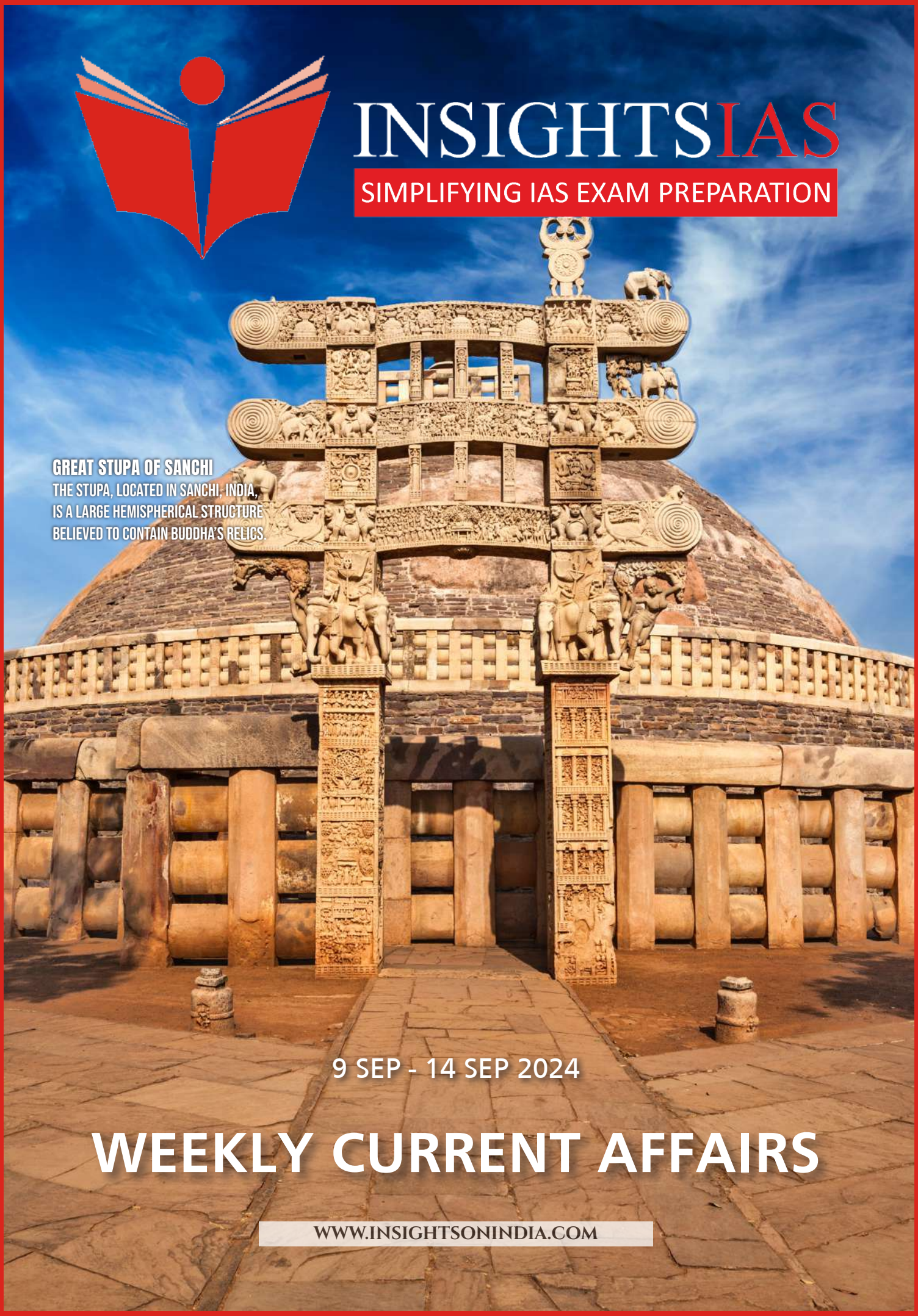
INSIGHTSIAS

SIMPLIFYING IAS EXAM PREPARATION



GREAT STUPA OF SANCHI

THE STUPA, LOCATED IN SANCHI, INDIA, IS A LARGE HEMISPHERICAL STRUCTURE BELIEVED TO CONTAIN BUDDHA'S RELICS.

9 SEP - 14 SEP 2024

WEEKLY CURRENT AFFAIRS

WWW.INSIGHTSONINDIA.COM

INSIDE

GENERAL STUDIES – 1

GENERAL STUDIES – 2

GENERAL STUDIES – 3

CONTENT FOR MAINS ENRICHMENT

FACTS FOR PRELIMS

GS-1

GS-2

GS-3

MAPPING

GENERAL STUDIES – 1

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.

1. POLAR ICE MELT IMPACT ON MONSOON PATTERNS AND ECONOMY

Context:

A recent study reveals that declining Arctic sea ice **affects Indian monsoon patterns**.

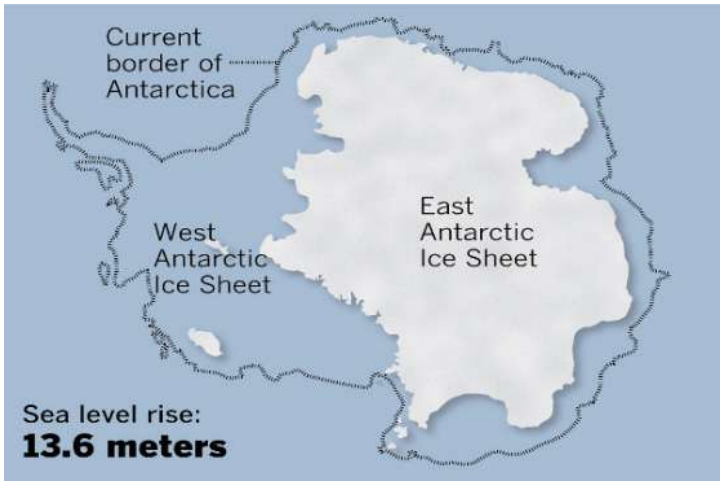
How does Arctic sea ice affect Indian monsoon patterns?

Declining Arctic Sea ice influences Indian monsoon patterns through changes in atmospheric circulation:

1. Central Arctic Ice Reduction: Less sea ice leads to more heat being transferred from the ocean to the atmosphere, which strengthens Rossby waves (air currents high in the atmosphere). This creates high pressure over northwest India and low pressure over the Mediterranean, shifting the Asian jet stream and causing more rainfall in northern and central India, but less in western and peninsular regions.
2. Barents-Kara Sea Ice Reduction: Reduced sea ice in this region causes higher pressure over northwest Europe and alters atmospheric stability over Asia. This results in increased rainfall in northeastern India and less in central and northwest India due to shifts in the subtropical easterly jet and high surface temperatures in the Arabian Sea.

About melting of Arctic and Antarctic ice:

The **melting of Arctic and Antarctic ice** is a **significant indicator and driver of climate change**, with far-reaching impacts on the global climate, marine ecosystems, and economies. The **rapid loss of polar ice, accelerated by global warming**, is not just a **regional concern but a global one,** with implications that are **complex and interconnected.**



Impact of Arctic and Antarctic ice melting

1. **Impacts on Climate**
   - 1.1. **Rise in Sea Levels**: Melting polar ice contributes to global sea level rise, **threatening coastal communities**. The **UN Intergovernmental Panel on Climate Change (IPCC)** reports **significant sea level rise projections** for the coming decades.
   - 1.2. **Albedo Effect Reduction**: Ice reflects sunlight; its loss leads to the **absorption of more solar radiation,** further **warming the planet.**
   - 1.3. **Disruption of Ocean Currents**: Freshwater from melting ice can **disrupt thermohaline circulation**, affecting global climate patterns.
   - 1.4. **Release of Greenhouse Gases**: **Melting permafrost** in the Arctic **releases trapped methane**, a potent greenhouse gas, **exacerbating global warming.**
   - 1.5. **Increased Weather Extremes**: Polar ice melt **influences jet streams,** contributing to extreme weather events worldwide.

2. **Impacts on Marine Life**
   - 2.1. **Habitat Loss for Species**: **Polar bears and penguins** face **habitat loss**, impacting their populations and distribution.
   - 2.2. **Changes in Marine Ecosystems:** Altered **temperature and salinity levels** affect marine biodiversity, including **plankton**—the base of the oceanic food chain.
   - 2.3. **Ocean Acidification**: Increased **CO2 absorption by oceans** leads to acidification, harming marine life, particularly **shell-forming species.**
   - 2.4. **Disruption of Food Chains**: Changing ice conditions affect the **availability of algae and krill,** essential for many marine species.

2.5. **Increased Predation and Competition:** As ice-dependent species **migrate or decline**, it alters the balance of marine ecosystems, leading to increased competition and predation.

3. **Impacts on Global Economy**
   - 3.1. **Coastal Infrastructure and Housing:** Rising sea levels **threaten coastal infrastructure,** requiring massive investments in adaptation.
   - 3.2. **Impact on Fisheries**: Changes in marine ecosystems **affect fish stocks, impacting global fisheries** and dependent economies.
   - 3.3. **Increased Insurance Costs**: Extreme weather events lead to **higher insurance costs** for businesses and governments.
   - 3.4. **New Shipping Routes:** Melting ice opens up new shipping routes in the Arctic, **altering global trade patterns.**
   - 3.5. **Agricultural Changes**: Altered weather patterns **influence agricultural productivity,** affecting **food prices and security.**

Case Study: Greenland Ice Sheet Melting and its Global Implications

The Greenland Ice Sheet, one of the largest ice masses on Earth, has been experiencing accelerated melting in recent years.

Context and Current Situation: The Greenland Ice Sheet covers about 80% of Greenland's surface.
Recent studies, including those referenced by the **IPCC**, indicate that **Greenland is losing ice at an unprecedented rate.**

Global Climate Impacts: According to **NASA**, Greenland's ice loss is responsible for **about 25% of the total global sea level rise.**

Weather Pattern Alterations: The freshwater influx from Greenland's melting ice is suspected to **impact ocean currents** and, in turn, **global weather patterns.**

Marine Life Impacts: The influx of fresh meltwater **affects ocean salinity**, which can disrupt marine ecosystems, particularly in the **North Atlantic.**

Impact on Fisheries: Changes in water temperature and salinity due to the influx of fresh water can **affect fish populations**, impacting fisheries in the North Atlantic.

Economic Impacts:

Cost of Coastal Adaptation: The sea level rise influenced by Greenland's melting demands significant **adaptation costs for coastal cities** worldwide.

Fishing Industry Changes: The fishing industry, particularly in the North Atlantic, faces potential changes in **fish migration patterns and stock availability.**

Recent Developments and Global Response: There has been an increased focus on monitoring Greenland's ice loss through **satellite missions like NASA's ICESat-2.**
International efforts, such as those under the **UNFCCC**, are crucial in addressing the root causes of climate change contributing to the ice melt.

Suggestions

1. **Mitigating Climate change :**
   - a. **International Agreements**: Strengthening commitments under the **Paris Agreement.** For example, countries **increasing their Nationally Determined Contributions (NDCs) to reduce emissions.**
   - b. **Renewable Energy Initiatives: Germany's Energiewende program**, which aims to transition to renewable energy, serves as a model for reducing reliance on fossil fuels.
2. **Protecting Marine Ecosystems**
   - a. **Marine Protected Areas (MPAs)**: The establishment of the **Great Barrier Reef Marine Park** in Australia demonstrates effective conservation of marine biodiversity.
   - b. **Sustainable Fishing Practices: Norway's implementation of sustainable fishing quotas** and strict regulations to protect fish stocks.
3. **Adapting Coastal Infrastructure**
   - a. **Flood Defense Systems:** The **Netherlands' Delta Works**, a series of **dams and storm surge barriers,** exemplify advanced coastal protection infrastructure.
   - b. **Managed Retreat Strategies:** The planned **relocation of the Alaskan village of Newtok** due to rising

sea levels is an example of managed retreat.

4. **Promoting Sustainable Economic Practices**
    a. **Circular Economy Models:** Japan's focus on recycling and waste reduction under the concept of a **"Sound Material-Cycle Society."**
    b. **Green Bonds and Sustainable Investments:** The issuance of green bonds, such as those by the World Bank, to fund environmental projects.
5. **Scientific Research and Monitoring**
    a. **Polar Research Programs**: The **European Space Agency's CryoSat mission**, monitoring polar ice and snow, contributes valuable data on ice melt and sea level rise.
    b. **Climate Research Institutes:** The **Scripps Institution of Oceanography in the USA** conducts cutting-edge research on climate change and its impacts.

Conclusion

- The melting of Arctic and Antarctic ice poses **serious challenges to our global climate system, marine ecosystems, and economies**. However, these challenges also present **opportunities to foster global cooperation, advance scientific understanding,** and **implement innovative solutions.**
- Addressing these issues requires a **multi-faceted approach, combining mitigation, adaptation, and sustainable development strategies.** Through collective efforts and commitment to sustainable practices, it is possible to mitigate the impacts of ice melting and pave the way for a more resilient and sustainable future.

Insta Link:

- What is happening to Arctic Sea ice?

Mains Link:

Q. How do the melting of the Arctic ice and glaciers of the Antarctic differently affect the weather patterns and human activities on the Earth? Explain. (2021)
Q. What are the economic significances of the discovery of oil in the Arctic Sea and its possible environmental consequences? (2015)

Prelims Link:

The term 'IndARC', sometimes seen in the news, is the name of (USPC 2015)
(a) an indigenously developed radar system inducted into the Indian Defence
(b) India's satellite to provide services to the countries of the Indian Ocean Rim
(c) a scientific establishment set up by India in the Antarctic region
(d) India's underwater observatory to scientifically study the Arctic region
Ans: D

GENERAL STUDIES – 2

Topics: Parliament and State Legislatures – structure, functioning, conduct of business, powers & privileges and issues arising out of these.

1. ANALYSIS OF PUBLIC ACCOUNTS COMMITTEE (PAC)

Context:

The **newly constituted** Public Accounts Committee (PAC) has taken a proactive step by selecting 161 subjects for review, including **five key areas like banking reforms and energy transition,** mainly based on CAG reports.

Headed by **Congress MP K.C. Venugopal, the PAC** aims to scrutinize the government's expenditure beyond formalities, focusing on its effectiveness and integrity. This oversight is crucial given the **allegations of crony capitalism and lack of accountability** in recent years.

