winter heatwave, with temperatures up to 28°C higher than normal.

- This unusual event is mainly due to the weakening of the polar vortex, which typically traps cold air over the continent.
- The weakened vortex has allowed warmer air to enter, raising temperatures.
- Reduced Antarctic Sea ice, which usually helps maintain lower temperatures, may also be contributing to this heatwave.
- The potential fallout includes further loss of the Antarctic Ice Sheet, which could significantly raise global sea levels, potentially submerging coastal cities.
- The heatwave might also disrupt the global ocean circulation system, which regulates climate by transporting heat and carbon.

118. POLAR COUPLED ANALYSIS AND PREDICTION FOR SERVICES (PCAPS)

Context:

The World Meteorological Organization (WMO) has launched a new project, "Polar Coupled Analysis and Prediction for Services" (PCAPS), aimed at enhancing weather, water, ice, and climate forecasting in the Arctic and Antarctic regions.

- The project seeks to improve security and safety for those living or travelling in polar areas by developing better observation systems and Earth system models.
- PCAPS builds on previous initiatives like the Polar

Prediction Project (PPP) and is part of the broader World Weather Research Programme (WWRP).

- The project addresses the rapid climate change in polar regions, which significantly impacts Indigenous communities and local populations.
- It aims to bridge scientific research with societal needs, improving decision-making and risk assessment related to extreme weather events.

PCAPS will also contribute to the upcoming fifth International Polar Year (IPY) in 2032-2033 and promote collaboration among researchers, service providers, and user groups to develop user-informed, research-driven services.

119. NEELAKURINJI

Context:

Neelakurinji (Strobilanthes kunthiana), a flowering shrub native to the Western Ghats, has been officially listed as "Vulnerable" on the IUCN Red List of threatened species.

- Known for its once-in-12-years mass blooming that attracts significant tourist attention, the species was only recently assessed by the IUCN.
- The shrub is endemic to high-altitude grasslands in southwest India, with blooming cycles that create striking purple-blue landscapes.
- Habitat loss due to tea and softwood plantations, urbanization, invasive species, and climate change have contributed to its vulnerability.

The assessment highlights that approximately 40% of Neelakurinji's habitat has been lost, with the remaining areas under threat from various factors.



120. GYMNEMA SYLVESTRE (GURMAR)

Context:

A team of researchers has discovered several medicinal plants on Brahmayoni Hill in Gaya, Bihar, with the anti-diabetic herb *Gymnema sylvestre* (Gurmar) being a significant

find.

- **Gurmar, known for reducing blood sugar levels through the presence of gymnemic acid, has been utilized in the anti-diabetic drug BGR-34, developed by the Council of Scientific and Industrial Research (CSIR).**
- **The herb also contains flavonoids and saponins, which help regulate lipid metabolism and lower cholesterol.**

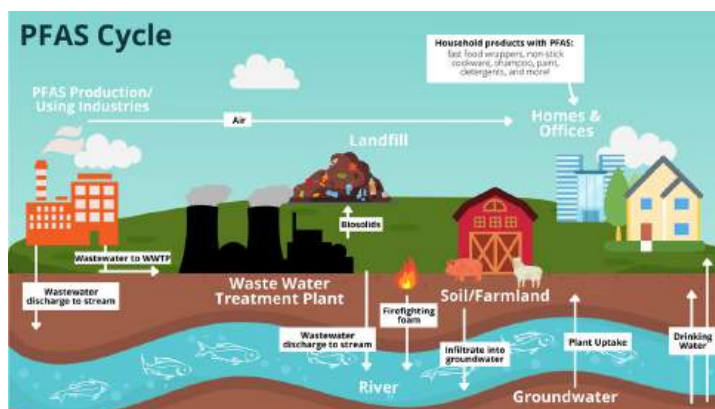
121. FOREVER CHEMICALS

Context:

Researchers have developed a **ground-breaking technique to track and manage “forever chemicals,” scientifically known as per- and polyfluoroalkyl substances (PFAS).**

- **These human-made toxic chemicals, used in various applications like waterproofing, non-stick surfaces, and food packaging, are notorious for their durability, persisting in the environment for thousands of years and causing significant pollution.**
- The researchers employed **nuclear magnetic resonance (NMR) spectroscopy, which uses magnetic fields and radio waves to analyse the molecular structure of these chemicals without breaking them apart.**
- This **method identifies unique “fingerprints” of carbon isotopes in the molecules, enabling the tracking of the chemicals from their source to their destination.**
- This technique, **described as a “built-in barcode” for molecules, offers a new way to trace the spread of PFAS in the environment.**

The **Environmental Protection Agency (EPA) in the U.S. plans to regulate these chemicals,** aiming to remove them from drinking water.



122. BALLAST WATER

Context:

The **expansion of seaports and minor ports is raising concerns about the arrival of invasive species along coastal areas, particularly due to ballast water carried by ships.**

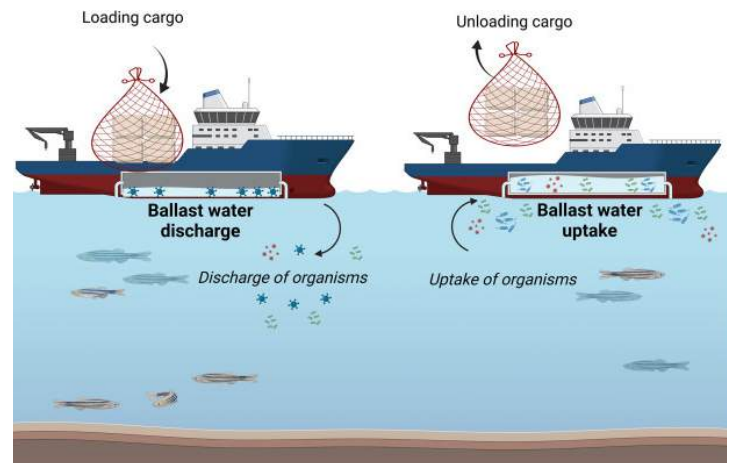
- **A survey recorded 10 invasive species on the Kerala coast, including seaweed, bryozoan, mollusc,**

and ascidian species.

