

THE IAS GAZETTE

A House Journal of **APTI PLUS**

APRIL 2024



APTI PLUS

Academy for Civil Services Pvt. Ltd.
CREATING CIVIL SERVANTS FOR THE NATION



ST EDITION

RULES NOTIFIED FOR CITIZENSHIP AMENDMENT ACT (CAA), 2019

Other topics

- Article 371 to Ladakh
- Status of Leopards in India
- Trade and Economic Partnership Agreement (TEPA)
- Mass Bleaching of Great Barrier Reef
- India TB Report 2024

A MONTHLY PERIODICAL FOR ASPIRANTS OF UPSC CSE



CONTENTS

1. POLITY & GOVERNANCE

RULES NOTIFIED FOR CITIZENSHIP AMENDMENT ACT (CAA) 2019	6
INDIA'S E-VEHICLE POLICY	8
SUPREME COURT'S CONCERN OVER GAGGING MEDIA	9

SHORT ARTICLES

AMENDMENTS TO THE ELECTRICITY (RIGHTS OF CONSUMERS) RULES, 2020	10
PM SURYA GHAR MUFT BIJLI YOJANA	11
NITI FOR STATES PLATFORM	13
ARTICLE 371 TO LADAKH	14
MARATHA QUOTA LAW	15
AADHAAR SEEDING WITH VOTER ID	16
DEMOCRACY REPORT 2024	18
RIGHT TO REPAIR PORTAL	20
WORLD HAPPINESS REPORT 2024	21
WITHHOLDING OF PRESIDENTIAL ASSENT OF STATE BILLS	22

SNIPPETS

25

2. INTERNATIONAL RELATIONS

INDIA – MAURITIUS RELATIONS	29
MALDIVES DEFENCE PACT	30
INDIA-SRI LANKA RELATIONS	31
G4 MODEL FOR UNSC REFORMS	32
INTER-GOVERNMENTAL FRAMEWORK AGREEMENT	34
INDIA AND BRAZIL 2+2 DIALOGUE	35
MOU BETWEEN INDIA AND BHUTAN	36
NUCLEAR ENERGY SUMMIT	38
INTEGRATED RIVER BASIN MANAGEMENT	39

SHORT ARTICLES

PANCHESHWAR MULTIPURPOSE PROJECT	10
INTERNATIONAL INTELLECTUAL PROPERTY INDEX	41
BLUE LEADERS ALLIANCE	41
NORTH ATLANTIC TREATY ORGANIZATION	42
YAOUNDE DECLARATION	43
EASTERN MARITIME CORRIDOR	44
UNITING FOR CONSENSUS MODEL	44
DIGITAL INNOVATION BOARD OF ITU	45
ORDER OF THE DRUK GYALPO	46

SNIPPETS

46

3. ECONOMY

MILK PRODUCTION	47
MARKET MONOPOLY AND ANTI-COMPETITIVE PRACTICES	49
GIG WORKERS	53
INDIA'S R&D FUNDING	54
UNNATI – 2024	55
EFTA & TEPA	57
INAUGURATION OF KEY AGRICULTURAL INITIATIVES	58
BOOSTING EXPORTS FROM MSME REPORT	59
HUMAN DEVELOPMENT INDEX (HDI)	60
REVENUE BASED FINANCING	62
INDIA EMPLOYMENT REPORT 2024	63
BLUE ECONOMY	64

SHORT ARTICLES

REGULATORY SANDBOX	65
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Sources



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FINANCIAL INTELLIGENCE UNIT-INDIA (FIU-IND)	66	NIMMU-PADAM-DARCHA ROAD	86
NABFID	67	SNIPPETS	87
UDGAM PORTAL	68	5. ENVIRONMENT & ECOLOGY	
LOCAL CURRENCY TRADE BETWEEN INDIA-INDONESIA	69	GLOBAL WASTE MANAGEMENT OUTLOOK	88
INDIA OUTLOOK REPORT	69	MASS BLEACHING OF GREAT BARRIER REEF	89
BHARAT STARTUP ECOSYSTEM REGISTRY	70	BENGALURU'S WATER CRISIS	91
MUTUAL FUND STRESS TEST REPORT	70	CHEMICALS IN PLASTIC MATERIAL	93
E-SHRAM PORTAL	71	WORLD AIR QUALITY REPORT	94
TOBACCO BOARD	71	INDIA'S PLASTIC WASTE MANAGEMENT (AMENDMENT) RULES	96
NEGATIVE INTEREST RATE	72	CAPTIVE ELEPHANT (TRANSFER OR TRANSPORT) RULES, 2024	98
INAUGURATION OF AGRICULTURE INTEGRATED COMMAND AND CONTROL CENTER	73	SHORT ARTICLES	
INDIAN AGRICULTURAL RESEARCH INSTITUTE (IARI)	73	INTERNATIONAL BIG CAT ALLIANCE	100
ROBUSTA COFFEE	73	HANGULS	101
SNIPPETS	74	GREEN TUG TRANSITION PROGRAMME	101
4. DEFENCE & SECURITY		ORAN LAND	102
PROJECT SEABIRD	75	BIODIVERSITY BEYOND NATIONAL JURISDICTION	103
GREY ZONE WARFARE	76	STATE OF THE GLOBAL CLIMATE	104
INTERNATIONAL ARMS TRANSFERS	80	ETHANOL 100	105
SHORT ARTICLES		SOLAR WASTE	106
DEFCONNECT 2024	82	LIANAS	106
YARS MISSILE	82	BLACK CARBON EMISSIONS	107
VAJRA SENTINEL SYSTEM	83	ARSENIC CONTAMINATION	108
BHARAT SHAKTI EXERCISE	83	SOUTH EAST AFRICA MONTANE ARCHIPELAGO	108
NAUSENA BHAWAN	84	SNIPPETS	109
TIGER TRIUMPH-24	84	6. SOCIAL ISSUES	
LAMITIYE-2024	85	SHORT ARTICLES	
DIGITAL CRIMINAL CASE MANAGEMENT SYSTEM (CCMS)	85	WOMEN, BUSINESS AND THE LAW 2024	112
SIGNALS TECHNOLOGY EVALUATION AND ADAPTATION GROUP	86		

PM JANJATI ADIVASI NYAY MAHA ABHIYAAN	113
V-SAT STATION IN TRIBAL VILLAGES OF INDIA	114
CHILD MORTALITY TRENDS	116
WORLD INEQUALITY LAB REPORT	117

7. SCIENCE & TECHNOLOGY AND HEALTH

RISE IN OBESITY RATES	119
UNETHICAL DRUG PRACTICES	121
INDIAAI MISSION	122
INDIA'S ATMOSPHERIC RESEARCH TESTBED	124
FERTILITY RATE IN INDIA	125

SHORT ARTICLES

JUICE JACKING	127
HYDROGEN FUEL CELL FERRY	127
PROTOTYPE FAST BREEDER REACTOR	128
METHANESAT	129
ADVANCED MEDIUM COMBAT AIRCRAFT	130
PARTHENOGENESIS	131
THERMONUCLEAR FUSION	131
KARNATAKA BANS USE OF HARMFUL DYES	132
MIRV TECHNOLOGY	133
SCALABLE INSTRUCTABLE MULTIWORLD AGENT	133
HAEMODIALYSIS	134
START PROGRAMME	135
PUSHPAK	136
SOUND LASER	136

SNIPPETS	137
-----------------	-----

8. CULTURE & HISTORY

HERITAGE SITES ON UNESCO TENTATIVE LIST	139
--	-----

SHORT ARTICLES

MAJULI MASKS AND MAJULI MANUSCRIPT PAINTINGS	140
AYYAVAIKUNDAR	141
RUPA TARAKASI	141
LACHIT BORPHUKAN	142
SABARMATI GANDHI ASHRAM REDEVELOPMENT PROJECT	142
SAVITRIBAI PHULE	143
GORSAM KORA FESTIVAL	144
PANDAVULA GUTTA	144
CHAUSATH KHAMBA	145
KALYANA CHALUKYA DYNASTY	145
ANCIENT MONUMENTS AND ARCHAEOLOGICAL SITES AND REMAINS ACT	146
MOHINIYATTAM	147
GULAAL GOTA	147

9. GEOGRAPHY & DISASTER MANAGEMENT

WARMER SUMMER DUE TO EL NINO	149
ANTHROPOCENE	150
FOREST FIRES IN TAMIL NADU	151
SUBDUCTION ZONES	153

SHORT ARTICLES

CAVUM CLOUD	155
DESERT STAR DUNES	156

10. PLACES IN NEWS

IN INDIA	157
IN WORLD	158

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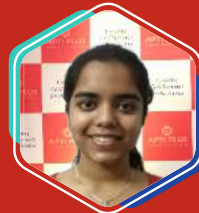
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1. POLITY & GOVERNANCE

1.1 RULES NOTIFIED FOR CITIZENSHIP AMENDMENT ACT (CAA) 2019

Context

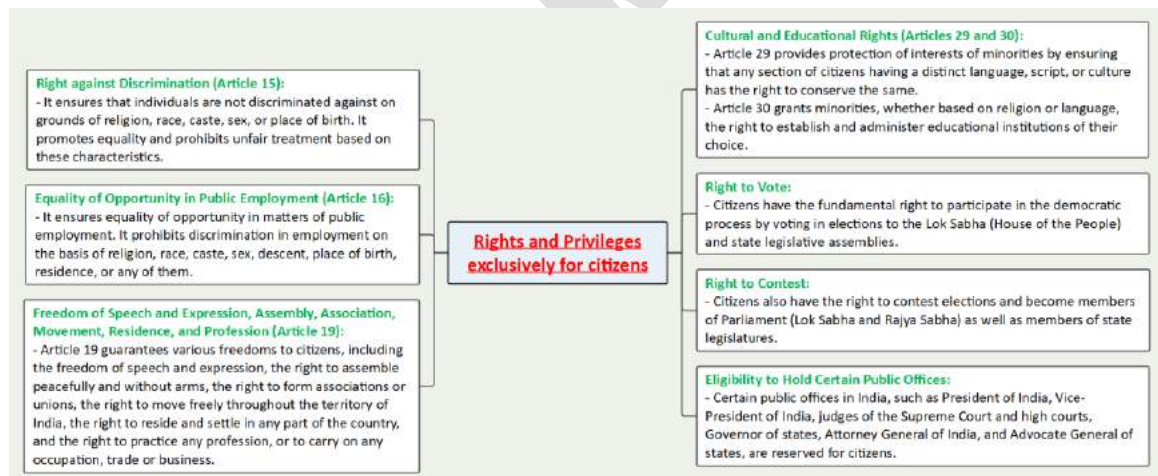
- The Ministry of Home Affairs has notified the rules for implementing the Citizenship Amendment Act (CAA), which was passed in December 2019.