About Public Accounts Committee (PAC):

Aspect	Details
Role	Audits government revenue and expenditure, examining C&AG audit reports after being presented in Parliament.
Assistance	Comptroller and Auditor General (C&AG) assists in investigations.
Function	Ensures government spending is within the scope of Parliament's grants.
Genesis	Established in 1921, became a Parliamentary Committee under the Speaker's control in 1950.
Membership	22 members (15 from Lok Sabha, 7 from Rajya Sabha), elected annually.
Chairperson	Appointed from Lok Sabha, traditionally from the Opposition since 1967-68.
Exclusions	Ministers are not members; if a member is appointed a Minister, they must vacate their seat.
Key Functions	1. Scrutinizes government accounts and C&AG reports. 2. Reviews legality, authority, and prudence of expenditure.
Examination Focus	Ensures appropriations are spent for the approved purpose, follow authority, and maintain economy and efficiency.

PAC and Financial Accountability - Roles and Concerns:

1. Examination of CAG Reports:
    - The PAC examines annual audit reports by the Comptroller and Auditor General (CAG), which are presented to Parliament by the President.
2. Scrutiny of Expenses:
    - Reviews public expenditure not only for technical irregularities but also for economy, prudence, and propriety.
    - Highlights waste, loss, corruption, and inefficiency
    - Limitations: Conducts post-mortem scrutiny and has no role in controlling expenses beforehand.
3. Streamlining Government Activities:
    - Works with Public Estimates and Public Undertakings Committees to oversee government expenditures.
    - Promotes efficiency and financial propriety.
    - Limitations: Lacks power for day-to-day intervention and its recommendations are advisory, not binding.
4. Need-based Policy-making:
    - Offers constructive suggestions for optimal use of resources and passive improvements in government policies.
    - Limitations: Has no direct role in policymaking, and it cannot issue orders—Parliament decides on its findings.

Conclusion

Moving forward, the PAC should **reinvent itself to more effectively handle the complexity** of scrutinizing the accounts and audit of expenditures through **capacity building, accessing the inputs of experts and information exchanges**.

Insta Links:

- The Role of Parliamentary Committees

Mains Link:

Q. Why do you think the committees are considered to be useful for parliamentary work? Discuss, in this context, the role of the Estimates Committee. (UPSC 2018)

Prelims Link:

Q. With reference to the Parliament of India, which of the following Parliamentary Committees scrutinizes and reports to the House whether the powers to make regulations, rules, sub-rules, by-laws, etc., conferred by the Constitution or delegated by the Parliament are being properly exercised by the Executive within the scope of such delegation? (UPSC 2018)

(a) Committee on Government Assurances

(b) Committee on Subordinate Legislation
(c) Rules Committee
(d) Business Advisory Committee
Ans: (b)

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

2. HEALTH COVERAGE FOR ALL SENIOR CITIZENS AGED 70

Context:
The Union Cabinet has **approved health coverage for all senior citizens aged 70 and above under the Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY**)

More about Health Cover for Senior Citizens under AB PM-JAY:

	Description
Eligibility Criteria	All senior citizens aged 70 and above, regardless of income.
Beneficiaries	Approximately 6 crore senior citizens.
Benefits Offered	Family-based cover of Rs 5 lakh annually.
	An additional **top-up of Rs 5 lakh annually** for those already covered by AB PM-JAY.
Ease of Access	Eligible seniors will receive a **distinct AB PM-JAY card**.
	Option to choose between existing public health schemes or AB PM-JAY.
Other Eligible Groups	Senior citizens under private health insurance or Employees' State Insurance schemes.
About AB PM-JAY Scheme	
Ministry	Ministry of Health & Family Welfare
Type	Centrally Sponsored Scheme under Ayushman Bharat Mission
Target	**12 crore families** (approximately 55 crore beneficiaries)
Purpose	To achieve Universal Health Coverage (UHC)
Benefits	Health cover of **Rs 5 lakh/family/year** for secondary and tertiary care
	Covers up to **3 days pre-hospitalization and 15 days post-hospitalization expenses**.
Significance	World's largest publicly funded health assurance scheme
Other Schemes for Senior Citizens	
Atal Vayo Abhyuday Yojana	To improve the quality of life of senior citizens.
SAGE Initiative	To promote and incentivize senior care products and services.
SACRED Portal	To connect senior citizens with job providers in the private sector.

Health Care Concerns for Senior Citizens:

1. **Rise in Chronic Illness:** 1 in 5 elderly persons has mental health issues, with 75% suffering from chronic diseases (LASI, 2021).
2. **Need for Geriatric Care:** Increased expenses for treating non-communicable diseases and conditions like cataracts and hearing loss create financial challenges.
3. **Low AB PM-JAY Penetration:** Limited reach in smaller cities and towns hampers universal health coverage.
4. **Lack of Outpatient Care:** No coverage for outpatient services and medicines, despite high elderly spending on chronic diseases.
5. **Limited to Hospitalization:** Focus on secondary and tertiary care; inadequate primary health care for seniors.
6. **Functional Issues:** Misinformation, overburdened staff, and limited role of Arogyamitras affect AB PM-JAY's effectiveness.
7. **Insurance Model Limitations:** Over-reliance on insurance schemes, unlike models focusing on primary care, can lead to higher costs.

Measures to Rejuvenate India's Insurance Sector:

1. Parametric Insurance: Use data analytics and IoT for quick payouts based on triggers like rainfall for crop insurance.
2. Employer-Driven Group Insurance: Promote group insurance for informal sectors, inspired by Germany's Bismarck Model.
3. Public-Private Partnerships (PPPs): Collaborate with government agencies for affordable, need-based insurance in underserved areas.
4. Awareness Campaigns: Large-scale efforts to improve insurance literacy and dispel myths.
5. Improve AB PM-JAY: Empower Arogya mitras for better claim support.
6. Expand Healthcare Infrastructure: Increase health centers to reduce doctor-patient imbalance.
7. Strengthen Primary Care: Enhance primary and secondary care to reduce tertiary hospital loads.

Other Suggested measures for Elderly:

Measures	Description
Ensure comprehensive Social Security Systems	E.g., Kalaignar Magalir Urimai Thittam is a women's rights grant scheme just rolled out in Tamil Nadu aimed at providing financial support to eligible women recognized as heads of families
	Karnataka Gruha Lakshmi Scheme supports women heads of families by providing eligible women will receive financial assistance of ₹2000 per month.
	Intergenerational programs: Programs that promote intergenerational bonding, such as mentorship programs and community service projects
Access to Healthcare	Improve access to healthcare services, including geriatric care, preventive screenings, and mental health support, to address the specific health needs of older women.
Social Inclusion	Promote social inclusion and active participation of older women through community-based programs, intergenerational activities, and support networks.
Civil Society Engagement	Community-based initiatives and CSO engagement through Senior citizen clubs and programs, can provide social support and help prevent social isolation among the elderly
	E.g. Asha Deep Foundation provides Day Care Centre for the elderly members of our community who are either neglected, have no children or are abandoned by their families.
Demographic Stability	Focus on policies and programs that address population ageing and the needs of older women, such as promoting family planning, women's empowerment, and intergenerational solidarity.
Community-based care system for elders	ASHA program could be used for building a community-based workforce to support the diverse health and social care needs of elders
Age-friendly cities	Cities can be designed to be age-friendly, with infrastructure and public spaces that are accessible to all, including elderly citizens.

Government Scheme for Old Age:

Scheme	About
National Social Assistance Programme (NSAP)	Offers non-contributory pensions for the elderly, widowed women, and disabled individuals. Administered by the Ministry of Rural Development.
Pradhan Mantri Vaya Vandana Yojana (PMVVY)	Exclusive pension scheme for senior citizens aged 60 and above. Extended up to 2023 for three more years beyond 2020.
Integrated Program for Older Persons (IPOP)	Aims to enhance the quality of life for senior citizens by providing basic amenities such as food, shelter, medical care, and entertainment opportunities.
Rashtriya Vayoshree Yojana	Central sector scheme funded by the Senior Citizens' Welfare Fund. Provides aids and assistive living devices to elderly BPL individuals with age-related disabilities.
SAMPANN Project	Launched in 2018, an online pension processing system for Department of Telecommunications pensioners. Direct credit of pension into bank accounts of pensioners.

SACRED Portal for Elderly	Developed by the Ministry of Social Justice and Empowerment. Citizens above 60 can register to find jobs and work opportunities, and access information and guidance on various issues.
Elder Line: Toll-Free Number for Elderly	Provides information, guidance, emotional support, and immediate assistance for elderly citizens, particularly on pension, medical, and legal matters.
SAGE (Seniorcare Ageing Growth Engine) Initiative	A platform offering access to elderly care products and services by credible start-ups, supporting entrepreneurship in the field of elderly care.

Programmes for Social Security Cover

Context: Pradhan Mantri Suraksha Bima Yojana (PMJJBY), Pradhan Mantri Jeevan Jyoti Bima Yojana (PMSBY) and Atal Pension Yojana (APY) complete 8 years of providing social security cover

The three schemes were launched in May 2015, to ensure affordable insurance and security for people from the unorganized sector of the country.

Comparison of the three schemes:

Scheme	Pradhan Mantri Suraksha Bima Yojana	Pradhan Mantri Jeevan Jyoti Bima Yojana	Atal Pension Yojana
Type of Scheme	Accidental insurance 	Life insurance 	Pension scheme. The minimum pension is guaranteed by the Government. 
Objective	To provide insurance against accidental death and disability at affordable rates	To provide life insurance at affordable rates	To provide a pension to unorganized sector workers
Eligibility Criteria	Age between 18 to 70 years	Age between 18 to 50 years	Age between 18 to 40 years
Insurance Coverage	Rs. 2 lakh for accidental death and full disability, Rs. 1 lakh for partial disability	Rs. 2 lakh for natural or accidental death	Depends on the contribution made by the subscriber
Premium	Rs. 12 per annum	Rs. 330 per annum	Depends on the age and contribution of the subscriber
Tax Benefits	No tax benefits are available	Tax benefits available under Section 80C	Tax benefits available under Section 80CCD
Achievement	More than 34 crore enrolment	More than 16 crore enrolment	More than 5 crore enrolment

Conclusion:

By recognizing the specific needs of older persons and providing targeted support, we can create a society that values and empowers them, ensuring their well-being and active participation in all spheres of life.

Insta Links:

- Assessing India's Social Security Programs

Prelims Links:

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)

Q. Regarding 'Atal Pension Yojana', which of the following statements is/are correct? (UPSC 2016)
1. It is a minimum guaranteed pension scheme mainly targeted at unorganized sector workers.
2. Only one member of a family can join the scheme.
3. Same amount of pension is guaranteed for the spouse for life after the subscriber's death.

Select the correct answer using the code given below:
(a) 1 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3
Ans: (c)

Topics: Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests.

3. INDIA- UAE RELATIONSHIP

Context:

New Agreements have been signed during **Crown Prince of Abu Dhabi's official visit to India**

India and UAE signed four key agreements in the energy sector:

1. LNG Supply Agreement: Abu Dhabi National Oil Company (ADNOC) will supply 1 million metric tonnes of LNG annually to Indian Oil Corporation Ltd.
2. Crude Oil Storage: ADNOC and India Strategic Petroleum Reserve Ltd (ISPRL) will explore new crude storage opportunities and renew their existing agreements.
3. Nuclear Energy Cooperation: Emirates Nuclear Energy Company (ENEC) and Nuclear Power Corporation of India Ltd (NPCIL) will collaborate on nuclear power plant operations and explore mutual investments.
4. Oil Production Concession: Urja Bharat secured a concession for Abu Dhabi Onshore Block One to boost India's energy security.

Additionally, the **Gujarat government and Abu Dhabi Developmental Holding** signed an MoU to develop food parks in India.

Various dimensions of the India-UAE relationship

Dimension	Examples
Diplomatic	Establishment of **diplomatic relations in 1972;** reciprocal embassies in each other's countries; a **strategic partnership** between the two countries in 2015
Economic & Commercial	Bilateral trade valued at **US$ 72 billion in FY 2021-22;** UAE as India's **third-largest trade partner** and **second-largest export destination;** UAE comes in the Top 10 destination for FDI in India; India-UAE signed **Comprehensive Economic Partnership Agreement (**CEPA)
Food security	India is the **world's second-largest food producer** and UAE is a major importer of Indian food products.
Investment in the Food sector	**E.g., Dubai Multi Commodities Centre (**UAE's largest free trade zone) launched **Agriota (**agri-trading and commodity platform) to link Indian farmers to food companies in the UAE. In 2022, I2U2 meeting UAE committed $2 billion in investment towards **constructing food parks in India** and establishing a **food security corridor**

Cultural	**BAPS Hindu temple** is planned in UAE; Indian cinema/TV/radio channels are widely available in UAE, annual International Day of Yoga events
Technology partnerships	Collaboration between ISRO and UAESA for the **Red Moon mission**, digital innovation, and technology partnerships
Defence and Security	The recent **I2U2 summits**; Annual defence dialogues, bilateral defence interaction, UAE's role in Indian Ocean Region dialogue, joint military exercises— **Exercise Desert Flag; In-UAE BILAT** (bilateral naval exercise) and **Desert Eagle-II** (bilateral air force exercise)
Mediation	The role played by UAE in mediation between India and Pakistan, facilitating meetings between interlocutors including NSA Doval and Pakistan military officials
Indian Community	Indian expatriate community of approximately 34 lakhs, the largest ethnic community in UAE, comprising roughly about **35% of the country's population**

Challenges/Issues between the two countries:

Challenge	Example
Labour Issues	There have been reports of **mistreatment and exploitation** of Indian migrant workers in the UAE
Trade Imbalance	India's trade deficit with the UAE has been a cause for concern (US $18bn in 2021)
Geopolitical Issues	The UAE's growing ties with Pakistan, which has long-standing tensions with India, have been a cause for concern. The UAE has also maintained a **neutral stance on the Kashmir issue,** which India considers an internal matter.
Regional Competition	For instance, the UAE's recent investments in the port of Gwadar in Pakistan and the development of Chabahar port in Iran have raised concerns in India.

Conclusion:

The relationship between **India and UAE has strengthened** over the years, with the UAE becoming India's closest partner in the Arab world. Despite recent challenges, the bilateral ties between the two nations have proven resilient.