Ballast water, **which ships use for stability, often contains a variety of marine organisms like fish, algae, and bacteria.**

When **discharged at new ports, these organisms can establish themselves in the local ecosystem,** potentially disrupting it by preying on or competing with native species.

Additionally, ballast water can **transport toxic algae, leading to harmful algal blooms and red tides.**



123. THREE NEW WETLANDS IN THE RAMSAR SITE TAG

Context:

India has added **three new wetlands—Nanjarayan Bird Sanctuary, Kazhuveli Bird Sanctuary in Tamil Nadu, and Tawa Reservoir in Madhya Pradesh—to its list of Ramsar sites, bringing the total to 85.**

- These **wetlands account for around 10% of India’s total wetland area across 18 states,** with Tamil Nadu having the most Ramsar sites (18), followed by Uttar Pradesh (10).
- **India, a signatory to the Ramsar Convention since 1982, has seen a significant increase in Ramsar sites over the past decade.**

Nanjarayan Bird Sanctuary (Tamil Nadu)

- Large shallow wetland named **after King Nanjarayan.**
- **Water Source:** Relies on heavy rainfall **and the Nallar drainage.**
- **Ecological Role:** Serves as a **feeding and nesting habitat for resident and migratory birds, and provides water for agriculture.**

Kazhuveli Bird Sanctuary (Tamil Nadu)

- **Location:** Brackish shallow lake on the **Coromandel Coast, north of Pondicherry.**
- **Connections:** Linked to the **Bay of Bengal via Uppukalli Creek and Yedayanthittu estuary.**
- **Ecological Significance:** Lies in the **Central Asian Fly-**

way, serving as a breeding ground for birds and fish, and contributes to aquifer recharge. It also contains degraded mangrove patches with Avicennia species.

Tawa Reservoir (Madhya Pradesh)

- Location: Inside Satpura Tiger Reserve, bordering Satpura National Park and Bori Wildlife Sanctuary.
- Construction: Built at the confluence of the Tawa and Denwa rivers.
- Water Source: The Tawa River, a left-bank tributary of the Narmada River, originates from Mahadeo Hills, with major tributaries being the Malanni, Sonbhadra, and Nagdwari rivers.

124. GREEN TUG TRANSITION PROGRAM (GTTP)

Context:

The Green Tug Transition Program (GTTP), is a significant initiative aimed at replacing diesel-powered harbor tugs in India with zero-emission, environmentally friendly alternatives.

- A tug is a particular class of boat which helps mega-ships enter or leave a port.
- Major ports will procure or charter green tugs powered by emerging technologies such as battery-electric, hybrid, methanol, and green hydrogen.
- The program aligns with India’s broader goals for sustainability and innovation in the maritime sector, as outlined in the Maritime India Vision 2030 and the Maritime Amrit Kaal Vision 2047.
- These visions aim to reduce greenhouse gas emissions, increase the use of renewable energy in ports, and promote domestic manufacturing under the ‘Make in India’ initiative.

By 2040, all tugs operating in Indian Major Ports are expected to transition to green technologies, marking a significant step towards a greener, more sustainable maritime future for India.

125. MALABAR TREE TOAD

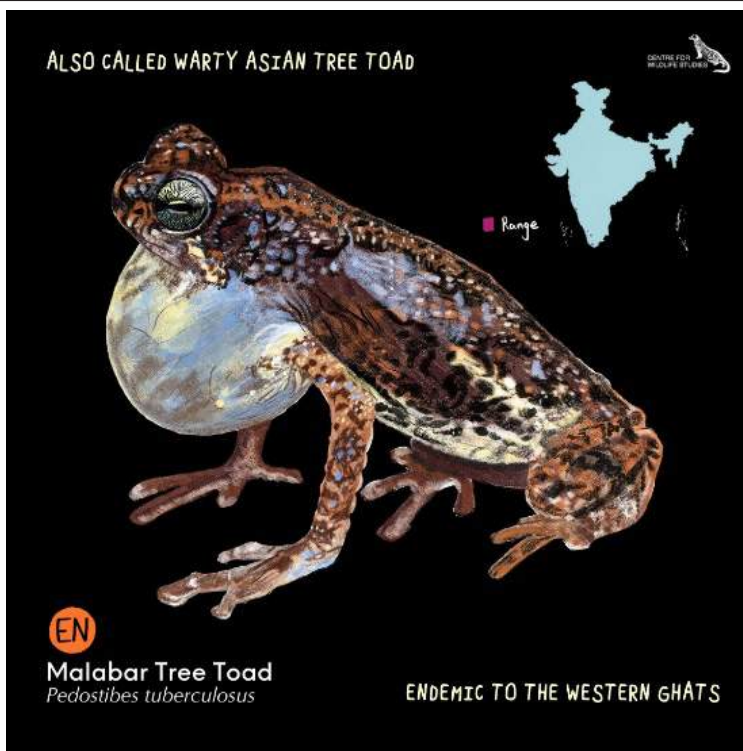
Context:

A recent study indicates that the population of the endemic Malabar Tree Toad (MTT) in India’s Western Ghats may decline by 68.7% by 2080 due to climate change, particularly in protected areas (PAs).

- The Malabar Tree Toad, a unique arboreal species rediscovered in 1980 after being first discovered in 1876, faces severe threats from climate change, habitat fragmentation, pollution, and disease.

The study found that climate change is likely to shift Malabar Tree Toad habitats from central to southern Western Ghats, with some wildlife sanctuaries potentially becoming more suitable, while others might lose suitable habitats.

- The Malabar Tree Toad lives mainly in trees, especially in the dense canopy of tropical rainforests.
- It is active at night, feeding on insects and other small creatures, while during the day, it hides under leaves or in tree crevices to stay safe from predators and avoid drying out.
- The Malabar Tree Toad is listed as “Endangered” on the IUCN Red List.