Announcement of the rules was delayed due to two main reasons

- The outbreak of **widespread protests against the CAA across India** soon after it was passed in December 2019. Critics of the CAA argued that it is discriminatory and against the Right to Equality under Article 14. The protests turned violent in some parts of the country.
- The Covid-19 pandemic, which struck India in March 2020. The **pandemic put pressure on government resources and forced the government to delay the implementation** of various initiatives, including the CAA rules.

Indian Citizenship

- Citizenship in India is a fundamental concept that distinguishes individuals as either full members of the Indian State or as aliens. **Citizens enjoy all civil and political rights.**
- Aliens are individuals who are citizens of other countries and do not enjoy the same rights as citizens.** They are further categorized into friendly aliens, who are citizens of countries with cordial relations with India, and enemy aliens, who are citizens of countries at war with India.



What is the Citizenship Amendment Act (CAA) 2019?

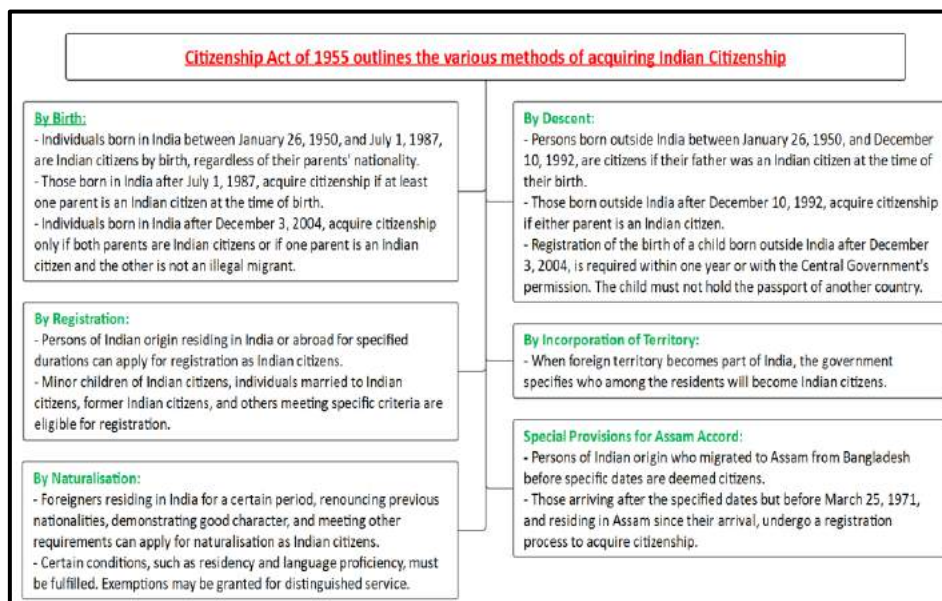
- It amends the Citizenship Act of 1955 to create a pathway to Indian citizenship for undocumented immigrants belonging to Hindu, Sikh, Buddhist, Jain, Parsi or Christian communities from Afghanistan, Pakistan and Bangladesh.

What are the new rules?

- The government has notified a dedicated online portal to streamline the process. **Applicants won't be required to submit any documents proving their entry into India before December 31, 2014.** However, they will need to fill out an application form and provide an affidavit verifying the correctness of the information provided.
- The new rules also specify that **applicants must have knowledge of one of the languages listed in the Eighth Schedule of the Indian Constitution.**

What are the concerns about CAA?

- Critics argue that CAA is discriminatory because it excludes Muslims from its eligibility criteria. They believe this violates the Indian Constitution's guarantee of equality for all religious groups.
- Opponents of CAA also worry about its potential impact on the Assam Accord of 1985 and the National Register of Citizens (NRC). The Assam Accord is a peace agreement signed between the Indian government and a local Assamese separatist group. The NRC is a process undertaken by the Indian government to identify Indian citizens in Assam.
- Critics fear that CAA, combined with NRC, could lead to the disenfranchisement of a large number of Muslims in Assam.

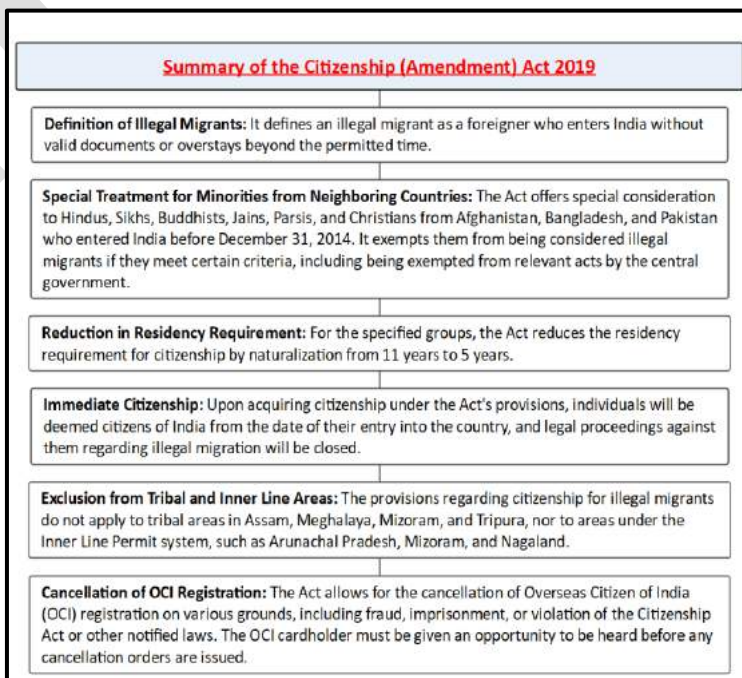


What does the Government say about CAA?

- The Indian government defends CAA, saying it is based on India's historical obligation to protect persecuted religious minorities from neighbouring countries like Pakistan, Bangladesh and Afghanistan.
- The government argues that these countries have a history of religious persecution and that CAA provides a safe haven for Hindus, Sikhs, Buddhists, Jains, Parsis and Christians who have fled religious persecution in these nations.

Way Forward

- The Supreme Court of India is currently hearing challenges to the constitutional validity of CAA. Several petitions have been filed by individuals and organisations who argue that CAA is discriminatory and violates the Indian Constitution. The new rules will come into effect while the legal battle continues. The Supreme Court's decision on the CAA will likely have a significant impact on the implementation of the law.



1.2 INDIA'S E-VEHICLE POLICY

Context

- The electric passenger vehicle (PV) market in India is expected to change as a result of the recently passed Electric Vehicle (EV) Policy, which offers both possibilities and challenges for local and foreign enterprises.

Key Highlights of the EV policy

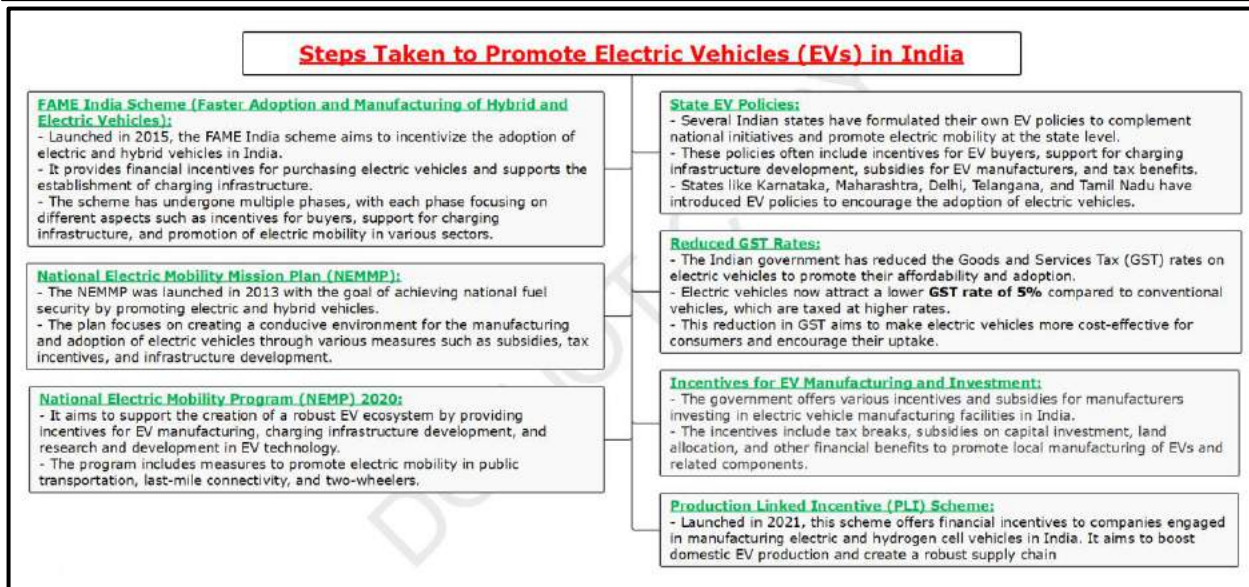
- **Import Duty Reduction:** The policy reduces import duties for electric PVs priced at \$35,000 or higher from 70% to 15% for duration of five years. This reduction aims to incentivize Original Equipment Manufacturers (OEMs) like Tesla and Vinfast to enter the Indian market.
- **Investment Commitment:** To get the benefit of the reduced import duty, automakers must commit to investing at least \$500 million in India for local manufacturing. This requirement ensures that global brands contribute to the growth of the domestic EV industry and create employment opportunities.
- **Domestic Value Addition (DVA):** The policy mandates a gradual increase in domestic value addition, with 25% DVA over three years and 50% over five years. This encourages localization of manufacturing processes and technologies, fostering self-reliance and sustainability.
- **Bank Guarantee:** The investment commitment made by companies for local manufacturing must be backed by a bank guarantee, ensuring accountability and adherence to the policy's objectives.

Potential Impact

- The entry of global OEMs into the Indian market, facilitated by the policy's incentives, is expected to intensify competition in the EV segment. This competition could lead to innovation, improved product offerings, and enhanced consumer choices.
- The emphasis on localization and DVA presents significant opportunities for domestic auto component players. By aligning with global OEMs and catering to their localization requirements, domestic players can expand their market presence and enhance their technological capabilities.
- Launches of electric PVs priced at or below the ₹20 lakh mark are likely to fulfill significant consumer interest. This could pose a challenge for Indian OEMs, prompting them to enhance their offerings and competitiveness in the market.