Insta Links:

- India-UAE

GENERAL STUDIES – 3

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

1. VIABILITY OF UNIVERSAL BASIC INCOME IN INDIA

Context:

With **automation and AI reducing job growth**, the idea of UBI is gaining momentum globally, including in India. While some argue that UBI can address the lack of demand and rising inequality, others suggest that India's focus should be on expanding social safety nets rather than a full UBI.

What is Universal Basic Income (UBI)?

It is a **social welfare scheme** that provides a fixed, unconditional cash transfer to all eligible individuals or households, irrespective of their income or employment status. The concept of **Universal Basic Income (UBI)** appealing in the **2016-17 Economic Survey**, however, the current **CEA, V Anantha Nageswaran**, has dismissed it, asserting that it is unnecessary for the country.

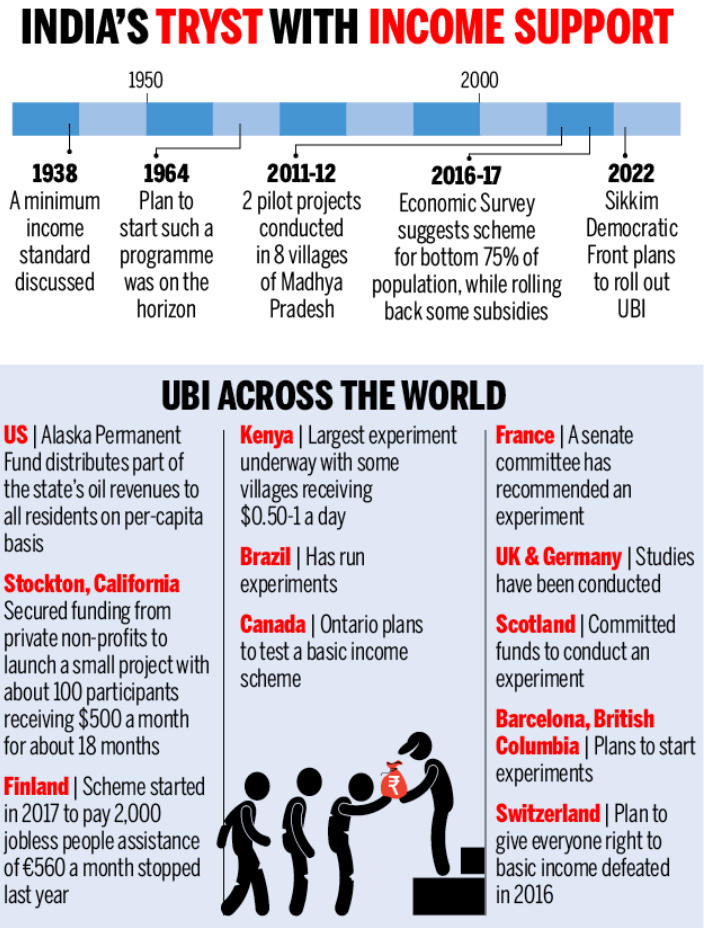
The potential of Universal Basic Income (UBI) in combating poverty:

1. **Direct financial support:** UBI provides direct financial support to individuals and families, helping them meet basic needs, such as food, healthcare, and education.

2. **Financial inclusion:** UBI can encourage financial inclusion by promoting **bank account usage and formal financial transactions.**
3. **Elimination of targeting errors:** UBI eliminates targeting errors, as it is provided universally, reducing administrative costs and ensuring coverage of all eligible individuals.
4. **More autonomy:** A study by **SEWA Bharat** found that **women in rural India** who received cash transfers had greater autonomy in decision-making.
    a. UBI empowers recipients by giving them the **flexibility to spend the cash** according to their priorities, including investments in livelihoods and education.
5. **Social Inclusion:** UBI fosters social inclusion by providing financial support to marginalized populations, helping them participate more fully in society.
6. **Counter-Cyclical Effect:** UBI's unconditional nature makes it counter-cyclical, automatically expanding during economic downturns, providing a safety net for those facing job loss or economic hardship.
7. **Human dignity:** UBI recognizes the intrinsic value of every individual by providing them with the means to lead a life of dignity and self-determination. It empowers recipients to make choices that align with their aspirations and needs.

Economic impact and challenges of implementing UBI in India:

1. **Cost and fiscal sustainability**: Implementing UBI is costly and requires significant financial resources, potentially **necessitating higher taxes, spending cuts, or increased debt**. It can also lead to inflation and hinder economic growth.
    a. **Economic Survey of 2016-17** estimated that a UBI of **Rs. 7,620** per year for every Indian would cost **about 4.9% of GDP.**
2. **Perverse incentives**: UBI may **reduce work motivation and productivity**, creating a culture of dependency. It could **discourage skill development and training**, as some may opt for a basic income without pursuing income-generating opportunities.
3. **Inflationary pressures:** The widespread distribution of a fixed income may **drive up prices for goods and services**, as businesses adjust pricing strategies to capture the additional income in the market.
4. **Potential for dependency:** UBI carries the risk of fostering dependency on government support, potentially leading to **complacency and reduced motivation** for personal and professional growth.
5. **Implementation Challenges:** India faces issues in public service delivery, including **identification, targeting, monitoring, and accountability**. UBI requires reliable data, technology, and strong institutions to **prevent corruption, leaks, and exclusion errors.**
    a. Incomplete Universal Aadhar enrollment complicates beneficiary identification and targeted service delivery.



Alternatives to Universal Basic Income (UBI) as approaches to poverty alleviation:

Alternatives	Description
1. Targeted Cash Transfer Programs	Focus on specific vulnerable groups, such as LPG subsidies under Direct Benefit Transfer (DBT).
2. Expand Employment Guarantee Schemes	Improve schemes like MGNREGA, which provide rural households with guaranteed employment and increased income.
3. Strengthen the Public Distribution System (PDS)	Improve distribution of subsidized food grains and essential commodities to ensure food security for low-income families.

4. Invest in Skill Development	Enhance the employability of the underprivileged through skill development and vocational training programs.
5. Promote Microfinance and Microcredit	Support small businesses through microloans, particularly targeting women, to generate income (e.g., SHGs like Kudumbshree, and Jeevika).

Conclusion

Each of these alternatives can be tailored to address specific poverty challenges in India. A combination of these approaches, depending on the region and population in question, can lead to a more comprehensive and effective strategy for poverty alleviation.

Insta Links:

1. The Rajasthan Minimum Guaranteed Income Bill 2023
2. Universal basic income

Mains Links

Q. The Universal Basic Income, the implementation of which has repeatedly been debated in India, seeks to alleviate poverty. Critically discuss the possibility of UBI in India. (15M)

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.

2. GOVERNMENT PROMOTING NANO-FERTILIZER

Context:

The Government of India is **promoting nano DAP as a cost-effective, indigenous alternative to the imported granular form of di-ammonium phosphate (DAP),** especially for Punjab's Rabi season crops.

What is Nano DAP?

It is **cheaper and easier to transport, with a 500 ml bottle** costing Rs 600 covering one acre, compared to granular DAP's Rs 1,350 per 50 kg bag. However, Punjab Agricultural University (PAU) scientists have raised concerns, reporting lower wheat yields when using nano DAP. **IFFCO, which developed nano DAP (in liquid form)**, recommends using it alongside granular DAP for optimal results.

What are Nano-fertilizers?

Nano-fertilizers are **advanced fertilizers engineered using nanotechnology** to improve nutrient delivery to plants. They contain nutrients in nano-sized particles, which allows for better absorption, efficient use, and reduced environmental impact compared to conventional fertilizers.

Examples: Some examples of nano-fertilizers include **nanoparticles of nitrogen, phosphorus, and potassium,** as well as combinations of these nutrients with other elements such as iron or zinc.

Benefits of Nano-Fertilizers:

Category	Benefits of Nano-Fertilizers
To Farmers	**Reduction in Input Costs**: A 500 ML bottle of Nano DAP costs around Rs 600, half the price of a 50-kg DAP bag (Rs 1,350-1,400).
	Higher Crop Yields: Nano fertilizers increase yields by 8%, improving crop quality through better nutrition (IFFCO).
	Increase in Farmer Income: Reduced costs and higher yields lead to better income.

To Environment	**Better Nutrient Use Efficiency (NUE)**: Over 85% efficiency, with plants absorbing nitrogen better due to nano-sized particles.
	Less Environmental Fallout: Reduces soil, water, and air pollution, cutting fertilizer use by 50% and minimizing nutrient waste.
To Government	**Lower Subsidies**: Promotes cost savings by cutting subsidies on non-urea fertilizers.
	Decreasing Imports: Nano urea production aims to reduce dependence on urea imports, with planned production equivalent to 20 million tonnes of urea by FY25.

Current limitations and challenges associated with the implementation of nano fertilizers:

1. Not a complete replacement: Nano urea only replaces top dressing, not basal application, limiting efficiency benefits.
2. True yield concerns: The predicted yield increase is 3-16%, but lower actual gains could reduce income benefits.
3. Costing issues: Nano urea lacks subsidy support, raising questions about its pricing compared to conventional urea.
4. Potential toxicity: Nanoparticles may harm soil organisms and pose risks to human health.
5. Uncertain long-term effects: Impacts on soil health, microbial activity, and potential water contamination remain unclear.

Farmers may need to make **significant changes to their practices in order to incorporate nano-fertilizers**, which could result in additional costs and learning curves.

Conclusion:

While nano-fertilizers offer exciting possibilities for improving the sustainability and productivity of agriculture, their implementation is still faced with several limitations and challenges that must be addressed in order to fully realize their potential.

Insta link:

- India's first Nano DAP Plant

Mains Link:

Q. What are the different types of agriculture subsidies given to farmers at the national and at state levels? Critically, analyse the agricultural subsidy regime with reference to the distortions created by it. (UPSC 2013)

Prelims Link:

Q. With reference to chemical fertilizers in India, consider the following statements: (USPC 2020)

1. At present, the retail price of chemical fertilizers is market-driven and not administered by the Government.
2. Ammonia, which is an input of urea, is produced from natural gas.
3. Sulphur, which is a raw material for phosphoric acid fertilizer, is a by-product of oil refineries.

Which of the statements given above is/are correct?
(a) 1 only
(b) 2 and 3 only
(c) 2 only
(d) 1, 2 and 3
Ans: (b)

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.

3. WHO GLOBAL FRAMEWORK FOR PATHOGEN ORIGINS

Context:

WHO Launches First Global Framework for Understanding the Origins Of New Or Re-Emerging Pathogens

Framework Overview

- Developed by: SAGO (Scientific Advisory Group for the Origins of Novel Pathogens)
- Established: By WHO in 2021; consists of global independent experts
- Key Principles: Aligns with International Health Regulations (IHR) and One Health approach
    - IHR: A legally binding framework for global health responses
    - One Health: Integrates human, animal, and ecosystem health

WHO Global Framework for Pathogen Origins:

About	Description
Purpose	To provide a unified approach for investigating new or re-emerging pathogens.
Developed By	World Health Organization (WHO) with support from SAGO (Scientific Advisory Group for the Origins of Novel Pathogens).

Key Features	Comprehensive guidelines for investigating pathogen origins, including:
	- **Early Investigations:** Source identification and sample collection.
	- **Human Studies:** Epidemiology, transmission, and clinical presentation.
	- **Human/Animal Interface Studies:** Identifying reservoirs and hosts.
	- **Vector Studies:** Identifying insect vectors and environmental sources.
	- **Genomics and Phylogenetics:** Understanding genetic evolution and distribution.
	- **Biosafety/Biosecurity Studies:** Assessing potential lab-related breaches.
Objective	To prevent and contain health crises by understanding pathogen origins, with a focus on timely and transparent sharing of findings.
Call to Action	Countries are urged to conduct investigations promptly and share results transparently.
Significance	Aims to prevent future outbreaks and improve global health crisis responses.

What are Pathogens?

Pathogens are microorganisms that cause disease in their hosts. They include:

1. Bacteria: Single-celled organisms that can cause infections such as tuberculosis and strep throat.
    - Example: Mycobacterium tuberculosis causes tuberculosis.
2. Viruses: Smaller than bacteria, these agents invade host cells to replicate and cause diseases such as influenza and COVID-19.
    - Example: SARS-CoV-2 causes COVID-19.
3. Fungi: These can be single-celled or multicellular organisms that cause conditions like athlete's foot and ringworm.
    - Example: Candida albicans can cause yeast infections.
4. Parasites: Organisms that live on or in a host and derive nutrients at the host's expense, such as malaria and giardiasis.
    - Example: Plasmodium falciparum causes malaria.
5. Prions: Misfolded proteins that cause degenerative brain diseases, like Creutzfeldt-Jakob disease.
    - Example: The prion responsible for Mad Cow Disease.

How different pathogens impact humans, with examples:

Pathogen Type	Impact on Humans	Example
Bacteria	Cause infections can be treated with antibiotics.	*Streptococcus pyogenes* (strep throat)
Viruses	Invade cells to replicate, causing diseases; vaccines available for prevention.	*Influenza virus* (flu)
Fungi	Cause infections in skin, nails, and lungs; antifungal treatments available.	*Candida albicans* (yeast infection)
Parasites	Live in or on the host, causing diseases; treatment often involves antiparasitic drugs.	*Plasmodium falciparum* (malaria)
Prions	Cause progressive, fatal brain diseases; no known cure.	*Prion protein* (Mad Cow Disease)

Significance

- Purpose: Address risks from known and novel pathogens (e.g., Ebola, SARS-CoV-1)
- Importance: Essential for preventing and managing health crises
- Historical Context: Could have made COVID-19 origin investigation more effective and less controversial

What is the Pandemic Treaty?

- The Draft Pandemic Treaty, proposed by the World Health Organization (WHO) and member states, is an international agreement aimed at preventing, preparing for, and responding to pandemics and global health emergencies.
- It focuses on strengthening global cooperation and solidarity, covering aspects such as surveillance, detection, notification, access to health technologies, collaboration, and accountability.
- The deadline for this agreement is set for the 77th World Health Assembly in May 2024.
- The treaty, based on principles of human rights and equity, responds to lessons learned from the COVID-19 pandemic. Its principal components include calls for:

1. Increased global cooperation
2. Strengthening of health systems
3. Investment in research and development
4. Transparency in information sharing
5. Establishment of a Pathogen Access and Benefit-Sharing System (PABS) under the WHO
6. Address gender disparities in the healthcare workforce, with emphasis on equal pay and

promoting the representation and empowerment of health and care workers.