126. ZOOPHARMACOGNOSY

Context:

Zoopharmacognosy is the study of how animals self-medicate using natural substances.

- This behaviour has been observed across various species, **including primates, lemurs, elephants, and dogs**, who use plants, soil, and insects to **treat infections, aid in reproductive processes, and maintain general health.**
- The term was coined by **ecologist D.H. Janzen**, and it **highlights how animals instinctively use medicinal plants**, a knowledge that has influenced traditional medicine in human civilizations for thousands of years.

For example, a **Sumatran orangutan was observed treating a facial wound with the plant** *Fibraurea tinctoria*, which contains anti-inflammatory properties.

127. BLUEBERRIES

Context:

India has implemented strict measures for **importing pest-free blueberries from Poland**, reflecting the growing demand for the fruit among health-conscious consumers.

- The Indian government now **requires blueberries to be sourced from Polish orchards registered with the National Plant Protection Organization (NPPO) and accompanied by phytosanitary certificates confirming they are free from specific pests and diseases.**

About Blueberries:

Blueberries are **small, round, and typically blue or purple fruits** that are known for their **sweet taste and nutritional benefits.** They belong to the ***Vaccinium* genus** and are often classified as a **superfood due to their high antioxidant content.**

Nutritional Value	- Rich in vitamins C and K. - Good source of dietary fibre. - High in antioxidants, especially anthocyanins, which can help protect cells from oxidative stress.
Health Benefits	- May improve heart health by reducing blood pressure and cholesterol levels. - Can support brain health and cognitive function. - Potential to lower the risk of certain cancers and diabetes. - Aid in digestion due to high fibre content.
Growing	- Blueberries are typically grown in temperate climates. - They prefer acidic, well-drained soil and need regular watering.

128. SONOLUMINESCENCE

Context:

Pistol shrimp (family Alpheidae) exhibit Sonoluminescence by rapidly snapping their claws.

What is Sonoluminescence?

It is the phenomenon **where a small bubble in a liquid**, hit by powerful sound waves, emits a flash of light. This happens because the **sound waves cause the bubble to expand and collapse rapidly**, heating it to thousands of kelvin and releasing light energy.

While the exact process remains unclear, **this effect is not limited to labs.** Pistol shrimp use a similar mechanism, snapping their claws to create a collapsing bubble that generates a loud sound, heat, and sometimes a flash of light.

129. NORTHERN BALD IBIS

Context:

The **northern bald ibis, once extinct in Europe due to hunting**, has **been revived through breeding and rewilding efforts.**

Geographical Range: Historically found in the **European Alps, Northern Africa, and the Middle East.**

Conservation Status: **Endangered according to the IUCN.**



130. DHAINCHA AND GREEN MANURING

Context:

The Tamil Nadu government has recently distributed Dhaincha (green manure) under the **Chief Minister's Mannuyir Kaathu Mannuyir Kaappom (MKMK) Scheme.** Farmers receive **20 kg of green manure per acre at a 50% subsidy** to improve soil health.

About Dhaincha and Green Manuring

1. **Dhaincha:** A tall herb grown in wet areas, used for livestock feed and soil improvement.
2. **Green Manuring:** Involves growing and incorporating leguminous plants into the soil. Benefits include improved soil structure, increased water retention, reduced erosion, weed control, and enhanced soil microorganism activity.

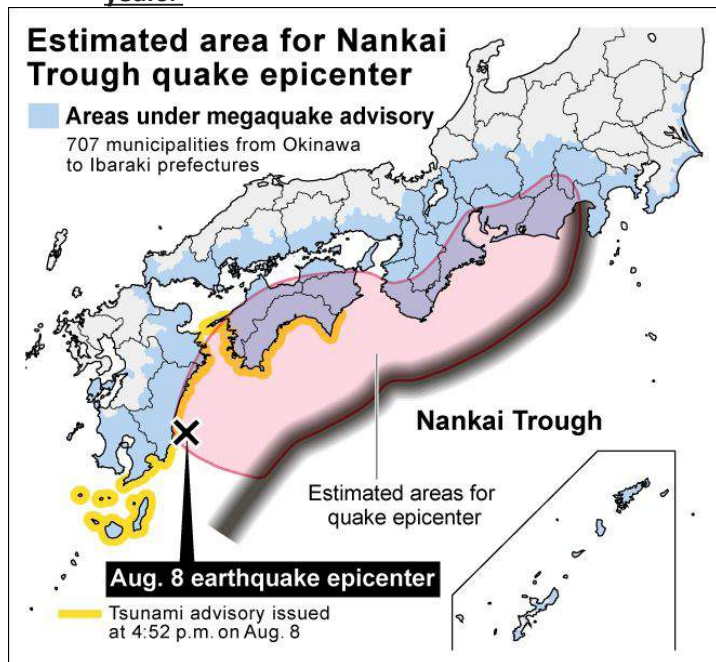
Disaster Management

131. MEGAQUAKE ADVISORY

Context:

Japan issued its first-ever “megaquake advisory” following a 7.1-magnitude earthquake recently.

- The advisory warns of a higher likelihood of strong shaking and large tsunamis along the Nankai Trough, a subduction zone where tectonic plates collide, potentially leading to a megaquake (magnitude 8+).
- While the advisory indicates an increased risk, it does not predict a specific earthquake.
- The Nankai Trough has historically produced large quakes every 100-150 years, and the next major quake has a 70% chance of occurring within 30 years.



132. 'FLOODWATCH INDIA' APP

Context:

Union Minister for Jal Shakti launched version 2.0 of the 'FloodWatch India' mobile application.

- Developed by the Central Water Commission (CWC), the upgraded app enhances flood monitoring capabilities by integrating real-time data from 592 flood monitoring stations, a significant

increase from the 200 stations in the previous version.

- Additionally, the app now includes data on the storage levels of 150 major reservoirs, helping users assess potential flood risks in downstream areas.

