

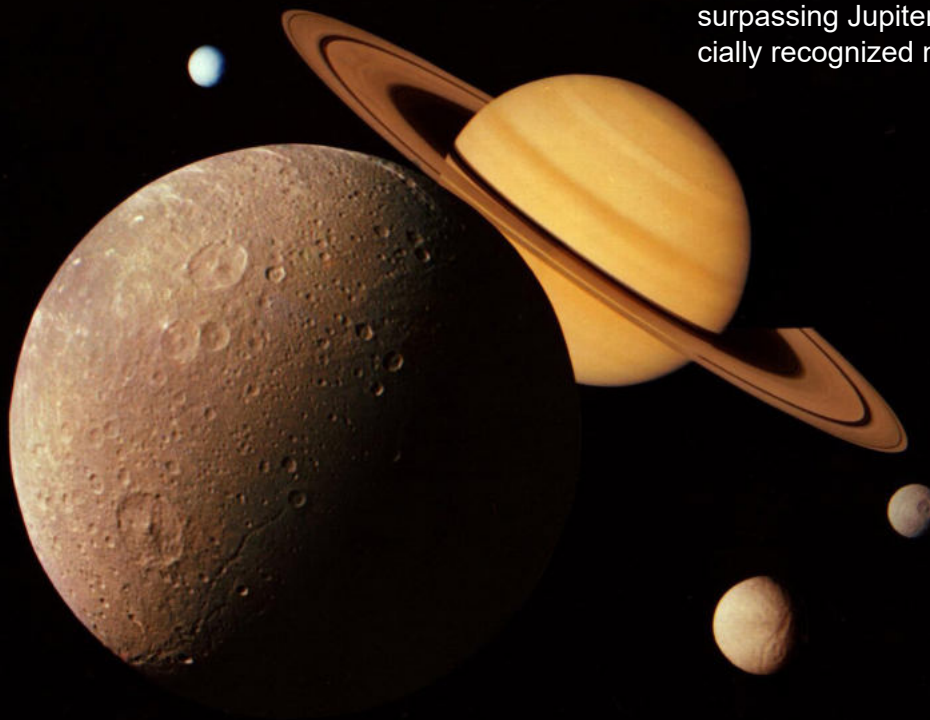


INSIGHTSIAS

SIMPLIFYING IAS EXAM PREPARATION

SATURN'S MOON

Saturn has regained its title as the planet with the most moons in the solar system. The discovery of 62 new moons brings Saturn's total to 145, surpassing Jupiter, which has 95 officially recognized moons.



15 MAY - 20 MAY 2023

WEEKLY CURRENT AFFAIRS

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INSIDE

GS PAPER 1

World History

1. Israel-Palestinian issue: 75 years since the displacement of 700,000 Palestinians 4

Israel's boundaries today

■ Palestinian civil control
 ■ Built-up Palestinian area



Indian Society

2. Erosion of the traditional Indian family 5

Population and Related Issues

3. Migration away from metros, towards small towns 7

GS PAPER 2

Judiciary

1. Jallikattu, Kambala can go on in Tamil Nadu and Karnataka: SC 8

Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

2. Model Prisons Act 2023 9

3. Government Implements RPwD Act 2016 10

Issues Relating to Development and Management of Social Sector/Services Relating to Health

4. An integrated system of medicine 12

Reports & Indices

5. Global Report on Internal Displacement 2023 (GRID-2023) 13

GS PAPER 3

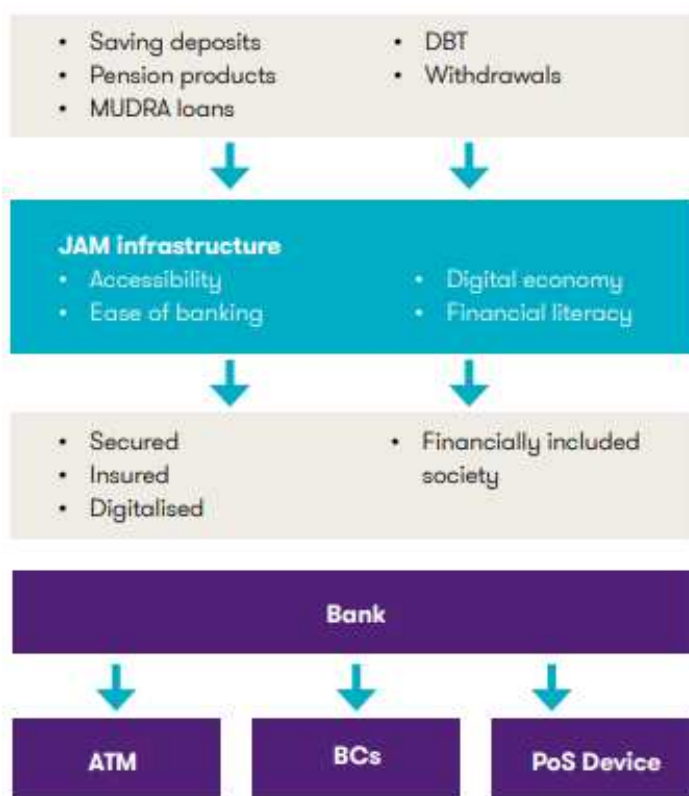
Indian Economy and issues relating to planning, mobilization, of resources, growth, development and employment.

1. Why has the RBI withdrawn Rs 2,000 notes? 14

2. Cross-Border Insolvency 16

Inclusive Growth

3. Financial Inclusion in Rural India 17



Agriculture

4. Making agri-commodity value chains sustainable 18

Health

5. WHO: Incentivising the development of new antibacterial treatments 2023 19

Achievements of Indians in Science & Technology

6. India's Women in Science 20

Conservation, environmental pollution and degradation

7. Globalization and Climate Change 21

8. Green Energy Open Access Rules, 2022 22

9. Groundwater exploitation and sinking land 23

10. Land reclamation 25

Disaster management

11. Combating forest fires in Uttarakhand 26

CONTENT FOR MAINS ENRICHMENT (CME)

1. NITI Aayog's Compendium on Best Practices in Social Sector 2023 28

- a. Best Practices in Women's Empowerment 28

- B. Best Practices in Sports and Disaster mitigation 29

2. 25 years of Kudumbashree 29

3. Sachhi Saheli Mahila Agro Producer Company Limited 29

4. Welfare fund for MGNREGS workers 30

5. Single-teacher schools (Jharkhand) 30

6. Commander Abhilash Tomy 30

7. John Sullivan 30

8. Agra Smart City 31
9. India Data Capacity Accelerator 31
10. Sam Altman: Challenges and future of AI technology 31
11. WHO: Potential harm of using AI 31
12. NYC skyscrapers turning to carbon capture 32
13. Examples of initiatives under Mission LiFE 32
14. Freeing "dotted lands" 32
15. Heli-tourism 33
16. Riverine-Based Religious Tourism Circuit 33

FACTS FOR PRELIMS

GS PAPER 1

Indian Heritage and Culture

1. Santiniketan

Santiniketan

Context: The International Council on Monuments and Sites, a UNESCO advisory body, has recommended that Santiniketan be included in the list of World Heritage Sites.

Santiniketan is a renowned cultural and educational institution (comprising Viswa Bharati University) located in the Birbhum District of West Bengal, India.	
Meaning of Name	Santiniketan literally means "abode of peace" in Bengali.
Origin	Initially, it started as an ashram (hermitage) founded by Rabindra Nath Tagore's father, Debendranath Tagore, but eventually developed into a centre of art, culture, and learning.
Teaching	It is known for its unique educational philosophy , which emphasizes the integration of nature, creativity, and holistic learning . It follows the concept of an open-air classroom where students are encouraged to learn in close connection with nature.
Key Features	Santiniketan is also adorned with splendid sculptures, frescoes, murals, and paintings created by renowned artists such as Rabindranath Tagore, Nandalal Bose (one of the pioneers of modern Indian art) and Ramkinkar Baij (master sculptor and painter) among others.
Significance	Cultural and heritage place, associated with Nobel laureate Rabindranath Tagore
West Bengal's Representation	If selected, Santiniketan would be the second cultural symbol from West Bengal to be included in the UNESCO list (1 st being 'Durga Puja in Kolkata' in UNESCO's list of Intangible Cultural Heritage of Humanity, 2021)
UNESCO World Heritage site	Landmarks or areas selected for their cultural, historical, scientific, or other significant value
Selection Criteria	Sites must be already-classified landmarks , unique and significant culturally or physically
World Heritage Committee	Selects and monitors World Heritage Sites , manages the World Heritage Fund, and provides financial assistance
Membership	India is a member of the World Heritage Committee (2021-2025)

2. Saraswati Yantra 34
3. Matrilineal Meghalaya 35
- Geography
4. Palghat Gap 36

GS PAPER 2

Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

1. Pension Adalat 37
2. Sanchar Saathi Portal 37
3. Prices of Drugs going off-patent 38
4. CEIR system 38

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

5. Stars Programme 39
6. Important International institutions, agencies and fora-their

- structure, mandate.
6. International Organization for Migration (IOM) 40

GS PAPER 3

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

- Robert Lucas' rational expectation theory 40
2. Aadhaar-enabled Payment System (AePS) 40
3. ECL-based loan loss provisioning norms 41
4. Surety bonds 41
5. Liberalized Remittance Scheme (LRS) 42
6. Centre for Processing Accelerated Corporate Exit (C-PACE) 42
7. IT Hardware PLI Scheme 2.0 43
8. US debt ceiling deal 43
9. Greenwashing TechSprint 44
10. South Asia Gas Enterprise (SAGE) 44

Issues related to direct and indirect farm subsidies and minimum support prices

11. Minimum Import Price for Apples 45
- Food processing and related industries in India
12. Pradhan Mantri MatsyaSampada Yojana (PMMSY) 45

Science & Technology

13. Semi-cryogenic Engine 46
14. Digital Public Infrastructure (DPI) 46
15. ASTR 47

Space Technology

16. Saturn's Moon 48

Conservation, environmental pollution and degradation

17. Global temperature likely to breach 1.5°C threshold by 2027 48
18. Meri LiFE, Mera Swachh Shehar 49
- A. Meri LiFE's app 49
19. Lakes 49
20. Regulating captive breeding of exotic animals 50
21. UNFF18 50
22. Sustainable Aviation Fuel (SAF) blend 50
23. Bura Chapori Wildlife Sanctuary 50

Species in News

24. Baobab trees 51
25. Gharials 51
26. Shelled pteropods & Flightless Midge 51

Defense

27. Defence production 52

GS PAPER 1

WORLD HISTORY

1. ISRAEL-PALESTINIAN ISSUE: 75 YEARS SINCE THE DISPLACEMENT OF 700,000 PALESTINIANS

Context:

UN commemorated the **mass displacement of Palestinians**, known as the **Nakba**, for the **first time** in its history.

What is Nakba (catastrophe)?

It refers to the **mass displacement and exodus of Palestinians** that occurred in **1948** when **Israel** was established. It resulted in **approximately 700,000 Palestinians** being forced to leave their homes, becoming refugees.

Why were Palestinians displaced?

Palestinians were displaced primarily as a **result of the establishment of the state of Israel** in 1948. The displacement occurred during the **Arab-Israeli war** that followed Israel's declaration of independence.

A brief timeline of the Israel-Palestinian issue:

- **Early 20th century:** Jews and Arabs both claim **historical and ancestral** connections to the land of Palestine.
- **1917: Balfour Declaration** expresses support for a Jewish national home in Palestine
- **1947: The United Nations proposes a partition plan**, recommending separate Jewish and Arab states in Palestine.
- **1948: Israel declares independence**, leading to the **Arab-Israeli war**.
- **1967: The Six-Day War takes place**, with Israel gaining control of the West Bank, East Jerusalem, Gaza Strip, Sinai Peninsula, and Golan Heights.
- **1993: The Oslo Accords** are signed, establishing a framework for peace negotiations between Israel and the Palestinian Authority.
- **Current situation:** Israel occupies the West Bank and East Jerusalem, with the construction of Israeli settlements and separation barriers impacting Palestinian territories.

Israel's boundaries today



Status of Palestinian Refugees:

The status of Palestinian refugees remains a significant and unresolved issue. According to the **United Nations Relief and Works Agency for Palestine Refugees (UNRWA)**, there are approximately **6 million** registered Palestinian refugees. Many of them continue to live in refugee camps in the West Bank, Gaza Strip, Jordan, Lebanon, and Syria.

Views of the International Community:

The international community supports a **two-state solution**, where Israel and a future independent Palestine exist side by side. Various peace talks and initiatives, such as the **Camp David Summit in 2000** and the **Annapolis Conference in 2007**, have aimed to resolve the conflict but have not yet resulted in a final agreement. In 2020, the United Arab Emirates and Bahrain signed **normalization agreements with Israel**.

Views of India:

India's views on the Israel-Palestinian issue have **evolved over time**. Historically, India supported **the Palestinian cause** and recognized **the Palestinian Liberation Organization (PLO)** as the sole legitimate representative of the Palestinian people. However, in recent years, India has adopted a **more balanced approach** and emphasized its commitment to a **two-state solution**. India supports the establishment of a **sovereign, independent, and viable Palestinian state** existing **peacefully alongside Israel**.

Conclusion:

The UN marking 75 years since the displacement of 700,000 Palestinians recognizes historical injustice, affirms Palestinian rights, advocates for a peaceful resolution, and shows solidarity with Palestinians.

Insta Links:

[Israel Palestine conflict](#)

Mains Links:

Q. "India's relations with Israel have, of late, acquired a depth and diversity, which cannot be rolled back." Discuss. (UPSC 2018)

Prelims Links: (UPSC 2015)

Q. The area known as 'Golan Heights' sometimes appears in the news in the context of the events related to

- a) Central Asia
- b) Middle East
- c) South-East Asia
- d) Central Africa

Ans: B

INDIAN SOCIETY

2. EROSION OF THE TRADITIONAL INDIAN FAMILY

Context:

The article highlights the increasing cases of violence within families, suicides among young individuals, and the rising number of children involved in criminal activities as **symptoms of societal ill-health and disruptions in the traditional family system**.

What is a family?

A family is a **social unit consisting of individuals** who are related by blood, marriage, or adoption. It is a **fundamental institution in society** where members provide support, love, and care for one another, and **share common experiences, values, and responsibilities**.

What is the meaning of a traditional Indian family?

The traditional Indian family refers to the **prevailing family structure and dynamics** that have been **historically and culturally** prevalent in Indian society. It **typically** follows a **patriarchal system** where the **father or eldest male member** holds authority and decision-making power within the family.

Importance of family:

	Example
Emotional Support	During challenging times, such as the loss of a loved one or personal struggles
Socialization	Family plays a vital role in socializing children, teaching them societal norms, values, and behaviours
Identity Formation	Family provides a sense of belonging and helps individuals develop their identity by instilling cultural, religious, and familial values .
Intergenerational Bonding	The presence of multiple generations in a family fosters intergenerational relationships , creating opportunities for shared wisdom, experiences, and mutual learning.
Moral and Ethical Development	Families teach principles of honesty, integrity, compassion, and responsibility. India swear by Vasudhaiva Kutumbakam . Kutumb or family has traditionally acquired primacy in human interpersonal-social relationship dynamics .
Education Guidance and Financial Support	

Challenges faced by the traditional family system:

	Example
Changing Gender Roles	For instance, if a woman desires a career outside the home but is expected to prioritize domestic responsibilities, conflicts may arise.
Generational Gap	When younger members adopt different values, lifestyles, and beliefs than their older relatives.
Urbanization and Mobility	As individuals seek better opportunities or education, they may move away from their extended families, leading to a decrease in close-knit family support networks.
Influence of Technology	Technology can impact traditional family dynamics, with increased screen time and virtual interactions potentially diminishing the sense of togetherness within the family.
Excessive emphasis on Individualism	For example, candid and heart-to-heart dialogues between husband-wife and parent-children are becoming rare. They have become too formal and superficial . This challenges the collectivist nature of traditional family systems.
Excessive Formalisation From birthdays to weddings and house-warmings to condolence meetings, everything is being made into a formal event. This creates the "crisis of authenticity" of our interpersonal feelings.	
Cultural and Social Changes	Cultural and social changes, such as globalization and exposure to diverse perspectives , can challenge traditional family norms and values.
Balancing Work and Family	The traditional family system may face difficulties in accommodating individual aspirations while maintaining traditional family roles and responsibilities.

Ways of Reviving India's Traditional Family System:

	Example
Promote Inter-generational Bonding	Using storytelling, family meals, and cultural celebrations.
Strengthen Communication and Dialogue	Promote dialogue that goes beyond formalities and embraces deeper emotional connections .
Value Traditional Values and Customs	Encourage the preservation of traditional values, customs, and cultural practices within the family, ensuring that they are passed down to younger generations.
Foster Mutual Support and Care	E.g., provide emotional support during challenging times and engage in acts of kindness and assistance.
Balance Individualism and Collectivism	E.g., Encourage family members to pursue personal goals while maintaining a sense of togetherness, shared decision-making, and a commitment to the welfare of the family unit.
Embrace Modern Technology Responsibly	E.g., Encouraging the use of technology for virtual family gatherings , sharing updates, and staying connected across distances.
Promote Gender Equality and Empowerment	Advocate for gender equality within the family, promoting shared responsibilities, equal opportunities, and empowering women to pursue their aspirations. Woman-led, child-focused and elderly-sensitive families are the need of the hour

Conclusion:

The traditional Indian family system holds **immense value and significance** in providing emotional support, socialization, identity formation, and a sense of belonging. **Reviving and nurturing the traditional family system** can contribute to the well-being of individuals, the cohesion of society, and the preservation of cultural heritage.

Insta Links:

[Family in Indian Society](#)

Mains Links:

Q. Examine the causes and concerns associated with the erosion of the traditional Indian family structure. How has this transformation affected Indian society? (250 Words)

POPULATION AND RELATED ISSUES

3. MIGRATION AWAY FROM METROS, TOWARDS SMALL TOWNS



Migration in India



Context: Due to the COVID-19 pandemic, IT/ITeS companies in India are relocating from major cities to smaller towns. This trend aims to retain talent and reduce attrition levels.

Topic	Description
About Migration	The International Organization for Migration defines a migrant as any person who is moving or has moved across an international border or within a state away from his/her habitual place of residence.
Factors Determining Migration	Migration can be either voluntary or forced movements as a consequence of the increased magnitude or frequency of disasters, economic challenges, extreme poverty, or conflict situations.
Push Factors	Push factors compel a person to leave their place of origin (out-migration) and migrate to another place. These factors can include economic reasons, social reasons, Pandemics and lack of development in a particular place.
Pull Factors	Pull factors attract migrants (in-migration) to a destination area. These factors can include job opportunities, better living conditions, and the availability of basic or high-level facilities.
Migration - 2011 Census	Number of internal migrants (both inter-state and within state) in India: over 45 crores (37% of the country's population)
Migration - Economic Survey 2016-17	<ul style="list-style-type: none"> Relatively less developed states (e.g., Bihar and Uttar Pradesh): High net out-migration Relatively more developed states (e.g., Goa, Delhi, Maharashtra, Gujarat, Tamil Nadu, Kerala, Karnataka): Reflect net immigration Largest recipient region: Delhi (accounted for more than half of migration in 2015-16) Uttar Pradesh and Bihar combined: Account for half of the total out-migrants
Migration in India Report 2020-21	Female migration is more than male migration. Major reasons for female migration: Marriage; Major reasons for male migration: Search for employment
Migration and its Impacts on Cities	According to a report by the World Economic Forum, smaller cities are rapidly growing but struggling to cope with infrastructure demands due to declining civic revenue resources.