What is Disease X?

- Disease X is a hypothetical pathogen or threat that could trigger a major future pandemic. Coined by scientists and the World Health Organization (WHO), it refers to a new agent, virus, bacterium, or fungus with no known treatment, belonging to any of the 25 families of viruses capable of causing illness in people.
- Added to the WHO's Blueprint list of diseases in 2018, scientists believe Disease X could be 20 times more deadly than the recent SARS-Covid virus, emphasizing its potential as a serious microbial threat to humans in the future.
- The WHO is undertaking initiatives, including the Financial Intermediary Fund for Pandemic Preparedness and Response, the mRNA technology transfer hub, and the WHO Hub for Pandemic and Epidemic Intelligence, to enhance global preparedness and collaboration in the face of potential future outbreaks.

Mains Link:

Q. Can overuse and free availability of antibiotics without a doctor's prescription, be contributors to the emergence of drug-resistant diseases in India? What are the available mechanisms for monitoring and control? Critically discuss the various issues involved. (USPC 2014)

Prelims Link:

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

1. Genetic predisposition of some people
2. Taking incorrect doses of antibiotics to cure diseases
3. Using antibiotics in livestock farming
4. 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)

Topics: Awareness in the fields of IT, Computers, robotics, nano-technology, bio-technology and issues relating to intellectual property rights.

4. AI-POWERED PRIMARY-CARE PHYSICIAN FOR EVERY INDIAN

Context:

The ambition to provide an **"AI-powered primary-care physician for every Indian"** in five years raises concerns about the feasibility, sustainability, and readiness of India's healthcare system.

Benefits of an AI-Powered Primary-Care Physician for Every Indian:

1. 24/7 Accessibility: Provides round-the-clock access to healthcare services.
2. Increased Efficiency: Automates routine tasks, reducing wait times and streamlining care.
3. Cost-Effective: Potentially lowers healthcare costs by minimizing the need for in-person visits.
4. Enhanced Diagnosis: This can assist in early detection and diagnosis through advanced pattern recognition.
5. Personalized Care: Offers tailored health recommendations based on individual data.
6. Wider Reach: Extends healthcare access to remote and underserved areas.
7. Support for Healthcare Professionals: Acts as a support tool, aiding doctors in decision-making.
8. Data-Driven Insights: Utilizes health data to provide insights for population health management.

Challenges in AI-Driven Health Care:

1. Data Privacy: AI requires vast amounts of personal data, raising privacy and ethical concerns.
2. Human-Centric Care: AI lacks the empathy and nuanced understanding needed in patient care.
3. Transparency Issues: AI's decision-making is often a "black box," making it hard for healthcare providers to understand and trust.
4. Need for Regulation: India lacks comprehensive AI regulation, unlike the EU, making ethical use of AI in healthcare critical.

While AI can **automate tasks, it lacks the human-centric approach** necessary in healthcare, such as empathy, cultural understanding, and complex reasoning. AI's reliance on extensive data collection conflicts with privacy and ethical concerns, and the scattered nature of health data complicates its application.

India's diversity **further necessitates extensive and context-specific data for AI models**. AI tools can aid specific tasks like predicting hospital needs or aiding in medical education, but the "black box" nature of AI decision-making poses transparency and trust issues.

Conclusion:

While AI promises to enhance healthcare, India must first address foundational issues in its health system and adopt a measured approach to ensure ethical and effective integration.

Topics: Conservation related issues, environmental pollution and degradation, environmental impact assessment.

5. INDIA, NOT CHINA, TOPS GLOBAL PLASTIC EMISSIONS: STUDY

Context:

A study published in Nature reveals that **India** is the **world's largest emitter of plastic waste, contributing about 20% of the global total,** while China ranks fourth.

Here are the major findings from the study:

1. India is the Top Plastic Emitter: Responsible for 20% of global plastic emissions, surpassing China.
2. Regions with High Plastic Waste: Southern Asia, sub-Saharan Africa, and Southeast Asia are major contributors.
3. China's Improved Waste Management: Recent improvements have reduced China's ranking in emissions.
4. Inadequate Waste Management in India: Significant plastic waste is openly burned or dumped due to poor collection systems.
5. Distribution of Plastic Waste: 69% of global plastic waste comes from the top 20 countries, mostly lower and middle-income.
6. Uncollected Waste: Major source of pollution in lower-income countries.
7. Per-Capita Emissions: India and China rank high in total emissions but lower per capita.
8. Littering in High-Income Countries: Major source of plastic pollution.
9. Health and Environmental Impact: Burning plastic has severe health and ecological effects.
10. Global Policy Framework: Study aims to support global policies like the UN Plastics Treaty.

Issues with India's Plastic waste management:

1. Inadequate disposal and utilization of plastic waste lead to pollution of air, water, and soil, affecting human health.
2. Surge in plastic waste generation from about 16 lakh to 41 lakh tonnes per annum in India (between 2015-2021)
3. Governance issues include non-compliance with Plastic Waste Management Rules 2016, especially regarding Extended Producer Responsibility (EPR).
4. Central Pollution Control Board (CPCB) and SPCBs/PCCs' lax approach allowed plastic units to operate without valid registrations
5. Lack of mechanism for assessing plastic waste generation.
6. Other issues include improper collection and segregation, delay in eliminating single-use plastic, and poor monitoring by Urban Local Bodies (ULBs).

Impact of plastic pollution on our ecosystems and wildlife:

- **Wildlife harm**: Plastic ingestion or entanglement can cause injuries, suffocation, and death in animals.
- Microplastics can **enter food chains,** potentially harming human health.
- **Greenhouse gas emissions**: Plastic production and disposal generate greenhouse gas emissions.
- **Habitat destruction**: Fossil fuel extraction for plastic production often leads to habitat destruction, causing biodiversity loss and ecosystem disruption.
- **Marine pollution**: Single-use plastics pollute oceans, harming marine life.
- **Soil contamination**: Improper disposal of plastic waste contaminates soil, causing ecological and agricultural issues.
- **Water pollution**: Plastic waste in water bodies pollutes freshwater sources and exacerbates flooding.
- **Chemical pollution**: Plastics contain harmful additives like phthalates and BPA, leading to environmental pollution.

Key recommendation of PAC to mitigate plastic Pollution:

1. Mandatory reporting of data online on the national dashboard with proof of photo/video and GPS location.
2. Development of a comprehensive policy to address pollution caused by plastics.
3. Implementation of penal provisions for urban local bodies (ULBs) that fail to establish Plastic Waste Management (PWM) systems.
4. Involvement of rag pickers and junk dealers to enhance the segregation and collection process.
5. Global Collaboration: g., through legally binding plastic control treaty

Need to reach a legally binding treaty to end plastic pollution:

- Global Coordination: Plastic pollution knows no borders, and it affects oceans, rivers, and land worldwide. A treaty can provide a platform for countries to come together, share responsibilities, and coordinate efforts to address plastic pollution collectively.
- Addressing the Source: A treaty can focus on addressing the root causes of plastic pollution, such as reducing plastic production, improving waste management, and promoting

sustainable alternatives. It encourages a comprehensive approach to tackle the issue.

- Inclusivity: A treaty ensures that all countries, regardless of their level of development or resources, are engaged in the fight against plastic pollution.
- Accountability and Enforcement: A legally binding treaty ensures that countries are held accountable for their commitments to reduce plastic pollution.
    - It establishes mechanisms for monitoring progress, reporting, and enforcement, which can lead to more effective implementation.
- Coordinated Research and Innovation: A treaty can facilitate international collaboration on research and innovation to find new ways to reduce plastic pollution and develop sustainable materials and technologies.
- Protecting Marine Life and Ecosystems: Plastic pollution poses significant threats to marine life and ecosystems. A treaty can set clear goals and targets to protect oceans and reduce plastic waste reaching marine environments.

Steps taken to reach a legally binding treaty to end plastic pollution:

- Plastic Pollution Coalition: Founded in 2009, the coalition aims to create a world free of plastic pollution and its harmful impacts on the environment, human health, and wildlife.
- The United Nations Clean Seas campaign: is a global initiative launched by the United Nations Environment Programme (UNEP) to combat marine plastic pollution. The campaign aims to raise awareness, mobilize action, and promote concrete solutions to reduce marine litter and plastic waste in the world's oceans and seas.
- Global Tourism Plastics Initiative: The Initiative unites the tourism sector behind a common vision to address the root causes of plastic pollution. It enables businesses, governments, and other tourism stakeholders to take concerted action, leading by example in the shift towards circularity in the use of plastics.
- Proposal for Global treaty: ***175 nations*** agree to develop a legally binding agreement on plastic pollution by 2024, prompting a major step towards reducing greenhouse gas emissions from plastic production, use and disposal.
- MacArthur Foundation's New Plastics Economy initiative: Launched in 2016, the initiative aims to create a circular economy for plastics, where plastics are designed, used, and recycled in a way that eliminates waste and pollution.

For Single Use plastic: Click Here

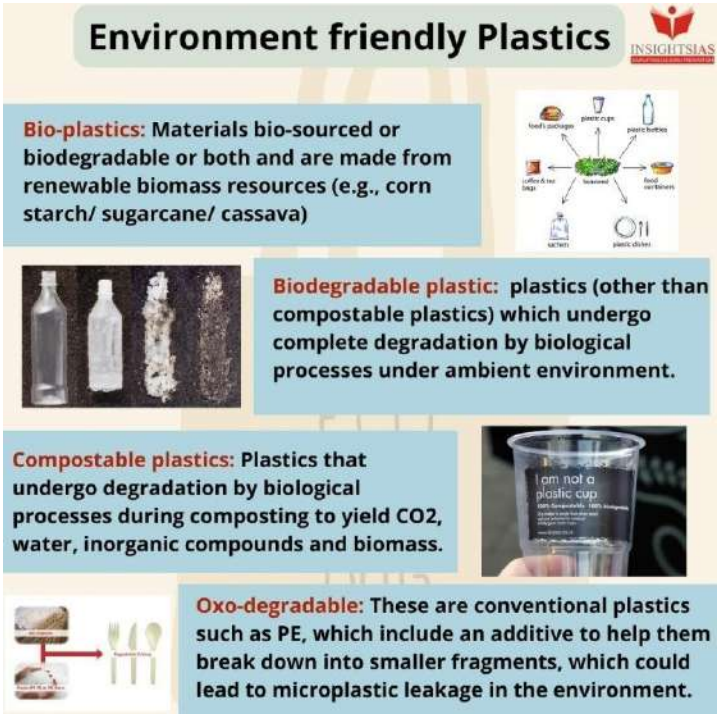
Initiatives Taken to Tackle Plastic Pollution:

Global Initiatives:

1. Global Partnership on Marine Litter (GPML)
2. GloLitter Partnerships Project
3. London Convention, 1972

India-Specific Initiatives:

1. Elimination of single-use plastic
2. Plastic Waste Management Rules, 2016
3. Un-Plastic Collective
4. Kerala: Beat Plastic Pollution Initiative
5. Other initiatives for plastic pollution mitigation: Project REPLAN (REducing PLAstic from Nature), Promotion of Circular Economy, EPR Portal for Plastic Packaging, Swachh Bharat Mission, Lifestyle for the Environment (LiFE) Movement



Related Content

About Central Pollution Control Boards (CPCBs)/ State Pollution Control Boards (SPCBs)/ Pollution Control Committees (PCCs) in UTs:

Empowered under the Water Act, the Air (Prevention and Control of Pollution) Act 1981, and the Environment (Protection) Act 1986, the Boards perform four broad functions.

1. Granting and managing consents (to establish and operate industry)
2. Setting standards for emissions and effluents
3. Monitoring compliance of the industry with these standards

4. Enforcing these standards through an escalating series of actions

But various institutional and other issues are plaguing CPCB/SPCB:

Issues	Details
Inadequate capacity and resources	Shortage of personnel, especially in technical positions. Lack of training and pollution monitoring equipment. Absence of competent leadership. Enforcement mechanisms are protracted. Insufficient funds
Skewed representation	Boards are largely represented by government departments and industry representatives. Limited representation from civil society, academia, public health, and the medical community.
	Disproportionate representation, e.g., there is only one member from civil society in Delhi and Uttar Pradesh boards, while they have 5-7 members from govt. departments
Data Gap	Many state pollution boards fail to provide data to CPCB
Not following statutory requirements	CPCB/SPCBs lack the required expertise in air quality management. Statutory requirement for knowledgeable board members not met
Vacancies	Approximately 40% of positions are vacant across nine SPCBs/PCCs. Vacancy rates as high as 84% in Jharkhand
Conflict of interest	Board members may represent polluting entities regulated by the board, leading to potential conflicts of interest
Non-substantive board meetings	Discussions primarily focus on industrial pollution, lacking pollution control planning. Limited efforts for inter-departmental coordination
	Lack of transparency in sharing information with the public
Little expertise in monitoring	Despite improvements in real-time monitoring, gaps in data collection and calibration errors persist

Related Content:

What is Extended Producer Responsibility (EPR)?

It is a policy approach and environmental strategy that places the responsibility for the entire lifecycle of a product, including its disposal, on the manufacturer or producer rather than on the end consumer or local government.

The fundamental idea behind EPR is to encourage producers to minimize the environmental impact of their products by considering their entire lifecycle, from the design and production phase to the end-of-life phase.