Challenges and Considerations

- The initial impact on domestic car makers might be negative, especially for those selling electric vehicles in the mid-price range. These companies will need to innovate and adapt their product offerings to compete effectively with the new entrants.
- The success of the policy depends on the ability of Indian companies to adapt and invest in advanced technology. This will require significant investments in research and development, as well as collaboration between carmakers and component suppliers.
- The limited window for importing high-end vehicles at a concessional rate (5 years) might not be enough for some global players to justify setting up a full-fledged manufacturing base in India. The government may need to consider extending this window or offering other incentives to attract these companies.



Way Forward

- The success of India's electric vehicle policy will depend on the ability of stakeholders to adapt and leverage the opportunities presented by the shift towards electric mobility. By promoting a strong EV ecosystem and addressing environmental concerns, the policy has the potential to drive significant transformation in the automotive sector and contribute to India's sustainable development goals.



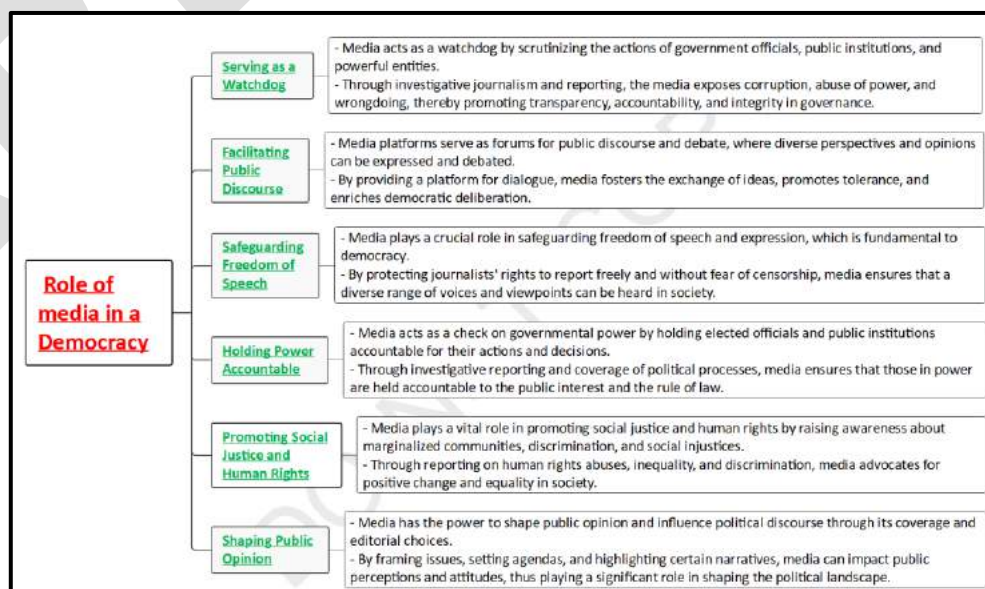
1.3 SUPREME COURT'S CONCERN OVER GAGGING MEDIA

Context

- The Supreme Court of India has highlighted the concerning practice of wealthy individuals using temporary court orders (injunctions) to silence the media before they can go to trial.

Details

- The issue of granting pre-trial injunctions against media and civil society organizations has been a matter of concern, especially when these injunctions are obtained by affluent individuals or entities. Such injunctions, often obtained ex-parte, meaning without the presence of the opposing party, have raised questions about their impact on free speech and the public's right to information.



- The court noted that such injunctions if granted mechanically, pose a serious threat to journalistic freedom and democratic principles.

Key Highlights of the Judgment

SLAPP Suit

- The court focused on a tactic known as a **Strategic Lawsuit Against Public Participation (SLAPP suit)**. **Wealthy individuals or corporations use SLAPP suits to file often frivolous lawsuits against media outlets or public interest groups.**
- These lawsuits aim to achieve a "chilling effect" by draining the target's resources through legal battles and forcing them to take down critical stories, even if the stories are true.

ex-parte interim injunctions

- The court specifically addressed the issue of "**ex-parte interim injunctions.**" **These are temporary court orders issued without both sides being heard. In the context of the media, these orders can prevent a story from being published before a full trial can take place.**
- This effectively kills the story and denies the public access to potentially important information.

The court emphasized that judges shouldn't apply this test mechanically. They must carefully consider the potential harm to free speech, especially when dealing with journalistic pieces. Additionally, the court requires detailed explanations from judges about how they reached their decision

The Three-Fold Test and Protecting Journalism

- The Supreme Court has laid out a stricter approach for judges to consider when dealing with pre-trial injunctions against media publications. Judges are now required to follow a "three-fold test" before granting such an injunction:
 - **Prima Facie Case:** The plaintiff (the person suing) must show a strong likelihood of winning the case at trial.
 - **Balance of Convenience:** The judge must weigh the potential harm to the plaintiff if the story is published against the public's interest in receiving the information.
 - **Irreparable Harm:** The plaintiff must demonstrate that they would suffer irreparable damage if the story is published.

Conclusion

- The Supreme Court's decision highlights the critical role of free speech in a democracy. A free press allows for the open exchange of ideas, holds powerful institutions accountable, and informs the public about important issues. By making it harder for the wealthy to silence critical voices, the court is helping to ensure a more informed and just society.

1.4 SHORT ARTICLES

Amendments To The Electricity (Rights Of Consumers) Rules, 2020

Context

- The Government of India recently approved some amendments to the Electricity (Rights of Consumers) Rules, 2020, to improve consumer rights, simplify faster installation of rooftop solar systems, and encourage electric car use.

Key changes Introduced by the Amendment

Facilitating Rooftop Solar Systems Installation

- For rooftop solar systems with a capacity of **up to 10 kW**, there is **no need for a technical feasibility assessment.**

- The feasibility study completion deadline for systems larger than 10 kW has been shortened from 20 days to 15 days.
- **Approval for the rooftop solar system is automatic if the study is not finished** in the allotted 15 days.
- For rooftop solar PV installations up to 5 kW capacities, distribution firms are now required to cover the cost of improving the power distribution system.
- There has been a reduction in the timeframe of 30 days to 15 days for rooftop solar PV system installation by the distribution licensee.

Separate Connections

- Consumers can now receive **separate electricity connections for charging electric vehicles (EVs)**, which aligns with India's goals of reducing carbon emissions and reaching Net Zero by 2070.

Faster New Connections

- The amendments extremely **reduce the time required to get electricity connections** in various places, ensuring faster access to electrical services for consumers in both urban and rural areas.

Additional Rights for Consumers in Residential Colonies and Flats

- Provisions have been made to **increase consumer choice and transparency in the metering and billing processes**. Consumers living in residential colonies and apartments can now select between individual or single-point connections, with independent metering, invoicing, and collection for different usage categories.

Mandatory Additional Metre in Complaint Cases

- In situations where consumers have concerns about metre readings, **distribution providers are now required to install extra metres within five days to precisely verify consumption**. This policy aims to improve billing transparency and accuracy, thus boosting consumer confidence.

Significance

- **Empowerment of the Consumer:** The amendments are intended to enable consumers to make well-informed decisions and more effectively use electrical services by strengthening their rights as consumers and optimising business procedures.
- **Promotion of Renewable Energy:** Measures like allowing rooftop solar installations and promoting electric car charging facilities help India move to greener and more sustainable energy sources.
- **Efficiency and Accessibility:** Reduced wait times for new connections and separate invoicing for residential colonies increase service efficiency and accessibility, especially in rural and urban locations.
- **Transparency and Accountability:** The mandatory installation of additional metres in complaint instances promotes billing transparency and accuracy, which increases consumer trust and satisfaction.

Conclusion

- The amendments made to the Electricity (Rights of Consumers) Rules, 2020 are an important step towards consumer empowerment, sustainable energy promotion, and effective service delivery in India's electricity sector. These amendments, which prioritise consumer interests and promote renewable energy uptake, align with the government's objective of creating a flexible, inclusive, and sustainable energy ecosystem.

PM Surya Ghar Muft Bijli Yojana

Context

- The Union Cabinet has announced a new programme known as the "PM Surya Ghar Muft Bijli Yojana" (PM Rooftop Solar Free Electricity Scheme). This ambitious programme intends to provide free energy and solar power to 1 crore families in India.

Key Features of the PM Surya Ghar Muft Bijli Yojana

- **Free Electricity:** Beneficiary families will receive 300 units of free power per month after installing rooftop solar panels on their homes.

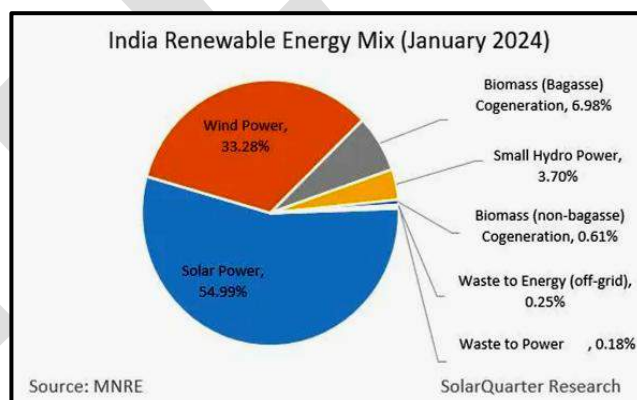
- This can drastically cut their electricity expenditures and dependence on the traditional power system, particularly in areas with high electricity rates.
- **Central Financial Assistance (CFA):** The government will provide financial assistance to cover the cost of installing solar panels, making this sustainable energy source more affordable for a greater number of households. This subsidy is limited to 3 kW capacity and varies according to system size, ensuring that funding is directed towards adequately sized installations for residence electricity usage.
- **Online Application & Vendor Selection:** A national platform would simplify the subsidy application process and allow families to select qualified installation vendors, increasing transparency and ensuring quality service.
- **Easy Financing:** The initiative makes it easier to obtain collateral-free, low-interest loans (now around 7%) to fund rooftop solar systems with capacities of up to 3 kW. This significantly decreases the financial burden on benefiting households and enables them to make a shift to sustainable energy.

Model Solar Villages

- The initiative intends to **establish a model solar village in each district to demonstrate the successful use of rooftop solar power in rural areas.**
- These villages will serve as a model for other communities, encouraging greater engagement and expediting the renewable energy transition in rural India.

Support for RESCO Model

- The program acknowledges that not all families may have the resources or expertise to manage and maintain rooftop solar installations themselves. To address this, it offers payment security for models involving Renewable Energy Service Companies (RESCOs).
- The **Renewable Energy Service Companies (RESCOs) companies install, operate, and maintain the solar power systems for a set period**, while the beneficiary families pay a fixed monthly charge for the electricity generated. The model could prove very useful for customers who are concerned about the initial investment or continuing maintenance costs.