'FloodWatch India' employs advanced technologies like satellite data analysis and mathematical modelling to provide accurate and timely flood forecasts.

The app is designed to be user-friendly, offering information in both English and Hindi and is available in both text and audio formats.

133. AROGYA MAITRI DISASTER MANAGEMENT CUBE

Context:

The Arogya Maitri Disaster Management Cube is a cutting-edge, mobile hospital developed by the Indian Air Force (IAF) as part of the Army's broader BHISHM initiative (Bharat Health Initiative for Sahyog, Hita, and Maitri).

- This state-of-the-art cube, is designed to treat up to 200 casualties, making it a rapid response solution for disaster management.
- The cube is equipped with advanced medical equipment and integrates AI and data analytics for effective coordination and real-time monitoring.
- It includes 72 lightweight, transportable components that can be easily moved by hand, cycle, or drone, offering unmatched flexibility in disaster-struck areas.
- The system also features the BHISHM software for efficient inventory management, ensuring readiness for repeated use.

The cube's ability to be quickly deployed and its robust, waterproof design make it ideal for emergency situations, potentially saving lives during the critical "golden hour" following mass casualty incidents.

Defence

134. DIRECTED ENERGY WEAPONS

Context:

The article discusses the advancements and current state of Directed Energy Weapons (DEWs), highlighting their growing importance as countermeasures against autonomous and hypersonic weapons.

Directed energy weapons (DEWs) are defined as electromagnetic systems capable of converting chemical or electrical energy to radiated energy and focusing it on a target,

resulting in physical damage that degrades, neutralizes, defeats, or destroys an adversarial capability.

- The United States has significantly invested in DEWs, developing systems like high-energy lasers (HEL) and high-powered microwaves (HPM), with various applications ranging from missile defence to disabling drones.
- Countries like China, Russia, and others are also advancing their DEW capabilities.
- India has been investing in DEWs through organizations like DRDO and BEL, working on projects like Tri-Netra and KALI.

135. LONG-RANGE GLIDE BOMB (LRGB)

Context:

The Defence Research and Development Organisation (DRDO) successfully conducted the maiden flight test of the long-range glide bomb (LRGB) named Gaurav.

- The test was carried out using a Su-30MKI fighter jet of the Indian Air Force off the coast of Odisha. Gaurav, a 1,000 kg air-launched glide bomb, is designed to strike targets at long distances with high precision using a hybrid navigation system.

The bomb was developed indigenously by the Research Centre Imarat in Hyderabad and hit its target with pinpoint accuracy during the test.

136. TARANG SHAKTI

Context:

India hosted its first-ever multinational air exercise, “Tarang Shakti,” showcasing the capabilities of indigenously manufactured aircraft, including the Sarang helicopters and LCA Tejas.

- The exercise is being conducted in two phases.
- The exercise was a significant achievement, emphasizing India’s focus on “Aatmanirbharta” (self-reliance) and showcasing indigenous military capabilities.
- India’s Rafale, Sukhoi, and LCA Tejas aircraft were part of the first phase.

137. DISTRIBUTED DENIAL-OF-SERVICE (DDOS) ATTACK

Context:

Elon Musk’s live audio interview with former US President Donald Trump on the social media platform X (formerly Twitter) faced technical glitches, reportedly due to a “massive DDoS attack.”

- A DDoS (Distributed Denial-of-Service) attack occurs when multiple sources overwhelm a server with excessive traffic, making it difficult for legitimate users to access the service.
- This can result in slow loading times or complete inaccessibility.
- Such attacks are harder to counter because they originate from multiple sources, often using botnets or spoofed IP addresses.

DoS (Denial of Service) and DDoS (Distributed Denial of Service) attacks disrupt online services by overwhelming them with traffic.

Attackers use various methods, including botnets—networks of compromised devices.

One common method, the “Smurf Attack,” involves sending malicious ICMP broadcast packets with a spoofed IP address to flood the target’s own servers. Another method, “SYN flood,” involves sending incomplete connection requests, and overloading the server.

Signs of a DoS attack include slow internet speed and inability to access services, but these can also be caused by other factors.

Firewalls and security systems can verify attacks, while anti-virus software can detect and prevent them.

DoS attacks can cause significant disruption, as seen in the 2016 attack that affected major websites like Spotify, Twitter, and Amazon.

138. ICG MARITIME RESCUE COORDINATION CENTRE

Context:

Raksha Mantri inaugurated the new Indian Coast Guard (ICG) Maritime Rescue Coordination Centre (MRCC).

- The Regional Marine Pollution Response Centre and the Coast Guard Air Enclave was also inaugurated.
- These facilities are designed to enhance maritime security and ensure efficient responses to emergencies.

Facility	Purpose	Features	Operations
Maritime Rescue Coordination Centre (MRCC)	Improve maritime rescue operations for distressed mariners and fishermen	Advanced equipment for distress monitoring and real-time communication	Manned by highly trained Indian Coast Guard personnel
Regional Marine Pollution Response Centre	Respond to marine pollution, particularly oil and chemical spills	First-of-its-kind in the region; operates 24/7; provides pollution response training	Offers training to various organizations and personnel from friendly countries
Coast Guard Air Enclave	Strengthen maritime security along the coast	Equipped with indigenously built helicopters for maritime patrols and search and rescue missions	Enhances coastal security and rescue operations

139. INDIA COMMISSIONS INS ARIGHAAT

Context:

India has commissioned its second nuclear-powered missile submarine, INS Arighaat at Visakhapatnam

With the addition of INS Arighaat, India’s navy now has two SSBNs (INS Arihant and INS Arighaat). Both submarines are part of the indigenously developed Arihant-class under the Advanced Technology Vessel (ATV) Project. INS Arihant, commissioned in 2016, has successfully launched a Submarine-Launched Ballistic Missile (SLBM) that can carry either four K-4 SLBMs or twelve K-15 SLBMs. India also leased a Russian Akula-class submarine in 2019. These submarines bolster India’s nuclear deterrence and strategic stability in South Asia, but face challenges from China’s advanced submarine capabilities and other technological and investment issues.