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Reasons for Migration to Smaller Cities in the IT/ITeS Sector:

Reasons	Example
Remote and hybrid work models	Companies like Cognizant allowed employees to work from anywhere (during the pandemic), leading to a shift away from major cities.
	Companies can establish satellite offices in smaller cities, supporting remote and hybrid work models.
Cost savings	Moving to smaller cities allows companies to reduce real estate costs and invest more in people and R&D.
	Employees can save more in terms of rental costs and experience social benefits in smaller towns.
Rich talent pool	Smaller cities have untapped talent with a potential talent drain to larger metros, providing opportunities.
Higher retention rates	Employees prefer to stay in their hometowns, leading to higher retention rates in smaller cities.
Availability of office space and amenities	Smaller cities like Coimbatore offer quality office spaces with amenities at lower costs compared to metros.
Rise of co-working spaces in smaller cities	Co-working spaces provide access to high-quality office space at a fraction of the cost in larger cities.
Counter-magnet dynamics	Surat and Pune have started acting as a counter-magnet region to Mumbai and attract migrants from the neighbouring districts of Maharashtra

Insta Links:

[Human Migration](#)

Mains Links:

Q. What are the main socio-economic implications arising out of the development of IT industries in major cities of India? (UPSC 2021)

Q. Discuss the changes in the trends of labour migration within and outside India in the last four decades. (UPSC 2015)

GS PAPER 2

JUDICIARY

1. JALLIKATTU, KAMBALA CAN GO ON IN TAMIL NADU AND KARNATAKA: SC

Context:

A five-judge Bench of the SC upheld the amendments made by TN, Maharashtra and Karnataka to [The Prevention of Cruelty to Animals \(PCA\) Act 1960](#), allowing bull-taming sports like [Jallikattu](#), Kambala, and bullock-cart races.

What is [Jallikattu/eruthazhuvuthal](#)?

- It is a **bull-taming sport** traditionally played in TN as part of the **Pongal** harvest festival and as a celebration of nature, of which cattle worship is a part.
- However, it has long been **contested over cruelty to animals and the bloody and dangerous nature of the sport**.

Background of the case:	
Welfare Board of India v. A. Nagaraja 2014	<p>A two-judge Bench of the SC banned such sports including Jallikattu.</p> <ul style="list-style-type: none"> The apex court held “bovine sports” contrary to the PCA Act - fixes the duties of persons in charge of animals and defines animal cruelty. The PCA Act overrides the so-called tradition and culture and the Parliament must elevate the rights of animals to that of constitutional rights (under Articles 14, 21).
MoEFCC notification, 2016	<p>It prohibited the “exhibition or training of bulls as performing animals”.</p> <p>However, an exception specified that bulls might still be trained as performing animals at Jallikattu, according to the customs and culture of different communities.</p>
TN amended the PCA Act in 2017	<ul style="list-style-type: none"> This was done to allow Jallikattu in the state, to preserve the cultural heritage of TN, to ensure the survival and well-being of the native breeds of bulls, and to minimize cruelty to animals in the concerned sports <ul style="list-style-type: none"> A batch of petitions were filed challenging the above exemption and the amendments, following which the SC referred the matter to the Constitution Bench, as the issue involved the interpretation of the Constitution. The Bench was tasked with deciding whether Jallikattu could be preserved as the cultural right of TN under Article 29(1) of the Constitution.
The recent verdict of the SC:	
<ul style="list-style-type: none"> It overruled its 2014 ruling in ‘Welfare Board of India v. A. Nagaraja’ and held that Jallikattu has a strong cultural component. The amendments (to the PCA) were “valid legislations”, as these are not a piece of colourable legislation and that it relates to List III of the 7th Schedule to the Constitution [prevention of cruelty to animals]. The court also said that the 2017 amendment does not violate - <ul style="list-style-type: none"> Articles 51-A (g) and 51-A (h), which impose duties on Indian citizens to protect the environment and develop a scientific temper, humanism, spirit of inquiry, and reform, respectively. Articles 14 (Right to Equality) and 21 (Right to Life) of the Constitution. However, the Jallikattu issue is “debatable” and must ultimately be decided by the Parliament, as the issue requires social and cultural analysis in greater detail. 	

Insta Links: [Jallikattu](#)

GOVERNMENT POLICIES AND INTERVENTIONS FOR DEVELOPMENT IN VARIOUS SECTORS AND ISSUES ARISING OUT OF THEIR DESIGN AND IMPLEMENTATION.

2.MODEL PRISONS ACT 2023



Model Prisons Act 2023



Context: The Indian government has prepared a new **Model Prisons Act** to replace the current **130-year-old 'Prisons Act, 1894'**, with a focus on rehabilitation and reform of prisoners instead of retributive deterrence.

Implementations

Prisons in India and 'persons detained therein' are a **State subject** and MPA 2023 will serve as a "guiding document" for States. Therefore it is **not binding** on the states.

Feature	Model Prisons Act 2023
To incentivise good conduct	Ensure legal aid to prisoners, provision of parole, furlough and premature release
For women and transgender inmates	Ensure the physical and mental well-being of these vulnerable inmates and provide separate accommodations
Reformation	Move away from the retributive deterrence approach and transform prisoners into law-abiding citizens
Security assessment	Ensure the safety of both prisoners and prison staff by segregation of prisoners
Grievance Redressal	Provide a mechanism for prisoners to raise concerns and receive appropriate responses
Prison development board	Establish a board to oversee and advise on prison development and management
Use of technology	Bring transparency and efficiency to prison operations
Use of prohibited items	Discourage prisoners and prison staff from using prohibited items , such as mobile phones, in prisons
High-security jails	Ensure the proper management and security of high-risk prisoners by the establishment of high-security jails
Open and semi-open jails	Provide different types of facilities to accommodate different types of prisoners

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What is Criminal Justice System in India?

The Criminal Justice System (CJS) in India is a set of **legal and institutional frameworks** that govern the detection, investigation, prosecution, and punishment of criminal offences.

- **The CJS in India is mainly guided by three major legal documents:**
 - The Indian Penal Code
 - The Code of Criminal Procedure
 - The Indian Evidence Act.
- **CJS has four subsystems:**
 - Legislature (Parliament)
 - Enforcement (Police)
 - Adjudication (Courts)
 - Corrections (Prisons, Community Facilities)

Need for new Prison Act:

	Examples/Facts
Outdated laws	The Indian Prison Act was enacted in 1894 and amended several times , but it fails to address modern-day prison challenges.
Human rights violations	E.g., custodial deaths, torture, and overcrowding are widespread in Indian prisons.

Focus on rehabilitation	<p>The current prison system focuses more on punishment than rehabilitation, which leads to high recidivism rates (committing offence again).</p> <p>A new act should emphasize the need for rehabilitation programs and better integration of prisoners into society upon release.</p>
Improved healthcare	Many Indian prisons lack adequate healthcare facilities, leading to higher mortality rates.
Technology integration	The current prison system is largely manual and paper-based, leading to delays and inefficiencies.
Overcrowding	According to the latest data available from the National Crime Records Bureau (NCRB) , the occupancy rate of Indian prisons is over 117% , indicating severe overcrowding.
Staff training	<p>Many Indian prison staff lack adequate training, leading to incidents of human rights abuses, corruption, and mismanagement.</p> <p>E.g., In 2020 it was reported that the Puzhal Central Prison in Chennai, Tamil Nadu had only one guard for every 100 prisoners.</p>

Previous other recommendations:

SC appointed Justice Amitava Roy (retd.) The committee recommended several measures to address the issue including:

- Speedy trials
- Increasing the number of lawyers for prisoners
- Setting up special fast-track courts for petty offences
- Promoting the concept of plea bargaining

Initiative for prison reforms in India: The Modernisation of Prisons Project (2021-26) aims to enhance security and facilitate prisoner rehabilitation in India through the use of modern security equipment; E-Prisons Project, Model Prison Manual 2016, and National Legal Services Authority (NALSA).

Conclusion:

The Model Prison Act 2023 is aimed at improving prison administration and conditions, protecting the rights of prisoners, and promoting their rehabilitation and reintegration into society. It is expected to bring much-needed reforms to the Indian prison system and align it with international standards.

Insta Links:

[Prison Reforms in India](#)

Mains Links:

Q.Instances of the President's delay in commuting death sentences have come under public debate as denial of justice. Should there be a time specified for the President to accept/reject such petitions? Analyse. (UPSC 2014)

3. GOVERNMENT IMPLEMENTS RPWD ACT 2016

Context:

The Government of India has implemented the **Rights of Persons with Disabilities (RPwD) Act 2016** to establish accessibility standards for persons with disabilities.

What are accessibility standards for persons with disabilities?

Accessibility standards for persons with disabilities refer to **guidelines and regulations** that aim to ensure **equal access and participation for individuals** with disabilities in various environments and services. These standards cover different aspects of accessibility—Physical environment, transportation, information and communication, technology, and public facilities.

Status of Persons with Disabilities in India:

There are about **2.68 crore (2.21% of the population)** people with disabilities in India according to the 2011 census of India.

About the Accessibility standards for persons with disabilities:

Aspect	Accessibility Standards
Aim	Provide access to medical services for persons with disabilities—Preventive, curative and rehabilitative.
Barriers	Limited access to quality education, low employment rates, and inadequate healthcare services.
Key Aspects of accessibility standards	
Physical Environment	E.g., Ramps and accessible entrances; Barrier-free pathways and accessible parking spaces; Elevators and lifts for vertical accessibility
Transportation	Accessible buses, trains, and stations; Wheelchair ramps and lifts; Audible and visual announcements
Information and Communication	Accessible formats for printed materials; Captioning and audio descriptions for audio-visual content; Accessible websites and digital platforms
Technology	Screen reader compatibility; Keyboard accessibility; Alternative text for images
The initiative taken by India	
Conventions	<ul style="list-style-type: none"> India has ratified the UN Convention on the Rights of Persons with Disabilities. India is a signatory to the Biwako Millennium Framework and the Declaration on Full Participation and Equality of People with Disabilities in the Asia Pacific Region. Incheon Strategy to “Make the Right Real” for Persons with Disabilities in Asia and the Pacific.
Constitutional	<ul style="list-style-type: none"> Article 41 of DPSP: State shall make effective provisions in cases of disablement. 7th schedule: The subject of ‘relief of the disabled and unemployable’ is specified in the state list of the Seventh Schedule of the Constitution.
Legislation	Rights of Persons with Disabilities Act 2016 increased the number of disabilities from 7 conditions to 21 ; Accessible India Campaign;
Shift in Attitude	Focus on disabilities has been shifted from the individual to society, i.e., from a medical model of disability to a social or human rights model of disability .
Institute	Indian Sign Language Research and Training Centre and the National Institute of Mental Health Rehabilitation , have been established
Technology	Unique Disability Identification Portal; BIS standard IS 17802 , focuses on accessibility requirements for ICT products and services

Measures needed:

- **Strengthen preventive health programs**, including **early screening for all children**, as demonstrated by **Kerala’s successful Comprehensive Newborn Screening (CNS) programme**
- Embrace a **Community-Based Rehabilitation (CBR) approach** to maximize the abilities of individuals with disabilities
- **Increase public awareness and understanding** of disability through social campaigns that challenge stigmas and stereotypes.
- **Encourage inclusiveness by transitioning individuals** from special schools to mainstream environments, promoting a diverse range of influences and interactions.

Insta Links

[75 Years: Laws that Shaped India- The Rights of Persons with Disabilities Act, 2016](#)

Mains Links

Q. Though the Rights of Persons with Disabilities Act, 2016 was a landmark step but much is left to be desired to achieve inclusivity and accessibility for the disabled. Examine. (250 Words)

Prelims Links:

Q. India is home to lakhs of persons with disabilities. What are the benefits available to them under the law? (UPSC 2011)

1. Free schooling till the age of 18 years in government-run schools.
2. Preferential allotment of land for setting up business.
3. Ramps in public buildings.

Which of the statements given above is/are correct?

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

Ans: D

ISSUES RELATING TO DEVELOPMENT AND MANAGEMENT OF SOCIAL SECTOR/SERVICES RELATING TO HEALTH

4. AN INTEGRATED SYSTEM OF MEDICINE

Context:

The ICMR under the Union Health Ministry and the Union Ministry of Ayush has agreed to enhance cooperation in health research in the field of **integrated medicine**.

An integrated system of medicine/complementary medicine	
Meaning	It means a conjoint study, training and practice in indigenous/traditional medicine (ayurveda, Unani, etc) and modern (allopathy) medicine.
Why do patients favour complementary medicine?	<p>5 barriers(5As) to healthcare: awareness, access, acceptability, affordability, and accountability.</p> <p>Complementary medicine gives people with chronic diseases who have already tried a number of things an option. That is why, 50% of people use complementary medicine, and more than 70% have used it at some point during their lifetime.</p>

Concerns	<p>No evidence-based benefits of complementary medicine, lack of data on safety and efficacy, and a lack of standardization of formulations.</p> <p>Integrative medicine is a business: Data shows that it increases the cost of care and does not improve the patient's clinical outcomes.</p>
Efforts to promote complementary medicine in India	<p>The National Integrated Medical Association (NIMA) is an Indian NGO of general practitioners educated in integrated system of medicine.</p> <p>The National Ayush Mission (launched in 2014) has played a crucial role in preserving and promoting India's traditional systems of medicine and their integration into the mainstream healthcare system.</p> <p>WHO Global Centre for Traditional Medicine (Jamnagar, Gujarat) was set up to promote Traditional Medicines as a system of treatment for various ailments.</p> <p>CSIR-Indian Institute of Integrative Medicine is a premier institute located in Jammu and dedicated to the research of drug discovery.</p> <p>Some universities in India offer BISM (Bachelor in Integrated System of Medicine)</p>

What is the agreement between ICMR and the Ministry of Ayush:

The two-day National Ayush Mission Conclave talks about the practice at AIIMS and research in complementary medicine.

Significance of the move:

- It will **enhance the treatments** that can be offered under one roof.
- It will help **build harmonized protocols** for clinical care research, and this is especially important for **non-communicable diseases**, where medical treatment options are limited.
- It will take Ayurveda and yoga to the world.

Way ahead:

Randomised control trials (RCTs) and peer-reviewed studies of traditional medicine must be promoted.

Conclusion:

Many systems of medicine have a role to play in keeping human beings well. Modern medicine is extremely important, but there is a wealth of wisdom and ancient traditions which

can be incorporated sensibly and safely for the well-being of man.

Insta Links:

[Integrated medicine system to alter the future of disease management](#)

REPORTS & INDICES

5.GLOBAL REPORT ON INTERNAL DISPLACEMENT 2023 (GRID-2023)



Global Report on Internal Displacement 2023 (GRID-2023)



Context: The Global Report on Internal Displacement 2023 (GRID-2023) stated that in 2022, over 32 million people were displaced by disasters, 98% of which were triggered by weather-related events such as floods and storms

About Internal Displacement

Meaning	Internal displacement refers to the situation where people are forced to leave their homes but remain within their country's borders.
Factors of Displacement	Conflict, violence, development projects, disasters, and climate change
Components	Internal displacement is characterized by two components: <ul style="list-style-type: none"> A person's movement is involuntary The person remains within their country's borders
Difference from Refugee	Unlike refugees, internally displaced people have not crossed international borders and are not covered by any international convention .
Challenges Faced by IDPs	IDPs face the threat of physical attack, sexual- or gender-based violence, and separation from their families, lack of adequate shelter, food, health services, and access to livelihoods.
IDPs in India	India has one of the highest numbers of IDPs in the world
Policy Framework of IDPs	India does not have a national policy or legal framework to deal with refugees or IDPs and has not ratified the 1951 Refugee Convention and 1967 Protocol and does not permit UNHCR access to most refugee groups.
Factors of ID in India	Internal displacement in India arises from secessionist movements, identity-based autonomy movements, localized violence, and environmental and development-induced displacement .

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Key Highlights of the Report:

Highlight	Details
Total Number of IDPs	Over 71million IDPs across 110 countries and territories at the end of 2022, a 20% increase in a year
Total IDPs in India	Over 6 lakh were from conflict and violence while 32 thousand were due to disasters
Weather-Related Displacements	98% of disaster displacements in 2022 were triggered by weather-related events ; floods and storms caused 6 out of 10 disaster displacements
Pakistan and India	Pakistan had the highest number of disaster displacements in 2022, followed by China and Afghanistan, while India ranked fourth
La Niña's Influence	The prolonged three-year La Niña phenomenon contributed to the rise in weather-related disasters, especially floods, leading to widespread disasters across the globe
Regional Displacement Patterns	Sub-Saharan Africa experienced the highest-ever displacement due to disasters in 2022. South Asia witnessed double the annual average of disaster displacements
Actions needed	Unconditional cash assistance for supporting the immediate needs of IDPs; Developing IDPs' livelihoods and skills; Importance of building resilience and preparedness at an individual, community, and national levels; addressing the impacts of climate change and investing in adaptation measures are crucial to mitigate future displacements

The Global Report on Internal Displacement 2023 (GRID-2023), published by the **Internal Displacement Monitoring Centre (IDMC)**, is the world's leading source of data and analysis on Internal Displacement (ID). The 2023 edition sheds light on the significant increase in the number of people displaced by disasters in 2022 and the complex relationships between disasters, conflict and violence, food security and ID.

IDMC (formed 1998; HQ: Geneva) is an **International non-governmental organization** established in 1998 by the **Norwegian Refugee Council** in Geneva. It is focused on **monitoring and providing information** and analysis on the world's internally displaced persons.

Conclusion:

There is a need for India to **formulate policies and strategies** that are focused on migration, promote inclusive growth and development, and reduce distress-induced migration.

1951 Refugee Convention and its 1967 Protocol assert the **principle of non-refoulement** (a refugee should not be returned to a country where they face serious threats to their life or freedom)

Insta Links

[Forcibly displaced crossed 100 million in 2022](#)

Mains Links

Q. Rehabilitation of human settlements is one of the important environmental impacts which always attract controversy while planning major projects. Discuss the measures suggested for mitigation of this impact while proposing major developmental projects. (UPSC 2016)

GS PAPER 3

INDIAN ECONOMY AND ISSUES RELATING TO PLANNING, MOBILIZATION, OF RESOURCES, GROWTH, DEVELOPMENT AND EMPLOYMENT.

1. WHY HAS THE RBI WITHDRAWN RS 2,000 NOTES?







Context:

The RBI has decided to withdraw the Rs 2000 denomination banknotes from circulation.

When were the Rs 2000 banknotes introduced?

- On **November 8 2016**, the PM of India announced [demonetisation](#), withdrawing two banknotes (Rs 500 and Rs 1000) from circulation with immediate effect.
- The Rs 2000 and the new Rs 500 note were introduced **under (Section 26) of the RBI Act 1934**, primarily with the objective of meeting the currency requirement of the economy expeditiously.