Key provisions of the Plastic Waste Management Amendment Rules, 2022 to reduce plastic pollution

Key Provisions	Details
Extended Producer Responsibility (EPR)	Makes plastic packaging producers accountable for end-of-life collection and recycling
	Shifts responsibility from municipal bodies to producers
	Provides incentives for firms to adopt sustainable design and use recyclable materials
Collection Targets	Mandates producers to collect back 35% of plastic waste generated by 2024, increasing to 70% by 2025 in phases
Minimum Recycled Content	Requires firms to use 10% recycled plastic in packaging by 2023, escalating to 20% by 2026
Collection Mechanism	Producers must establish collection systems either individually or collectively
Cost Attribution	Producers are responsible for bearing the costs associated with collection and recycling of plastic packaging

-

Insta Links:

1. Substitute for single-use plastics
2. NATURE AND YOU- SINGLE-USE PLASTIC

Mains Link:

Q. What is single-use plastic and what are the concerns associated with it? How can it be successfully phased out in the country? (15M)

Prelims Link:

Bisphenol A (BPA), a cause of concern, is a structural/key component in the manufacture of which of the following kinds of plastics? (UPSC 2021)
(a) Low-density polyethylene
(b) Polycarbonate
(c) Polyethylene terephthalate
(d) Polyvinyl chloride
Answer: B

Triclosan considered harmful when exposed to high levels for a long time, is most likely present in which of the following? (UPSC 2021)
(a) Food preservatives
(b) Fruit-ripening substances
(c) Reused plastic containers
(d) Toiletries
Answer: D

6. REPORT: INDIA'S STRATEGY TO AVOID HARM IN THE GLOBAL EV MARKET SHAKE-UP

Context:

A **Global Trade Research Initiative (GTRI) report, "India's Strategy to Avoid Harm in the Global EV Market Shake-Up,"** urges India to let market forces guide its EV sector's growth and develop its own strategy.

Background:

In 2023, China dominated the global EV market, exporting **1.6 million EVs.** Western countries have begun imposing tariffs on Chinese EV imports, prompting China to move production to ASEAN nations and India. **Indian EV production** remains reliant on Chinese components, including batteries.

India's reliance on **coal for electricity generation significantly** reduces the environmental benefits of electric vehicles (EVs), undermining their potential to contribute to cleaner transportation. Additionally, **over 80% of the cost**

of EVs in India is tied to components imported from China, particularly batteries, which increases the country's dependency on Chinese supply chains. To address these challenges, it is recommended that **India invest in research and development for advanced battery technologies**, such as solid-state batteries and hydrogen fuel cells, while also establishing robust recycling infrastructure. Moreover, **supporting clean energy sources for EV charging** and conducting comprehensive assessments of EVs' environmental impacts will be crucial for ensuring long-term sustainability.

What are Electric Vehicles?

Electric vehicles (EVs) use electric motors for propulsion instead of traditional internal combustion engines. Interest in EVs has surged due to concerns over carbon emissions from fuel-based vehicles. There are three main types of EVs:

1. Battery Electric Vehicles (BEVs): Fully powered by batteries with zero emissions.
2. Plug-in Hybrid Electric Vehicles (PHEVs): Use both an electric motor and gasoline engine; can be charged externally.
3. Hybrid Electric Vehicles (HEVs): Combine electric and gasoline power, but cannot be externally charged; the battery is charged via the engine or regenerative braking.

Previously, Union Government has **approved an E-Vehicle policy** aimed at positioning India as a **manufacturing hub for electric vehicles (EVs)** with cutting-edge technology.

Aspect	Details
Policy Objective	Promote India as a manufacturing destination for electric vehicles (EVs) with advanced technology
Implementation	The Project Management Agency (PMA) will be responsible for providing **secretarial, managerial and implementation support** and carrying out other responsibilities as assigned by the Government of India (GoI)
Ministry	Ministry of Heavy Industries
Eligibility Criteria	**Minimum Investment Requirement:** Rs 4150 Cr (approximately USD 500 Mn)
	Maximum Investment: No cap on maximum investment
	Manufacturing Timeline: Set up manufacturing facilities within 3 years
	Domestic Value Addition (DVA) criteria during manufacturing: 25% within a period of 3 years, and 50% within 5 years from the date of issuance of approval letter by the Ministry of Heavy Industries/ PMA
	The Bank guarantee will be returned only when 50% DVA is attained an investment of at least Rs 4,150 crore has been made, or to the extent of duty foregone in 5 years, whichever is higher.
	Performance Criteria: All electric passenger vehicles shall meet the performance criteria of the Production Linked Incentive (PLI) Auto scheme.
Tenure of the Policy	5 years or as notified by GoI.
Key Benefits	Encourages technological advancements in EV manufacturing; Fosters Make in India initiative; Promotes healthy competition among EV players; Reduces crude oil imports and trade deficit; Mitigates air pollution, particularly in urban areas; Positive impact on health and environment
Other Initiatives to Promote EV	Faster Adoption and Manufacturing of EVs (FAME) India scheme: Phase I was launched in 2015 and Phase II was launched in 2019.
	EV 30@30 initiative for the deployment of EVs and target at least 30 per cent of new EV sales by 2030
	PLI Scheme for Automobile and Automotive Components (PLI-Auto) in 2021, as financial incentives to promote domestic manufacturing and draw investments into the value chain of the automotive manufacturing industry.

Measures to Accelerate EV Adoption in India:

1. Battery Lease-to-Own Program: Reduce initial costs by leasing batteries.
2. Invest in Battery Technology: Develop advanced, high-density batteries.

3. Increase Charger Density: Expand and convert parking meters to charging points.
4. Standardization: **Develop standard protocols for interoperability.**
5. EV Rural Entrepreneurs Program: Support rural charging station setups.
6. Highway Battery Swap Corridors: Create swap stations along major routes.
7. Equal Subsidies for EVs and Hybrids: Provide equal support for both technologies.
8. Second-Life Battery Bazaar: Repurpose used batteries for various applications.

Lessons from Other Countries:

- Europe: Financial incentives boost adoption.
- China: Government support and competition drive market growth.
- US: Innovation and strategic funding are key.

Mains Link:

Q. How is efficient and affordable urban mass transport key to the rapid economic development in India? (UPSC 2019)

7. PRIME MINISTER UNVEILS VISION FOR INDIA AS GREEN HYDROGEN HUB

Context:

The Prime Minister has unveiled an ambitious vision to make India a global hub for green hydrogen production, utilization, and export.

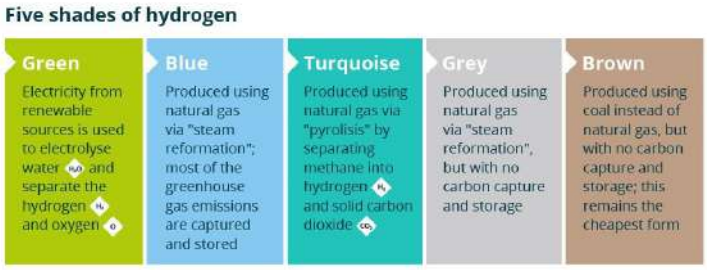
Vision for India as a Green Hydrogen Hub:

1. Ambitious Plans: Aims to lead in the production, utilization, and export of green hydrogen, making India a global leader.
2. Government Initiatives: Policies, research, and international collaborations to drive the green hydrogen industry forward.
3. Investment and Job Creation: Targets ₹8 lakh crore investment and 6 lakh jobs.
4. Production Goals: By 2030, aims for a $100 billion investment and production of 5 million metric tons of green hydrogen.
5. National Green Hydrogen Mission: Focus on decarbonizing sectors like refineries, fertilizers, and steel.
6. Energy Targets: 500 GW of non-fossil energy capacity by 2030 and net-zero emissions by 2070.

Definition of Green Hydrogen:

Green hydrogen is produced through a process called electrolysis, where water is split into hydrogen and oxygen using renewable energy sources such as solar or wind power.

In August 2023, the Union Ministry of New & Renewable Energy, Government of India, provided a definition for green hydrogen, specifying it as having a well-to-gate emission (encompassing water treatment, electrolysis, gas purification, drying and compression of hydrogen) not exceeding 2 kg CO2 equivalent per kg H2. In contrast, grey hydrogen (produced using fossil fuels), on average, emits 10 kg of CO2 per kg of H2 produced.



Nodal Agency: The Bureau of Energy Efficiency (BEE) (under the Union Ministry of Power) is the nodal authority responsible for accrediting agencies for monitoring, verifying and certifying green hydrogen production projects.

Initiatives for Green Hydrogen:

1. Oil India Limited (OIL) recently commissioned India's first 99% pure green hydrogen plant in eastern Assam's Jorhat
2. NTPC (in Kawas, Surat)has started India's 1st Green Hydrogen Blendingoperation in the Piped Natural gas (PNG) Network.
3. The Petroleum and Natural Gas Regulatory Board (PNGRB)has given approval for a 5% blending of green hydrogen with PNG (later to be scaled to 20%)
4. Pune Municipal Corporation (PMC)has collaborated with business management consultant
5. The Green Billions (TGBL) to manage its waste and generate it into useable green hydrogen (under the waste-to-hydrogen project)
6. Strategic Clean Energy Partnership (SCEP) to mobilise finance and speed up green energy development
7. The Union Minister of Petroleum & Natural Gas launched India's inaugural Green Hydrogen Fuel Cell Bus in New Delhi in September 2023.

Significance of Green Hydrogen energy:

1. Emission reduction: IEA (International Energy Agency) points out, that the method of obtaining green hydrogen would save the 830 million tonnes of CO2 that are emitted annually when Hydrogen is produced using fossil fuels.

2. Viable alternative: With green hydrogen, if the production costs fall by 50 % by 2030, it could certainly evolve as one of the fuels of the future. Also, hydrogen is easy to store, which allows it to be used subsequently for other purposes and at times other than immediately after its production.
3. Energy Security and Independence: As fossil fuels are finite and susceptible to global supply fluctuations, green hydrogen fosters energy independence.
4. Creating New Industries and Jobs: According to IRENA, the green sector employed 11 million people in 2018, with projections of over 42 million jobs by 2050.
5. Decarbonizing Difficult-to-Decarbonize Sectors: Sectors like heavy industry and aviation, hard to decarbonize, can benefit from green hydrogen substitution. This helps mitigate their significant carbon emissions.

Applications of Green Hydrogen:

Applications	Details
Agriculture Sector	Green hydrogen can replace traditional fertilizers in agriculture by producing carbon-free ammonia.
	Ammonia production currently relies on fossil fuels, but green ammonia offers improved efficiency and reduced soil acidity.
	Green hydrogen-powered farm machinery, such as tractors and harvesters, can reduce greenhouse gas emissions in agriculture.
Water Management	Green hydrogen can power desalination plants, converting saltwater into freshwater for sustainable water management.
Transport Sector	Hydrogen fuel cells in vehicles produce zero emissions and offer a longer range and faster refuelling compared to battery electric vehicles.
Industrial Sector	Green hydrogen production using excess renewable energy can reduce energy costs and promote sustainable development.
	On-site production and storage make green hydrogen a reliable energy source, reducing dependence on the electricity grid.
	Green hydrogen production from waste materials like municipal solid waste and agricultural waste can reduce waste and promote sustainability.
	Using green hydrogen to power fuel cells increases energy efficiency compared to traditional combustion engines, reducing overall energy consumption.

Challenges in Green Hydrogen Production:

Not Sufficient	Green hydrogen constitutes less than 1 per cent of the world's hydrogen production and usage (as per the Global Hydrogen Review 2023 by the IEA)
	Green hydrogen production needs to grow significantly to align with Net Zero Emissions goals.
Energy Inefficient	30% of renewable energy is lost while producing hydrogen
Carbon Emissions	Existing methods involve fossil fuels with high carbon emissions.
Low Adoption	Low-emission hydrogen adoption in various sectors is slow.
Economic Sustainability	Low economic sustainability of extracting green hydrogen.
	For transportation fuel cells, hydrogen must be cost-competitive with conventional fuels and technologies on a per-mile basis
Access to Critical Minerals	Access to critical minerals such as nickel, platinum group metals and rare earth metals could hinder scaling up electrolyser manufacturing capability in India
Safety Issues	Green hydrogen is highly flammable, requiring specialized handling and storage. Establishing safety protocols and regulations is essential for ensuring its safe management.

Government Initiatives for Bio and Green Hydrogen:

Initiative	Key Points

Global Biofuel Alliance	Leading efforts to establish global standards for hydrogen from biomass.
National Hydrogen Mission	Targeting a production increase to 5 million metric tonnes (MMT) by 2030, meeting 40% of domestic requirements.
Production Linked Incentive (PLI) Scheme	Proposing a Rs 15,000-crore PLI scheme for electrolysers.
Green Hydrogen Mission	Development of Green Hydrogen Production Capacity of at least 5 MMT (Million Metric Tonne) per annum; Renewable energy capacity addition of about 125 GW in the country by 2030
	Strategic Interventions for Green Hydrogen Transition (SIGHT): Funding domestic electrolyser manufacturing and green hydrogen production.
	Green Hydrogen Hubs: Identifying and developing states/regions for large-scale hydrogen production/utilization.
	Strategic Hydrogen Innovation Partnership (SHIP): Under this Public-private partnership framework R&D will be facilitated under the mission.
International Collaboration	Actively partnering with other countries, research institutions, and private entities for expertise and technology development.
Renewable Energy Integration	Integrating green hydrogen production with India's expanding renewable energy capacity for improved efficiency and sustainability.

The Ministry of New and Renewable Energy (MNRE) (In collaboration with the Ministry of Road Transport & Highways) in India has launched a new pilot project for the production of Green Hydrogen with the following components:

1. Funding Allocation: Rs 496 crore allocated until 2025-26.
2. Pilot Project Support: Focus on testing green hydrogen as a vehicle fuel.
3. Infrastructure Development: Establishment of hydrogen refuelling stations.
4. Project Execution: Selected company or consortium as executing agency.
5. Viability Gap Funding (VGF): Approval by MNRE based on project appraisal.
6. Timeframe: Completion of pilot projects within two years.

To learn about Bio-hydrogen Click here

Way forward:

1. Reduce Production Cost: Develop efficient technologies for electrolysis. Integrate green hydrogen production with renewable energy.
2. Implement Regulatory Incentives: Offer tax credits and subsidies to promote adoption.
3. Improve Infrastructure: Establish dedicated infrastructure and supply chains. Develop efficient and cost-effective supply chains.
4. Coordinate Among Stakeholders: Ensure alignment of policies, standards, and regulations.
5. Raise Awareness and Capacity: Educate potential users and producers about benefits. Demonstrate safety and feasibility in various sectors.
6. Develop skills and competencies for production and utilization.

Insta Links:

India's green hydrogen challenge

Mains Links:

What are the key features of the National Clean Air Programme (NCAP) initiated by the Government of India? (UPSC 2020)

Topics: Disaster and management.

8. MHA NEW FUND NORMS FOR RECOVERY & RECONSTRUCTION (R&R)

Context:

The Ministry of Home Affairs (MHA) has introduced **new guidelines for the creation and management of recovery and reconstruction (R&R) funds**, following recommendations from the 15th Finance Commission.