Fund for Innovation

- The initiative recognises the significance of technological advances in ensuring the long-term viability of solar energy.
- By providing funds to encourage innovative ideas and improvements in rooftop solar technology, the programme creates a dynamic ecosystem that may continuously increase efficiency, lower costs, and make solar electricity more accessible in the future.

Significance

- Families that are beneficiaries of this programme save a lot of money since they receive free electricity and have less reliance on the conventional grid.
- The programme **reduces India's dependency on fossil fuels and advances sustainable energy goals** by encouraging rooftop solar electricity.
- **An estimated 1.7 million direct employees** in manufacturing, logistics, installation, and other related industries are expected to be created by this initiative.
- The idea of the Model Solar Village can encourage greater use of solar energy in rural areas and aid in their overall growth.

Challenges

- Not every residence has a rooftop that is ideal for installing solar panels.
- The initial expense of installing solar panels may be challenging for some families even with subsidies.
- For wider participation, it is essential to guarantee that all qualifying households have simple access to low-interest loans.
- To ensure that the programme reaches the intended beneficiaries and achieves its objectives, effective implementation and monitoring are crucial.

According to the International Renewable Energy Agency's Renewable Capacity Statistics 2023, **India ranks fourth in renewable energy installed capacity, fourth in wind power capacity, and fifth in solar power capacity.**

Way Forward

- To ensure the scheme's effectiveness, strong monitoring procedures, capacity-building activities, and public awareness campaigns should be implemented.
- Collaboration among government agencies, corporate sector parties, and civil society organisations will be critical in overcoming problems and achieving the scheme's objectives.

Conclusion

- The 'PM Surya Ghar Muft Bijli Yojana' is an essential step towards increasing renewable energy usage and ensuring energy security in India. By promoting rooftop solar systems and offering financial aid to people, the initiative not only targets energy poverty but also helps India achieve its sustainable development goals. With adequate planning, coordination, and stakeholder engagement, the initiative has the potential to transform India's energy environment, leading the way for a greener, more sustainable future.

NITI for States Platform

Context

- The NITI Aayog launched the "NITI for States Platform," a comprehensive digital platform that will serve as a primary repository of knowledge and tools for policymakers.

Details

- The "NITI for States Platform" combines useful data, reports, best practices, and resources from both government and non-governmental organisations.

Key Features of the Platform

- **Comprehensive Repository:** The platform hosts a multi-sectoral live repository comprising 7,500 Best Practices, 5,000 Policy documents, 900+ datasets, 1,400 data profiles, and 350 NITI publications.
- **Sectoral Coverage:** Knowledge products span across 10 sectors, including Agriculture, Education, Energy, Health, Manufacturing, MSME, Tourism, Urban Development, Water Resources, with cross-cutting themes like Gender and Climate Change.
- **User-friendly Interface:** The platform offers a simple and user-friendly interface accessible through various devices, including mobile phones.
- **Accessibility:** It aims to democratise information access by offering context-relevant insights and practical knowledge to government personnel, such as district collectors and block-level functionaries.

• The National Institution for Transforming India (NITI Aayog) was **established in 2015 to replace the Planning Commission.** Unlike its predecessor, which operated on a top-down basis, **NITI Aayog takes a bottom-up approach** to policymaking, prioritising cooperative federalism and integrating state governments in economic development.

Significance

- By providing access to a variety of information and insights, the platform enables government officials to

make more informed decisions, increasing governance outcomes.

- The platform promotes capacity building by communicating best practices and encouraging peer learning among government officials.
- Collaboration with diverse government organisations offers a comprehensive approach to governance while maximising current resources and skills.

Conclusion

- The launch of the 'NITI For States' platform represents a significant milestone in India's journey towards digital governance and evidence-based policymaking.

Article 371 to Ladakh

Context

- The Union Government to consider Ladakh's demand for constitutional safeguards such as statehood, tribal autonomy, local jobs, and Lok Sabha seats for Leh and Kargil.

Details

- Following the removal of **Article 370 in 2019**, which granted special status to Jammu and Kashmir, **Ladakh was established as a distinct Union Territory (UT) with no Legislative Assembly.**
- The demand of Ladakh for constitutional protections, such as statehood, tribal autonomy, employment opportunities for residents, and Lok Sabha seats for Leh and Kargil, is being taken into consideration by the Union Government

JAMMU & KASHMIR AND THE CONSTITUTION

October 26, 1947: Maharaja Hari Singh executes the Instrument of Accession under the Indian Independence Act acceding to the Dominion of India, which was to exercise powers only in relation to Defence, External Affairs and Communication.

October 17, 1949: Article 370 included in the Constitution making Jammu and Kashmir a part of India as one of the States under Article 1. Except Article 1 and Article 370, J&K exempted from the Constitution. For extending any central



law related to matters other than Defence, External Affairs and Communication, the concurrence of the State Government and its further ratification by the J&K Constituent Assembly was mandatory.

July 24, 1952: Delhi Agreement signed to constitute a framework for distribution of legislative power between State and Central legislature and extending the Constitutional jurisdiction in

the State. It gave special powers to the J&K State Legislature to make laws for conferring special rights and privileges on its subjects and it extended Articles 52 to 62 of the Constitution to the State.

May 14, 1954: The Constitution (Application to Jammu and Kashmir) Order, 1954, issued by the President under Article 370, extended numerous Articles of the

Constitution as well as the jurisdiction of the Supreme Court, Election Commission, CAG and UPSC to J&K. This Order also added Article 35A to the Constitution that empowered the State Legislature to define permanent residents of J&K and provide special rights and privileges to them.

August 5, 2019: The Government moves a resolution in Parliament to abrogate Article 370 and re-organise J&K as two distinct Union Territories – Jammu & Kashmir and Ladakh.

- To address these issues, representatives of the communities in Ladakh have held discussions with officials from the Ministry of Home Affairs (MHA).

Key Demands

- **Statehood:** Ladakh representatives are demanding full-fledged statehood, arguing that it would grant them greater autonomy and control over their resources and development.
- **Sixth Schedule Inclusion:** Inclusion under the Sixth Schedule of the Indian Constitution, this schedule provides special provisions for the protection and development of tribal communities. If granted, Ladakh would be able to establish autonomous development councils with legislative powers over specific areas like land, public health, and agriculture. **As of now, 10 autonomous councils exist in Assam, Meghalaya, Tripura, and Mizoram.**
- **Job Reservations:** Residents are demanding reservations in government jobs and educational institutions to ensure fair opportunities for Ladakhis.
- **Separate Parliamentary Seats:** Separate Lok Sabha seats for Leh and Kargil districts are also on the list of demands, allowing for better representation in the national parliament.

Significance

- Addressing Ladakh's constitutional safeguards demands is essential for ensuring the region's socio-political empowerment, representation, and protection of its distinctive cultural and demographic features.

- Granting statehood and tribal autonomy can help the region prosper while also addressing concerns about land, resources, and employment.

Challenges and Way Forward

- The **Sixth Schedule was created mainly for the tribal communities of the Northeastern States**. Ladakh's demographics and socioeconomic structure may not exactly match the current framework. The **Union government needs Constitutional amendments to meet Ladakh's special demands** while remaining consistent with the Sixth Schedule's key principles.
- The United Government must ensure that any **autonomy granted to Ladakh under the Sixth Schedule does not compromise national security interests**, especially considering Ladakh's strategic location bordering China and Pakistan. **Finding a balance between local autonomy and national security will be critical.**

Conclusion

- The dialogue between Ladakh's civil society and the Ministry of Home Affairs is a key step towards addressing the region's constitutional concerns. The government hopes to empower Ladakh's residents and promote socio-economic prosperity through the ideas of statehood and Sixth Schedule inclusion. Continued engagement and constructive dialogue are essential for reaching an agreement that addresses the different ambitions and concerns of all stakeholders.

Maratha Quota Law

Context

- The Maharashtra State Assembly passed the Maharashtra State Reservation for Socially and Educationally Backward Classes Bill 2024, which will offer the Maratha community 10% reservation in education and government jobs.

Key Features of the Bill

- The bill provides a **10% reservation for the Maratha minority in education and government positions**.
- **It does not affect the current Other Backward Classes (OBC) quota** and differs from earlier attempts to include Marathas in the OBC category.
- **Non-Kunbi Marathas** would also be covered by the new law, making them eligible for reservations in two other categories.
- Individuals that fit within the "creamy layer" category are exempt from the legislation.
- The law is based on a study from the Maharashtra State Backward Class Commission, which highlighted unique conditions that support reservation for Marathas.

Significance

- The bill addresses the Maratha community's long-standing desire for reservation, intending to provide socio-economic opportunity and representation.
- It reflects the government's commitment to addressing the needs of marginalised populations and advancing social justice.

Challenges

- The Bill could undergo court scrutiny, as past attempts to adopt a Maratha quota were overturned by the Supreme Court.
- Critics claim that the Marathas, as a politically important and economically prosperous community, do not fit the criteria for quota based on social and educational backwardness.
- Leaders of the Other Backward Class (OBC) are against the bill because they fear it will affect their share of the benefits of reservations.

- The bill is the third attempt in the last decade to implement a Maratha quota in Maharashtra. Previous attempts, such as an ordinance and an act, were challenged in court and eventually overturned by the Supreme Court.

Way Forward

- The government must address critics' concerns and ensure that the bill will stand up to judicial scrutiny.
- To justify the reservation, comprehensive data and evidence indicating the Maratha community's socioeconomic disadvantage should be provided.

Conclusion

- The Maratha quota bill is a big step towards addressing the community's socioeconomic challenges. However, its implementation and legitimacy remain open to judicial review and larger societal discussion. The government must negotiate these problems with care to provide equitable representation and opportunities for all communities in Maharashtra.

Aadhaar Seeding with Voter ID

Context

- The Election Commission of India (EC) proposed an amendment to the Representation of the People Act of 1950 and voter enrolment forms to remove the requirement for voters to submit reasons for not linking their Aadhaar number to their voter ID card.

Details

- The proposed amendments aim to address the issue of voters being forced to provide Aadhaar details by giving them only two options: provide the Aadhaar number or declare the absence of an Aadhaar card, which might lead to false declarations and legal consequences.
- The EC wants to make it clear that **submitting Aadhaar information is completely voluntary** and no voter would be punished for choosing not to link their Aadhaar number to their voter ID.