Demonetisation	
Meaning	It is the process of eliminating the lawful acceptance status of a monetary unit → The existing types of currency are withdrawn through circulation and supplanted with new currency.
Need	While demonetization is exceptional , governments around the globe have used it to check - hyperinflation situations, counterfeit currency, terror and tax fraud , and to introduce a new monetary system in some circumstances.
Advantages	Control criminal activities forbid tax avoidance and other financial crimes, contribute to a paper-less financial system

Disadvantages	Expenses issuing new currency and coinage minting can be high, illegal activity will not be stopped entirely and may create chaos among individuals
Primary reasons for demonetisation in India in 2016	To check fake currency notes and to break the grip of corruption and black money.
Effect on India	<div data-bbox="375 336 1141 1321"> <h3>Impact on economy</h3> <p>While digital payments have shown a strong growth after demonetisation, the same can't be said about tax collections and economic growth</p> <div data-bbox="391 459 750 828"> <p>CHART 1 Cash-GDP ratio was back to normal even before the pandemic gave it an artificial boost</p> <p>— Currency in circulation as share of nominal GDP (in %)</p>  </div> <div data-bbox="766 459 1125 828"> <p>CHART 2 Tax performance post-demonetisation has been underwhelming even by government's own standards</p> <p>Chart shows Centre's gross tax revenue as % share of Budget Estimates</p>  </div> <div data-bbox="391 851 750 1209"> <p>CHART 3 GDP growth has fallen sharply since 2016</p> <p>GDP growth (in %)</p>  </div> <div data-bbox="766 851 1125 1209"> <p>CHART 4 UPI transactions have seen the fastest growth in the post-demonetisation phase</p> <p>Value of transactions in ₹ crore</p> <p>— UPI — Cards — Prepaid payment instruments</p>  </div> <p>Source: CMIE & RBI</p> </div>
The SC's (4:1) verdict on demonetisation	<h3>Judgment notes</h3> <p>In a 4:1 verdict, the Supreme Court upheld the demonetisation process. A snapshot of the majority and dissenting observations</p> <div data-bbox="375 1467 1324 1736"> <div data-bbox="383 1478 662 1724">  <p>Justice B.R. Gavai (for the majority): Demonetisation notification does not suffer from any flaw in the decision-making process; satisfies the test of proportionality</p> </div> <div data-bbox="678 1478 917 1724"> <p>■ The contention that the notification is liable to be set aside on the ground that it caused hardship to individual citizens will hold no water. Individual interests must yield to the larger public interest sought to be achieved</p> </div> <div data-bbox="933 1478 1316 1724">  <p>Justice B.V. Nagarathna (dissenting): The RBI Act does not envisage initiation of demonetisation of bank notes by the Centre. Sub-section (2) of Section 26 of the Act, contemplates demonetisation of bank notes at the instance of the Central Board of the Reserve Bank of India</p> </div> </div>

Why has the RBI withdrawn Rs 2000 notes?

- With the fulfilment of the objective, the printing of Rs 2000 notes was stopped in 2018-19.
- The RBI issued the majority of the Rs 2000 denomination notes prior to March 2017 - now at the end of their estimated lifespan of 4-5 years.
- Therefore, in pursuance of the **Clean Note Policy of the RBI**, it has been decided to withdraw the Rs 2000 denomination banknotes from circulation.

What is the Clean Note Policy?

- The policy was introduced in 1999 by the then RBI Governor: Bimal Jalan.

- It seeks to **give the public good-quality currency notes** and coins with better security features, while **soiled notes are withdrawn** out of circulation.
- Under the policy, the RBI had earlier decided to **withdraw from circulation all banknotes issued prior to 2005** as they have fewer security features.

Will the Rs 2000 banknotes continue to be legal tender?

- **Yes.** The public can continue to use Rs 2000 banknotes for their transactions and also receive them in payment.
- However, they are **encouraged to deposit/exchange** these banknotes on or before September 30, 2023. The RBI has not clarified the status of these notes after September 30.

Could there be a repeat of the demonetisation chaos of 2016?

- **It is unlikely**, as the printing of Rs 2000 notes was stopped in 2018-19, and they are **no longer commonly seen with the public** (constitute **only 10.8%** of notes in circulation).
- Also, the decision to withdraw Rs 500 and Rs 1000 notes was **announced suddenly**, taking the public by surprise.

Insta Links: [Supreme Court upholds demonetisation: What was the challenge about?](#)

2. CROSS-BORDER INSOLVENCY

Context:

The Indian government has decided to **halt its plan to adopt a cross-border insolvency regime** that would have allowed foreign lenders to initiate bankruptcy proceedings against **defaulting Indian businesses** in local tribunals.

About Cross-border Insolvency:

Cross-border insolvency typically occurs when a **debtor has operations or creditors in multiple countries**, and there is a need for coordination and cooperation among different courts and stakeholders to achieve an efficient and fair resolution.

- **United Nations Commission on International Trade Law (UNCITRAL)** Model Law on Cross-Border Insolvency, 1997, is a widely accepted **legal framework to deal with cross-border insolvency issues**.

Why has India halted its plan?

India halted the adoption of cross-border insolvency, based on the fact that **only around 50 countries** have adopted the **UN model of cross-border insolvency**, and many of them

have stringent restrictions in place.

Instead, the government's current priorities include

- **Expanding the informal debt resolution scheme** for larger corporations
- Implementing a **new regime for handling the insolvency** of group companies
- Creating a **special regime for the real estate sector**.
- Remove lacunas in the operation of the **Insolvency and Bankruptcy Code**
- **Reduce delays in case admission** and approval of rescue plans
- **Prevent inappropriate transactions** by the management of defaulting companies.

About Insolvency:

Topic	Description
Key Words	<ul style="list-style-type: none"> • Insolvency: Inability to repay outstanding debt • Bankruptcy: Court declaration of insolvency, with appropriate orders to resolve it and protect creditors' rights.
Insolvency and Bankruptcy Code	Enacted in 2016, it consolidates laws related to the insolvency resolution of business firms.
Insolvency and Bankruptcy Code (Amendment Bill), 2021	Introduces Pre-packaged Insolvency Resolution Process (PIRP) for Micro, Small, and Medium Enterprises (MSMEs) with defaults up to Rs 1 crore .
Challenges for the IBC	Lack of proper resolution with over 50% of cases ending in liquidation ; Significant delays in resolution; High haircuts (debt foregone) by creditors; Lack of digitization
Achievements	A successful revival of India's insolvency regime and addressing non-performing assets (NPAs); Improved credit discipline; India's rank in resolving insolvency improved significantly
Provision of Cross border Insolvency	Currently, section 234 (empowers the central government to enter into bilateral agreements) and 235 (adjudicating authorities issuing letters of request to foreign courts) of IBC, 2016 provide a basic framework for cross-border insolvency

Conclusion:

The introduction of a cross-border insolvency regime will be considered once the institutional capacity and overall bankruptcy resolution ecosystem are more robust.

Insta Links: [Insolvency and Bankruptcy Code: Provisions](#)

Mains Links

Q. The introduction of the Insolvency and Bankruptcy Code (IBC) in 2016 was a 'watershed' moment in India. Comment (250 Words)

INCLUSIVE GROWTH

3. FINANCIAL INCLUSION IN RURAL INDIA

Context:

According to a new study, **access to financial services** such as bank accounts can help Indian rural households cope better with challenges such as poverty, inequality, and climate risks.

Need for financial inclusion in rural India:

- A key driver of economic growth, poverty alleviation and prosperity.
- Access to formal finance can boost **job creation**, **reduce vulnerability to economic and climate shocks** and **increase investments in human capital**.
- At a macro level, it can support sustainable and inclusive socio-economic growth for all.

Financial institutions for inclusion:

- Scheduled commercial banks
- Regional rural banks
- Payment banks
- Micro-finance institutions
- **Business correspondents (Bank Mitra)**
- Small finance banks

Highlights of the study:

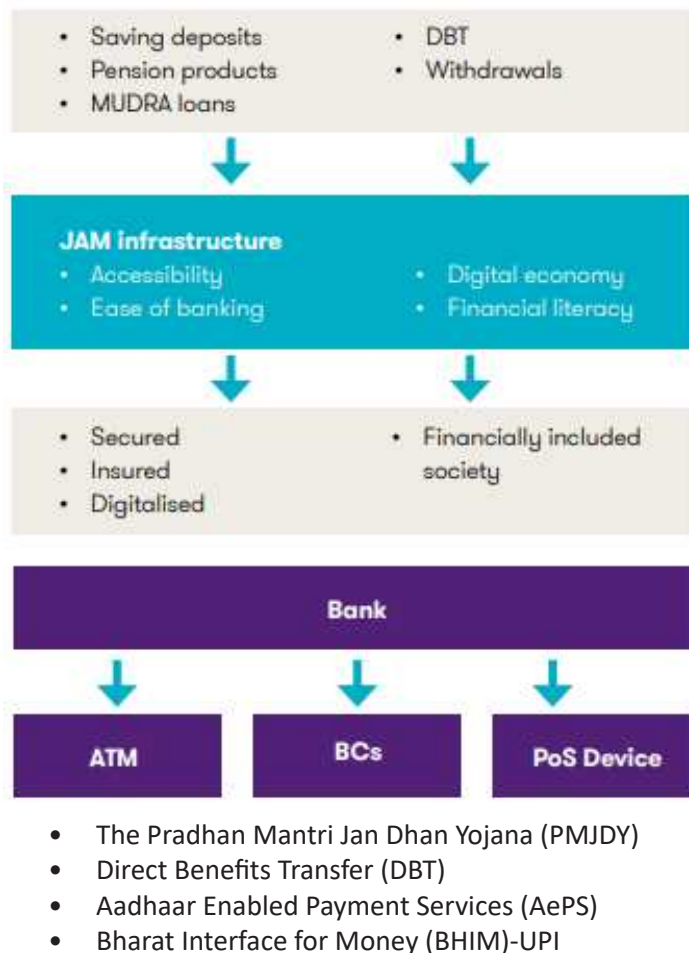
- **59% of the surveyed households experienced climate shocks** in at least one of the five previous years → **using their own savings to cope with the issue**.
- As rural households have **limited access to liquidity**, they **take high-interest loans** from informal sources.
- **Households rely on financial assistance** from kin and relatives followed by friends, village communities, money lenders, and banks (in this order).

Factors affecting access to financial services:

- **Location:** Most commercial banks set up their branches in profitable urban commercial areas.
- **Lack of infrastructure in rural and semi-urban areas:** Lack of access to a formal banking outlet, proper internet, electricity, etc., are major roadblocks to both consumers and financial institutions.
- **Rising unemployment and low wages:** Financial conditions of people plays a pivotal role in accessing available financial services.

- **Service charges:** High bank charges not only discourage people but also create a lack of trust among people using banking and financial services.

Government efforts:



Key challenges for India: While **80%** of the Indian population may have bank accounts, almost **45%** of such accounts still remain inactive due to a combination of -

Key challenges for India



Best practices:

- Companies such as **Vakrangee Ltd.**, **BTI payments**, **FINO**, etc., have provided many banking and ATM services through a technology-driven platform.
 - They have managed to **boost rural entrepreneurship** and **increase the level of financial literacy**.
- **The PM Mudra Yojana** provides collateral-free loans up to Rs. 1 million for small and micro enterprises.

Way ahead:

- **Financial inclusion** will reduce the resources that

households need to keep in liquid form and **therefore make them available for productive investments to address climate risk.**

- **Climate adaptation** requires putting resources in the hands of people because they are best placed to understand climate impacts.

Insta Links: [The financial inclusion of women](#)

AGRICULTURE

4. MAKING AGRI-COMMODITY VALUE CHAINS SUSTAINABLE

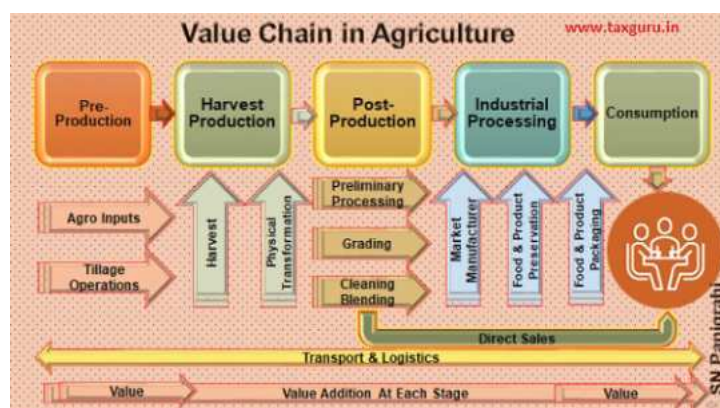
Context:

The article highlights the challenges associated with making agricultural commodity value chains sustainable. It identifies four dimensions that make mitigating environmental impacts a difficult task

Meaning of agri-commodity value chains:

Agri-commodity value chains refer to the entire process of production, processing, distribution, and consumption of agricultural commodities, **from farm to fork.**

“Making Agri-commodity value chains sustainable” means the practice of ensuring that the **agricultural value chain minimizes negative environmental** and social impacts while promoting long-term economic viability.



Need of making agri-commodity value chains sustainable:

Making agri-commodity value chains sustainable is essential to **protect the environment, ensure long-term agricultural productivity, meet consumer demands,** address global sustainability challenges, promote stakeholder accountability, and adapt to the impacts of climate change.

The challenges of ensuring sustainability in agricultural commodity value chains:

Challenges	Examples
Market and producer Related	E.g., uncertain Export policies; adverse WTO norms influencing Indian farmers; uncertain MSP by the government
Production related	The production process, including land-use strategies, seed quality, and input usage, varies across different commodities. Lack of specific intervention by farmers suited to the specific production systems, such as intensive or extensive agriculture or agroforestry, leads to low yield.
Weak policies	Weak governance mechanisms, subsidies, market access, and infrastructural support for Indian agriculture
Marginalized farmers	Poor Working conditions for marginalized tenants, almost no labour rights, and inequity for Indian farmers

Few Government Initiatives for sustainable agriculture:

Scheme	Objective
Paramparagat Krishi Vikas Yojana	Promote organic farming
National Mission on Sustainable Agriculture (NMSA)	Promote climate-resilient and sustainable agricultural practices such as conservation agriculture, agroforestry, integrated farming systems, etc.
Pradhan Mantri Krishi Sinchayee Yojana	Improve water use efficiency in agriculture
Soil Health Card Scheme	Encourage balanced and judicious use of fertilizers
National Mission on Oilseeds and Oil Palm (NMOOP)	Promote sustainable production of oilseeds and oil palm
National Agricultural Market (e-NAM)	Create a unified national market for agricultural commodities
Pradhan Mantri Kisan Sampada Yojana (PMKSY)	Develop agri-processing clusters and infrastructure to increase value addition and reduce post-harvest losses

What should be done:

The production process, including **land-use strategies and inputs, varies across commodities,** requiring tailored interventions. **Strong governance mechanisms and policies,** including subsidies and regulations, can support sustainable value chains. Additionally, an **inclusive approach is necessary,** considering working conditions, labour rights, equity, and the effects of the climate crisis on production.

Conclusion:

There is a need to address the environmental, social, and economic dimensions of sustainability in the context of agricultural production, processing, and distribution.

Insta Links

[Food Processing and Supply-chain management](#)

Mains Links:

Q. Examine the role of supermarkets in the supply chain management of fruits, vegetables, and food items. How do they eliminate the number of intermediaries? (UPSC 2018).

HEALTH

5. WHO: INCENTIVISING THE DEVELOPMENT OF NEW ANTIBACTERIAL TREATMENTS 2023

Context:

The new WHO report (**Incentivising the Development of new antibacterial treatments 2023**) highlights progress in addressing antimicrobial resistance (AMR) but also identifies gaps in ensuring a robust pipeline of antibiotic treatments.

What is AMR?

It refers to the **ability of microorganisms, such as bacteria, viruses, fungi, and parasites**, to resist the effects of antimicrobial drugs, such as antibiotics, antivirals, antifungals, and antiparasitic drugs. E.g., New Delhi metallo- β -lactamase (NDM-1) superbug

Status of AMR:

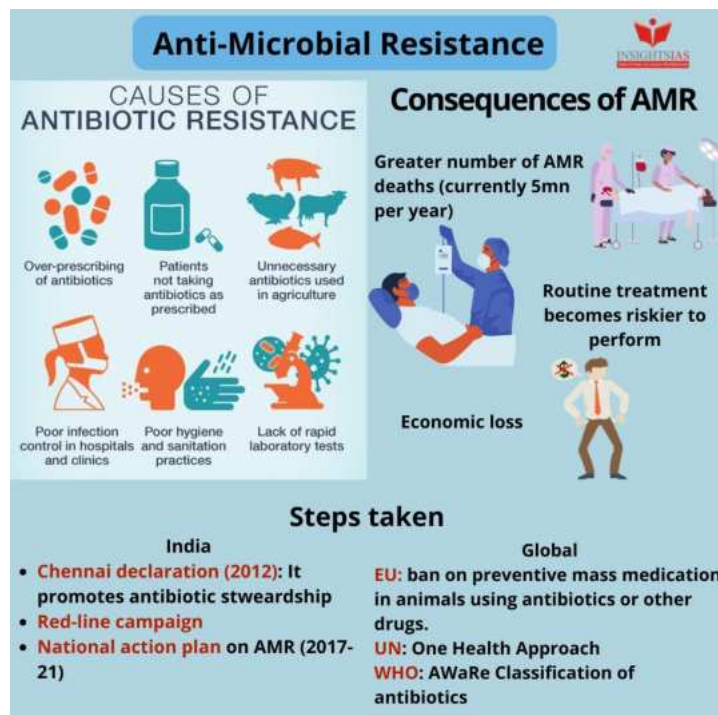
It was responsible for nearly **5 million global deaths** in 2019 and is projected to cause over **2mn death by 2050** in India alone. Yet the **development of new antibiotics is limited**, and access to existing treatments remains a challenge.

What does the Report say:

- AMR remains **one of the top 10 global public health threats** facing humanity
- 1 in 5 deaths** caused by AMR occurred in children under the age of 5.
- If no action is taken, **AMR could cost the world's economy USD 100 trillion by 2050.**
- Recommendations by the report:** increased investments in **research and development**, alignment of **financing mechanisms**, and global efforts to ensure **equitable access to antibiotics.**

What are the problems with AMR in India?

AMR is a particular challenge in India due to the high burden of communicable diseases, an overburdened public health system, limited laboratory capacity, inexpensive and widely available antibiotics without prescriptions, Excessive use of antibiotics in livestock and poultry farming etc



Other initiatives:

- India: National Action Plan on AMR (NAP-AMR)** for 2017-2021 (updating it for 2022-2026)
- Global: One Health Quadripartite:** In 2021, the FAO, UNEP, WHO and World Organisation for Animal Health joined to combat AMR.

Conclusion:

There is a need for **priority actions to accelerate progress**, including commitments at the **high-level meeting on AMR at the United Nations General Assembly in 2024** and targeted financing mechanisms to address the crisis and ensure equitable access to antibiotics.