India's second nuclear submarine, Arighat

- Length: 111.6 m
- Draught: 9.5 m
- Beam: 11 m
- Top speed (dived): 24 kt
- Top speed (surfaced): 10 kt
- Displacement: 6,000 tonnes

*Janes estimates

Source: Janes © 2024 Janes: 2022814

140. RANSOMWARE ATTACK

Context:

C-Edge Technologies Ltd., a technology service provider for cooperative and regional rural banks in India, was likely hit by a ransomware attack.

- The **National Payments Corporation of India (NPCI)** announced this and temporarily suspended all retail payments in the affected banks.
- The attack **primarily impacts UPI operations and Aadhaar-enabled payment systems (AePS)**, affecting around 200 cooperative banks and regional rural banks (RRBs).

About Ransomware:

Ransomware is a type of malware that locks users or organizations out of their files by encrypting them and demanding a ransom for the decryption key.

This forces victims to pay the ransom to regain access, with some variants also stealing data to increase pressure.

Ransomware has become a major threat, significantly disrupting hospitals, public services, and various organizations.

141. VILLAGE DEFENCE GUARDS

Context:

Union Minister announced that the **Village Defence Guards (VDGs) in Jammu** have been equipped with sophisticated weapons to combat rising terror incidents in the region.

About Village Defence Guards:

- **Formation:** Set up in the mid-1990s as a force multiplier against militant attacks.
- **Purpose:** Provide weapons and arms training to residents of remote hilly villages to defend themselves.

Need to Setup Village Defence Guards:

- **Context:** Militancy spread from Kashmir to Doda district by the mid-1990s.
- **Trigger:** Demand arose after the 1993 massacre of 13 people in Kishtwar.
- **Implementation:** The Home Ministry initiated VDCs in 1995, later expanding to other areas in the Jammu division as militancy spread to Udhampur, Reasi, Rajouri, Poonch, Kathua, and Samba districts.

Contribution:

- **Role in Combat:** Played a significant role in combating militancy during its peak, particularly in Chenab Valley, Pir Panjal regions, and the hills of Udhampur, Reasi, and Kathua districts.


142. REPORTS IN NEWS

<p>Niti Aayog: Strategy for the development of <u>Seaweed Value Chain</u></p> <p><u>Seaweeds</u> are various types of marine plants and macroalgae found in water bodies like rivers and lakes. Seaweed cultivation is part of aquaculture, with the fishing and aquaculture sector contributing 1.5% to India's GDP.</p>	<p>Recommendations: Form a National Steering Committee</p> <ul style="list-style-type: none"> • Include seaweed in Priority sector lending • Provide crop insurance. • Mobilize farmers through SHGs. • Establish seed banks, processing, marketing centers.
<p>World Trade Statistics 2023</p> <p>The World Trade Organization, established in 1995, is an intergovernmental organization that regulates and facilitates international trade, working with governments to establish, revise, and enforce rules.</p>	<p>The WTO's "World Trade Statistics 2023" highlights the top five agricultural exporters as the EU, the US, Brazil, China, and Canada. The top ten exporters accounted for 71.9% of global agricultural exports. India ranked 8th, with exports worth \$51 billion, making up 2.24% of the total agricultural exports in 2023.</p>

Women and Men in India 2023	Released by the Ministry of Statistics and Programme Implementation
	Key highlights: India's population is projected to reach 152.2 crores by 2036, with an improved sex ratio of 952 women per 1000 men
	The population under 15 years will decrease , while those aged 60 and above will rise significantly.
	Maternal Mortality Ratio has reduced to 97 per lakh live births, nearing the SDG target
	Labour Force Participation Rate has increased for both men and women, with female participation rising from 23.3% to 37% from 2017-2023
	Women's electoral participation rose to 67.2% in 2019 , and 47.6% of recognized startups are led by women.
	<p>Age-wise profile of population by sex (%)</p>
Study: Human Deaths Linked to Declining Vulture Population	Findings: <u>Human Mortality:</u> An estimated half a million premature deaths occurred between 2000 and 2005 due to the decline of vultures in India.
	<u>Keystone Species:</u> Vultures are crucial for cleaning up carcasses and controlling scavenger populations.
	<u>Public Health Impact:</u> Their decline led to a 4% rise in human mortality from worsened sanitation and pathogen spread.
	<u>Economic Impact:</u> The public health crisis from declining vultures has caused an estimated \$70 billion in annual economic losses.
	<u>About Vultures:</u> India is home to 9 species of vultures , including 3 migratory species (Cinereous, Griffon, and Himalayan vultures). Protected under Schedule I of the Wildlife Protection Act, 1972 , vultures face threats like habitat loss, food scarcity, harmful drugs like diclofenac, and electrocution. Conservation efforts include bans on harmful veterinary drugs, the Action Plan for Vulture Conservation (2020-25) , breeding centres such as in Pinjore, Haryana, and vulture restaurants in Koderma and Raigad to provide safe feeding grounds.

MAPPING

INTERNATIONAL

Place	Why in News?
<p>1. CHINA COMPLETES BRIDGE NEAR PANGONG LAKE</p>	<p>Context: China has constructed a 400-meter bridge near the Line of Actual Control (LAC) in Ladakh, facilitating rapid movement of Chinese troops between the North and South banks of Pangong Lake.</p> <p>This bridge, situated in territory held by China since 1958, reduces travel distance by 50-100 kilometres. The Indian Ministry of External Affairs reiterated that this area has been under illegal occupation by China for about 60 years.</p> <p>About Pangong Lake: It is an endorheic lake spanning eastern Ladakh and West Tibet situated at an elevation of 4,225 m. It is 134 km long and divided into five sub lakes, called Pangong Tso, Tso Nyak, Rum Tso and Nyak Tso</p> 

2. LAKE TURKANA- NA

Context: A comprehensive survey of Lake Turkana, Africa's fourth-largest lake, has been conducted for the first time in 50 years, revealing high fish potential.