Aadhaar seeding with voter ID

- Aadhaar seeding with voter ID is an approach that **links the Aadhaar numbers to their voter ID cards to streamline the electoral system.**
- The Aadhaar number, provided by the Unique Identification Authority of India (UIDAI), acts as an identification number for Indian citizens, whereas the voter ID card, also known as the Electors Photo Identity Card (EPIC), is used to identify voters during elections.
- The objective of linking the two forms of identification is to **increase the accuracy and reliability of voter lists as well as facilitate more efficient voter identification processes.**

What are the Challenges?

- **Privacy Concerns:** Linking Aadhaar numbers to voter ID cards creates privacy concerns related to the collecting, storage, and use of sensitive personal information, requiring strict data protection rules to safeguard voter privacy.
- **Data Security Risks:** The integration of the Aadhaar and voter ID databases raises the possibility of data breaches, identity theft, and unauthorised access, emphasising the

Current Status

- As of March 2024, Aadhaar linking with voter IDs remains voluntary.
- EC has collected Aadhaar details from many voters (around 68%) voluntarily.
- The Law Ministry and Supreme Court say providing Aadhaar for voter ID linking is voluntary. No voter can be denied registration or removed for not providing it.

Significance of Aadhaar seeding with voter ID

Reduce Fraud and Duplication: Aadhaar seeding helps prevent voter fraud and duplication by ensuring that each voter is uniquely identified and authenticated using their biometric and demographic information.



Streamline Voter Identification: The linkage facilitates quicker and more accurate voter identification processes, reducing waiting times at polling stations and enhancing the overall efficiency of elections.

Improve Electoral Integrity: Aadhaar seeding contributes to the integrity of electoral rolls by minimizing errors, and inaccuracies in voter lists, thereby promoting fair and transparent elections.

Enable Technology-driven Reforms: Aadhaar seeding enables the implementation of technology-driven electoral reforms, such as online voter verification and biometric authentication, which leverage digital infrastructure to modernize electoral processes and enhance accessibility for voters.

significance of implementing strict security procedures and encryption mechanisms.

- **Technical Challenges:** Technical challenges such as data integration, interoperability, and verification procedures may hinder the seamless implementation of Aadhaar seeding with voter ID, requiring investment in technological infrastructure and capacity-building efforts.
- **Compliance and Consent:** Ensuring compliance with legal and regulatory frameworks governing data protection and privacy rights, as well as obtaining informed consent from individuals for Aadhaar seeding, poses additional challenges to the initiative's implementation.

<p>Aadhaar Card</p> 	<ul style="list-style-type: none"> • Aadhaar is a 12-digit unique identification number issued to Indian residents after a verification process that collects their biometric and demographic data. This data includes fingerprints, iris scans, and a photograph of the face, along with demographic information such as name, date of birth, address, and gender. • It aims to improve identification accuracy and reduce fraud. However, unlike some other national ID systems, Aadhaar is voluntary for residents to obtain. • It is managed by the Unique Identification Authority of India (UIDAI), a statutory authority established in January 2009, it functions under the jurisdiction of the Ministry of Electronics and Information Technology. • The Aadhaar (Targeted Delivery of Financial and Other Subsidies, Benefits and Services) Act, 2016 provides the legal framework for Aadhaar. This act defined its powers and responsibilities. It also outlines the enrolment process for Aadhaar, the data that can be collected, and how that data can be used. • The Supreme Court in 2018, ruled that Aadhaar is not mandatory for opening bank accounts, getting a mobile number, or being admitted to a school. However, the Court also allowed the government to make Aadhaar mandatory for certain welfare schemes. This created a situation where Aadhaar is both voluntary and mandatory depending on the context.
<p>Voter ID</p> 	<ul style="list-style-type: none"> • The Indian Voter ID Card, officially known as the Elector's Photo Identity Card (EPIC), issued by the Election Commission of India. • It was first introduced in 1993 during the tenure of the Chief Election Commissioner T. N. Seshan. • Issued to Indian citizens who reach 18 years of age and qualify to vote (excluding those disqualified due to unsound mind, corrupt practices, or election-related offences). • It is primarily used for voting in elections (municipal, state, and national) but also serves various other purposes such as age, address proof, and as a travel document for Nepal and Bhutan. • The card typically features the voter's name, father/mother name, photograph, identification number, address, Electoral Registration Officer's signature, electoral district, and assembly constituency

Steps to facilitate Aadhaar seeding with voter ID

- **Legal Framework:** Establishing a legal framework governing the linkage of Aadhaar numbers with voter ID cards, including guidelines for data protection, consent mechanisms, and compliance with relevant laws and regulations.
- **Technological Integration:** Integrating Aadhaar and voter ID databases through secure and interoperable systems to enable seamless verification and authentication of voter identities.

- **Public Awareness:** Conduct awareness campaigns and outreach programs to educate voters about the benefits, procedures, and safeguards associated with Aadhaar seeding, promoting voluntary participation and informed decision-making.
- **Stakeholder Engagement:** Engaging with stakeholders, including electoral authorities, government agencies, civil society organisations, and legal experts, to address concerns, and ensure inclusive and transparent implementation of Aadhaar seeding with voter ID.

Measures to enhance the effectiveness of Aadhaar seeding with voter ID

Enhanced Data Protection: Strengthening data protection measures, encryption protocols, and cybersecurity frameworks to mitigate risks and safeguard voter data from unauthorized access or misuse.

Technological Innovation: Investing in advanced technologies such as blockchain, artificial intelligence, and biometric authentication systems to enhance the accuracy, reliability, and security of Aadhaar seeding processes.

Policy Reforms: Reviewing and updating existing policies, laws, and regulations governing Aadhaar seeding with voter ID to address emerging challenges, promote accountability, and uphold privacy rights.

Capacity Building: Building institutional capacity and expertise among electoral authorities, government agencies, and other stakeholders to effectively implement, monitor, and evaluate Aadhaar seeding initiatives.

Conclusion

- Aadhaar seeding with voter ID has enormous potential to modernise and strengthen India's election system. This initiative has the potential to make elections more fair, inclusive, and credible by using technology, increasing transparency, and protecting voter rights. However, addressing privacy concerns, overcoming technical challenges, and promoting stakeholder collaboration will be essential for achieving the full benefits of Aadhaar seeding with voter ID and ensuring the integrity of India's voting process.

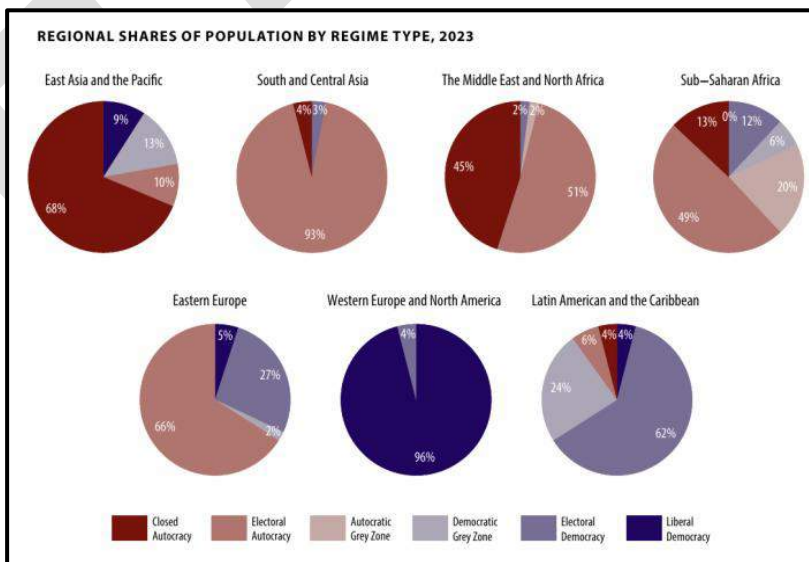
Democracy Report 2024

Context

- The 'Democracy Report 2024' released by the V-Dem Institute provides a comprehensive analysis of the state of democracy worldwide.

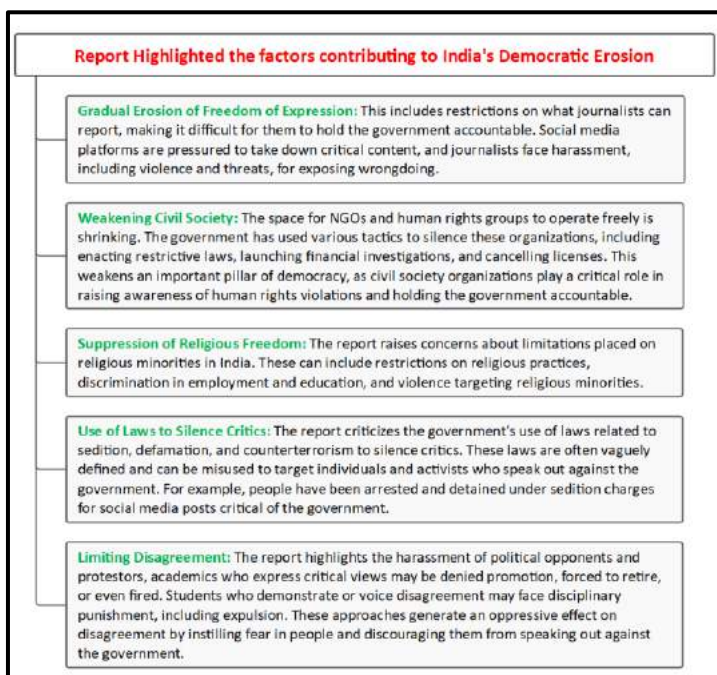
Global Trends

- The V-Dem report categorises countries based on their Liberal Democratic Index (LDI) scores, distinguishing between liberal democracies, electoral democracies, electoral autocracies, and closed autocracies.
- The world is almost evenly divided between 91 democracies and 88 autocracies.
- In 2023, 42 countries, including India, were undergoing autocratisation, affecting 35% of the world's population. India alone accounted for half of the population living in autocratising countries.
- The report reveals more countries are experiencing democratic backsliding. The share of the global population living in autocracies has increased to 71% from 48% a decade ago.
- Israel falls out of the liberal democracy category for the first time in over 50 years.



Trend in India as per the report

- The V-Dem Institute **downgrades India's status from an "electoral democracy" to an "electoral autocracy."** This signifies a substantial erosion of democratic norms and a decline in basic freedoms.
- The report ranks India among the countries experiencing the steepest democratic decline, labelling it one of the "worst autocracies" in the world.
- India's current level of democratic freedoms is comparable to those witnessed during the dark period of the 1975 emergency, a time marked by suppression of differences and severe restrictions on civil liberties.