Insta Links:

[Tackling antimicrobial resistance](#)

Mains Links:

Q. Antibiotic resistance is one of the biggest health challenges of the 21st century. Examine why. (10M)

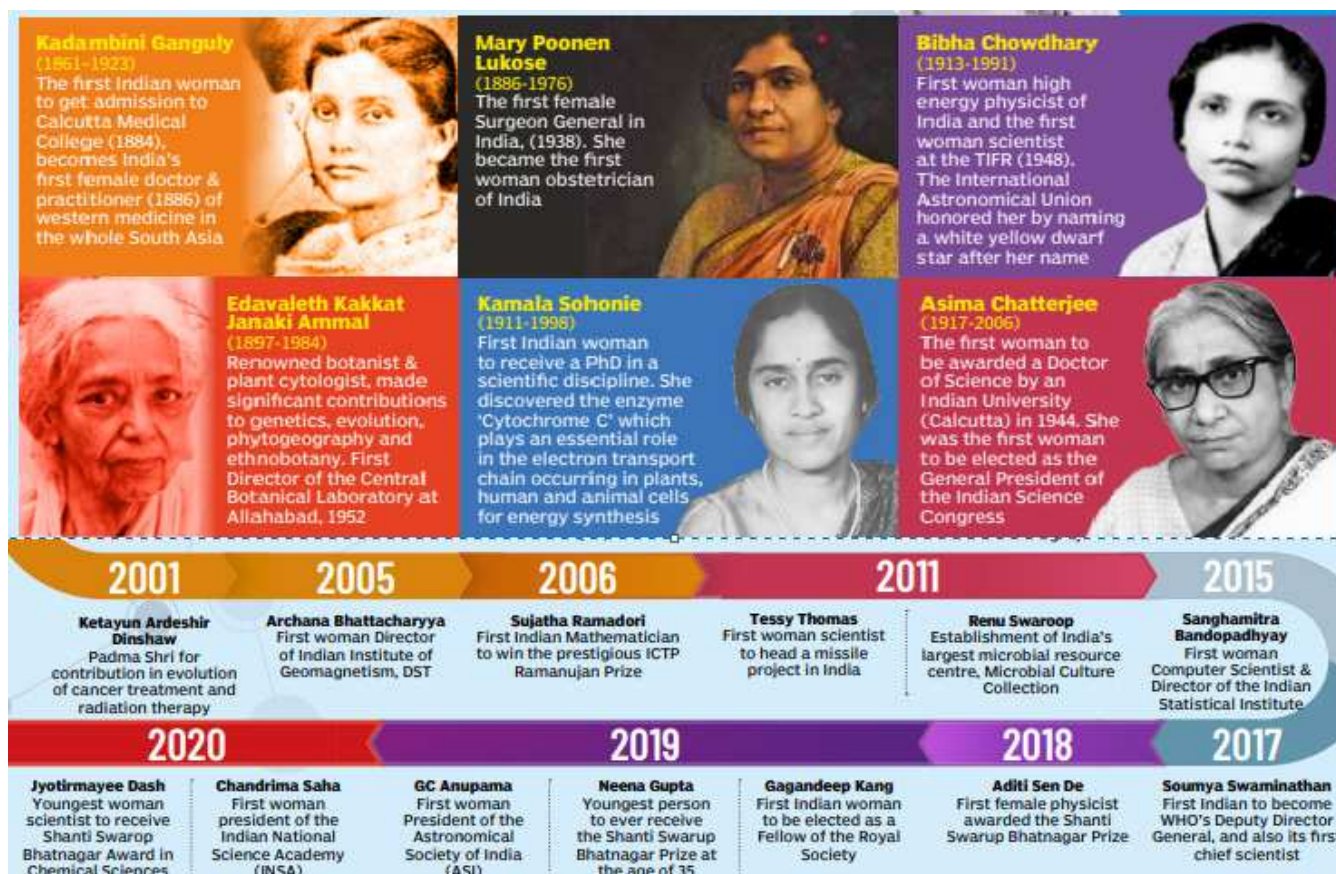
ACHIEVEMENTS OF INDIANS IN SCIENCE & TECHNOLOGY

6. INDIA'S WOMEN IN SCIENCE

Context:

Two books - *Lilavati's Daughters* (2008) and *Lab Hopping* (2023) - highlight the **complicated relationship between science and gender** in India.

Some notable women scientists of India: Anandibai Joshi (India's first woman physician), Iravati Karve (India's first woman anthropologist), Anna Mani (India's first woman meteorologist), **Dr N Kalaiselvi** (currently, at the helm of CSIR), **V R Lalithambika** (leading the Gaganyaan mission)



Data on women in science in India: As per the latest "Research and Development Statistics 2019-20" of the Department of Science and Technology (DST), **India has 16.6% of women researchers** directly engaged in R&D activities.

The obstacles that hold women back include:

- Lack of representation, deeply entrenched **patriarchy**
- **Institutional apathy**
- **Poor working conditions**, sexual harassment
- **Familial issues** like marriage, family responsibility (twin burden of home and the workplace), relocation due to transferable job of the spouse, etc.

Impact:

Dropout from higher studies, career break, overage for scientific jobs and prolonged absence from place of work or even resignation from the job.

The government has taken several corrective steps:

- **Knowledge Involvement in Research Advancement through Nurturing (KIRAN) Scheme:** Instituted to encourage

women in the field of S&T.

- **Women Scientist Scheme (WOS)** under KIRAN provides career opportunities, especially for those who had a break in their career.
- **The Mobility Scheme** under KIRAN addresses relocation issues of working women scientists and provides support in project mode for 2-5 years.
- **Consolidation of University Research through Innovation and Excellence in Women Universities (CURIE) Programme.**
- **Indo-US Fellowship for Women in STEMM** (Science, Technology, Engineering, Mathematics & Medicine) encourages Indian women scientists to undertake international collaborative research.
- **Vigyan Jyoti Scheme:** Encourages girl students of Class 9 to 12 to pursue education and career in S&T.
- **Biotechnology Career Advancement and Re-orientation Programme (BioCARE)** of the Department of Biotechnology (DBT).
- **National Award for woman scientist:** To recognize the contribution of women scientists in the field of Earth System Sciences.
- Multifaceted initiatives (like Women Entrepreneur's Quest (WEQ) Programme) have been launched by DST to encourage women's entrepreneurship under **Start-up India-Stand up India**.

Conclusion:

STEMM is the prime engines that have steered national growth and created a self-reliant India. Hence, equal participation of both men and women in STEMM will help India realise 'Amrit Kaal' in the true sense.

Insta Links: [Women in Science](#)

CONSERVATION, ENVIRONMENTAL POLLUTION AND DEGRADATION

7. GLOBALIZATION AND CLIMATE CHANGE

Context:

McKinsey Global Institute studies and WTO are of the view that globalization is necessary for the path to sustainability and mitigating the impact of climate change.

What is Globalization in the context of the Environment?

Globalization, in terms of the environment, refers to the **interconnectedness and interdependence** of economies and societies worldwide, leading to the global exchange of goods, services, information, and ideas. It has both **positive and negative environmental impacts**.

Why is Globalization Necessary for decarbonization?

Aspect	Reasons	Example
Resource Distribution	The materials and resources are not evenly distributed globally. Globalization allows for the efficient sourcing and trading of resources from areas with abundant supply to areas with high demand.	E.g., Lithium , is primarily sourced from Australia and Chile , and its global availability is essential for the widespread adoption of electric vehicles
Technological Innovation	Globalization promotes the exchange of knowledge, ideas, and technological advancements across borders.	E.g., Sharing of R&D in renewable energy technologies like solar panels and wind turbines has accelerated their deployment and reduced costs globally.
Access to Financing	Globalization allows for cross-border financial flows , making it easier for countries to access the necessary capital and investment for decarbonization projects.	E.g., the global carbon credit trading mechanism

Scalability and Economies of Scale	Globalization enables the establishment of global supply chains, allowing for large-scale manufacturing and distribution of renewable energy technologies.	E.g., Tesla company's Giga factory for the manufacture of EV batteries in China, Australia and the USA
Knowledge Sharing and Policy Alignment	Globalization facilitates the sharing of best practices, expertise, and policy frameworks among countries.	E.g., Paris Agreement , International Solar Alliance etc.,

How globalization leads to a negative impact on the environment:

Negative Impact	Description
Carbon Emissions	Globalized trade increases carbon emissions from shipping, air travel, and long-distance transportation of goods . E.g., importing goods from distant countries to meet consumer demands leads to increased emissions from transportation.
Deforestation and Habitat Loss	Global demand for commodities like timber, soy, and palm oil drives deforestation and habitat loss in regions with rich biodiversity. E.g., the expansion of palm oil plantations in Southeast Asia has led to extensive deforestation and the loss of critical ecosystems.
Pollution and Waste	E.g., the export of electronic waste from developed to developing countries for recycling often leads to improper disposal and pollution.
Overconsumption of Resources	Globalization and increased trade have fueled a culture of consumerism , leading to higher resource consumption.
Loss of Cultural Diversity	Globalization can lead to the homogenization of cultures, eroding traditional practices and knowledge that are often environmentally sustainable.

Few major efforts for sustainable globalization: Corporate Sustainability Initiatives; Circular Economy Transition; Sustainable Trade Initiatives (WTO); and [Sustainable Development Goals](#) (SDGs)

Conclusion:

Balancing the benefits of globalization with environmental sustainability requires careful consideration and implementation of policies and practices that mitigate its negative effects while maximizing its positive contributions to decarbonization and environmental protection.

[Insta Links:](#)

[CLIMATE CHANGE AND ASSOCIATED ISSUES](#)

[Mains Links:](#)

Q. Critically analyse the potential of Globalization as a climate change mitigation strategy (250 Words)

8. GREEN ENERGY OPEN ACCESS RULES, 2022

Context:

Union Power & NRE Ministry, urged industry leaders **to set green targets and report violations of Green Energy Open Access Rules**.

What is Open Access?

Open Access (OA) means **non-discriminatory access** to electricity transmission and distribution system

What are Green Open Access Rules?

It refers to **regulations and guidelines** implemented by the Government of India to promote the generation, purchase, and consumption of green energy.

- **The Ministry of Power notified the Electricity (Promoting Renewable Energy through Green Energy Open Access) Rules, 2022 in June 2022.**

About the Rules:

	Description
Aim	To ensure affordable, reliable, sustainable, and green energy for all and promote clean and green energy in India
Features	<ul style="list-style-type: none"> • Any consumer with a connected load of 100 kW or above can get Renewable Energy through open access from any Renewable Energy generating plant • Open access to stakeholders—traders, Power Exchanges, National / Regional / State Load Despatch Centres, and Central/State transmission utilities. • Timeline: The open access has to be granted within 15 days or else it will be deemed to have been granted. • Consumers may demand a supply of Green Power from DISCOMs. • Commercial and Industrial consumers are allowed to purchase green power on a voluntary basis. • There shall be a uniform Renewable Purchase Obligation (RPO). Also, Green Hydrogen/Green Ammonia is included for the fulfilment of its RPO. • Promoting generation, purchase and consumption of green energy including from Waste-to-Energy plants
Significance	It provides a transparent, simplified, uniform and streamlined procedure for granting open access to green energy. Also, it facilitates the deepening of electricity markets and enables the integration of Renewable Energy (RE) resources into the grid.
India's Status	India is contributing only 3.5 per cent to the global emission despite having about 17 per cent of the world's population . India is leading the clean energy transition globally and has the fastest growth of RE capacity addition .

Insta Links:

- [India's Renewable energy plan: Click here](#)
- [India's solar capacity: Milestones and challenges](#)

Mains Links

Q. "Despite an increase in renewable energy capacity, India still heavily depends on fossil fuels for its energy security". What measures need to be taken to increase the pace of renewable adoption in India? Discuss. (15M)

Prelims Links:

Q. With reference to the Indian Renewable Energy Development Agency Limited (IREDA), which of the following statements is/are correct? (UPSC CSE 2015)

1. It is a Public Limited Government Company.
2. It is a Non-Banking Financial Company.

Select the correct answer using the code given below.

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

Answer: C

9.GROUNDWATER EXPLOITATION AND SINKING LAND

Context:

In the plains of northwest India (Punjab, Haryana, Delhi, Faridabad), which are heavily dependent on groundwater withdrawal for agricultural practices, **land sinking/subsidence** has been a problem for years.

Groundwater situation in India:

- It is India's **most used** water resource, accounting for a quarter of total global groundwater extraction.

- According to the 2021 CAG report, **groundwater extraction in India** (annual use - ~433 billion cubic metres) **has exceeded the recharge rate**, threatening 80% of potable water over the next two decades.

What is land subsidence?

Land subsidence is defined as the **progressive or abrupt sinking** of the earth's surface caused by the elimination or dislocation of subsurface earth components (like aquifers) triggered by natural/human activity.

How groundwater extraction is linked to sinking land?

When the underlying **aquifers - deep water channels that are stores of percolated water**, aren't recharged, they run dry. Hence, **the layers of soil and rock above them start to sink** and the issue is not specific to north India alone.

How severe is the problem in India?

- Data from the **Sentinel-1** satellite shows that the NCR region sank 15 mm per year (on average) between 2011-2017.
- Urbanisation and unplanned growth were major factors** → exacerbated groundwater withdrawal → land sinking.

Impact:

- If land sinking is expanded out over a large area, this could imply that the region will become **flood-prone**.
- However, if the pace of sinking varies, **it could have an effect on civil facilities such as roads, buildings, and residences**.
- It may cause **fundamentals to deteriorate or cracks to form in buildings**.

Detecting the link between groundwater and land subsidence:

- The Central Ground Water Board (CGWB)** - a subsidiary body of the Jal Shakti Ministry, **does not analyse the consequences** of 'over-exploitation'
- This link only started to become clear from the data of the **GRACE** (Gravity Recovery and Climate Experiment) satellites that could measure minute changes in gravity on different parts of the Earth's surface.

Why is it difficult to detect the link?

- Unlike land movement from landslides or earthquakes, it is gradual and barely visible annually.
- So, it is harder to correlate with structural damage.

What needs to be done?

- There needs to be **greater recognition** that groundwater exploitation has consequences other than water scarcity.
- The government and policymakers should have a **detailed understanding of the geophysical properties** of the areas undergoing subsidence.
- Incentivising rainwater harvesting**, ensuring strict implementation of laws against illegal mining of groundwater, evaluating building conditions in hazard zones and provisioning of such subsidence in building designs.

Some initiatives	
International	National
<ul style="list-style-type: none"> The United Nations-Water Summit on Groundwater 2022: Organised to raise awareness on groundwater conservation. "Groundwater: Making the invisible visible" campaign run by UN-Water throughout 2022. 	<ul style="list-style-type: none"> Atal Bhujal Yojana is a groundwater management scheme launched in 2019. Jal Shakti Abhiyan (2019): Launched in 256 water-stressed districts to improve groundwater conditions in these areas. Aquifer Mapping and Management Programme

Insta Links: [UN Groundwater Summit 2022 to help raise awareness on aquifer protection, sustainable use](#)

Mains Links:

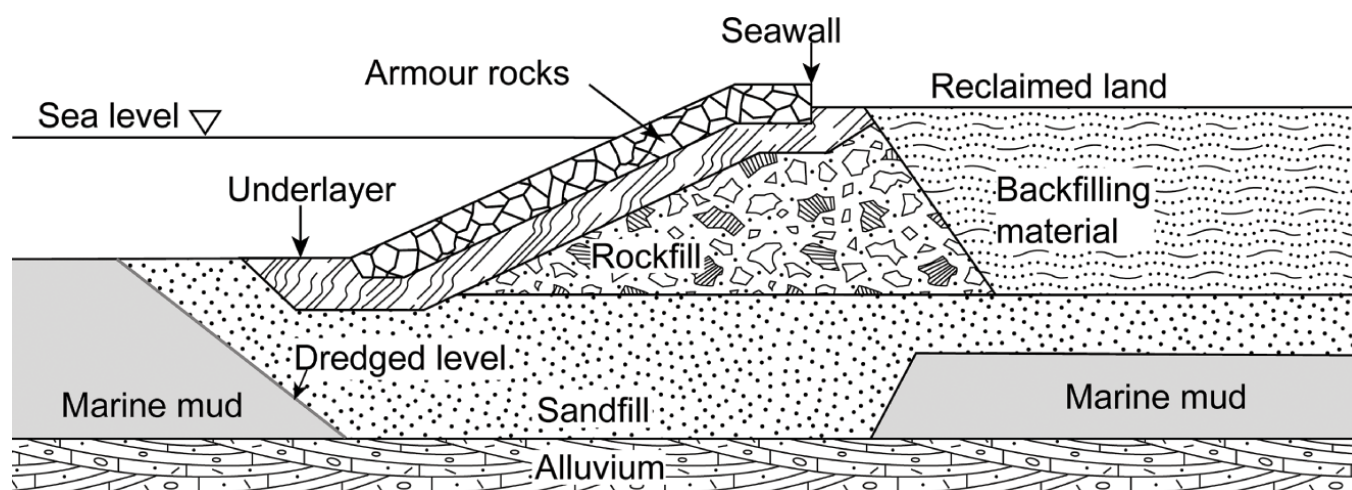
Q. Discuss the Status of Groundwater Depletion in the country and account for the associated problems and suggest measures on the lines of groundwater extraction norms that have been notified recently. (250 words)

10. LAND RECLAMATION

Context:

Should new land be generated in oceans by land reclamation, given that coastal regions around the world are endangered by rising sea levels and more severe storms?

Land reclamation	
Meaning	It is the process of creating new land from oceans, seas, riverbeds or lake beds.
Methods	Infilling (filling the area with large amounts of heavy rock/cement/clay/dirt until the desired height is reached), draining of submerged wetlands , land dredging (removal of sediments and debris from the bottom of a body of water), etc.
Objectives	<ul style="list-style-type: none"> A solution for many countries is to control flooding and make more space for agriculture and coastal industries, balancing economy and ecology. Cities are already spending to include “future-ready” reclamation techniques - including sea-walls and breakwaters - in ongoing reclamation projects and reinforcing and elevating existing coastal defences.
Example	The Netherlands , where around one-third of the country is below sea level, must be artificially drained to keep out the North Sea.
Now a global-scale phenomenon	<ul style="list-style-type: none"> With the increased economic importance of coastal zones, coastal land reclamation has become a global phenomenon despite considerable cost and engineering challenges. 106 cities around the world had altogether created around 2,530 square km of coastal land (~90% of that land was created in East Asia), an area roughly the size of Luxembourg.
China leads the way	<ul style="list-style-type: none"> From 2000 to 2020, Shanghai alone added around 350 square km, with Singapore and Incheon (South Korea), also raising vast new areas. The “eco-city” projects in cities like Tianjin and Tangshan near Beijing include environmentally friendly features like rehabilitated wetlands, artificial reefs, and restored mangrove forests that act as a buffer from ocean storms. This means, the reclamation projects today are getting intertwined with the emerging sustainability paradigm.



Challenges:

- Most coastal land expansions happened in **low-lying areas**, with more than 70% of new land ‘at high risk’ of **storm surges and flooding** due to rising sea levels linked to climate change.
- The environmental cost of land reclamation projects can be significant.
 - Projects have **destroyed coastal land like marshes, swamps and mangrove forests**.
 - Using sand obtained from the marine and river environment can mean the **destruction of habitats and spawning grounds of organisms**.

As sea levels rise, is land reclamation still a good idea?

While land reclamation has **provided benefits in the past**, the changing climate and rising sea levels introduce new challenges and risks. For example, the **Maldives**, a nation that **heavily relied on land reclamation**, now faces the threat of losing large portions of its reclaimed land due to rising sea levels, making it an unsuitable long-term solution.

It is crucial to **assess the long-term sustainability**, environmental impact, and cost-effectiveness of land reclamation projects in the context of a changing climate.

Way ahead:

- **Use alternative fill** like excavated rock and soil from local construction projects, or reclaimed concrete, asphalt, bricks and other rubble.
- Several countries (Cambodia, Indonesia, Malaysia and Vietnam) **have already banned the export of sand for land reclamation**.