- Led by UNESCO and the World Food Programme, and funded by the Dutch Government, the **10-year project aims to enhance the economic well-being and food security of the region's population.**

Lake Turkana is the largest desert lake in the world and is known for its unique greenish-blue colour.

It is part of the Omo-Turkana basin, which stretches into four countries: Ethiopia, Kenya, South Sudan and Uganda.



3. ST MARTIN'S ISLAND

Context: St. Martin's Island, Bangladesh's only coral island, recently gained attention amid political turmoil in the country.

- Former Prime Minister Sheikh Hasina was rumoured to have claimed in an undelivered speech that the U.S. sought her ouster because she refused to hand over the island for a military base.

The island, located in the Bay of Bengal near Myanmar, is geopolitically significant due to its proximity to the maritime boundary and international interest from powers like the U.S. and China.

It has a history of territorial disputes, particularly with Myanmar, and concerns about sovereignty persist.

The island has also been affected by the Rohingya refugee crisis, with reports of military tensions in the area.



4. KURSK REGION

Context: Russia declared a "federal-level" emergency in the Kursk region following a major Ukrainian incursion, marking one of Kyiv's most significant attacks on Russian soil since the war began.

- Russian reinforcements have been sent to the area, and fighting is ongoing near the border town of Sudzha.



5. PANAMA CANAL

Context: The [Panama Canal](#), a crucial shipping route connecting the Atlantic and Pacific Oceans, faces an **existential threat from climate change**.

- The canal relies on a system of locks and artificial lakes, particularly Lake Gatun, which provides the freshwater needed to operate the locks.
- However, **persistent droughts, exacerbated by climate change, have significantly lowered water levels in Lake Gatun, reducing the canal's capacity to handle ships.**



6. SOUTH CHINA SEA

Context: Tensions in the South China Sea, exacerbated by **China's territorial claims and military actions**, pose a significant **threat to international trade**.

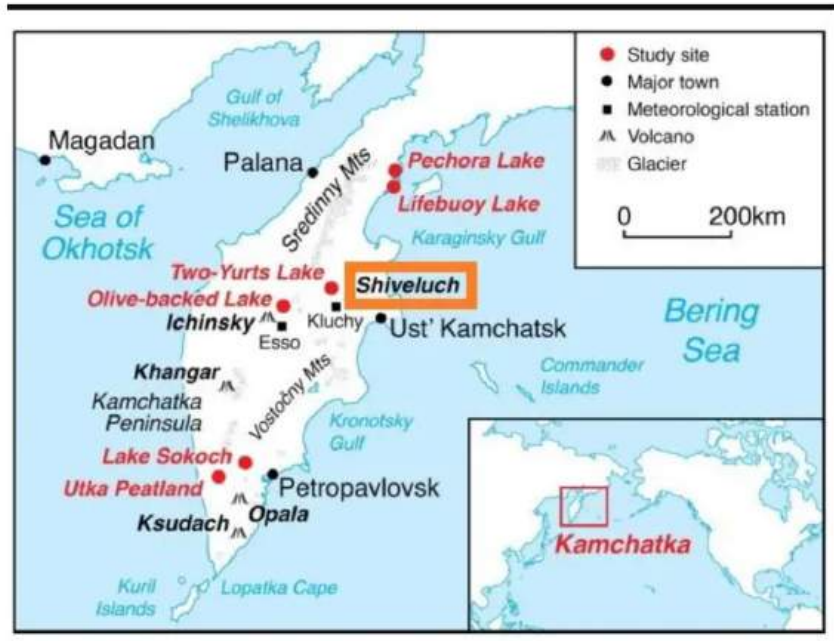
- The region is crucial for global maritime trade, with about a **third of global shipping, including 40% of the world's petroleum products, passing through its waters annually.**



7. SHIVELUCH VOLCANO

Context: The Shiveluch volcano in Russia erupted following a 7.0-magnitude earthquake that struck off the eastern coast.

- The earthquake's epicentre was located about 55 miles from Petropavlovsk-Kamchatsky, a city on the Kamchatka Peninsula.



Shiveluch Volcano

8. BOTSWANA

Context: A massive 2,492-carat diamond, the second-largest ever found, has been unearthed at the Karowe mine in Botswana.

- This find is second only to the 3,106-carat Cullinan diamond discovered in South Africa in 1905.

About Botswana:

It is a landlocked country in Southern Africa, predominantly inhabited by the Tswana ethnic group. It borders South Africa, Namibia, and Zimbabwe, and is connected to Zambia via the Kazungula Bridge.

Its landscape is defined by the Kalahari Desert and the Okavango Delta, which becomes a lush animal habitat during the seasonal floods. The massive Central Kalahari Game Reserve, with its fossilized river valleys and undulating grasslands, is home to numerous animals including giraffes, cheetahs, hyenas and wild dogs.



9. CHILE'S ATACAMA SALT FLAT

Context: A study by the University of Chile, published in IEEE, reveals that lithium mining is causing the Atacama salt flat to sink by 1-2 cm annually.


This is due to brine extraction outpacing aquifer recharge. The mining also exacerbates water scarcity in the desert, contaminates ecosystems, and threatens biodiversity, including flamingo populations. Lithium extraction, vital for electric vehicle batteries, poses serious environmental risks, especially in the fragile Atacama Desert, which already suffers from extreme dryness and limited freshwater.

About Atacama Desert:

It is located in northern Chile along the Pacific coast, and is the driest desert on Earth, with some areas receiving less than 1 mm of rainfall annually. Its high-altitude ranges from 2,400 to over 4,500 meters. The desert is also home to the Salar de Atacama, one of the largest salt flats and a key source of lithium.