What is recovery and reconstruction (R&R)?

Recovery and Reconstruction (R&R) refer to the processes undertaken after a natural disaster to restore affected areas and rebuild infrastructure.

- **Recovery** involves actions to return affected communities to normalcy, including repairing homes, restoring services, and addressing immediate needs.
- **Reconstruction** focuses on rebuilding damaged or destroyed infrastructure, such as roads, schools, and hospitals, and improving resilience to future disasters.

New guidelines of R&R Funding:

- **Aim:** To bridge funding gaps for states hit by natural disasters by reallocating existing disaster relief resources to better support recovery and reconstruction efforts.
- **Origin:** Created based on recommendations from the 15th Finance Commission.
- **Distribution:** Funds are allocated under NDRF & SDRF for:
  - Response and relief
  - Recovery and reconstruction
  - Preparedness and capacity building
- **Purpose:** Provides additional funds when state resources are insufficient for recovery needs.
- **Funding:** The National Disaster Response Fund (NDRF) will **allocate 30% of its funds for recovery and reconstruction**, with the rest for response, relief, preparedness, and capacity building. States can **also use 10% of their annual State Disaster Response Fund (SDRF) allocation** for non-notified disasters.
- **Nodal Agency:** State Disaster Management Authority (SDMA)
- **Covered Calamities:** Cyclone, drought, earthquake, fire, flood, tsunami, hailstorm, landslide, avalanche, cloud burst, pest attack, and frost & cold wave.
- **Activities Supported:** Housing, education, infrastructure, and more.

Recently, the central government introduced the **Disaster Management (Amendment) Bill, 2024** in the Lok Sabha, to amend the existing Disaster Management Act, 2005.

Key features	How it enhance disaster preparedness
Preparation of Disaster Management Plans: The Bill reassigns the responsibility of preparing disaster management plans directly to the National Disaster Management Authority **(NDMA)** and State Disaster Management Authorities **(SDMAs),** bypassing the National Executive Committee (NEC) and State Executive Committees (SECs). The NDMA's responsibilities will be expanded to **conduct periodic assessments of disaster risks** to enhance preparedness.	**Example:** This streamlined approach is intended to improve responsiveness in cyclone-prone regions like **Odisha.**
National and State-Level Data Repositories: The Bill mandates the creation of disaster databases at both national and state levels, which will include information on disaster assessments, fund allocation**, expenditures, preparedness plans, and risk registers.**	**Example:** Accurate data management will benefit states like **Uttarakhand,** where frequent floods and landslides require timely information for effective response.
Enhanced Autonomy in Staffing NDMA: NDMA will have the authority to s**pecify its staffing requirements and appoint experts**, subject to approval by the central government, thereby boosting its operational efficiency.	**Example**: In earthquake-prone areas like the **Northeast**, this flexibility will allow NDMA to quickly onboard specialists for targeted disaster management.

Creation of Urban Disaster Management Authorities (UDMA): New UDAs will be established **for state capitals and major cities, except Delhi and Chandigarh**, with municipal commissioners and district collectors leading disaster management efforts specific to urban challenges.	**Example: Cities like Mumbai**, which regularly face monsoon-related flooding, will benefit from a dedicated urban-focused disaster management body.
Formation of State Disaster Response Forces (SDRF): State governments will have the authority to establish State Disaster Response Forces with defined roles and responsibilities, enhancing the effectiveness of **local disaster response efforts.** The **2005 Act provides for a National Disaster Response Force (NDRF)** for specialised disaster response.	**Example: Kerala's** annual management of floods and landslides can be more effective with state-specific SDRFs tailored to local needs.
Legal Status for Key Disaster Management Committees The Bill grants s**tatutory status to the National Crisis Management Committee (NCMC)** and the High-Level Committee (HLC), strengthening their roles in disaster response and financial management.	**Example:** This statutory recognition will **formalize the role of these committees** in handling large-scale disasters like the COVID-19 pandemic.
New Enforcement Provisions and Penalties Section 60A empowers Central and State governments to direct actions to reduce disaster impacts, imposing penalties **up to Rs 10,000 for non-compliance.**	**Example:** This provision can help enforce protective measures in vulnerable areas, such as **regulating construction activities in landslide-prone regions.**

Conclusion:

Further ahead, there is a need to encourage a **collaborative approach between the central and State** governments in disaster management. **ensure adequate financial resources are allocated to State** and local authorities and **broaden the definition** of disaster to include climate-induced disasters like heatwaves to address emerging challenges.

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.

9. RESPONSIBLE USE OF ARTIFICIAL INTELLIGENCE IN THE MILITARY DOMAIN (REAIM): RESPONSIBLE USE OF AI IN WAR

Context:

The second summit (1st was conducted in 2023) on **Responsible Use of Artificial Intelligence in the Military Domain (REAIM)** begins in Seoul, focusing on setting global norms for **military AI use**.

- India has been observing **but not actively participating**, while the US and China are more engaged.

Aim: The summit aims **to address the implications of AI in warfare**, with discussions evolving from autonomous weapons to broader military applications. The US has promoted **responsible AI use through national guidelines and a UN resolution**, while China has been proactive in shaping regulations.

India faces **pressure to move beyond a passive stance and actively shape global AI norms**.

What is REAIM?

REAIM (Responsible Use of Artificial Intelligence in the Military Domain) is a **global summit focused on establishing norms and guidelines for the ethical and responsible** use of AI in military settings. It involves discussions among governments, international organizations, technology firms, and civil society to address the implications of AI in warfare and to promote standards that ensure its safe and ethical application. The summit aims to shape international regulations and practices to manage the military use of AI effectively.

Principles of Responsible Use of AI in War:

1. Human Oversight: Ensure human control over critical decisions, particularly those involving life and death.
2. Accountability: Hold entities accountable for the outcomes of AI-driven actions and decisions.
3. Transparency: Maintain transparency in AI systems to understand their decision-making processes.
4. Safety and Security: Prioritize safety to prevent unintended consequences and safeguard against misuse.
5. Ethical Standards: Adhere to ethical norms and humanitarian laws in AI applications.
6. Accuracy and Reliability: Ensure AI systems are accurate and reliable in their functioning.
7. Data Privacy: Protect data privacy and ensure responsible handling of information used by AI systems.

How different countries are using AI in warfare, with examples:

Country	Use of AI in Warfare	Examples
USA	**Surveillance and Reconnaissance**	AI-powered drones for intelligence gathering and monitoring.
China	**Intelligised Warfare**	AI in cyber operations and predictive analysis for military strategies.
Russia	**Autonomous Weapons**	Development of robotic systems and AI-driven combat vehicles.
Israel	**Missile Defense Systems**	AI in Iron Dome for intercepting and neutralizing incoming threats.
UK	**Data Analysis and Cyber Defense**	AI for analyzing large volumes of data for threat detection and response.
India	**Border Surveillance and Security**	AI in surveillance systems for monitoring and securing borders.

Responsible AI aligns with ethical principles:

Strategy	Description
Ethical Guidelines	Ensure developers follow shared ethical standards and consider ethics in AI design.
Accountability Mechanisms	Establish clear responsibility, liability, and reporting systems for AI impacts.
Transparency	Make AI decision-making processes and data usage clear to prevent bias and ensure fairness.
Privacy Protection	Use anonymized data, obtain consent, and enforce data protection policies to safeguard individual privacy.
Diverse Stakeholders	Involve individuals from varied backgrounds to address diverse needs and concerns in AI development.
Regular Ethical Audits	Perform ongoing audits to ensure AI systems adhere to ethical principles and identify improvement areas.

Insta Links:

- MINDMAP – Hybrid Warfare

CONTENT FOR MAINS ENRICHMENT

Topic in News	Usage in Answers
1. TALIBAN'S NEW "MORALITY LAW"	**Context:** The Taliban's new **114-page "morality law," enforced by the Ministry of Propagation of Virtue and Prevention of Vice**, formalizes restrictions on Afghan women. The law mandates **full-body veiling, with face coverings deemed essential to prevent "temptation."** A woman's voice is considered **"intimate"** and is banned from public singing or reciting. **Men and women unrelated by blood or marriage** are prohibited from interacting, and LGBTQ people and religious minorities face further persecution. The law has been described as **"gender apartheid,"** similar to the Taliban's previous regime (1996-2001), intensifying the repression of women and minorities. **Ethical Issues with the Law:** 1. **Gender Apartheid**: Systematic discrimination against women, limiting their freedom and rights. 2. **Suppression of Women's Voices**: Women are banned from speaking, singing, or reading in public. 3. **Forced Veiling**: Mandatory full-body veiling, including face coverings. 4. **Restriction of Social Interaction**: Bans on men and women interacting unless related by blood or marriage. 5. **Persecution of LGBTQ and Minorities**: Targeting vulnerable groups, including LGBTQ individuals and religious minorities. 6. **Use of Fear and Surveillance**: Encouragement of citizens to report "violations" creating a pervasive atmosphere of fear. 7. **Arbitrary Detention and Punishment**: Morality inspectors are given extensive powers to enforce the law.

2. STORY OF MIDWIVES IN BIHAR

Context: In the 1990s, rural midwives in Bihar, **India, were pressured to kill newborn girls** due to societal preference for sons.

Journalist documented their confessions, revealing how families coerced midwives to commit infanticide under the threat of violence. This practice was tied to the **dowry system, where daughters were seen as a financial burden**. However, social workers began changing this, asking midwives **if they would kill their own daughters**.

Some midwives, including Siro Devi, began saving girls and sending them to orphanages. Monica, one of the rescued babies, reunited with Siro decades later. Despite progress, the preference for sons persists, as seen in abandoned baby girls.

The case presents several ethical dilemmas:

1. Coercion vs. Moral Responsibility: Midwives were coerced by families to commit infanticide, raising the dilemma of acting under duress versus moral duty to protect life.
2. Caste and Poverty: The midwives, belonging to lower castes, faced societal pressures, complicating their ability to refuse orders from powerful families, pitting survival against ethical action.
3. Gender Discrimination: The societal preference for sons devalued female life, forcing midwives to choose between compliance and resisting harmful gender norms.
4. Justice vs. Forgiveness: Should the midwives be held accountable for their past actions, or should their transformation and efforts to save lives be seen as redemption?
5. Cultural Tradition vs. Legal Obligation: The custom of dowry and societal norms clashed with laws prohibiting sex-selective practices, creating a conflict between following tradition and upholding the law.

Usage: The example can be used in an Essay/ Ethics main paper.

3. CHINA IS RAISING RETIREMENT AGES

China is raising retirement ages to address several challenges:

1. Declining pension budgets: With pensions running deficits, delaying retirement would reduce immediate payouts and extend workers' contributions.
2. Increased burden on employed workers: Fewer workers are supporting more retirees, straining the system.
3. Ageing population and rising life expectancy: With life expectancy now 78.6 years and a growing elderly population, the current retirement age is unsustainable.

This move comes amid economic challenges, high youth unemployment, and concerns over the exploitation of blue-collar workers.

India can learn the following lessons from China's move to raise retirement ages:

1. Pension System Sustainability: India should strengthen its pension system to avoid future deficits, especially as the population ages.
2. Addressing Workforce Imbalances: Managing the ratio of workers to retirees is crucial for long-term economic stability.
3. Adaptation to Increasing Life Expectancy: As life expectancy rises, retirement ages may need to adjust to ensure financial sustainability.
4. Balancing Employment Needs: Raising retirement ages should be balanced with addressing youth unemployment and ensuring job opportunities for all.

FACTS FOR PRELIMS

GS-1

Art & Culture

1. SAKTHAN THAMPURAN

Context:

Recently, **Thrissur MP Suresh Gopi pledged to replace a statue of Sakthan Thampuran that was damaged in an accident**, if the Kerala government does not act within 14 days.

About Sakthan Thampuran:

- **Sakthan Thampuran, also known as Raja Rama Varma IX,** ruled the **Cochin kingdom from 1790 to 1805 and played a significant role in shaping the region.**
- Born in 1751, **he was known for his strong leadership and strategic decisions.**
- **Thampuran maintained friendly relations with both the Dutch and the British**, helping secure the kingdom's independence from **Mysore and establishing ties with the British East India Company.**
- **He relocated the capital from Thrippunithura to Thrissur** and developed the city's infrastructure, **inviting merchants of all religions and British officials.**
- **Thampuran also initiated the famous Thrissur Pooram festival in 1797**, enhancing its cultural significance.
- He was known for **eliminating crime in the kingdom, reforming temple management, and strengthening the kingdom's finances.**

2. NATIONAL FLORENCE NIGHTINGALE AWARDS 2024

Context:

The President of India, Smt. Droupadi Murmu presented the **National Florence Nightingale Awards 2024 to 15 nurses at Rashtrapati Bhavan**. These awards recognize their outstanding dedication to healthcare.

About the Award:

Established in 1973 by the Ministry of Health, the awards honour exceptional nursing professionals from across India. Each award includes a Certificate of Merit, a cash prize of ₹1,00,000, and a medal.

About Florence Nightingale**:**

She was an English social reformer and the founder of modern nursing. She gained recognition during the **Crimean War** for organizing care for wounded soldiers. She later established the **first scientifically-based nursing school** at St. Thomas' Hospital in London.

3. GREAT STUPA OF SANCHI

Context:

External Affairs Minister S. Jaishankar visited the replica of the East Gate of Sanchi's Great Stupa displayed outside the Humboldt Forum museum in Berlin.

About Sanchi Stupa:

- The stupa, located in Sanchi, India, is a large hemispherical structure believed to contain Buddha's relics.
- It is part of a **complex of Buddhist monuments dating up to the 12th century CE**, supported by the mercantile community of Vidisha **and constructed under the supervision of Ashoka's wife,** Devi**.**
- The toranas (gateways) of the Great Stupa, particularly the East Gate, are ornately carved with scenes from the Jataka Tales and Buddhist iconography.
- These gateways were added during the Satavahana dynasty in the 1st century BCE.
- Although the stupa itself is simple, the four toranas (positioned in cardinal directions) are celebrated for their artistic beauty, showcasing Buddhist and cultural motifs.

Society

4. OVER 100 MALNOURISHED CHILDREN FOUND AMONG SAHARIYA TRIBE

Context:

In Rajasthan's Baran district, **over 100 malnourished Sahariya children** were found in the Shahabad-Kishanganj area. A

A recent survey **identified 172 cases of malnutrition**, prompting the admission of affected children to **government-run Malnourishment Treatment Centres (MTCs)**.