Conclusion:

Seas are not empty spaces as there are vibrant human and non-human communities whose lives are dependent on the health of the sea. **Therefore, they need to be protected.**

Insta Links: [Global Land Outlook report](#)

DISASTER MANAGEMENT

11.COMBATING FOREST FIRES IN UTTARAKHAND

Context:

The chir pine belt of [Uttarakhand, India](#), faces **significant forest fire** challenges.

What is Chir Pine Belt?

It refers to an area characterized by the **dominance of chir pine trees** (*Pinus roxburghii*). It is found primarily in the state of Uttarakhand. The high presence of **chir pine trees** in this belt also contributes to the **susceptibility to forest fires in the area**.

About the chir pine:

It is a species of pine tree that is **native to the Himalayan region**. It is a **fast-growing evergreen tree and forms dense forests** in the sub-tropical and temperate regions of Uttarakhand.

Factors contributing to forest fire challenges in the Chir Pine Belt of Uttarakhand:

Factors	Description
High forest density	Uttarakhand accounts for 1.6 per cent of India's total geographical area . But in terms of forest cover, the state accounts for 45 per cent , in contrast to national forest cover of just 21.67 per cent .
High presence of pine trees	Chir pine dominates the forest composition in the region. Pine trees are rich in organic polymers , making them vulnerable to forest fires .
Dry biomass	Pine needles and other plant-based litter create fuel for fires. Dry biomass increases the risk of fire outbreaks.
Vulnerability of narrow-leaved species	The forest ecosystem in the region is dominated by narrow-leaved species like Pinus, Picea, and Abies . These species are susceptible to fires when exposed to low temperatures and humidity.
Human-made fires	Timber smugglers often set intentional fires to divert attention and facilitate illegal activities. Developmental activities and unchecked land-use patterns contribute to human-induced fire hazards.
Climate conditions	Uttarakhand experiences low rainfall and high temperatures . The ample availability of dry biomass during the summer season increases fire risks. Also, Strong winds contribute to the rapid spread of fires across the forests.

Measures to Combat Forest Fires in the Chir Pine Belt of Uttarakhand:

Measures	Description
Plantation of suitable broad-leaved species	Introduce species like oak and rhododendron with lower fire susceptibility. Diversify the forest composition and reduce the overall fire risk.
Construction of watch towers for early detection	Install watch towers to detect forest fires at an early stage. Facilitate prompt response and intervention to control fire incidents.
Deployment of fire watchers	Assign personnel as fire watchers in vulnerable areas . Regular surveillance to detect and report fires promptly.
Creation and maintenance of fire lines	Clear vegetation creates fire lines and fire breaks as barriers .
Use of remote sensing technology and satellite data	Utilize technology to detect active forest fires from space. Enable early identification and timely response to fire incidents.
Exclusive recruitment of forest fire-fighting staff	Employ trained personnel equipped with modern firefighting technologies. Ensure specialized teams are available for fire suppression.
Joint Forest Management (JFM) , Van panchayats, and communication	Promote community involvement and cooperation in forest management. Utilize electronic, social media, radio, and television for awareness. Raise awareness and encourage responsible forest practices.

National Disaster Management Authority (NDMA) has suggested measures for **fire control in Himalayan regions** such as Early detection and reporting; Fireline creation; Community involvement; Training and capacity building; Use of technology and Firefighting teams.

A few measures taken are:

National Policy on Forest Fire (finalized by the government); National Plan for forest fire management; National Forest Fire Danger Rating System; Firefighting tools and machinery (e.g. Fire Beaters, Pulaskis Tools, Forest Fire Showel, etc.); Forest Fire Prevention & Management Scheme (FFPMS, 2017)

Conclusion:

Addressing and mitigating forest fires in the Himalayan region requires a comprehensive approach that includes early detection, community involvement, capacity building, technology utilization, and effective collaboration between various stakeholders. By implementing these measures, the **risk and impact of forest fires can** be significantly reduced, protecting the invaluable biodiversity and ecological balance of the region.

For The reason behind the global wildfires and Measures to control them: [Click Here](#)

[Insta Links](#)

[Forest Fires](#)

[Practice Questions](#)

Q. Enumerate the causes for the rising instances of forest fires in India. What measures are needed to mitigate the adverse impacts of forest fires? (250 Words)

CONTENT FOR MAINS ENRICHMENT (CME)

1. NITI AAYOG'S COMPENDIUM ON BEST PRACTICES IN SOCIAL SECTOR 2023

A. BEST PRACTICES IN WOMEN'S EMPOWERMENT



Women's Empowerment: NITI Aayog's Compendium on Best Practices in Social Sector 2023



Context: Every day, in this section we are bringing best practices from each category. Today's best practices will cover 'Women's empowerment'

Initiative	Description	Impact
Navchetna Bakery - Livelihood Generation (Dhantewada, Chhattisgarh)	The Navchetna bakery is run exclusively by women who were trafficked and rescued, and members of the transgender and differently-abled community.	Use of local and nutritious produce to make unique bakery items; Skill development of women; Empowering members of the transgender and differently-abled community
Aabha Sakhis (Madhya Pradesh Madhya Kshetra Vidyut Vitran Company)	The Aabha Sakhis encourage people to take up legal electricity connections and pay their bills on time . They aim to change societal attitudes towards women while promoting legal compliance. The initiative provides stipends to women , increasing their financial independence.	Financial independence of women ; Increased decision-making capacity; Transfer of illegal connections to legal connections
Biz Sakhi: Community-Based Mentors for Women Entrepreneurship and Promotion and Empowerment (Karnataka)	Biz Sakhi focuses on improving access to entrepreneurship and employment opportunities for women in rural and urban areas. It provides awareness, psychosocial support, skill enhancement, mentorship, and linkages for women entrepreneurs.	8-13% increase in profitability of women entrepreneurs supported by Biz Sakhi
Bleed with Pride (Imphal, Manipur)	It aims to empower women and young girls by promoting awareness and breaking the stigma surrounding menstruation. The initiative promotes the use of reusable pads .	Breaking of taboo and discriminatory practices surrounding menstruation; Reduced financial burden on

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B. BEST PRACTICES IN SPORTS AND DISASTER MITIGATION

Initiative	Objectives	Impact
Khelo India Scheme (Bishnupur, Manipur)	Promote excellence in sports and wellness, focus on indigenous games , and make Bishnupur a powerhouse of sports	Over 2000 national players , 60 sports infrastructures, and 90% of schools registered under Fit India
Khelo India Scheme (Churu, Rajasthan)	Develop sports facilities , create centres of excellence, encourage youth participation	Multiple medals at national level competitions, the decline in drug involvement, the cradle for armed forces recruitment
Disaster Risk Reduction (Chitrakoot, UP)	Integrate Disaster Risk Reduction in development , build local capacities , leverage technology for disaster management	Enhanced resilience of local communities to climate-induced stress
Flood and Landslide Disaster Management (Wayanad, Kerala)	Establish SOPs , coordination between departments and agencies, and minimize casualties and distress	Proper disaster management, preventive evacuations, relief camp amenities, crop loss compensations

2. 25 YEARS OF KUDUMBASHREE

Kudumbashree	Kudumbashree is a women's self-help group network and poverty eradication program in the state of Kerala
Inception	Launched in 1998 , it aims to empower women from economically disadvantaged backgrounds by providing them with opportunities for entrepreneurship , skill development, and social support.
Working	Kudumbashree operates at the grassroots level , organizing women into neighbourhood groups (NHGs) , which then form larger community-level and ward-level organizations.
Achievements of Kudumbashree	
Economic Empowerment	Kudumbashree has helped marginalized women become successful entrepreneurs and income generators.
Food security	E.g., It has established " Janakeeya Hotels " across the state, offering affordable meals. Currently, it operates 125 restaurants providing meals for just Rs 20.
Disaster Relief and Rehabilitation	Donated Rs 7 crore to the Chief Minister's distress relief fund during the devastating floods in Kerala. Provided counselling to over 8,000 families affected by the floods.
COVID-19 Response	Manufactured and supplied masks and sanitisers during the pandemic.
Women's Empowerment	Mobilized women for community activities and grassroots planning . Enabled women's participation in local bodies after enforcing the 33% women's reservation policy
Consultancy Work and Poverty Reduction	Kudumbashree's success in poverty reduction was highlighted by studies and surveys, including the Multidimensional Poverty Index by NITI Aayog. The extended consultancy works on women's empowerment in 13 other states, sharing knowledge and expertise.
Challenges	Challenges include addressing gender-based atrocities and becoming a strong counter-culture force in Kerala.
Usage:	Such innovative schemes for grass root development , can be used to cite your arguments in Governance, women-related questions , and essays.

3. SACHHI SAHELI MAHILA AGRO PRODUCER COMPANY LIMITED

About	A farmer-producer organization (FPO) in Lambi Ahir village, Rajasthan, has achieved significant success within a few months of its inception. Led by woman sarpanch Neeru Yadav , the FPO has generated revenue worth ₹50 lakh through the cultivation and sale of 80,000 kg of mustard. The FPO, named Sachhi Saheli Mahila Agro Producer Company Limited, is the 15th FPO established in collaboration with NABARD .
Gender Equality	In a move towards gender equality, 150 women farmers have been included as equity holders alongside their male counterparts.

Usage:	Such an example can be used in governance/ Women related/Leadership/ Agriculture questions to show the success of FPO in creating diverse market access avenues, increasing income, promoting empowerment, and building capacity among farmers.
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4.WELFARE FUND FOR MGNREGS WORKERS

About	The Kerala government has introduced India's 1 st welfare fund specifically for workers under the Mahatma Gandhi Rural Employment Guarantee Scheme (MGNREGS) . This initiative provides benefits such as pensions for workers aged 60 and above , as well as financial assistance for medical treatment, education, marriage , and other needs.
Usage:	Such an initiative can be used to highlight the social security programme for unorganized workers in the state.

5.SINGLE-TEACHER SCHOOLS (JHARKHAND)

About	A single-teacher school refers to a school where there is only one teacher responsible for teaching all the students across different grade levels. A significant number of government schools in Jharkhand have only one teacher, despite the Right to Education Act mandating a minimum of two teachers for schools with up to 60 students .
Reasons:	The lack of recruitment over the years and the government's apathy towards education in marginalized communities are cited as reasons for the prevalence of single-teacher schools.
Impact:	Teachers in single-teacher schools are faced with several challenges, such as heavy workloads, limited resources, and administrative tasks. Students struggle with learning and lack age-appropriate education. Marginalized communities are particularly affected. The schools also suffer from poor infrastructure and inadequate support systems.
Usage:	Such an example can be used to highlight issues with the education sector in India.

6.COMMANDER ABHILASH TOMY

Context:	Commander Abhilash Tomy (Retd) made history as the first Indian to complete the Golden Globe Race , a solo non-stop circumnavigation of the globe without modern technological aids. Despite suffering a life-threatening injury during a previous attempt , Tomy returned to India triumphant after finishing the GGR 2022 in second place . He sailed for 236 gruelling days alone at sea, overcoming challenges such as a damaged boat and a broken auto-pilot.
Usage:	The example can be used to highlight the values of Resilience, determination, resourcefulness, and perseverance

7.JOHN SULLIVAN

About	John Sullivan, a British administrator , played a crucial role in introducing tea cultivation in the Nilgiris hills. In 1834 , the Tea Committee was formed in India with a focus on Assam and its surrounding regions. He also played a significant role in the development of the Nilgiris district in Tamil Nadu, India. Sullivan's efforts led to the establishment of Udhagamandalam (Ooty) as a popular hill station and his contributions are widely recognized in the region.
Usage	The example can be used to cite some of the positive contributions of the British Legacy in India.

8.AGRA SMART CITY

About	<ul style="list-style-type: none"> The Agra Smart City had adopted an AI-enabled system capable of detecting various issues such as stray cattle, clogged manholes, traffic rule violations, and even instances of sexual harassment. The Integrated Command and Control Centre (ICCC) monitors the city 24x7 and provides live updates on various aspects, including waste collection, parking violations, adaptive street lighting, environment pollution and overflowing manholes. Agra is one of the 22 cities that have successfully completed all projects under the Smart City Mission
Usage:	The example can be used in governance/Science and Technology questions to show the use of technology for city administration.

9.INDIA DATA CAPACITY ACCELERATOR

About	The Rockefeller Foundation and Mastercard-backed data.org , with an over \$2 million grant from U.K.-based charity Wellcome , have launched a data skilling program called the India Data Capacity Accelerator .
Aim:	The program aims to train one million Indians in using data to address climate and health-related challenges.
Collaborations:	The accelerator will collaborate with three universities— Ashoka University, the Indraprastha Institute for Information Technology, and BITS Pilani —and work with the South Asia arm of the Abdul Latif Jameel Poverty Action Lab (J-PAL).
Usage:	The example can be used in questions related to skill development/ use of data to predict and measure air pollution and inform mitigating strategies.

10.SAM ALTMAN: CHALLENGES AND FUTURE OF AI TECHNOLOGY

Context	Sam Altman , CEO of OpenAI, testified before the United States Congress about the challenges and future of AI technology.
Some key points from his testimony include:	
<ul style="list-style-type: none"> Learning from social media's mistakes: World missed the opportunity to regulate social media at its inception, resulting in issues like misinformation and data privacy. An atom bomb or printing press moment?: Altman acknowledged that if AI technology goes wrong, it can have significant negative consequences. Impact on jobs: Altman recognized that while AI may automate some jobs, it can also create new and better ones. Regulatory intervention: Altman supported the idea of regulating AI e.g., the US government might consider a combination of licensing and testing requirements for the development and release of AI models above a threshold of capabilities. 	
Usage:	His quotes and views can be used directly in the Essay/Governance questions related to the risk of AI

11. WHO: POTENTIAL HARM OF USING AI

Context	The World Health Organization (WHO) has warned about the potential harm of using artificial intelligence (AI) in healthcare without proper monitoring and regulation.
Some of the concerns raised by WHO are:	

- **The use of biased data to train AI** can result in misleading information, posing risks to health, equity, and inclusiveness.
- Generate responses that seem reliable but may be **completely incorrect**, especially in health-related contexts.
- AI can be **trained on data without prior consent**, potentially compromising sensitive user-provided information.
- **AI can be manipulated** to spread convincing disinformation that is hard to distinguish from reliable health content.

Usage: WHO's concerns can be quoted in the Essay/medical ethics/Governance questions related to the risk of AI in medicine field

12.NYC SKYSCRAPERS TURNING TO CARBON CAPTURE

Context	New York City is implementing a new law that requires building owners to make significant emissions cuts or face fines.
About	To comply, property managers are installing carbon capture systems that capture carbon dioxide from building emissions, cool it into a liquid, and mix it into concrete where it becomes a mineral. The captured carbon dioxide is then sold to concrete manufacturers or carbonated beverages or soap manufacturers.
Usage:	The example can be used in Governance/Environment question to highlight how cities can help minimize carbon emissions.

13.EXAMPLES OF INITIATIVES UNDER MISSION LIFE

Initiative	By	Description
Clean Sea Initiatives	National Centre for Sustainable Coastal Management	"Fishing for litter" encourages fishermen to bring discarded fishing gear to shore-based reception facilities.
Beach Cleaning		Beach cleaning activities are organized to collect plastic waste, including discarded fishing nets and single-use plastics.
Sensitization Programs		Educating the fishing community about responsible fishing, hygienic fish handling, energy and water conservation.
Plantation Drives	National Institute of Himalayan Environment	Planting medicinal and horticultural species to promote healthy lifestyles and sustain resources.
Awareness Programs	Zoological Survey of India	Conducting programs in schools, colleges, offices, and marketplaces to spread awareness of sustainable practices.
Waste Segregation Programs	National Museum of Natural History	Promoting waste segregation and lifestyle changes to reduce environmental impact.

14.FREEING "DOTTED LANDS"

About	The government of Andhra Pradesh has initiated the process of freeing "dotted lands," which are disputed lands with unclear ownership documents . These lands, identified as British-era dotted lands , are being permanently denotified , allowing farmers who own them full rights over the lands. Over 2 lakh acres of such lands have been identified for denotification. The move aims to provide clear land ownership documents to farmers who have been cultivating these lands for more than 12 years , enabling them to access financial assistance, sell or gift the lands , and enjoy all usual rights as landowners.
Usage:	The example can be used to showcase land reforms by state governments.

15. HELI-TOURISM

About	Kerala Tourism is planning to introduce heli-tourism to attract premium tourists. They have drafted guidelines for heli-taxi services connecting Kochi with popular tourist destinations like Thekkady, Munnar, and Kumarakom. The department aims to set up the necessary infrastructure through pub-lic-private partnership (PPP) to facilitate this initiative.
Usage	Such an example can be used in questions related to tourism/the importance of PPP etc.

16. RIVERINE-BASED RELIGIOUS TOURISM CIRCUIT

Riverine-Based Religious Tourism Circuit



Context: A Memorandum of Understanding (MoU) has been signed to develop a '**Riverine Based Religious Tourism Circuit**' in Northeast India, connecting seven historic temples along the Brahmaputra River.

- **Aim:** The initiative aims to boost riverine tourism and strengthen the tourism sector in Assam. It also intends to establish a modern ferry service operating on a '**Hop-On Hop-Off**' mode, allowing passengers to conveniently explore these spiritual landmarks.
- **Timeline:** To be completed within **12 months**
- **Finance:** Funding will be shared between the Sagarmala Development Corporation Limited (SDCL), Inland Waterways Authority of India (IWAI), and Assam Tourism Development Corporation (ATDC)



Significance of the site selected:

Site	Spiritual Significance
Kamakhya	One of the 51 Shakti Peethas ; revered as a powerful goddess
Pandunath	An ancient temple dedicated to Lord Shiva and Parvati
Ashwaktanta	Sacred site associated with Lord Vishnu and his incarnation
Doul Govinda	Devoted to Lord Krishna ; known for its Raas Leela celebrations
Umananda	Dedicated to Lord Shiva ; situated on Umananda Island
Chakreshwar	Holy site with a temple dedicated to Lord Shiva
Auniti Satra	Prominent Vaishnavite monastery and spiritual centre

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About Brahmaputra River:

The Brahmaputra River (source: **Chemayungdung glacier**) originates in southwestern Tibet and shares its source area with the Indus and Satluj Rivers. It flows through a depression formed by the **Indus-Tsangpo Structure Zone**, cutting through the Himalayas and entering Arunachal Pradesh as the **Dihang River**. After merging with the Lohit and Dibang streams, it is known as the **Brahmaputra**. The river's **left bank** is fed by the Dhansiri, Lohit, and Dibang Rivers, while the **right bank** receives the Subansiri, Kameng, Manas, and Sankosh Rivers.

FACTS FOR PRELIMS GS PAPER 1

INDIAN HERITAGE AND CULTURE

1. SANTINIKETAN

Santiniketan



Context: The International Council on Monuments and Sites, a UNESCO advisory body, has recommended that Santiniketan be included in the list of World Heritage Sites.