INDIAN

Place	Why in News?
<p>10. KRISHNA RAJA SAGAR (KRS) DAM</p>	<p>Context: Karnataka has begun releasing Cauvery water to Tamil Nadu from <u>the Krishna Raja Sagar (KRS) dam and Kabini reservoir</u>, following a directive from the Cauvery Water Management Authority (CWMA).</p> <p><u>Krishnaraja Sagar (KRS) Dam:</u></p> <ul style="list-style-type: none"> • <u>Type:</u> Gravity dam on the river Kaveri and tributaries Hemavathi and Lakshmana Theertha in Mandya, Karnataka. • <u>Construction:</u> Named after Maharaja Krishna Raja Wadiyar IV, built between 1911 and 1931, designed by Sir M. Visvesvaraya. • <u>Objectives:</u> Irrigation, hydroelectric power, drought mitigation. • <u>Features:</u> 2,621 meters long, 40 meters high, with 177 arch-type iron sluices, some automatic. Constructed with stone masonry and surki mortar. • <u>Reservoir:</u> Covers 130 sq. km, Brindavan Gardens attached. • <u>Usage:</u> Main source of irrigation for Mysore and Mandya, drinking water for Mysore and Bangalore, and power for the Shivanasamudra station. Water flows to Tamil Nadu's Mettur dam.  <p>INDIA LOCATION MAP OF KRISHNA RAJA SAGARA DAM</p> <p>Map not to Scale Copyright © 2015 www.mapsofindia.com (Updated on 22nd January 2015)</p>

11. OM-KARESHWAR FLOATING SOLAR PARK, MADHYA PRADESH

Context: SJVN Green Energy Limited (SGEL), a subsidiary of SJVN Limited, has commissioned the 90 MW Omkareshwar Floating Solar Project in Khandwa, Madhya Pradesh.

The project, one of the largest floating solar initiatives in Central and North India, is expected to generate 196.5 million units of energy in its first year.



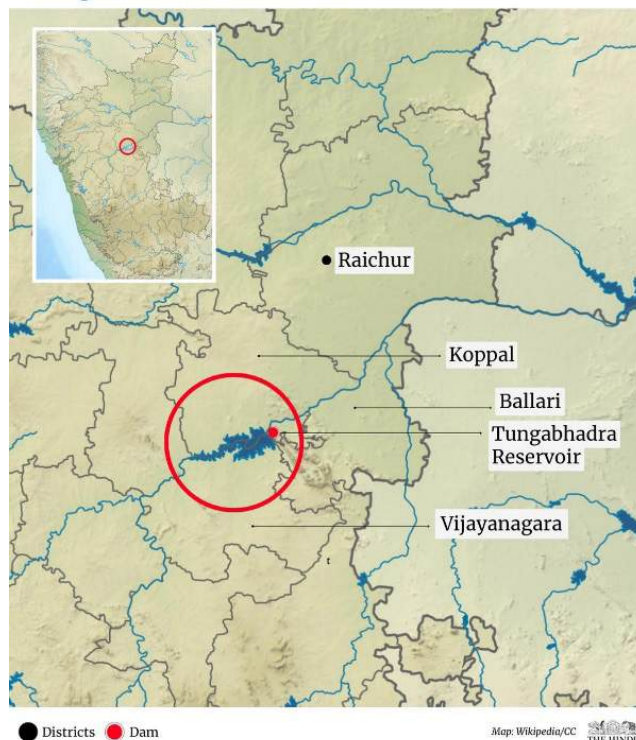
12. TUNG-ABHADRA DAM

Context: The Tungabhadra Dam in Karnataka experienced a significant failure when one of its gates was washed away, due to a snapped chain link.

- This gate had been a crucial part of the dam’s infrastructure for over 70 years. The breach led to the uncontrolled release of 35,000 cusecs of water, raising flood alarms in both Karnataka and Andhra Pradesh, particularly in low-lying areas.

Tungabhadra Dam also known as Pampa Sagar is a multipurpose dam built across Tungabhadra River in Hosapete, Ballari district of Karnataka. It was built by Dr. Thirumalai Iyengar in 1953.

Tungabhadra Reservoir



13. GALATHEA BAY - GREAT NICOBAR ISLAND

- **Context:** A wildlife sanctuary in Galathea Bay, Great Nicobar Island, was denotified to clear the way for a transshipment port project.
- It is a ₹72,000-crore mega project piloted by NITI Aayog for the “holistic development” of the Great Nicobar Island (GNI), situated at the southern end of the A&N group of Islands in the Bay of Bengal.
- It is being implemented by the Andaman and Nicobar Islands Integrated Development Corporation (ANIIDCO).
- The plan has four components – A ₹35,000 crore transshipment port at Galathea Bay, a dual-use military-civil international airport, a power plant, and a township.

Concerns:

- The project intends to use about 114 sq. km of tribal reserve forest land, where the Shompen (a [PVTG](#)) and the Nicobarese reside.
- The northern end of the project falls in the biosphere reserve.
- The area, a significant nesting site for endangered species like the giant leatherback turtle, was originally classified as a CRZ-1A zone, where large construction projects are prohibited.