Trends in South Asia

- The South Asian region faces a crisis of democracy. India is not alone in its decline. Many other countries in the region have also witnessed a retreat from democratic principles.
- **Bhutan stands out as the sole remaining liberal democracy in South Asia.**

Indian Government Response

- The Government argues that these reports, like the V-Dem Institute's Democracy Report, are **biased and don't consider India's unique circumstances, the Western standards of democracy may not fully apply to India's complex social and political landscape.**
- The Government has **announced plans to create a new index to assess Indian democracy.** This new index would likely reflect factors the government believes are important in the Indian context.

Autocracy

- Autocracy concentrates power in the hands of a single ruler (autocrat) or a small group, with no checks or balances.
- Types of Autocracy:
 - **Monarchies**, where power is passed down through a royal family, are a traditional type of autocracy.
 - **Dictatorships**, in which a single ruler seizes power, are another common form.
 - **Dominant-party regimes**, where one political party controls the government with limited opposition, can also be considered autocratic.
- The autocrat dictates the extent of freedoms enjoyed by the people. Basic civil liberties like free speech, freedom of assembly, and freedom of the press are often restricted or absent in autocracies.
- **Some autocracies employ elections or legislatures to give an illusion of democracy.** These elections are frequently compromised, with limits on opposition candidates and media manipulation to benefit the authoritarian ruler.

Credibility of the V-Dem report

- Scholars from many countries (180) contribute to the research, offering a comprehensive perspective.
- The report is based on a massive dataset (31 million data points) covering over 200 countries for centuries (1789-2023). This allows for in-depth analysis and comparisons.
- The report categorises countries based on their democratic health, providing a clear picture of the global landscape.

Conclusion

- The V-Dem Democracy Report highlights the urgent need for international cooperation to protect democratic principles, particularly in countries facing democratic decline. India's drop into electoral autocracy serves as an alarming indicator of the vulnerability of democratic institutions, as well as the importance of protecting fundamental liberties and governance values. Efforts to reverse the trend and restore democratic standards are essential for guaranteeing a vibrant and inclusive democratic future for India and the world.

Right to Repair Portal

Context

- The Union Government has included four key sectors within the Right to Repair Portal: automobiles, electronics, consumer durables, and farming equipment.

What is the Right to Repair?

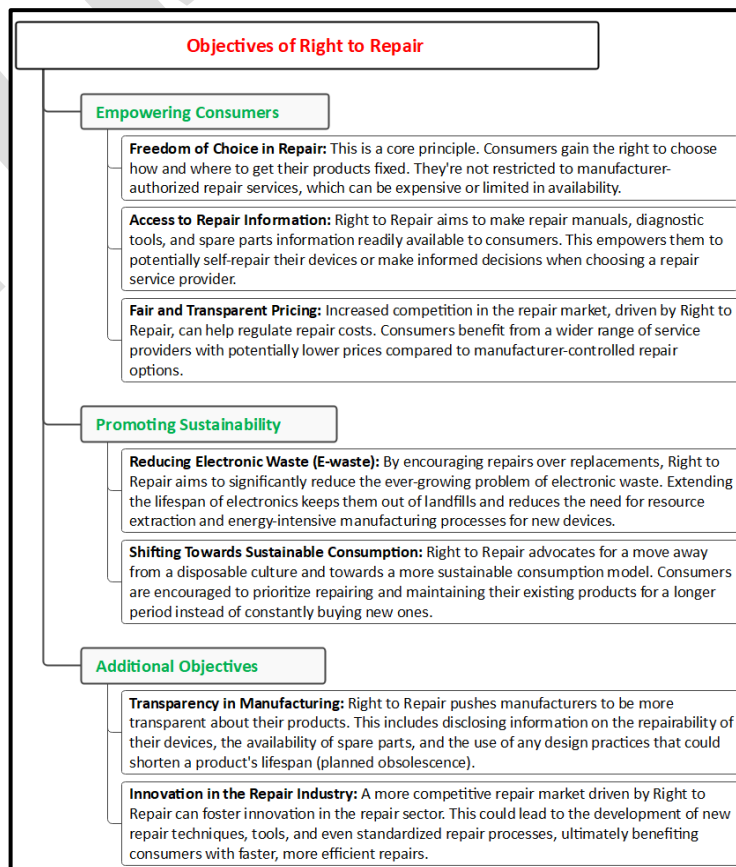
- The Right to Repair allows consumers to access affordable repair services for mobile phones, appliances, and other electronic devices either through original equipment manufacturers (OEMs) or third-party repairs.
- The primary objective is to provide consumers with a cost-effective alternative to purchasing new products, thereby reducing unnecessary waste and promoting sustainable consumption practices.

The Right to Repair includes four key requirements:

- Products should be designed for easy repair.
- Users and repair providers should have access to original spare parts and necessary tools at fair market prices.
- Repairs should not be hindered by software programming.
- Manufacturers should clearly communicate the reparability of their products.

How Does the Right to Repair Portal Help Consumers?

- The Right to Repair portal, established by the Ministry of Consumer Affairs, serves as a comprehensive platform for consumers to access information related to product service, warranty, terms and conditions, etc.
- It aims to protect consumers by enabling them to make informed decisions about repair options, spare parts authenticity, and warranty coverage.



- The portal facilitates self-repair options, provides details about authorised repairers, and promotes third-party repair services.
- Consumers can increase the lifespan of their products, reduce electronic waste, and mitigate concerns regarding spare parts' price and originality.

Conclusion

- The Right to Repair initiative, facilitated by the dedicated portal, empowers customers by providing them with access to low-cost repair services, supporting sustainable consumption behaviours, and increasing transparency in product servicing across industries.

Right to Repair initiatives around the world

- Several countries and economic unions have proposed the right to repair legislation, including the United States, the European Union, and India.
- The United Kingdom's Consumer Rights Act 2015 addresses consumers' rights to repair or replacement of defective goods.

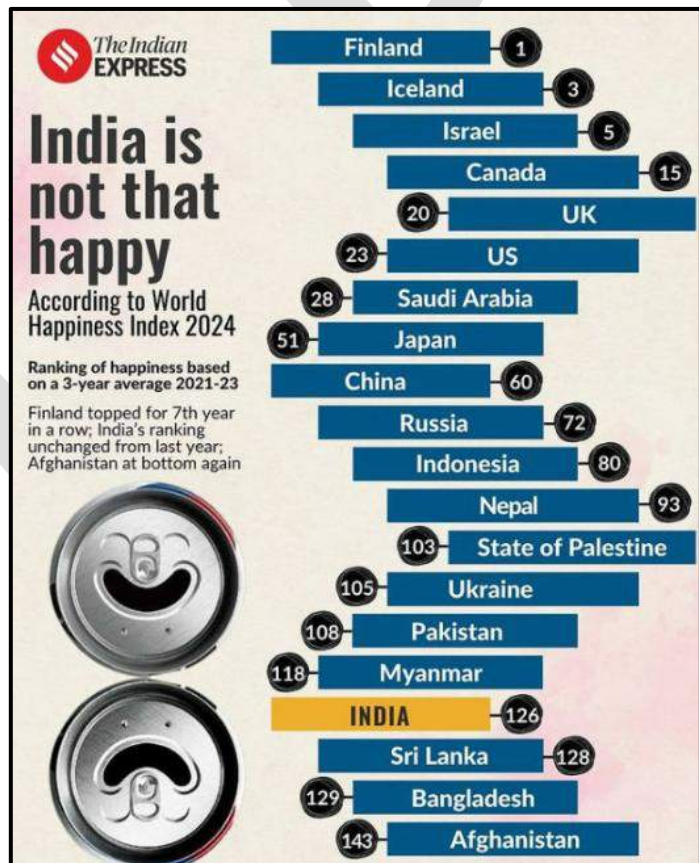
World Happiness Report 2024

Context

- The World Happiness Report (WHR), released annually on the International Day of Happiness, explores happiness across life stages.

Key Highlights of the Report

- The World Happiness Report evaluates happiness based on six key variables: **GDP per capita, social support, healthy life expectancy, freedom, generosity, and corruption**. These factors provide a comprehensive overview of the quality of life and well-being in each country.
- **Top Five Countries:** Finland, Denmark, Iceland, Sweden, and Israel comprise the top five countries in the happiness rankings. These nations consistently demonstrate high levels of happiness, attributed to various socio-economic factors and policies promoting well-being.
- **India's Ranking:** India ranks **126th** in the global happiness index, reflecting challenges in achieving high levels of well-being across the population. Factors such as GDP per capita, social support, and corruption levels contribute to India's ranking in the report.
- **Gender Disparities:** The report highlights gender disparities in happiness levels, with **women generally reporting lower levels of satisfaction compared to men across all regions**. This disparity tends to widen as individuals age, indicating the need for targeted interventions to address gender-related well-being disparities.
- **Age Group Analysis:** Happiness levels vary across different age groups, with younger individuals generally reporting higher levels of happiness compared to older individuals. However, there are



exceptions, with some countries showing high levels of happiness among older populations. This underscores the importance of considering age-specific factors in well-being initiatives and policies.

World Happiness Report

- The World Happiness Report was first released in 2012 ahead of a UN High-Level Meeting on Well-being and Happiness. It has since been published annually, reflecting the growing recognition of happiness and well-being as essential components of societal progress.
- The report aims to provide policymakers with insights into happiness trends and factors influencing well-being, thereby guiding the development of policies that promote greater happiness and quality of life for individuals worldwide.
- The report released by the Wellbeing Research Centre at the University of Oxford starting in 2024 marks a transition from the Sustainable Development Solutions Network, which previously published the report.

Methodology

- The report draws its data primarily from the Gallup World Poll, a globally conducted survey covering various aspects of life, including business, health, education, and social issues. Respondents rate their own lives on a scale from 0 to 10, providing subjective evaluations of their well-being.
- In recent years, the World Happiness Report has advocated for the use of WELLBYs (Well-Being-Adjusted Life-Years) as a measure to assess well-being. WELLBYs consider both current and future generations' well-being, encouraging policymakers to prioritise policies that maximise well-being across all individuals.

Conclusion

- The World Happiness Report provides valuable insights into global happiness levels and factors influencing well-being, informing policymakers' decisions to promote greater happiness and quality of life for individuals worldwide. Its methodology, including the use of subjective well-being measurements and advocacy for WELLBYs, reflects a comprehensive approach to assessing and addressing well-being at both present and future levels.

Withholding of Presidential Assent of State Bills

Context

- The recent move by the Kerala government to challenge the withholding of Presidential assent for its Bills opens up a constitutional debate regarding the scope of judicial review of the President of India's decisions.

Background of the situation

World Happiness Report 2024: India-Specific Findings

It ranked India at 126th out of 143 nations.