<p>Santiniketan is a renowned cultural and educational institution (comprising Viswa Bharati University) located in the Birbhum District of West Bengal, India.</p>		
Meaning of Name	Santiniketan literally means "abode of peace" in Bengali.	
Origin	Initially, it started as an ashram (hermitage) founded by Rabindra Nath Tagore's father, Debendranath Tagore , but eventually developed into a centre of art, culture, and learning.	
Teaching	It is known for its unique educational philosophy , which emphasizes the integration of nature, creativity, and holistic learning . It follows the concept of an open-air classroom where students are encouraged to learn in close connection with nature.	
Key Features	Santiniketan is also adorned with splendid sculptures, frescoes, murals, and paintings created by renowned artists such as Rabindranath Tagore, Nandalal Bose (one of the pioneers of modern Indian art) and Ramkinkar Baij (master sculptor and painter) among others.	
Significance	Cultural and heritage place, associated with Nobel laureate Rabindranath Tagore	
West Bengal's Representation	If selected, Santiniketan would be the second cultural symbol from West Bengal to be included in the UNESCO list (1 st being 'Durga Puja in Kolkata' in UNESCO's list of Intangible Cultural Heritage of Humanity, 2021)	
UNESCO World Heritage site	Landmarks or areas selected for their cultural, historical, scientific, or other significant value	
Selection Criteria	Sites must be already-classified landmarks , unique and significant culturally or physically	
World Heritage Committee	Selects and monitors World Heritage Sites , manages the World Heritage Fund, and provides financial assistance	
Membership	India is a member of the World Heritage Committee (2021-2025)	

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2.SARASWATI YANTRA

Saraswati Yantra

Context: India's Cannes pavilion for **this year's film festival** will be themed on the **Saraswati Yantra**, an abstract representation of Goddess Saraswati from the ancient text of '**Maha Upanishad**'.

	Description
Saraswati Yantra	It is a sacred geometric diagram or symbol associated with the Hindu goddess Saraswati. It is a visual representation of the goddess and is believed to possess spiritual and divine powers. 
What is an Upanishad?	An Upanishad is sacred ancient Hindu texts that are considered sacred and form part of the Vedas, the oldest scriptures of Hinduism . Upanishads are philosophical and mystical in nature, exploring the fundamental questions of existence, reality, and the nature of the self (Atman) and the ultimate reality (Brahman).
Maha Upanishad	Maha Upanishad is a Sanskrit text and one of the minor Upanishads of Hinduism.
Visit Insights IAS Daily Current Affairs	It presents a syncretism of Vaishnava and Vedanta ideas and is notable for teaching " Vasudhaiva Kutumbakam " or "the world is one family".
Vaishnava Upanishad	The Vaishnava Upanishad describes Vishnu as the highest being , superior to Brahma.
Goddess Saraswati	Goddess Saraswati is believed to be the keeper of knowledge, music, art, speech , wisdom, and learning.
About Cannes Film Festival	The Cannes Film Festival is an internationally renowned film festival held annually in Cannes, France. It is one of the most prestigious film festivals in the world and serves as a platform for filmmakers to showcase their works to a global audience.

3.MATRILINEAL MEGHALAYA

Context:

Khasi Hills Autonomous District Council (KHADC) ordered not to issue an ST certificate to any Khasi person who adopts their father's surname as it is **against the traditional custom of inheriting the mother's surname**.

What is the matrilineal system among Khasis?

It refers to a **social and kinship system** where descent and inheritance are traced through the **female line**. In this system, family lineage, property, and clan membership are passed down from mother to daughter. Among Khasis, the **youngest daughter (khatduh)** of the family is entrusted the full share of the ancestral - **or the clan's - property**

The three tribes of Meghalaya — **Khasis, Jaintias, and Garos** — practise a matrilineal system of inheritance.

About Khasis Tribe:

The Khasis are an **indigenous community in Meghalaya**. While the majority of Khasis are **Christians** now, their traditional beliefs revolved around a **Supreme Being called U Blei Nongthaw**. The Khasi community celebrates festivals such as the **Nongkrem Dance and Shad Suk Mynsiem**.

About KHADC:

- KHADC is a **body under the Sixth Schedule of the Constitution**.
- The **Sixth Schedule** of the Constitution provides for the administration of **tribal areas in Assam, Meghalaya, Tripura and Mizoram** to safeguard the rights of the tribal population in these states.
- It provides for **autonomy in the administration** of these areas through **Autonomous District Councils (ADCs)**, which are empowered to make laws in respect of areas under their jurisdiction.

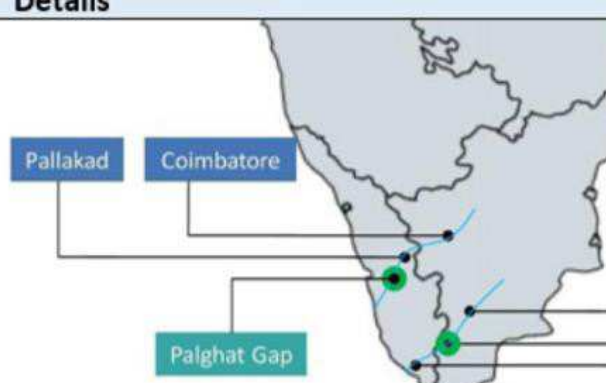
GEOGRAPHY

4.PALGHAT GAP

Palghat Gap



The **Palghat Gap in the Western Ghats** is a significant break in the mountain range, measuring about **40 km wide**

Information	Details	
Surrounding hills	It is characterized by the steep Nilgiris and Anamalai hills on either side, both rising above 2,000 meters above sea level.	
Importance	Gateway into the State of Kerala for roads and railways	
River through it	Bharathappuzha river	
Vegetation	Unlike the tropical rainforests found in other parts of the Western Ghats, the vegetation in the Palghat Gap is classified as dry evergreen forest .	
Shear Zone	Geologically, the Palghat Gap is a shear zone running from east to west. Shear zones are weak regions in the Earth's crust , which occasionally result in tremors felt in the Coimbatore region.	
Origin	The origin of the Gap can be traced back to the separation of Australia and Africa from the Gondwana landmass , causing continental drift.	
Biogeographic distinctions	Several species of flora and fauna are found only on one side of the Gap . Also, the Mitochondrial DNA of elephants on the Nilgiris side differ from those in Anamalai and Periyar sanctuaries	
Rainfall	The Western Ghats north of the Palghat Gap receive more annual rainfall , but the south experiences rainfall more evenly distributed throughout the year .	
Biodiversity in the South of the Gap	Abundant species richness and diversity. Reason: The warm weather, evenly distributed rainfall, proximity to the equator, and moist air	
Other similar Gaps	Thal Ghat Pass (Kasara Ghat) (connects Mumbai to Nashik); Bhor Ghat Pass (connects Mumbai to Pune via Khopoli); Amba Ghat Pass (connects: Ratnagiri district to Kolhapur); Naneghat Pass (connects Pune district with Junnar city); Amboli Ghat Pass (connects Sawantwadi of Maharashtra to Belgaum of Karnataka)	

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GS PAPER 2

GOVERNMENT POLICIES AND INTERVENTIONS FOR DEVELOPMENT IN VARIOUS SECTORS AND ISSUES ARISING OUT OF THEIR DESIGN AND IMPLEMENTATION.

1. PENSION ADALAT

Context:

Department of Pension and Pensioners' Welfare is set to inaugurate an all-India pension adalat aimed at **resolving chronic pension cases**.

- **Status:** The initiative was started in 2017 and has organized seven all-India pension adalats so far (the current one is the 8th Adalat).
- **Benefits:** The adalat brings together all stakeholders involved in a grievance on a common platform to ensure speedy resolution and timely pension processing.

Other initiatives:

- Department of Pension and Pensioners' Welfare has decided to integrate various portals, including pension disbursing bank portals, ANUBHAV, CPENGRAMS, and CGHS, with the newly created "Integrated pensioners' portal" (ipension.nic.in)
- Bhavishya portal (to access pension slip, check the status of life certificate submission, and obtain Form-16)
- SANKALP (It is a project to channelize the skill, experience and time available with Central Government Pensioners into meaningful social intervention)

2. SANCHAR SAATHI PORTAL

Context:

Ministry of Communications has launched the **Sanchar Saathi portal**, which aims to enhance the **safety and security of mobile phone** users in India.

The portal introduces three reforms:

- **CEIR** for blocking stolen/lost mobiles
- **Know Your Mobile Connections** for checking registered connections
- **ASTR** (Artificial Intelligence and Facial Recognition powered Solution for Telecom SIM Subscriber Verification) for identifying fraudulent subscribers.

Aim:

The initiative is designed to **prevent frauds such as identity theft** and banking fraud by misusing mobile phones.

Achievement of the Portal:

Over **40 lakh fraudulent connections** have been identified and 36 lakhs disconnected through the portal. Disconnected numbers have been shared with **financial institutions and social media platforms** for further action.

Sanchar Saathi initiative:

It includes **modules for IMEI registration, fraud detection, and facial recognition-based** verification.

Portal developed by: Department of Telecom

3.PRICES OF DRUGS GOING OFF-PATENT

Context:

The government has introduced a formula to **determine the pricing of medicines** that are losing their **patent exclusivity**.

Patents in India:

A patent for drugs in India gives the patent holder exclusive rights to manufacture, use, sell, or import the patented drug in India for a specified period, **typically 20 years** from the date of filing the patent application.

Prices of Medicine in India:

National Pharmaceutical Pricing Authority (NPPA) (under the Ministry of Chemicals and Fertilizer) has been established to fix/revise prices of medicines under the Drugs (Prices Control) Order (DPCO), 2013.

The new formula:

- **For the off-patent price of a medicine (patented under the Patent Act, 1970):** It will be capped at 50% of its original cost. After one-year ceiling price will **be revised again based on market data**.
- **For Generic version:** When generic versions become available, the price will be determined based on the **average price of similar versions**.
- **For Fixed Dose Combinations (FDC),** where one component is going off patent, the ceiling price will be revised to **50% of the current ceiling price**.
- **For innovative drugs not available in India:** An expert committee will decide the price cap.

Significance of the move: The move aims to **streamline pricing and encourage competition** in the market. Also, it will reduce the prices of the **patented drugs** which are a part of the **National List of Essential Medicines (NLEM)**

Concerns:

Civil society representatives have raised concerns about the potential for increased prices by **generic manufacturers**.

4.CEIR SYSTEM

Context:

The Indian government has launched the **Central Equipment Identity Register (CEIR) tracking system** to combat mobile phone theft.

About the CEIR system:

Central Equipment Identity Register is a tracking system to combat mobile phone theft and facilitate the blocking and tracking of lost or stolen mobile phones across the country. CEIR serves as a central depository or database of International Mobile Equipment Identity (IMEI) numbers, models, versions, and other details of mobile devices.	
Implementing Body	Centre for Department of Telematics (CDoT)
Pan-India Deployment	Ready for pan-India launch on May 17, 2023
Key Features	In-built mechanism to detect cloned mobile phones; Access to International Mobile Equipment Identity (IMEI) number and associated mobile number; Prevent revenue loss to the government; Mandate disclosure of IMEI number prior to mobile device sale; Block unauthorized mobile phones on telecom networks
Success Story	Karnataka Police used the CEIR system to recover and return over 2,500 lost mobile phones
Existing Systems	Apple has a tracking system through Apple ID for its devices, but Android phones face challenges in this regard
Impact	Use of stolen mobile phones will become futile

Challenges	Database maintenance authority; Cloning or reprogramming of stolen mobile phones; Potential blocking of authentic IMEI numbers when blocking cloned ones
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About IMEI numbers:

International Mobile Equipment Identity is a unique 15-digit code that precisely identifies the device. Mobile phone manufacturers assign IMEI numbers to each device based on ranges allotted to them by the **Global System for Mobile Communications Association**. Dual SIM phones will have **two IMEI numbers**.

ISSUES RELATING TO DEVELOPMENT AND MANAGEMENT OF SOCIAL SECTOR/SERVICES RELATING TO HEALTH, EDUCATION, HUMAN RESOURCES.

5.STARS PROGRAMME

Context:

The Ministry of Education and the World Bank organized a workshop on **School-to-Work Transition under the STARS Program**.

Aim: The workshop aimed to strengthen **vocational education and discuss skill gap analysis** in the six STARS states.

About STARS Programme:

Dimension	Description
The Strengthening Teaching-Learning and Results for States (STARS) Programme is a world bank aided initiative, to improve the quality and governance of school education in six Indian states of Himachal Pradesh, Kerala, Madhya Pradesh, Maharashtra, Odisha and Rajasthan through the Samagra Shiksha .	
Type of Scheme	It would be implemented as a new Centrally Sponsored Scheme under the Department of School Education and Literacy, Ministry of Education.
Objectives	Improve learning assessment systems, strengthen classroom instruction and remediation, facilitate school-to-work transition, and strengthen governance and decentralized management.
Expected Beneficiaries	Around 250 million students (between the age of 6 and 17) in 1.5 million schools and over 10 million teachers will benefit from this USD 500 million programme.
Vision	The program strengthens public school education and supports India's goal of providing ' Education for All '.
Components of the Project	
Contingency Emergency Response Component (CERC)	This component enables the program to be responsive to any natural, man-made, and health disasters. It helps the government respond to situations leading to loss of learning such as school closures/infrastructure damage and inadequate facilities.
PARAKH	PARAKH serves as a National Assessment Centre . It sets norms for student assessment and evaluation for all school boards across the country. It also guides standardized testing to monitor learning outcomes at the state and national levels.
Success Stories	India has successfully achieved gender parity in enrolment in primary education but that is not the case in secondary education. India has significantly improved access to education across the country.

6. IMPORTANT INTERNATIONAL INSTITUTIONS, AGENCIES AND FORA-THEIR STRUCTURE, MANDATE.

6. INTERNATIONAL ORGANIZATION FOR MIGRATION (IOM)

Context:

Amy Pope from the United States has been elected as the new **Director General of the International Organization for Migration (IOM)**, making her the **first woman** to hold this position.

Information	Description
About	IOM is an intergovernmental organization that provides services and advice concerning migration to governments and migrants, including refugees, internally displaced persons, and migrant workers.
Origin	IOM was established in 1951 as Intergovernmental Committee for European Migration (ICEM) to help resettle people displaced by World War II.
Status in UN	It was granted Permanent Observer status to UN General Assembly in 1992. It is part of the UN now.
Major report	World Migration Report is published every year.
Work	IOM works in four broad areas of migration management —Migration and development, facilitating migration, regulating migration, and Forced migration.
Members	It has 175 member states . India is a member of IOM.
Significance	The IOM, with predominantly American leadership , plays a significant role in addressing global migration challenges, providing assistance to migrants, and advising governments on migration-related policies.

GS PAPER 3

INDIAN ECONOMY AND ISSUES RELATING TO PLANNING, MOBILIZATION, OF RESOURCES, GROWTH, DEVELOPMENT AND EMPLOYMENT.

ROBERT LUCAS' RATIONAL EXPECTATION THEORY

Context:

Nobel Laureate Robert E Lucas (1937 – May 15, 2023) was an economist known for developing the “**rational expectations**” approach to macroeconomics.

What is Macroeconomics?

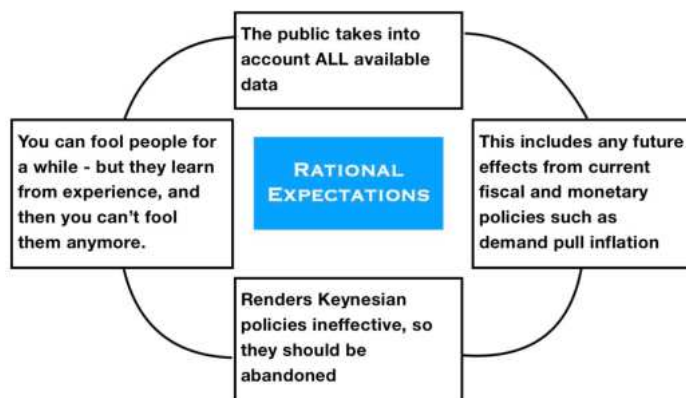
It studies the **behaviour and performance of an economy as a whole**. It focuses on analyzing aggregate economic variables such as GDP (gross domestic product), inflation, unemployment, and overall economic growth.

What is the “rational expectations” approach to macroeconomics?

The “**rational expectations**” approach in macroeconomics suggests that **people form expectations** about the future **based on available information** and their understanding of the economy. For example, if **people anticipate higher inflation** due to a new government policy, they may adjust their behaviour accordingly.

Significance of his work:

Robert Lucas's work on rational expectations in macroeconomics **challenged traditional Keynesian economics** and emphasized the **importance of individuals forming expectations** based on available information. His research highlighted that **predictable government policies may not have the desired impact** on the economy.



2. AADHAAR-ENABLED PAYMENT SYSTEM (AEPS)

Context:

Scammers are reportedly **using leaked biometric details** (silicone thumbs), bypassing the need for OTPs, to **siphon money from users' bank accounts**.

About Aadhaar-enabled Payment System:

- Aadhaar-enabled Payment Services (AePS) is a **bank-led**

model, which allows online financial transactions at Point-of-Sale (PoS) and Micro ATMs through the business correspondent of any bank using Aadhaar authentication.

- The model removes the need for OTPs, bank account details, and other financial details.
- It allows fund transfers using only the bank name, Aadhaar number, and fingerprint captured during Aadhaar enrolment, according to the National Payments Corporation of India (NCPI).



3. ECL-BASED LOAN LOSS PROVISIONING NORMS

Context:

Lenders have sought a **one-year extension from the Reserve Bank of India (RBI)** for implementation of the **Expected Credit Loss (ECL)-based loan loss provisioning framework**.

What is loan loss provisioning?

Loan loss provisioning refers to the practice of **setting aside funds by banks to cover potential losses arising from loans** that may default or become unrecoverable.

Current System	Banks are required to make loan loss provisions based on an "incurred loss" approach . Also, the Loan loss provisioning happens much later, leading to an increase in credit risk for banks .
"Incurred Loss" model	This model assumes that all loans will be repaid until evidence to the contrary is identified. Only at that point is the defaulted loan written down to a lower value. This leads to a delay in the recognition of defaults.
The New Proposal	RBI has proposed an expected loss (EL)-based approach for provisioning by banks in case of loan defaults. Banks are required to estimate expected credit losses based on forward-looking estimations. Banks have to categorize ECL norms for assessing the quality of assets and the expected loss.

ECL Norms

Banks classify financial assets (primarily loans, including irrevocable loan commitments, and investments classified as held-to-maturity or available-for-sale) into three categories: **Stage 1, Stage 2, and Stage 3**.

Stage 1: Financial assets that have not had a significant increase in credit risk or with low credit risk at the reporting date.

Stage 2: Financial instruments that have had a significant increase in credit risk but don't have objective evidence of impairment.

Stage 3: Financial assets that have objective evidence of impairment at the reporting date

4. SURETY BONDS

Context:

The Insurance Regulatory and Development Authority of India (Irdai) has relaxed norms for **'surety bonds'**.

The changes introduced:

The **solvency requirement** for surety bonds has been reduced to **1.5 times** from the previous **1.875 times**, and the exposure limit of **30% applicable** to each contract underwritten by an insurer has been removed.

Aim of the changes:

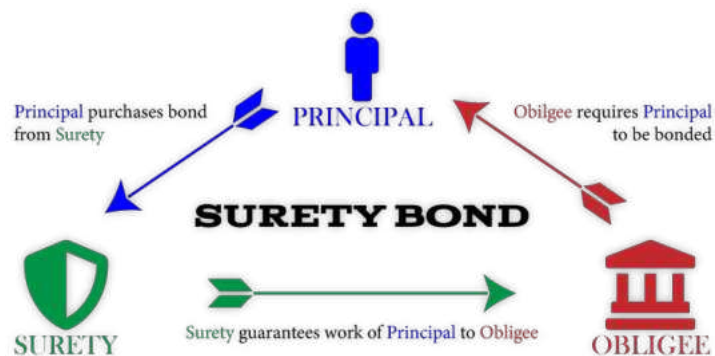
The changes are aimed at **expanding the surety insurance market** and increasing the availability of such products.