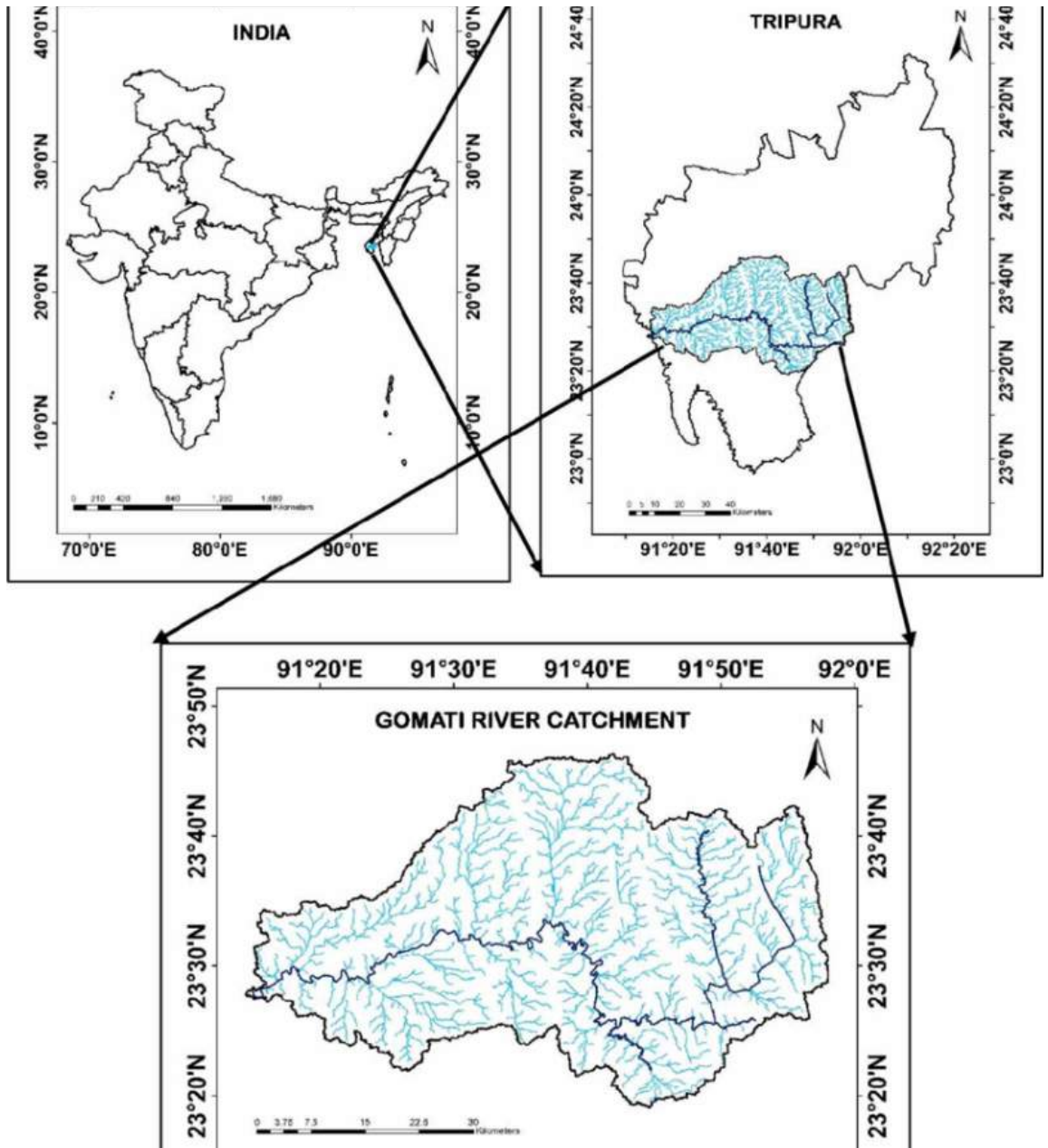
Map by T Ramachandran/Mongabay

Source: Gazette notifications (MoEFCC), OpenStreetMap

14. GUMTI RIVER (TRIPURA)

Context: The Ministry of External Affairs (MEA) denied that the floods in Bangladesh were caused by the opening of the **Dumbur dam (on the Gumti River) in Tripura**.

The Gumti River originates from the **Longtharai and Atharamura ranges** in Tripura and runs over **167 km to the Indo-Bangladesh border**. It flows through Bangladesh and joins the Meghna River near Daudkandi.



15. HOLLONGAPAR GIBBON WILDLIFE SANCTUARY

Context: Assam’s wildlife department has recommended **forest clearance for Vedanta’s oil and gas exploration project in the eco-sensitive zone** of the **Hollongapar Gibbon Wildlife Sanctuary**, citing national interest.

The project, in the habitat of **endangered Hoolock Gibbons and wild elephants**, involves diverting over 4 hectares of forest land. Conditions include preventing pollution and managing risks like oil leaks and gas explosions. The proposal is pending with the Union Environment Ministry’s Forest Advisory Committee.

Key Facts about Hoolock Gibbon:

Facts	Description
About	Gibbons, the smallest and fastest of all apes , inhabit tropical and subtropical forests in Southeast Asia. They have high intelligence, distinct personalities, and strong family bonds. They are one of the 20 gibbon species found worldwide.
Population and Habitat	The current population of hoolock gibbons is around 12,000. They are found in Northeast India, Bangladesh, Myanmar, and Southern China .
Gibbon Species in India	Two distinct species in India’s northeast: the eastern hoolock gibbon (Hoolock leuconedys) and the western hoolock gibbon (Hoolock hoolock).
Threats	All 20 gibbon species , including hoolock gibbons, are at high risk of extinction due to conservation challenges. Significant population and habitat decline due to deforestation for infrastructure projects in India.
Conservation Status	International Union for Conservation of Nature’s Red List: Western Hoolock Gibbon: Endangered ; Eastern Hoolock Gibbon: Vulnerable . Both species are listed on Schedule 1 of the Indian (Wildlife) Protection Act 1972 .
	The Global Gibbon Network (GGN) recently convened its inaugural meeting in Haikou, China’s Hainan province, to address its critical situation. The GGN was initiated at the International Gibbon Day 2020 event , with representatives from 20 gibbon conservation organizations.
About Hollongapar Gibbon Sanctuary	The Hollongapar Gibbon Sanctuary, formerly known as the Gibbon Wildlife Sanctuary or Hollongapar Reserved Forest , is an isolated evergreen forest in Assam , India. Established in 1997, the sanctuary was initially set aside in 1881, with its forests once extending to the Patkai mountain foothills. It is home to India’s only ape and gibbon species, the hoolock gibbons, and the Bengal slow loris, Northeastern India’s only nocturnal primate. The forest’s upper canopy is dominated by hollong trees, the middle by nahar trees, and the lower by evergreen shrubs and herbs .