Age and Life Satisfaction

In India, **older adults tend to report higher life satisfaction compared to younger generations**. This might be due to factors like greater financial security, stronger social ties within extended families, or a sense of purpose derived from life experience.

Gender Gap and Marital Status

While older men in India report higher life satisfaction on average, the picture changes when considering other factors.

Married individuals, both men and women, generally report higher well-being compared to their unmarried counterparts.

The report suggests that when looking at all factors together, **older women in India might experience higher happiness overall**. This could be due to stronger social support networks for older women within families in Indian society.

Education and Social Status

The report revealed that **older adults with secondary education or higher and those belonging to upper social castes reported greater life satisfaction**. This indicates a potential gap for those with less education or belonging to lower social classes.

These disparities through educational opportunities, social programs, and affirmative action initiatives could be crucial for promoting happiness across all segments of the elderly population in India.

India's Growing Elderly Population

The report highlights **India's elderly population, second only to China globally**. This demographic shift presents both challenges and opportunities for promoting well-being among older adults.

On the one hand, there's a need for robust healthcare systems, social security measures, and age-friendly infrastructure to ensure the physical and financial security of this growing population segment.

On the other hand, this demographic shift also presents an opportunity to leverage the experience and wisdom of older adults for mentorship, volunteering initiatives, and intergenerational knowledge transfer.

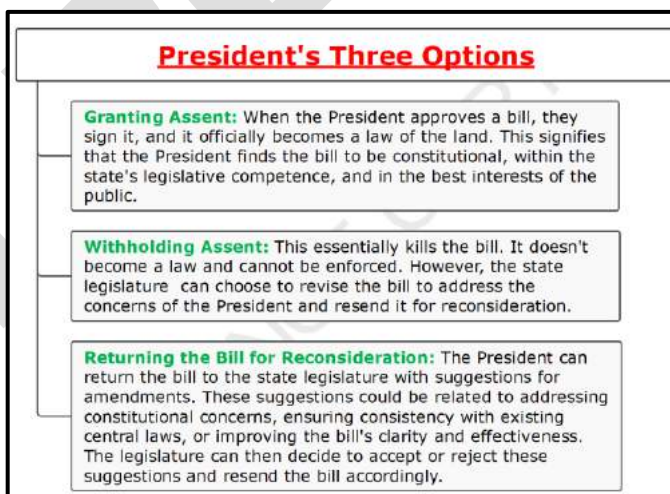
- The Kerala government passed seven bills on various topics, including university amendments and the Lokayukta (anti-corruption ombudsman) amendment. The Governor forwarded four of these bills (Kerala University Laws (Amendment No. 2) Bill 2022, University Law Amendment Bill, 2022, and the University Law Amendment Bill, 2021) to the President for assent, while giving assent to one (Kerala Lok Ayukta Amendment Bill, 2022) and keeping the remaining bill pending.
- Kerala argues that the President shouldn't have withheld assent because:
 - The Bills deal with subjects that fall under the state's power (State List in the Constitution).
 - The Bills don't conflict with any central laws.
 - The Bills weren't categorised as requiring special permission from the President.
- Kerala says these Bills were based on Ordinances already approved by the Governor, so they shouldn't have needed additional approval.

Withholding Presidential Assent to State Bills

- The withholding of Presidential assent of state Bills refers to the **President of India's decision not to approve Bills passed by the legislative assembly of a state.**
- According to the Indian Constitution, **certain Bills passed by state legislatures require the President's assent before becoming law.**
- If the President withholds assent, it creates a constitutional deadlock and raises questions about the balance of power between the central government and state governments.

What is meant?

- When a state legislature passes a Bill, it is sent to the Governor of the state for approval. **If the Governor signs the Bill, it becomes law. However, in certain cases specified in the Constitution, the Governor must forward the Bill to the President for their assent.**
- The President's assent is typically a formality, but if the President withholds assent, the Bill cannot become law. **This withholding of assent can occur for various reasons, including constitutional concerns, policy disagreements, or legal irregularities.**
- The withholding of Presidential assent of state Bills carries significant constitutional and political implications. It raises questions about federalism, the separation of powers, and the autonomy of state governments. It also highlights the complexities of India's governance structure, where power is divided between the central and state governments. Moreover, it underscores the importance of checks and balances in ensuring the legality and constitutionality of legislation.



Reasons for Withholding Assent

Constitutionality

- **The President might believe the bill violates the Indian Constitution** in a number of ways. This could involve exceeding the state's legislative powers enshrined in the Seventh Schedule (State List) of the Constitution. For instance, a state bill that attempts to regulate interstate commerce or national security would likely be deemed unconstitutional.
- The bill could potentially conflict with fundamental rights guaranteed to all citizens under the Constitution, such as the right to equality, freedom of speech, or freedom of religion.

Central v/s State Powers

- India has a federal structure where the Constitution divides legislative powers between the central government and the states. The Union List (Schedule I) specifies matters on which the central government has exclusive power to make laws. The State List (Schedule II) outlines areas where states have the authority to legislate. There's also a Concurrent List (Schedule III) where both the central government and states can make laws, provided there's no inconsistency.
- The President might withhold assent **if they believe the bill encroaches upon matters reserved for the central government, creating a potential conflict of laws and administrative overreach.**

Public Interest

- In rare cases, the President might judge the bill to be harmful or against the public interest, even if it falls within the state's legislative competence and doesn't violate the Constitution explicitly. This could involve issues that have national ramifications, such as legislation promoting religious discrimination or environmental degradation that could have a wide-ranging impact.

Challenges associated with the withholding of Presidential assent of state Bills

- **Constitutional Ambiguity:** The Constitution provides limited guidance on the circumstances under which the President can withhold assent, leading to ambiguity and differing interpretations.
- **Political Implications:** The decision to withhold assent can have political repercussions, potentially straining relations between the Union government and the state government.
- **Legal Uncertainty:** In cases where the President withholds assent, there may be uncertainty about the legality and enforceability of the Bill, leading to legal challenges and delays in implementation.

Veto powers of the Indian President

- **Absolute Veto:** Withholding of assent to the Bill passed by the legislature.
- **Suspensive Veto:** The President may return the Bill to the Houses seeking reconsideration. This can be overridden by the legislature with a simple majority. If the parliament resends the bill with or without amendment then the president is bound to give his assent.
- **Pocket Veto:** Taking no action on the Bill passed by the legislature.

Way Forward

- **Constitutional Reform:** Clarifying the constitutional provisions governing the President's power to withhold assent and establishing clear criteria for such decisions.
- **Inter-Governmental Dialogue:** Facilitating constructive dialogue and cooperation between the central government and state governments to prevent conflicts and promote consensus on legislative matters.
- **Capacity Building:** Enhancing the capacity of state governments to draft legislation that meets constitutional requirements and addresses potential concerns that may lead to the withholding of assent.

Conclusion

- The withholding of Presidential assent to state Bills represents a complex issue with significant implications for India's federal system of governance. It reflects the constitutional checks and balances inherent in the Indian political system. However, it also highlights the need for clarity, transparency, and cooperation among all stakeholders to ensure effective governance and the rule of law. Addressing the challenges requires a combination of legal, political, and institutional measures aimed at promoting harmony and respecting the autonomy of state governments within the framework of the Indian Constitution.

1.5 SNIPPETS



Karnataka Temple Bill

APTI PLUS

- The Karnataka Hindu Religious Institutions and Charitable Endowments (Amendment) Bill, 2024, was recently passed.
- The Bill mandates collecting 10% of the income of temples with revenue exceeding ₹1 crore.
- The government claimed that money collected would be deposited in a Common Pool Fund and later used to help poor temples with inadequate resources. The funds would be used to offer numerous facilities for temple priests and their families.
- Supporters of the Bill believe that it will contribute to a more equitable allocation of resources across the state's temples, as well as improve the livelihoods of those who assist them.



National Urban Co-operative Finance And Development Corporation Limited (NUCFDC)

APTI PLUS

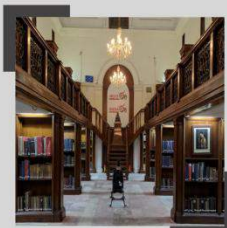
- NUCFDC, the umbrella organisation for the Urban Cooperative Banks (UCBs), was established by the Union Minister of Cooperation.
- The Reserve Bank of India has issued the NUCFDC a Certificate of Registration (CoR) to function as a Non-Banking Finance Company (NBFC) and as the umbrella organisation for the urban cooperative banking industry. It will be permitted to operate as the sector's Self-Regulatory Organisation (SRO).
- It aims to raise funds, with a capital base of Rs.300 crores. It plans to use this funding to help urban cooperative banks and create a shared technology platform to increase service offerings and cut costs.



Dying Declaration

APTI PLUS

- The Supreme Court of India has declared that a conviction based only on a dying declaration can be upheld provided the declaration is reliable and trustworthy.
- The decision clarifies the legal rules for admitting and analysing dying declarations in criminal prosecutions.
- A dying declaration is a statement made by a declarant who is unavailable to give evidence in court (generally due to death) and who believes he or she is about to die.



National Archives Of India

APTI PLUS

- The National Archives of India celebrated its 134th Foundation Day (11th March) with a digital exhibition titled "Subhash Abhinandan" based on the life of Subhash Chandra Bose.
- It was established in 1891 in Calcutta (now Kolkata) as the Imperial Record Department, and after independence renamed as National Archives of India.
- It is currently located in New Delhi and functions under the Ministry of Culture.
- It is the central repository for the Indian government's non-current records.
- It provides online access to digitized records through the Abhilekh-Patal portal.
- It holds a massive collection of historical documents, including public records, private papers, maps, and rare manuscripts.



National Commission for Scheduled Castes


APTI PLUS

- Kishor Makwana was appointed as the Chairman of the National Commission for Scheduled Castes (NCSC).
- It is a constitutional body (Article 338) under the jurisdiction of the Union Ministry of Social Justice and Empowerment.
- Its primary objective is to safeguard the interests of Scheduled Castes (Scs), and Anglo-Indian communities.
- It investigates issues related to the safeguards provided for SCs in the Constitution and other laws.
- It submits regular reports to the President of India on its activities and recommendations for further improvements in the lives of Scs.




Vocal for Local Initiative

- NITI Aayog launched the 'Vocal for Local' initiative as part of its Aspirational Blocks Programme, to promote grassroots entrepreneurship and strengthen local economies.
- NITI Aayog launches a special window on the Government e-Marketplace (GeM) platform under the brand name 'Aakanksha.' This platform will offer technical and operational assistance with e-commerce initiation, skill development, financial literacy, and other capacity-building initiatives.
- The objective of the initiative is to develop sustainable livelihood opportunities and promote inclusive growth by providing a platform for local products and facilitating their market access via e-commerce platforms.