What is Surety Bond?

A surety bond is a **type of insurance policy** that ensures parties involved in a contract are protected from financial losses if one party fails to fulfil its obligations.

Example:

If a construction company **fails to complete a project as agreed**, the surety bond compensates the client for the losses. It ensures **financial protection and guarantees** that the contract will be fulfilled.



About IRDAI:

The Insurance Regulatory and Development Authority of India (est. 1999; HQ: Hyderabad) is a **statutory body** under the jurisdiction of the **Ministry of Finance**. It is tasked with regulating and licensing the **insurance and re-insurance industries** in India.

5. LIBERALIZED REMITTANCE SCHEME (LRS)

Context:

Finance Ministry has announced that it will **waive the 20% tax on overseas credit card spending** for individuals up to **₹7 lakh per financial year**, following criticism and concerns raised by taxpayers and businesses.

What is the issue?

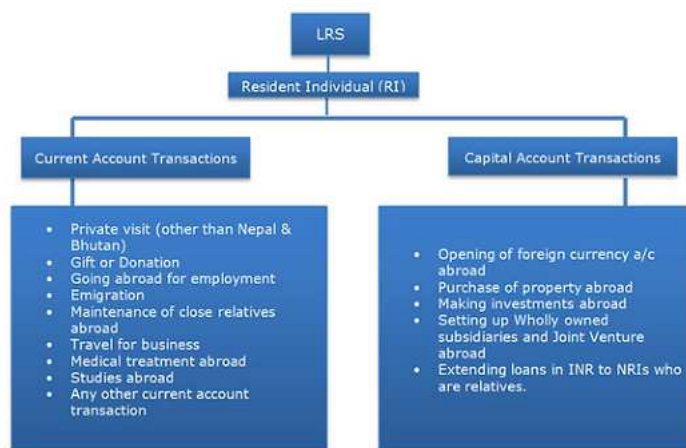
The Reserve Bank of India had introduced a **provision to capture overseas credit card spending** under the LRS, which allows individuals to remit forex up to **\$2.5 lakhs annually**.

However, the **government's plan to impose a 20% tax** on such spending faced backlash, leading to its current decision to exempt spending up to ₹7 lakh and the continuation of beneficial treatment for **education and health payments, under the LRS**.

About the LRS Scheme:

	Description
Definition of Remittance	In the context of the Liberalized Remittance Scheme (LRS) , remittance refers to the transfer of foreign exchange (forex) by resident individuals in India for various purposes.

About the scheme	The LRS sets the limit on the amount of money that can be remitted by individuals without requiring specific approvals from regulatory authorities. Under LRS (introduced in 2004), Indian individuals can send money outside up to a maximum of \$250,000 in a year .
Aim	Simplify the process of remitting money outside India and encourage foreign investments by Indian individuals
Permissible Transactions	Education, travel, medical treatment, gifting, investment in shares or property, etc.
Non-Permissible Transactions	Trading in foreign exchange or buying lottery tickets
Ineligible Entities	Corporations, partnership firms, Hindu Undivided Family (HUF), Trusts, etc.
Benefits	Diversify investments and assets, finance foreign education or travel
Issues	Outward remittances may pressure Forex reserves
Repatriation Directive	In August 2022, RBI had directed that any money remitted overseas by Indian residents that remains unutilised for more than 180 days needs to be repatriated back into India.



6. CENTRE FOR PROCESSING ACCELERATED CORPORATE EXIT (C-PACE)

Context:

The Ministry of Corporate Affairs (MCA) has established the **Centre for Processing Accelerated Corporate Exit (C-PACE)** to centralize the process of striking off companies from the MCA Register.

What is striking off?

Striking off companies from the Ministry of Corporate Affairs (MCA) Register means **removing defunct, non-operational, or dissolved companies** from the official database.

C-PACE (founded: March 2023; HQ: at the office of Indian Institute of Corporate Affairs (IICA) in Gurgaon) aims to ensure a **clean registry, provides hassle-free filing and timely**, process-bound striking off of company names from the Register.

- C-PACE operates through the **Registrar of Companies (RoC)** and is part of MCA's efforts to improve the **Ease of Doing Business** and facilitate company exits.

7. IT HARDWARE PLI SCHEME 2.0

Context:

The Cabinet approved the **Production Linked Incentive Scheme 2.0 for IT Hardware** with a budgetary outlay of Rs 17,000 crore.

- Electronics manufacturing in India has witnessed consistent growth **with a 17 per cent compound annual growth rate (CAGR) in the last 8 years**.
- PLI Scheme 2.0 for IT hardware **covers laptops, tablets, all-in-one PCs, servers and ultra-small form factor devices**.

About PLI Scheme:

Aspect	Details
Objective	Scale up domestic manufacturing capability. Increase import substitution and Generate employment
Initial Targeted Industries	Mobile and allied Component Manufacturing, Electrical Component Manufacturing, and Medical Devices. Now expanded to—Automobile and auto components, Electronics and IT hardware, Telecom, Pharmaceuticals, Solar modules, Metals and mining, Textiles and apparel, White goods, Drones, Advanced chemistry cell batteries other sectors as well.
Incentives	Calculated based on incremental sales. Range from 1% to 20% depending on the industry. In some sectors such as advanced chemistry cell batteries, textile products and the drone industry , the incentive is on the basis of sales, performance and local value addition done over the period of five years .

8.US DEBT CEILING DEAL

Context:

The US government is facing a crucial issue regarding the debt ceiling.

About Debt Ceiling:

Topic	Debt Ceiling
Definition	The maximum amount of money that the US government is legally allowed to borrow to fund its operations and meet its financial obligations. It sets a cap or limit on the total amount of government debt.
Origin	Established by the US Congress in 1917 during World War I to promote fiscal responsibility in the federal government.
Issue	Disagreement between President Joe Biden (executive) and the Republican-controlled US Congress (Legislature) on raising the debt ceiling. The decision to increase the borrowing cap lies with the US Congress , which needs to vote on it.
Impact	Possible government default if the debt ceiling is not raised, leading to economic consequences such as a weaker dollar, stock market problems, and job losses.
	The downgrade of the US credit rating made future borrowing more expensive for the government.
	Hinders discussions on long-term fiscal challenges and has become a political tool instead of a responsible fiscal mechanism.

Impact on India	Increased volatility in financial markets affects currency exchange rates, capital flows, and investor confidence.
	Impact on India's exports, foreign direct investment , and overall economic stability.
Previous instance	In 2011, the US faced a near default on public debt due to a delay in raising the debt ceiling. This led to the first downgrade in the US credit rating, a sharp drop in the stock market, and higher borrowing costs.
Suggestions for reforms	Automatic increase of the debt limit whenever legislation is passed or abolishing the debt limit altogether
India's Debt Ceiling Mechanism	India does not have a formal debt ceiling mechanism like the one in the United States. The Indian government manages borrowing and debt obligations through fiscal discipline, budgetary controls, and oversight by the Reserve Bank of India (RBI). The Fiscal Responsibility and Budget Management (FRBM) Act governs India's borrowing activities, setting targets for fiscal deficits and debt-to-GDP ratios.

9.GREENWASHING TECHSPRINT

Context:

The Reserve Bank of India (RBI) has opened the application window for firms and innovators to participate in the **Global Financial Innovation Network's (GFIN) Greenwashing TechSprint**.

About the Initiative:

Initiative	Description
	GFIN's 1 st ever Greenwashing TechSprint brings together 13 international regulators , (including RBI), along with firms and innovators to address the priority of Environmental, Social, and Governance (ESG) issues and mitigate the risks of greenwashing in financial services.
Objectives	The objective of TechSprint is to develop a tool that can help regulators and the market effectively tackle the deceptive practice of greenwashing.
About Greenwashing	Misleading marketing that falsely portrays positive environmental or social outcomes
About ESG Framework	It helps stakeholders, such as investors and customers, understand how an organization manages its environmental responsibilities, social impact, and corporate governance practices .
Status of India on ESG	India is making progress in implementing ESG regulations through the introduction of the Business Responsibility and Sustainability Reporting (BRSR) framework by the Securities and Exchange Board of India (SEBI).
About BRSR framework	The BRSR framework aims to connect a company's financial performance with its ESG practices . It has been mandated for the top 1,000 listed entities in terms of market capitalization starting from the financial year 2022-23.
About GFIN (Global Financial Innovation Network)	GFIN was launched in 2019 by international financial regulators and organizations with the aim of supporting financial innovation and identifying regulatory gaps in emerging technologies across different sectors. It acts as a surveillance tool to detect issues before they become problematic.

10.SOUTH ASIA GAS ENTERPRISE (SAGE)

Context:

An undersea gas pipeline project connecting the **Middle East and India** has been proposed by South Asia Gas Enterprise (SAGE), an international consortium.

About the project:

The project, estimated to **cost \$5 billion**, aims to establish a **2,000-km-long energy** corridor through the Arabian Sea, bypassing **geopolitically sensitive regions**.

- **Saving:** If realized, the pipeline could result in annual savings of around **₹7,000 crores** compared to importing an equivalent quantity of liquefied natural gas (LNG).
- **Import:** Import of gas from countries such as Oman, UAE, Saudi Arabia, Iran, Turkmenistan, and Qatar, which collectively possess significant gas reserves.
- **Price:** The proposed pipeline is projected to **deliver 31 million metric standard cubic meters per day (mmsc-md)** of gas to India under a 20-year long-term supply contract, with a pipeline tariff range of \$2 to \$2.25 per mmBtu.



About SAGE:

South Asia Gas Enterprise Pvt. Ltd. (SAGE) is promoted by the New Delhi-based Siddho Mal Group, in Joint Venture with a UK-based Deepwater Technology Company. It is undertaking a path-breaking project, to build the **Deepest Underwater Transnational Gas Pipeline** ("Middle East to India Deepwater Pipeline (MEIDP)) to connect the **Gas Rich Gulf & Middle East regions to India.**

MIP is a **temporary measure implemented by a government** to protect domestic industries from unfair competition and **predatory pricing of imported goods**. The MIP sets a **minimum price below which the import** of a particular commodity is not allowed.

Who frames the rules:

The **Directorate General of Foreign Trade (DGFT)** is the arm of the commerce ministry responsible for framing rules related to exports and imports, including the implementation of MIPs.

Significance:

By setting a minimum import price, the government aims to prevent apple imports from flooding the market at excessively low prices, and provide a **level playing field** to farmers in J&K.

About Apple cultivation:

Apple cultivation in India primarily **takes place in regions such as Jammu & Kashmir, Himachal Pradesh, the hills of Uttar Pradesh and Uttarakhand**. It is also grown to a lesser extent in Arunachal Pradesh, Nagaland, Punjab, and Sikkim. China produces the **world's largest number of apples**. India is ranked **5th**.

Climatic condition for Apples:

The ideal climatic conditions for apple cultivation include an **average summer temperature of 21-24 degrees Celsius** during the active growth period. Apple trees can be grown at altitudes ranging from **1500 to 2700 meters above sea level**. Well-distributed rainfall of **1000-1250 mm throughout** the growing season is **most favourable** for the optimal growth and fruitfulness of apple trees. Additionally, apples thrive best in **well-drained, loamy soils**.

ISSUES RELATED TO DIRECT AND INDIRECT FARM SUBSIDIES AND MINIMUM SUPPORT PRICES

11. MINIMUM IMPORT PRICE FOR APPLES

Context:

The Central Government of India has introduced the **Minimum Import Price (MIP)** for apples in Jammu and Kashmir (J&K) to **protect the domestic industry** from unfair competition and [predatory pricing](#).

What is MIP?

FOOD PROCESSING AND RELATED INDUSTRIES IN INDIA

12. PRADHAN MANTRI MATSYASAMPADA YOJANA (PMMSY)

Context:

The [Pradhan Mantri Matsya Sampada Yojana](#) (PMMSY) in India is being supported by **seven major field studies conducted by the National Productivity Council (NPC)**.

About the studies:

- **Aim:** These studies aim to **enhance the fisheries sector** and its contribution to the country's GDP.
- **Fields covered:** The studies cover various areas such

as fish marketing systems, innovative fishing practices, storage container improvements, fish marketing infrastructure, technology evaluation, monitoring mechanisms, and minimizing post-harvest losses.

About PMMSY:

Dimension	Information
About	PMMSY (Under the Ministry of Commerce and Industry) was launched in 2020 for the sustainable development of the fisheries sector and to bring about the ‘ Blue Revolution ’.
Implementation	It is being implemented in all States and Union Territories for a period of 5 years from FY 2020-21 to FY 2024-25. It provides insurance coverage, and financial assistance to fishermen.
Aim and Objectives	Rural development and boosting the rural economy; “ Reform, Perform and Transform ” motto; Core and trunk infrastructure development and Modernization of Indian fisheries
Type of scheme	Umbrella scheme with Central Sector Scheme and Centrally Sponsored Scheme components —meaning that the Central government bears project cost and States/UTs share the cost of sub-components/activities
Targets	Enhanced fish production of 22 million metric tons ; Increased contribution of Gross Value Added (GVA) of the fisheries sector to agriculture GVA to 9%; Double export earnings to about Rs. 1 lakh crore; Reduction of post-harvest losses to about 10% and doubling of incomes of fishers and fish farmer
Achievements of the scheme	The fisheries sector has achieved impressive growth of over 14% and an all-time high in fish production and exports . The scheme has provided insurance coverage to over 31 lakh farmers
Other initiatives	Fisheries & Aquaculture Infrastructure Development Fund (FIDF); Kisan Credit Cards for Fishermen
Fishery sector in India	India is the 3rd largest fish producing and 2nd largest aquaculture nation in the world
About National Productivity Council (NPC)	NPC (est. 1958; HQ: Delhi) is an autonomous organization under the Department for Promotion of Industry & Internal Trade, Ministry of Commerce and Industry. It conducts productivity research, consulting and training services to the government, public and private sector organizations .

SCIENCE & TECHNOLOGY

13.SEMI-CRYOGENIC ENGINE

Context:

An intermediate configuration of a **2000 kN semi-cryogenic engine** was recently tested at a **newly commissioned Semi-cryogenic Integrated Engine & Stage Test facility at ISRO Propulsion Complex (IPRC)** in Mahendragiri, Tamil Nadu by ISRO.

- It was the **first in a series of tests planned** to validate the design of a **propellant feed system, including low-pressure and high-pressure turbo-pumps, gas generator, and control components**.

About semi-cryogenic engines:

- Semi-cryogenic engines are a **type of rocket engine that use a combination of liquid and gaseous propellants**. They are called “**semi-cryogenic**” because they **operate at temperatures higher** than cryogenic engines but still **colder than traditional liquid rocket engines**.
- A semi-cryogenic engine uses **refined kerosene instead of liquid hydrogen**. Liquid oxygen is used as an oxidizer.
- The Semi Cryogenic Propulsion System Project envisages the **design and development of a 2000 kN semi-cryogenic engine and ‘SC120 stage’** that will enable the **development of a heavy-lift capability for future Indian space transportation systems**.

14.DIGITAL PUBLIC INFRASTRUCTURE (DPI)

Context:

The Shanghai Cooperation Organisation (SCO) voted unanimously to **adopt India’s proposal for developing digital public infrastructure (DPI)** as the right way for deploying digital technology,

More about the News:

- Developing DPI will include platforms such as Aadhaar, United Payments Interface (UPI), DigiLocker, and DPI in agriculture, education and finance.
- Also, at the G7 meeting of health ministers, India proposed convergence of all digital initiatives through a “**global initiative on digital health**” to be housed at the WHO

Digital Public Infrastructure (DPI)

Digital Public Infrastructure (DPI)	
What is DPI?	Digital Public Infrastructure (DPI) refers to the technological foundation that enables the delivery of essential digital services to people . DPI facilitates the flow of people, money, and information through digital ID systems, real-time payment systems, and secure data sharing.
Goal	The goal of DPI is to empower citizens, promote inclusion, and improve lives by leveraging digital technology to provide accessible and efficient public services.
Three Pillars of DPI	DPIs enable three fundamental things: <ul style="list-style-type: none"> • Flow of people through a digital ID System E.g., Aadhar • Flow of money through a real-time fast payment system E.g., UPI • Flow of personal information through a consent-based data sharing system e.g., Account Aggregator
Other examples of DPI in India	India, through India Stack , became the first country to develop various types of DPI for services to people. E.g., Aadhaar ; DigiYatra (biometric-enabled technology for faster travel clearance and based on facial recognition system); DigiLocker (digital document storage platform) and UPI (Unified Payment Interface)
What is India Stack?	India Stack is a set of APIs (Application Programming Interfaces) that provide a unique digital infrastructure to solve India's challenges in presence-less, paperless, and cashless service delivery . India Stack provides a secure and reliable platform for digital identification (Aadhaar), digital document storage (DigiLocker), and digital payments (UPI)
Data Protection Initiatives for DPI	<ul style="list-style-type: none"> • Aadhaar Act, 2016: Provides a legal framework for the Aadhaar • Personal Data Protection Bill: Aims to protect the privacy of personal data • National Cyber Security Policy, 2013: Provides a framework for the protection of critical information infrastructure and prevention of cyber-attacks. • Cyber Swachhata Kendra: It secures digital devices and networks through free tools and security solutions.
Challenges Related to DPI in India	Securing political will, public support, and necessary resources for developing and implementing DPI; Ensuring strong privacy and security measures; Addressing the digital divide and ensuring accessibility for all citizens

Benefits of DPI:

- **Aadhaar enables the direct transfer** of social safety net payments, reducing leakages and corruption
- **Digital payments expanded smaller merchants' customer base** and improved access to financial services.
- **Digitalization formalized the economy**, with nearly 9 million new **GST taxpayers** registered. CoWIN platform scaled India's vaccine delivery services.

15.ASTR

Context:

The Department of Telecommunications (DoT) has launched the **Artificial Intelligence and Facial Recognition powered Solution for Telecom SIM Subscriber Verification (ASTR)** tool to detect and block fraudulent mobile connections.

About ASTR:

Dimensions	Description
Purpose	To detect and block fraudulent mobile connections
Origin	In 2012, the DoT ordered telecom operators to share their subscriber database, including user pictures . These images form the basis for the facial recognition algorithm used in ASTR. The ASTR project was developed by the DoT's unit in Haryana between April 2021 and July 2021 .
Technology Used	Artificial Intelligence (AI) and Facial Recognition

Functionality	Analyzing subscriber databases to identify multiple connections associated with the same person
Example of its working	Suppose there is a suspected face associated with multiple mobile connections . ASTR will compare this face against a database of images to identify other connections linked to the same face. If there are more than nine connections against a single individual's photograph or if the same person has taken SIMs under different names, ASTR will flag it as potentially fraudulent.
Connection Limit	Currently, a maximum of nine mobile connections can be taken using a single identity proof
Action Taken	The list of fraudulent connections will be shared with telecom operators, banks, payment wallets, and social media platforms
Description of technology used:	
Image Processing	Faces in subscriber images are encoded using convolutional neural network (CNN) models
Face Comparison	A face comparison is carried out for each face against all faces in the database to group similar faces under one directory
Matching Accuracy	Faces are considered identical if they match to the extent of at least 97.5%
Name Matching	"Fuzzy logic" is used to find similarity or approximate matches for subscriber names, accounting for typographical errors
What is fuzzy logic?	Fuzzy logic is a mathematical approach that deals with uncertainty and imprecise information . It allows for the representation of vagueness and partial truth , unlike traditional binary logic.