About Sahariya Tribe:

Aspect	Details
Tribe Name	Sahariya (also known as Seher, Sair, Sawar, Saor, Sahara, etc.)

Location	Madhya Pradesh, Rajasthan, and Chhattisgarh
Historical Origin	Trace their origins to the days of the Ramayana and even earlier
Vulnerability	Among the most disadvantaged and vulnerable population groups in India
Settlement	Reside in separate areas called 'Seharana' within villages; typically clusters of houses made of stone boulders or mud
Caste System	Strong ties to the caste system, with members of the same caste living in close proximity
Religion	Practice Hinduism
Language	Speak a dialect influenced by Hindi and Brij Bhasha
Cultural Practice	Known for the Saharia Swang dance performed during Holi, featuring male performers in female attire, accompanied by dhol, nagari, and matki
Economic Activities	Dependent on forest products, agriculture, and daily wage labor; skilled in making catechu from khair trees

Geography

5. SALT PAN LANDS

Context:

Mumbai's salt pans, critical natural ecosystems, are under threat as the government approved **the transfer of 256 acres to the Dharavi Redevelopment Project for housing slum dwellers**.

- These salt pans, spanning 5,378 acres in the city, **help prevent flooding by accumulating rainwater and tidal inflows.**
- Environmentalists argue that **developing these lands will worsen flooding in areas like Vikhroli and Kanjurmarg.**
- **Despite their classification under Coastal Regulation Zone (CRZ) protections**, pressure to use them for housing persists.

Salt pan lands are flat expanses of **ground covered with salt and other minerals**, typically found in **arid and semi-arid regions**.

These lands are formed when **bodies of water, such as lakes or ponds, evaporate, leaving behind salt deposits.**

Salt pans are **often associated with desert environments but can also occur in coastal areas where seawater evaporates in shallow basins.**

GS-2

Judiciary

6. SUPREME COURT RULING ON JUDGES' ELEVATION

Context:

The Supreme Court has ruled that the **elevation of judges must be decided collectively by the High Court Collegium**, not by an individual Chief Justice.

- SC also clarified that although the **'content of consultation'** is beyond Judicial review **'effective consultation'** falls within its ambit.

Background of the case:

The Court directed the Himachal Pradesh High Court Collegium to **reconsider District Judges Chirag Bhanu Singh and Arvind Malhotra for promotion**. It emphasized that the process must involve collective deliberation and cannot be decided solely by the High Court Chief Justice.

About Collegium:

The Collegium system recommends appointments for Supreme Court (SC) and High Court (HC) judges.

- Supreme Court: The Collegium includes the Chief Justice of India (CJI) and four senior-most SC judges.
- High Court: The HC Collegium consists of the HC Chief Justice and two senior HC judges.

Appointments are made by the President under **Articles 124 and 217 of the Constitution**.

7. POPULAR ELECTION OF JUDGES

Context:

Mexico has become the first country in the world to **allow voters to elect judges at all levels.**

- The reform was championed by outgoing President Andres Manuel Lopez Obrador, who **criticized the existing judicial system as serving the elite.**
- The reform, which faced significant protests and opposition, mandates that around 1,600 judges, including Supreme Court justices, will stand for election in 2025 or 2027.
- Critics argue that this system may expose judges to criminal influence, particularly in a country where drug cartels hold significant power.
- Despite warnings from the Supreme Court chief justice, the reforms were passed both in the upper house and the lower house.

Governance

8. DELAY IN CENSUS: GOVT DISSOLVES STANDING COMMITTEE ON STATISTICS

Context:

The government has dissolved the **14-member Standing Committee on Statistics (SCoS),** which was overseeing statistical surveys, amid concerns about the delay in conducting the national census. The committee, led by former **Chief Statistician Pronab Sen**, had previously raised issues over delays in both the economic and population censuses. The last census was conducted in 2011, with the next due in 2021.

The **Ministry of Statistics and Programme Implementation (MoSPI)** stated that the committee's work overlapped with that of the newly formed Steering Committee for National Sample Surveys, leading to its dissolution.

Standing Committee on Economic Statistics (SCES)

1. **Established**: 2019 by MoSPI
2. **Nature**: Temporary committee for addressing critical statistical issues
3. **Funding**: Government of India (via MoSPI)
4. **Objectives**:
    a. Advise on survey methodology (sampling, design, instruments)
    b. Finalize survey tabulation plans

Steering Committee for National Sample Surveys (NSS)

1. **Established**: July 2023
2. **Objective**: Oversee survey-related matters of NSSO, based on NSC recommendations.

9. UNION HOME MINISTER AMIT SHAH RE-ELECTED AS CHAIRPERSON OF THE PARLIAMENTARY COMMITTEE ON OFFICIAL LANGUAGE (PCOL)

Context:

Union Home Minister Amit Shah has been **unanimously re-elected as Chairperson of the Parliamentary Committee on Official Language**.

He emphasized the **need for Hindi to complement rather than compete with regional languages,** aiming to enhance its acceptance across India. The goal is to have **all government systems operate in Indian languages by 2047**.

About Official Languages:

The Eighth Schedule of the Constitution **includes 22 languages**: Assamese, Bengali, Gujarati, Hindi, Kannada, Kashmiri, Konkani, Malayalam, Manipuri, Marathi, Nepali, Oriya, Punjabi, Sanskrit, Sindhi, Tamil, Telugu, Urdu, Bodo, Santhali, Maithili, and Dogri. Initially, **14 languages were included**. Sindhi was added by the **21st Amendment**

Act (1967), Konkani, Manipuri, and Nepali by the **71st Amendment Act (1992),** and Bodo, Dogri, Maithili, and Santhali by the 92nd Amendment Act (2003), effective from 2004.

About PCOL

1. **Constitution:** Established in 1976 under Section 4 of the Official Languages Act, 1963, to oversee the adoption of Hindi for official purposes.
2. **Membership:** Comprises 30 members (20 from Lok Sabha and 10 from Rajya Sabha), elected via proportional representation by single transferable vote.
3. **Functions:** Reviews the progress of Hindi usage for official purposes and submits recommendations to the President.

10. PM E-DRIVE SCHEME

Context:
The Union Cabinet has approved **the PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-Drive) Scheme**.

- The scheme focuses on **promoting the adoption of electric vehicles (EVs).**
- The **heavy industries ministry will implement the scheme, offering subsidies through a dedicated portal to both buyers and manufacturers.**
- Additional fund will be provided **to public transport agencies for procuring 14,028 e-buses,** with demand aggregation managed by **Convergence Energy Services Limited (CESL) in nine major cities.**
- The scheme also includes **funding for fast chargers, electric trucks, and the modernization of EV testing agencies.**

11. SAARTHI APP

Context:
The **Open Network for Digital Commerce (ONDC)** has launched **Saarthi, a reference app developed in collaboration with Bhashini, an AI-driven language-translation tool.**

- **Saarthi enables businesses to create multilingual buyer apps**, supporting Hindi, English, Marathi, Bangla, and Tamil initially, with plans to expand to all 22 languages provided by Bhashini.
- **Saarthi's multilingual features, including real-time translation, transliteration, and voice recognition**, aim to enhance **accessibility and provide a personalized digital commerce experience.**
- This initiative aligns with **ONDC's goal of democratizing e-commerce, helping businesses tap into new regions and overcome language barriers.**
- It is expected to **improve customer engagement, expand market reach, and boost revenue, particularly in underserved regions.**

12. RANGEEN MACHHLI APP

Context:
The Union Government launched the 'Rangeen Machhli' mobile app to support India's growing ornamental fisheries sector.

1. Developed under the Pradhan Mantri Matsya Sampada Yojana (PMMSY) by ICAR-Central Institute of Freshwater Aquaculture (ICAR-CIFA), the **app provides comprehensive guidance for both novice and professional fishers.**
2. It offers multilingual information on popular ornamental fish species in eight Indian languages, along with features like a "Find Aquarium Shops" tool for connecting users to local businesses.
3. The app includes educational modules, such as "Basics of Aquarium Care" for beginners, covering aquarium types, **fish care, water filtration, and maintenance.**
4. Another module, "Ornamental Aquaculture," focuses on breeding and rearing ornamental fish.

GS-3

Indian Economy

13. FOREIGN VENTURE INVESTORS

Context: SEBI has updated the rules for the **registration and eligibility of Foreign Venture Capital Investors (FVCIs).**

Under the new framework, the **process of registering FVCIs and managing post-registration activities will be handled by designated depository participants (DDPs)**, similar to the system for **Foreign Portfolio Investors (FPIs).**
Applicants must engage a DDP, **which will also serve as the custodian for FVCIs**.

Key updates include:

- FVCIs must **hold their investments in demat form starting January 1, 2025.**
- **Resident Indians (RIs), Non-Resident Indians (NRIs), and Overseas Citizens of India (OCI) can be contributors to an FVCI,** but with limitations: no **single individual can contribute more than 25%, and their combined contribution should not exceed 50%.**
- FVCIs must **appoint a domestic custodian for monitoring and reporting to SEBI.**

Science & Technology

14. NIDHI I-TBIS

Context:
Union **Minister Dr Jitendra Singh emphasized that women-led startups** will place India on the global stage in the future. He inaugurated **8 new NIDHI i-TBIs across India and launched the DST-GDC IIT Madras** INCUBATE Program for deep tech startups.

About NIDHI:

- Established: in 2016 by the Department of Science & Technology (DST).
- Objective: Transform ideas and innovations into successful startups.
- Funding: Managed by the National Science & Technology Entrepreneurship Development Board (NSTEDB) under DST.
- Implementation: Funds are distributed through NSTEDB-associated incubators across India.
- Key Component: NIDHI-iTBI (Inclusive-TBI) focuses on converting innovations into startups.

15. HELIUM GAS AND ITS USE IN ROCKET

- **Helium is a colourless, odourless, non-toxic gas with atomic number 2**.
- It is the second most abundant element in the universe and is created through **nuclear fusion in stars**.
- First detected in sunlight in 1868, it was later **discovered in uranium ore**.
- Helium is used in cryogenics, MRI scanners, and as a lifting gas.
- It's **rare on Earth**, mainly produced through the radioactive decay of elements like uranium, and extracted from natural gas.
- Once released into the atmosphere, **it escapes into space, making it a non-renewable resource**.

Why is it used in rockets?
Helium is used in rockets because it is **inert, non-reactive, and has a very** boiling point **(-268.9°C)**, allowing it to remain a gas in extremely cold conditions. It pressurizes fuel tanks, **ensuring smooth fuel flow to the engines**, and is safe to use with residual fuel. Its small size helps detect leaks, making it valuable for maintaining rocket systems. Alternatives like argon and nitrogen have been tested, but helium remains common due to its efficiency in the space industry.

16. NIGHT-TIME LIGHT POLLUTION AND ALZHEIMER'S RISK

Context:
A new study **links night-time light pollution** to an increased risk of **Alzheimer's disease**.

Researchers from Rush University Medical Center found that **artificial light at night may disrupt circadian rhythms and contribute to cognitive decline**. This environmental factor, though less influential than conditions like diabetes or hypertension, shows a notable correlation, especially for early-onset Alzheimer's. The study highlights the need to address light pollution as a potential risk factor for Alzheimer's.

About Light Pollution:
Light pollution is excessive outdoor artificial light that affects stargazing, human health, and wildlife. It disrupts circadian rhythms and sleep, potentially increasing the risk of Alzheimer's disease (AD).
About Alzheimer's Disease (AD):
AD is a common type of dementia causing a **progressive decline in memory, thinking, learning, and organization**. Contributing factors include genetics, medical conditions, and environmental stresses.

17. PLANETARY PROTECTION

Planetary protection **aims to prevent contamination of Earth's biosphere** and other planetary bodies by **alien microbial life during space missions**. It ensures that missions to the Moon, Mars, or other celestial bodies do not compromise their environments or introduce harmful elements.

This principle, established **under Article IX of the 1967**

Outer Space Treaty, requires spacecraft to be thoroughly cleaned and sterilized to maintain pristine conditions. For instance, **China's Tianwen-3 Mars mission**, set for 2028, will adhere to these guidelines.

India's involvement in planetary protection includes:

1. Mars Missions: India's Mars Orbiter Mission (Mangalyaan) in 2014 was designed with planetary protection measures to avoid contaminating Mars.
2. Policy Adherence: India follows planetary protection guidelines in accordance with the Outer Space Treaty, ensuring missions adhere to contamination prevention protocols.
3. Spacecraft Cleaning: ISRO implements stringent sterilization processes for spacecraft to comply with planetary protection standards.
4. International Collaboration: India collaborates with global space agencies to share best practices and enhance planetary protection efforts.

India is a signatory to the 1967 Outer Space Treaty (OST). India ratified the treaty in March 1967, 15 years after the United States, the Soviet Union, and 63 other UN participants signed it on January 27, 1967.

The OST is a treaty that **commits countries to the peaceful exploration and use of outer space**. India is also a signatory to several other international treaties related to space, including the **Rescue Agreement (1968), the Liability Convention (1972), the Registration Convention (1976), and the Moon Agreement (1979).**

18. SILICON CARBIDE (SIC)

Context:

India's first silicon carbide manufacturing facility will be established in Odisha with an investment of Rs 620 crore by RIR Power Electronics Limited, a leader in semiconductor power electronics.

About Silicon Carbide (SiC) (also known as carborundum)

It is a **hard, synthetic crystalline compound of silicon** and carbon. It has excellent thermal conductivity, mechanical strength, and resistance to wear and oxidation. **SiC** is used in semiconductor devices, mechanical seals, structural ceramics, heat exchangers, optical mirrors, and ballistic armor.