SPACE TECHNOLOGY

16. SATURN'S MOON

Saturn



Context: Saturn has regained its title as the planet with the most moons in the solar system. The discovery of **62 new moons** brings Saturn's total to **145**, surpassing Jupiter, which has **95** officially recognized moons.

	Jupiter	Saturn
		
Diameter	Largest Planet. More than twice as massive as all other planets combined	Second largest planet in the solar system
Orbital Period	11.9 Earth years	29.5 Earth years
Number of Moons	95	145
Why do they have so many moons?	Saturn and Jupiter have many moons due to their large size, gravitational influence, and the presence of debris and material in their respective regions of the solar system.	
Notable Features	Great Red Spot (giant storm), Galilean satellites (Io, Europa, Ganymede, Callisto)	Spectacular ring system with seven rings, including the moon Titan
Composition	Thick atmosphere of helium and hydrogen	
Exploration	Galileo (1989); Juno (2011); Europa Clipper (2024)	Visited by Pioneer 11, Voyagers 1 and 2, and Cassini (orbited Saturn)

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Prelims Links:

Q Which of the following pairs is/are correctly matched? (2014)

	Spacecraft	Purpose
1.	Cassini-Huygens	Orbiting Venus and transmitting data to the Earth
2.	Messenger	Mapping and investigating the Mercury
3.	Voyager 1 and 2	Exploring the outer solar system

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: B

CONSERVATION, ENVIRONMENTAL POLLUTION AND DEGRADATION

17. GLOBAL TEMPERATURE LIKELY TO BREACH 1.5°C THRESHOLD BY 2027

Context:

According to the **World Meteorological Organization (WMO)**, global temperatures are now more likely than not to **exceed the 1.5°C (2.7°F) warming threshold** within the next five years.

About the Finding:

WMO's **Global Annual to Decadal Climate Update** highlights a **66%** chance of temporarily exceeding **1.5°C by 2027** (than the average global temperature from 1850-1900), a significant increase from last year's estimate of approximately 50-50 odds.

- **Threshold of 1.5°C:** This threshold is **critical to avoid the disastrous** consequences of global warming, as warned by the Intergovernmental Panel on Climate Change.
- **Hottest year:** The WMO's predictions also indicate a **98% chance that one of the next five years** will be the hottest on record, surpassing the previous record set in 2016.

Reason for increased likelihood: [El Niño](#), combined with human-induced [climate change](#) will contribute to higher global temperatures.

Significance:

This represents the **first time in history that surpassing 1.5°C** is considered more probable than not, thus indicating an alarming trend.

Impact on India:

The increased temperature will likely lead to lower monsoon rainfall. Hotter oceans also contribute to **stronger cyclones** (e.g., [Cyclone Mocha](#)). India, with its reliance on **rain-fed agriculture and a long coastline**, will face significant challenges due to global climate changes.

Measures needed:

Improving **forecasting capabilities for cyclones** and **weather anomalies** is crucial, but building **resilience** through investments in **disaster-related infrastructure** is equally important. India **must prioritize infrastructure development** to defend against the increasing threat of **climate-related disasters**.

About WMO: The **World Meteorological Organization** (founded: 1950; HQ: Geneva; Parent organization: UN Economic and Social Council) is a **specialized agency** of the UN responsible for promoting international cooperation on atmospheric science, climatology, hydrology and geophysics.

18. MERI LIFE, MERA SWACHH SHEHAR

Meri LiFE, Mera Swachh Shehar

Context: The Ministry of Housing and Urban Affairs (MoHUA) has launched the mega campaign 'Meri LiFE, Mera Swachh Shehar' to promote waste management principles of Reduce, Reuse, and Recycle (RRR)

Aim

It aims to instil pro-environmental behavioural changes in daily life in line with the Mission LiFE (Lifestyle for Environment)

Topic	Details
	 <p>Mission LiFE (Lifestyle for Environment) (launched in Oct 2022) is a global movement initiated by India to promote an environmentally conscious lifestyle.</p>
Need	Addressing environmental degradation and climate change at the individual and community level
Aim	It aims to replace mindless consumption with mindful utilization and encourages individuals and communities to undertake climate-friendly actions in their daily lives.
Approach	Focus on individual behaviours, co-create globally, leverage local cultures
Objectives	Promote environmentally conscious lifestyle , nudge individuals to undertake climate-friendly actions, create a global network of Pro-Planet People (P3)
Example	Promoting Sustainable Transportation: Encouraging individuals to use public transport, carpooling, cycling, or walking instead of private vehicles to reduce carbon emissions and promote a greener commute.
Other related initiatives	Glasgow Climate Meet (COP26), Panchamrit strategy, International Solar Alliance, National Action Plan on Climate Change, National Clean Air Programme (NCAP), National Biofuel Policy

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A. MERI LIFE'S APP

Context:

Ministry of Environment, Forest and Climate Change (MoEF&CC) launched the "Meri LiFE" (My Life) mobile application to empower youth and encourage their participation in addressing climate change.

About the Meri LiFE app:

Dimension	Description
App Purpose	Empower young people and encourage their participation in tackling climate change through simple actions in daily life
LiFE Themes	Save Energy, Save Water, Reduce Single-Use Plastic, Adopt Sustainable Food Systems, and Adopt Healthy Lifestyles
5 for 5 Challenge	Users are guided through a gamified experience to take five LiFE actions towards World Environment Day on June 5th, 2023
MoEF&CC has developed two portals	
Mission LiFE Portal	Provides open access to over 100 creative videos and knowledge materials related to LiFE

Meri LiFE Portal

Enables ministries and institutions to **upload event reports** and track the progress of the ongoing mass mobilization drive

19. LAKES

Lakes

Context: As per a recent study published in the *Journal of Science*, more than half of the world's large lakes are drying up

More than **30 large lakes** in India experienced a drying trend from **1992 to 2020**. E.g., Mettur, Krishnarajasagar, Nagarjuna Sagar, and Idamalayar, showed a decline in lake levels and storage. **53% of the world's largest lakes** have been losing water, while 24% have seen an increase in water levels.

About Lakes:

Lakes	Description	Examples
Definition	A lake is a large body of water that is surrounded by land . It is generally localized in a basin or depression and is separate from rivers or other outlets that serve to feed or drain the lake.	
Types of Lakes		
Temporary Lakes	Lakes formed temporarily after heavy showers with evaporation greater than precipitation	Small lakes of deserts
Permanent Lakes	Lakes with deep water that carry more water than can be evaporated, with evaporation less than precipitation	Great Lakes of North America, East African Rift Lakes
Freshwater Lakes	Lakes fed by rivers and without-flowing streams	Great Lakes of North America
Saline Lakes	Lakes with no natural outlet or rapid evaporation cause high salt content in the water	Great Salt Lake, Aral Sea, Dead Sea
Tectonic Lakes	Lakes formed due to the earth's movements such as warping, subsidence, bending, and fracturing of the Earth's crust	Lake Titicaca, Caspian Sea
Rift Valley Lakes	Lakes formed along rift valleys, deep and narrow, with water collecting in troughs below sea level	Lakes Tanganyika, Malawi, Rudolf, Albert, Dead Sea
Crater and Caldera Lakes	Lakes formed in volcanic craters or calderas with no superficial outlet	Lonar (Maharashtra, India), Krakatau (Indonesia)
Uses of Lakes	Inland waterways for transportation; Economic and industrial development; Water storage; Hydroelectric power generation; Agricultural purposes etc.	Great Lakes-St. Lawrence Waterways, Kolleru Lake, Hirakud Dam, Dead Sea, Lake Chilika
Lakes in India	Largest Freshwater: Wular Lake (J&K); Largest Brackish water: Chilika (Odisha); Largest Saltwater: Sambhar (RJ); Largest Artificial: Gobind Ballabh Pant Sagar (UP); Longest: Vembanad (Kerala); High altitude: Cholem (Sikkim)	



Major Findings of the Study:

Findings	Details
Indian lakes	More than 30 large lakes in India experienced a drying trend from 1992 to 2020. E.g., Mettur, Krishnarajasagar, Nagarjuna Sagar, and Idamalayar, showed a decline in lake levels and storage
Global lakes	Global lakes contribute to 95% of the total lake water storage on Earth. 53% of the world's largest lakes have been losing water, while 24% have seen an increase in water levels.
Global population affected	Nearly 33% of the global population resides in a basin with a large, drying lake.
Role of climate change	Climate change, including temperature, precipitation, and runoff , was identified as one of the main drivers of water losses
Other factors contributing to lake decline	Human water consumption, potential evapotranspiration, and sedimentation were identified as additional factors contributing to the decline of lakes.
Measures needed	Integrated approaches to lake management are crucial to address the declining trends

20. REGULATING CAPTIVE BREEDING OF EXOTIC ANIMALS

Context:

India begins **regulating the captive breeding of exotic animals** through a licensing system.

- Those who breed exotic species protected under (CITES) and listed in Appendix 1 of Schedule IV of the Wildlife Protection Act 2022 can now **obtain Breeders of Species Licence under the Breeders of Species Licence Rules, 2023**.
- Appendix 1 of Schedule IV is endangered exotic animals** (Red Panda, various species of dogs, wolves, cats, apes, chimpanzees, gibbons) and plants, and import rules are stricter for them.

What is Captive Breeding?

Captive breeding refers to the **practice of breeding and raising wild animals in controlled environments**, such as zoos, wildlife centres, or specialized facilities, with the purpose of **conserving and protecting** endangered or threatened species.

- The goal of **captive breeding programs** is to increase the population size of rare species and, if possible, reintroduce individuals back into their natural habitats.

Captive breeding of exotic species protected under CITES **was not regulated in the Indian laws until the recent amendment to the Wildlife (Protection) Amendment Act 2022**.

21. UNFF18

Context:

The **eighteenth session of the United Nations Forum on Forests (UNFF18)** was held in New York.

United Nations Forum on Forests (UNFF):

- The UN Economic and Social Council **established it in 2000**.

Objective:

To promote the **management, conservation and sustainable development of all types of forests and to strengthen long-term political commitment** to this end.

Key highlights:

- Practice Sustainable Forest Management (SFM) in Tropical Regions**
- India:** It presented a case of a UNFF country-led initiative on long-term SFM and expressed concerns **regarding wildfires and the limitations of current forest certification schemes**.

22. SUSTAINABLE AVIATION FUEL (SAF) BLEND

Context:

India successfully flew its **first commercial passenger flight** using an indigenously produced Sustainable Aviation Fuel (SAF) blend.

What is Sustainable Aviation Fuel?

Sustainable Aviation Fuel (SAF) is a type of aviation fuel that is produced from **renewable sources**, unlike traditional fossil-based jet fuels. It is considered sustainable because it has a **significantly lower carbon footprint** and reduces greenhouse gas emissions compared to conventional jet fuel.

Source of SAF: It can be derived from various feedstocks, such as plant oils, agricultural waste, forestry residues, and municipal solid waste.

Advantages: SAF can reduce greenhouse gas emissions by up to **80% compared** to conventional jet fuel. Also, it is designed to be a **drop-in replacement for conventional jet fuel**, meaning it can be used in existing aircraft engines without requiring modifications.

Significance for India: It is a significant milestone in **India's efforts towards achieving [net-zero emissions by 2070](#)**. India has set a target of becoming **energy self-reliant by 2047**.

23. BURA CHAPORI WILDLIFE SANCTUARY

Context:

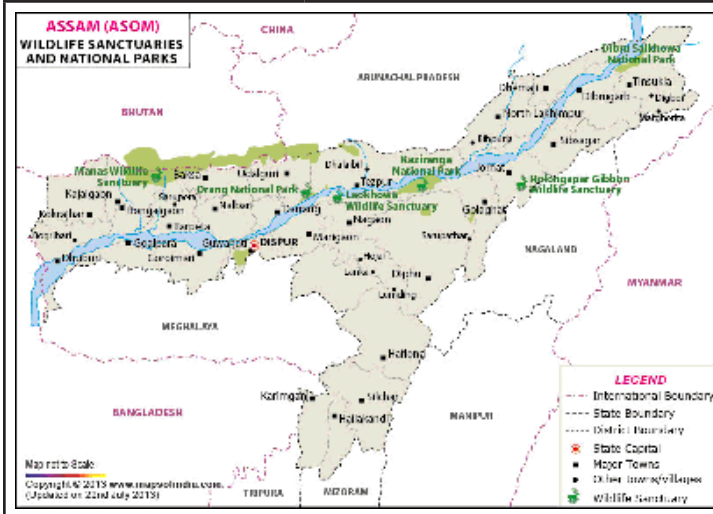
Assam government is currently taking measures to open the traditional path for wild animals from **Kaziranga to Orang National Park via the Bura Chapori Wildlife Sanctuary**.

About the Bura Chapori Wildlife Sanctuary:

Dimension	Details
Bura Chapori Wildlife Sanctuary is a protected area in Assam, on the south bank of the Brahmaputra River in Sonitpur district.	
Ecological Significance	It forms an integral part of the Laokhowa-Burachapori ecosystem and is a notified buffer of the Kaziranga Tiger Reserve.
Wildlife	Considered an ideal habitat for the Bengal Florican
Official Recognition	Declared a wildlife sanctuary in 1995

Threats

The sanctuary is facing illegal land encroachment. Approximately 16,000 bighas of land recovered from illegal encroachers



SPECIES IN NEWS

24. BAOBAB TREES

Baobab trees

Context: The Madhya Pradesh government has decided that the forest department cannot grant permission for the translocation of Baobab trees in Dhar, after the protest from Bhil tribes.



Under the Biodiversity Act, any commercial use of the trees will require permission from the state biodiversity board

Baobab Trees	
Baobab trees are deciduous trees found in mainland Africa, Madagascar, and Australia . They have barrel-like trunks (5 to 20m in height), can live up to 2,000 years , and are known for their extraordinary longevity.	
Tree of Life	Baobabs are succulent trees that store water in their trunk , allowing them to produce nutrient-dense fruit in dry seasons; it has pendulous flowers pollinated by bats and bush babies
Uses	Provide food, livestock fodder, medicinal compounds, and raw materials.
Threat	Since 2005, 9 of the 13 oldest African baobab specimens and 5 of the 6 largest trees have died or suffered a collapse , possibly due to climate change.
IUCN Status	Endangered
GI Tag	Madhya Pradesh government has applied for a GI tag for Baobabs.
About Bhil Tribe	Bhil are one of the largest tribal groups , living in Chhattisgarh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Andhra Pradesh and Rajasthan. The name is derived from the word 'billu', which means bow . They are skilled in archery and has deep knowledge of their local geography. Traditionally experts in guerrilla warfare, they are now primarily farmers and sculptors .



25. GHARIALS

Context:

World Wildlife Fund has confirmed the **presence of gharials (Gavialis gangeticus)** in Punjab.

About the News:

Gharials is a critically endangered crocodilian **unique to the**

Indian subcontinent, that was once extirpated from the region. Experts have suggested that the gharial may have come into Pakistan from India's Punjab, where **several gharials were released into the Beas River between 2017 and 2021**, primarily from the **Chambal basin in Madhya Pradesh**.

Species of crocodilians

There are **three species of crocodilians**—saltwater, Mugger and Gharial. Latest Saltie census 2023 have estimated higher count of estuarine crocodiles in Bhitarkanika



Saltwater Crocodile (estuarine crocodile)

- It is the **largest** of all living reptiles. It is found throughout the east coast of India - **Bhitarkanika mangroves and Sunderbans National Parks**.
- Males are much larger than females, weighing even upto 1000Kg.
- Habitat:** They inhabit coastal brackish mangrove swamps and river deltas.
- IUCN:** Least concern

Mugger:

The mugger crocodile (Indian crocodile) is found throughout the Indian subcontinent.

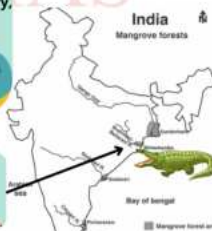
- The mugger is mainly a **freshwater species**, and found in lakes, rivers and marshes.
- They have **broadest snout of all**, they are keystone species of their habitat.
- IUCN:** Vulnerable

Gharial:

The Gharial or fish-eating crocodile is native to the Indian subcontinent.

- Small released populations are present and increasing in the rivers of the **National Chambal Sanctuary**, Katarniaghat Wildlife Sanctuary, Son River Sanctuary and the rainforest biome of Mahanadi in Satkosia Gorge Sanctuary, Orissa.
- They are easily distinguishable due to their **long snouts (nose)**
- IUCN:** Critically Endangered

Bhitarkanika National Park (Kendrapara district in Odisha): The park is **second-largest mangrove forest (after Sundarbans)** and is lying in the estuarial region of **Brahmani, Baitarni, Dharma and Patasala River**. It is also a **Ramsar Site**.



About WWF: The World-Wide Fund for Nature (est. 1961; HQ: Gland, Switzerland) is a Swiss-based international non-governmental organization that works in the field of **wilderness preservation and the reduction of human impact** on the environment.

26. SHELLLED PTEROPODS & FLIGHTLESS MIDGE

Context:


Certain invasive species in Antarctica are changing its ecosystem. This invasion highlights the **vulnerability of the Antarctic ecosystem**, which is typically protected by harsh conditions.

Species



Shelled pteropods (suborder of sea snails)

Habitat	Southern Ocean, live at or close to the ocean surface
Description	Tiny creatures with muscular feet for swimming, Highly vulnerable to climate change
Why in News	Impact of Climate Change - Dissolution of their thin outer casings due to increasing CO2 absorption, making it difficult for them to survive.

Species	 <p>Flightless Midge (Eretmoptera murphyi)</p>
Habitat	It is a native of South Georgia, a sub-Antarctic island, and was accidentally introduced to Signy in Antarctica in the 1960s during a botany experiment
Impact of Invasion	Harsh living conditions are no longer impenetrable, global warming can worsen the crisis
Potential Consequence	Midge activity combined with climate change can facilitate the establishment of other species in Antarctica

Measures taken by India for increasing domestic defence production	Import bans; Separate budgets for domestic procurement; Increased foreign direct investment (FDI); Integration of MSMEs and start-ups into the defence supply chain; Defence Industrial corridors; Increase in defence licenses issued; Corporatization of the Ordnance Factory Board (OFB); Emphasis on defence exports (reaching ₹15,920 crores in FY 2022-23).
Target	India aims to achieve a turnover of ₹1,75,000 crore in defence manufacturing by 2024-25.
Export targets	India is currently exporting military hardware to around 85 countries , including missiles, artillery guns, rockets, vehicles, patrol vessels, protective gear, radars, surveillance systems, and ammunition. The goal is to achieve a defence export target of ₹35,000 crore by 2024-25.
Examples of Indigenous technologies	INS Vikrant (Indigenous Aircraft Carrier 1); Tejas aircraft; Long-range artillery gun "Dhanush"; Arihant; AGNI V; Pinaka Multi Barrel Rocket Launcher; Supersonic Cruise Missile BRAHMOS; Arjun Tank, etc.

DEFENSE

27.DEFENCE PRODUCTION

Context:

The value of [defence production](#) in India has exceeded ₹1 lakh crore (₹1 trillion) for the first time.

- Over the past five years, the **value of defence production** by both state-run companies and the private sector has nearly doubled.

About [Defence Indigenization](#):

About	
Defence Indigenization	The process of developing and manufacturing defence equipment within a country to reduce import dependency and achieve self-reliance.
India's Ranking	India is ranked as the 2nd largest importer of arms for its armed forces in 2016-20, as per SIPRI report .