19. BEPICOLOMBO

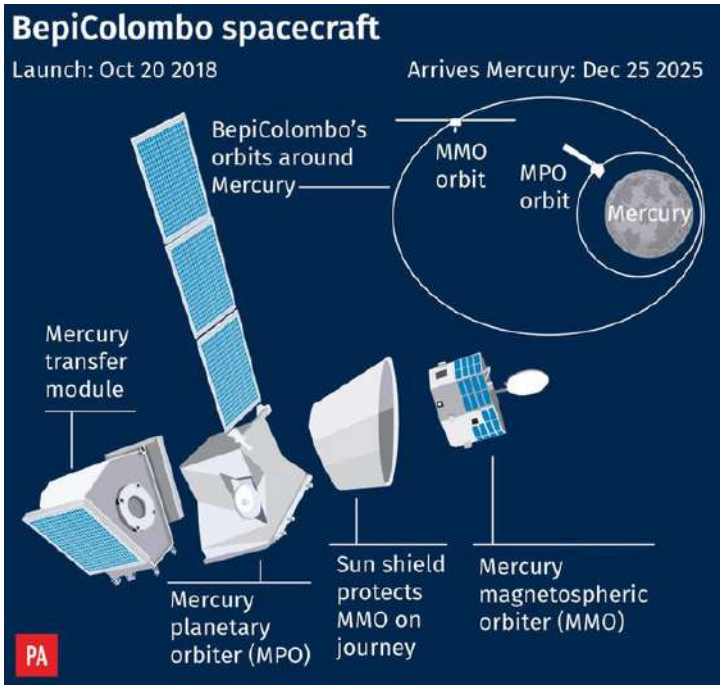
Context:

BepiColombo made its **closest flyby of Mercury**, capturing detailed black-and-white images of the planet's cratered surface.

This flyby **provided the first clear view of Mercury's south pole** and its unique crater structures, like the **peak ring basins**. The spacecraft, launched in 2018, will begin **orbiting Mercury in 2026**, with the mission aimed at studying the planet's composition, geology, and magnetic field. Despite delays, scientists are excited about the mission's potential to uncover Mercury's many mysteries.

About BepiColombo:

BepiColombo is a joint mission by the **European Space Agency (ESA) and Japan's JAXA** to study Mercury. Launched on October 20, 2018, it's named after Italian scientist Giuseppe "Bepi" Colombo. The spacecraft has two components: ESA's Mercury Planetary Orbiter (MPO) to study Mercury's surface and composition, and JAXA's Mercury Magnetospheric Orbiter (MMO) to investigate its magnetic field. The mission aims to explore Mercury's geological history, magnetic field, exosphere, and test principles of general relativity.



20. 'SIDDHA' DRUGS

Context:

A recent study published in the **Indian Journal of Traditional Knowledge found that a combination of Siddha drugs**, known as **ABMN (Annapeticenturam, Bavana katukkay, Matulai manappaku, and Nellikkay lekiyam)**, effectively **reduces anemia in adolescent girls.**

- **Conducted by researchers from the National Institute of Siddha and other institutions**, the study **involved 2,648 girls, 2,300 of whom completed a 45-day treatment program**.
- The treatment **improved hemoglobin levels, packed cell volume (PCV), mean corpuscular volume (MCV), and mean corpuscular hemoglobin (MCH)** while alleviating anemia symptoms like fatigue, headaches, and dizziness.

The study demonstrated Siddha medicine's **potential as a cost-effective, accessible treatment for anemia, highlighting its role in public health**

Siddha medicine is a **traditional system of healing that originated in South India**, particularly in Tamil Nadu. It is one of the **oldest medical systems, focusing on the balance of elements in the body.** Siddha drugs, derived from **herbs, minerals, and metals, are used to treat various ailments, following a holistic approach to health and wellness**.

21. PRESVU

Context:

Mumbai-based Entod Pharmaceuticals has received approval from the **Drug Controller General of India (DCGI) for its new eye drop, PresVu,** designed to **reduce dependency on reading glasses for people with presbyopia.**

- **Presbyopia is an age-related condition** where the **eyes lose the ability to focus on nearby objects, typically starting around age 40.**
- **PresVu's active ingredient is pilocarpine, which helps the eyes focus by contracting the iris muscles**.
- The drop uses an **advanced buffer technology to maintain consistent efficacy and safety for long-term use.**
- However, **its effects last only 4 to 6 hours, and side effects include itching, redness, and eye spasms.**

22. MISSION MAUSAM

Context:

Mission Mausam, a ₹2,000 crore initiative approved by the Union Cabinet, **aims to enhance India's weather and climate forecasting capabilities by 2026.**

- Spearheaded by the **Ministry of Earth Sciences (MoES), the mission seeks to make India "Weather Ready" and "Climate Smart,"** improving **resilience against climate change and extreme weather events.**

About Mission Mausam:

- Key objectives include **developing advanced weather surveillance technologies, improving atmospheric observations, and enhancing prediction capabilities using high-performance computers and AI/ML methods.**
- The mission will establish a **network of 50 Doppler Weather Radars, additional observation stations, and research facilities.**
- It also focuses on **last-mile data dissemination and capacity building to benefit citizens and sectors.**
- Three institutes under **MoES—IMD, NCMRWF, and the Indian Institute of Tropical Meteorology**—will lead the mission, with support from other MoES bodies and international collaborations.
- The **initiative promises significant advancements in weather forecasting and air quality data, ensuring more accurate and timely services.**

23. COMMISSION FOR SCIENTIFIC AND TECHNICAL TERMINOLOGY (CSTT)

Context:

The Commission for Scientific and Technical Terminology (CSTT) plays a crucial role in standardizing scientific and technical terminology in Indian languages.

- Established in 1961, it aligns with the National Education Policy (NEP) 2020 by promoting technical education, including engineering and medicine, in Indian languages.
- CSTT publishes bilingual, trilingual, and multilingual glossaries, dictionaries, and journals, such as 'Vigyan Garima Sindhu' and 'Gyan Garima Sindhu'.
- The "Shabd" website, launched in March 2024, hosts 322 glossaries with over 2.18 million headwords across various disciplines like Humanities, Medical Sciences, Engineering, and Agriculture.

The CSTT aims to accelerate its work using AI in the future to promote Indian languages and enhance accessibility.

Environment & Ecology

24. AIR QUALITY MANAGEMENT EXCHANGE PLATFORM (AQMX)

Context:

The Climate and Clean Air Coalition (CCAC) has introduced the **Air Quality Management Exchange Platform (AQMx)** to support global efforts in improving air quality. This platform provides air quality managers with tools and guidance to meet **WHO Air Quality Guidelines and interim targets.**

Developed in response to a UNEA-6 resolution for increased global cooperation, **AQMx** will facilitate the sharing of best practices and data, ultimately supporting better policies and health outcomes worldwide.

About CCAC:

Founded in 2012 within UNEP, **CCAC is a partnership of over 160 governments**, NGOs, and organizations. India

joined in 2019. It focuses on reducing short-lived climate pollutants like methane and black carbon.

WHO Air Quality Guidelines (AQG): These guidelines provide limit values for pollutants such as **PM2.5**, O3, NO2, SO2, and CO, recommending safe levels and interim targets. For example, the 24-hour mean for **PM2.5** should not exceed 15 µg/m^3, and the annual mean should not exceed 5 µg/m^3. The guidelines have been significantly updated from 2005 to 2021.

Pollutant	Averaging Time	2005 AQGs	2021 AQGs
$PM_{2.5}$, µg/m^3	Annual	10	5
	24-hour[a]	25	15
PM_{10}, µg/m^3	Annual	20	15
	24-hour[a]	50	45
O_3, µg/m^3	Peak season[b]	-	60
	8-hour[a]	100	100
NO_2, µg/m^3	Annual	40	10
	24-hour[a]	-	25
SO_2, µg/m^3	24-hour[a]	20	40
CO, mg/m^3	24-hour[a]	-	4

25. ELONGATED TORTOISE

Context:

A **critically endangered elongated tortoise** was spotted for the first time in **Haryana's Damdama area** in the Aravallis during a research survey.

This medium-sized tortoise, with a **yellowish-brown or olive shell and black blotches**, is typically found in Southeast Asia. It's unusual to find this species in the **Aravallis**, and its presence may be **linked to trade**. The tortoise is listed as **critically endangered on the IUCN** Red List due to severe population declines caused by human activities.

About Aravallis:

The **Aravalli Range spans 692 km from Gujarat to Delhi**, with a width of 10 to 120 km. It acts as a natural green wall, **80% in Rajasthan and 20% in Haryana**, Delhi, and Gujarat. The range is divided into two main sections: **the Sambhar Sirohi Range and the Sambhar Khetri Range in Rajasthan**, extending about 560 km. It serves as an ecotone between the Thar Desert and the Gangetic Plain. **Gurusikhar** in Rajasthan is the highest peak, at 1,722 meters.

26. MIKANIA MICRANTHA

Context:

Bhadra Tiger Reserve (BTR) is facing a biodiversity threat from the rapid spread of the invasive **weed *Mikania micrantha*, which now covers 10%-15% of the reserve.**

- This aggressive creeper**, known as the "mile-a-minute" vine**, has caused similar damage in other **reserves like Chitwan in Nepal and Valmiki in Bihar.**

27. MYRISTICA SWAMP FOREST

Context:

Researchers have discovered an **endangered Myristica swamp forest near the Goa-Maharashtra border.**

- This rare find highlights the **role of local communities in conserving culturally significant ecosystems**.
- The sacred grove, **linked to Lord Shiva and protected for generations, spans 8,200 square meters and hosts 39 plant species,** including 70 **endangered *Myristica magnifica* trees.**
- These trees, **vital to wildlife and the environment, contribute to groundwater recharge, carbon sequestration, and flood mitigation.**

The discovery **underscores the ecological importance of preserving such ecosystems**, especially in biodiversity-rich areas like the Western Ghats, and **calls for stronger conservation efforts to combat climate change and biodiversity loss.**

A swamp is a type of wetland characterized by **waterlogged ground and the presence of trees and other vegetation.**

Swamps are typically found in **low-lying areas where water accumulates, such as river floodplains, coastal regions, and areas with poor drainage**.

They can be freshwater or saltwater ecosystems, depending on their location.

Internal Security

28. JOINT DOCTRINE FOR AMPHIBIOUS OPERATIONS

Context:
Chief of Defence Staff General Anil Chauhan released the **Joint Doctrine for Amphibious Operations** on 9th September 2024 in New Delhi.

What are Amphibious Operations?
It refers to **military operations that involve a coordinated effort** between land and naval forces to project power from the sea onto land.

More on doctrine:
This doctrine offers **guidance to commanders for conducting amphibious operations** in the complex military environment. It enhances the Armed Forces' capability to perform various operations in the **Indian Ocean Region during both war and peace. The doctrine emphasizes jointness and integration among the Armed** Forces, following the earlier release of the **Joint Doctrine for Cyberspace Operations**.

Chief of Defence Staff (CDS): The CDS post, recommended in 2001, was created in 2019 based **on Lt Gen DB Shekatkar's committee**. **General Bipin Rawat** became India's first CDS on December 31, 2019.

29. REPORT IN NEWS

Report	Key Highlights
Air Quality and Climate Bulletin (4th Annual Report)	**Issued by:** United Nations' World Meteorological Organization (WMO) **Release Occasion:** Clean Air for Blue Skies Day
	PM2.5 Trends: Europe and China reduced pollution; North America and India saw increases.
	Global Hotspots: High PM levels in Central Africa, South-East Asia, Pakistan, India, and China.
	Crop Impact: PM2.5 reduces crop yields by 15% by limiting sunlight.
	Aerobiology Advances: Real-time bioaerosol monitoring to track climate impacts.
	New Techniques: Innovations in imaging, holography, and DNA sequencing to improve climate assessments.
FAO Food Price Index (FFPI)	**Issued by:** Food and Agriculture Organization (FAO)
	Overall Decline: Marginal drop in global food prices.
	Cereals: Wheat prices fell due to Black Sea supply, rice prices rose slightly, maize prices increased due to heatwaves.
	Global Cereal Output: 2024 output forecasted at 2,851 million tonnes, nearly matching 2023.
About FFPI:	**Established:** 1996
	Purpose: Tracks monthly changes in global food prices for five commodity groups: meat, dairy, cereals, vegetable oils, and sugar, based on export shares from 2014-2016.

MAPPING

INTERNATIONAL

Place	Why in News?
1. TYPHOON YAGI (VIETNAM)	**Context:** Typhoon Yagi has **claimed 143 lives in northern Vietnam**, with 58 still missing. Typhoon Yagi is the **strongest to hit Vietnam in decades**, with winds reaching 149 kph. **Why Vietnam and the Philippines are affected by so many typhoons?** Vietnam and the Philippines are **frequently affected by typhoons due to their geographic location in the Western Pacific**, one of the most active typhoon basins in the world. Both countries lie along the **Pacific typhoon belt**, where warm ocean waters and atmospheric conditions favour the formation of strong tropical storms. Their **long coastlines and low-lying areas** also make them highly vulnerable to storm surges, flooding, and landslides triggered by typhoons. Additionally, the seasonal monsoons intensify these weather systems, especially during the peak typhoon season from June to November. **About Vietnam:** Vietnam is located in Southeast Asia, **covering 331,000 square kilometres with a population of over 100 million**. It shares borders with China, Laos, and Cambodia, and maritime borders with several countries in the South China Sea. Its capital is Hanoi, and its largest city is **Ho Chi Minh City**. 

Place	Why in News?
2. KEOLADEO NATIONAL PARK (RAJASTHAN)	**Context:** India's **first 'teal carbon' study**, conducted at **Keoladeo National Park** in Rajasthan, focuses on using freshwater wetlands to address climate adaptation and resilience challenges. **About Teal carbon:** It refers to carbon stored in **non-tidal freshwater wetlands,** including vegetation, microbial biomass, and organic matter. The study highlights the potential of wetlands in regulating greenhouse gases and mitigating climate change, while calling for urgent conservation efforts. Led by the **Central University of Rajasthan**, the study emphasizes **reducing methane emissions** and developing biochar for effective wetland conservation. **About** Keoladeo National Park**:**

Key Points	Details
Location	Bharatpur, Rajasthan
Significance	UNESCO World Heritage Site; Important bird-watching area
Ramsar Recognition	First Ramsar Site of India (1981) alongside Chilika Lake
Montreux Record Status	Currently listed, along with Loktak Lake (Manipur)
Bird Diversity	Home to over 365 bird species, including rare and threatened species like the Siberian crane
Migratory Birds	Attracts species from the northern hemisphere for breeding
Fauna	Jackals, Sambar, Nilgai, wild cats, hyenas, wild boar, porcupine, mongoose
Flora	Tropical dry deciduous forest with Acacia nilotica and dry grassland
Rivers	Gambhir and Banganga rivers flow through the park