PM Suraj Portal

- The Prime Minister inaugurated the PM-SURAJ (Pradhan Mantri Samajik Utthan Rozgar Adharit Jankalyan) portal, a national initiative aimed at empowering marginalised communities including scheduled caste, backward classes, and sanitation workers.
- The PM-SURAJ portal aims to bridge the gap in financial access for marginalised communities by facilitating easy application and loan disbursement for small businesses.
- Individuals can apply for loans up to ₹15 lakhs to support their entrepreneurial initiatives.
- By eliminating middlemen, the portal ensures loan recipients receive the full amount directly in their bank accounts, minimising bureaucratic hurdles and potential corruption.
- By providing access to credit, the initiative empowers individuals to start or expand their businesses, promoting self-reliance and economic growth within these communities.




Foundational Literacy And Numeracy Assessment Test (FLNAT)

- It is an initiative by the Department of School Education and Literacy (DoSEL) under the Union Ministry of Education.
- It evaluates the foundational literacy and numeracy skills of adult learners enrolled in the ULLAS (Understanding of Lifelong Learning for All in Society), aimed at enhancing adult literacy across India.
- The test focuses on three core areas: Reading, Writing, and Numeracy. Each section carries 50 marks, bringing the total score to a maximum of 150.
- It is conducted to evaluate the program's impact and measure learner progress. Qualifying learners receive certificates from the National Institute of Open Schooling (NIOS).




Interim Bail

- Interim bail is a temporary release mechanism offered by the legal system. It grants an accused person liberty for a short duration while their formal bail application (regular or anticipatory) is being processed by the court.
- Interim bail is important because it prevents unnecessary detention throughout the lengthy judicial procedure.
- High Courts and Sessions Courts have the authority to grant interim bail.
- The severity of the allegations, the accused's past, escape risk, the possibility of witness tampering, and unexpected events such as medical emergencies or attendance at a close family member's funeral are all taken into account while granting interim bail.
- Conditions of interim bail may include submitting a surety bond, surrendering the passport, reporting to the police station regularly, and remaining within a certain geographical area.



ULLAS Initiative


- The Department of School Education and Literacy (DoSEL) has organised the Foundational Literacy and Numeracy Assessment Test (FLNAT) on 17th March 2024, under the ULLAS (Understanding of Lifelong Learning for All in Society).
- The ULLAS Initiative, launched in 2023, is an innovative programme by the Ministry of Education aimed at transforming education and literacy throughout the country.
- The Initiative focuses on those who failed to complete formal schooling and citizens aged 15 and above who want to enhance their literacy and life skills.
- It goes beyond basic literacy, equipping learners with vital skills like legal literacy and digital competence, fostering responsible citizenship.



Senthil Balaji Case

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- Senthil Balaji, a former Tamil Nadu Minister, was arrested by the Enforcement Directorate (ED) on money laundering allegations. Despite his imprisonment, he maintained his post as a State Minister without portfolio while in judicial detention.
- In the Senthil Balaji case judgment, the Madras High Court highlighted the practical challenges of fulfilling ministerial duties while in custody.
- For instance, a minister in prison may face restrictions on accessing official documents and conducting governmental affairs.
- Even if allowed to transact official business, the involvement of prison authorities in scrutinizing documents could obstruct the smooth functioning of governance processes.
- Beyond the legal implications, the case highlighted the ethical dimensions of holding public office.



Section 123(3) of RPA 1951

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- This provision states that appeals by a candidate or any other person, with the consent of a candidate, to vote or refrain from voting on the grounds of religion, race, caste, community, or language constitute a corrupt electoral practice.
- Violators of this provision can face disqualification from contesting elections for a maximum period of up to six years.
- In the case of *Abhiram Singh v/s C. D. Commachen* (2017), the Supreme Court interpreted Section 123(3) of the RP Act. The court highlighted that elections are a secular exercise, and any appeal in the name of religion, regardless of the voters' religion, is considered a corrupt electoral practice.



District Election Management Plan (DEMP)

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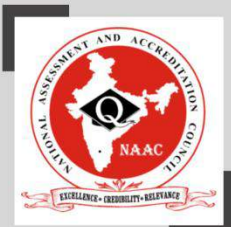
- It is a comprehensive document prepared at least six months before the tentative poll day, as per the Election Commission of India's guidelines.
- It includes a political map outlining constituencies, key demographic and infrastructure statistics, as well as information about the district's administrative setup and socioeconomic features.
- It outlines a comprehensive strategy for the planning, training, welfare, and deployment of election personnel.
- It includes plans for the secure storage, availability, transportation, and maintenance of Electronic Voting Machines (EVMs) and Voter Verifiable Paper Audit Trails (VVPATs).



Banning Cotton Candy

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- Himachal Pradesh banned the production and sale of cotton candy for a year due to harmful colouring agents.
- Tests revealed unauthorized and potentially hazardous colours in cotton candy samples, violating food safety regulations.
- The ban prohibits manufacturing, storing, distributing, or selling cotton candy (packaged or unpackaged) for one year.



National Assessment And Accreditation Council (NAAC)

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- It is an autonomous body established by the University Grants Commission (UGC) in 1994.
- Its creation was in line with the recommendations of the National Policy on Education, 1986, and the Programme of Action (POA), 1992, which emphasized the need to evaluate the quality of higher education in India.
- The key function is to assess and accredit institutions of higher learning, including universities and colleges, as well as their various units such as departments, schools, institutions, and programs.



Ex-parte Injunction

- An ex-parte injunction is a court order issued without hearing from the other party involved in the case. It is a temporary order granted in emergencies.
- They are used when there's a risk of irreversible harm if immediate action isn't taken. The court considers evidence presented by the person requesting the injunction to decide if to grant it.
- Unlike a regular injunction, the person on the receiving end doesn't get a chance to present their case before the order is issued.
- Even in emergencies, courts have discretion to decide whether to grant an ex-parte injunction.



Food Safety And Standards Authority Of India (FSSAI)

- FSSAI is setting up a network of labs to improve food safety in India. The new labs will be able to test for pathogens like E. coli, salmonella and listeria which can cause foodborne illnesses.
- It is a statutory body established under the Food Safety and Standards Act of 2006, it comes under the administration of the Ministry of Health and Family Welfare.
- It regulates several aspects of food safety, such as the production, storage, distribution, sale, and import of food. It develops standards to ensure the safety of foods consumed by the Indian population.
- Its headquarters is in New Delhi and operates through regional offices in major cities including Delhi, Mumbai, Kolkata, and Chennai.
- The FSSAI is chaired by a non-executive chairperson nominated by the Union government, who normally holds or has held a position no lower than Secretary to the Government of India.

2. INTERNATIONAL RELATIONS

2.1 INDIA–MAURITIUS RELATIONS

Context

- Prime Minister Narendra Modi said the two countries are working actively towards ensuring security, prosperity and stability in the Indian Ocean region.
- *Bilateral merchandise trade between India and Mauritius rose to USD 786.72 million in 2021-22 from USD 690.02 million in 2019-20.*
- India's substantial financial support and developmental contributions to Mauritius were highlighted, including a credit line of **1,000 million US dollars** and **400 million US dollars** worth of assistance over the last 10 years.
- The projects mentioned ranged from metro rail lines to community development projects, social housing, and healthcare infrastructure.



Historical Foundation

- The Indian presence in **Mauritius** dates back to the **1730s**, with the arrival of artisans and masons.
- A **significant portion (over 68%)** of the **Mauritian population** has Indian ancestry due to large-scale indentured labor migration from 1834 to the early 1900s.
- **Diplomatic relations were established in 1948**, even before Mauritius gained independence, highlighting the long-standing connection.

Economic Partnership

- **India is Mauritius' largest trading partner**, with a bilateral trade volume **exceeding \$554 million in 2022-23**.
- India primarily exports petroleum products, pharmaceuticals, and manufactured goods to Mauritius.
- The **2021 Comprehensive Economic Cooperation and Partnership Agreement (CECPA)** aims to further boost trade and investment.
- Mauritius has been a significant source of **foreign direct investment (FDI)** for India, though inflows have declined in recent years.

- Several Indian **Public Sector Undertakings (PSUs)** operate in Mauritius.

Defense and Security Cooperation

- India is a key defense partner for Mauritius, providing equipment, training, and collaborating on joint patrols.
- Indian military officers are deputed to advise and assist the Mauritian defense forces.
- A **2021 Line of Credit** allows Mauritius to purchase defense equipment from India.
- The **SAGAR initiative ("Security and Growth for All in the Region")** underlines India's commitment to maritime cooperation in the Indian Ocean.

Other Areas of Cooperation

- India has consistently provided humanitarian assistance to Mauritius during disasters like the COVID-19 pandemic and the Wakashio oil spill.
- Mauritius is the first country to join India's Jan Aushadhi program, offering affordable generic medicines.
- Initiatives like RuPay cards and UPI digital payments are facilitating financial transactions between the two nations.

Challenges

- Potential misuse of the **Double Taxation Avoidance Agreement (DTAA)** for tax evasion led to amendments in 2016.
- **The Chagos Archipelago dispute**, a sovereignty issue before the UN, is a point of concern.
- Ensuring security cooperation in the evolving **Indo-Pacific region requires ongoing collaboration**.



- Logistical and bureaucratic hurdles can sometimes hinder the implementation of development projects.

Conclusion

- India and Mauritius share a unique and enduring partnership. Their ongoing collaboration in various fields, including infrastructure, financial technology, education, and healthcare, promises to further strengthen this relationship.

2.2 MALDIVES DEFENCE PACT

Context

- Maldives signing a defence agreement with China after the withdrawal of Indian troops marks a significant shift in the geopolitical landscape of the Indian Ocean.
- This is the first time Maldives has signed a deal with China for military cooperation of this level. Previously, China had been exclusively known for its assistance towards urban and economic development of the Maldives.
- Maldivian President campaigned on a platform of removing Indian troops stationed in the country. This long-standing presence, seen as a security measure by India, became a point of contention.
- Following negotiations, India agreed to withdraw troops completely by May 10, 2024. This move can be interpreted as a concession to the new Maldivian administration and a potential strain in India-Maldives relations.



Established Ties

- The foundation for cooperation was laid in **1978 with a Maritime Boundary Agreement**.
- A significant turning point came in **1988** when India intervened in a coup attempt (Operation Cactus) to restore stability in the Maldives.

Nature of Cooperation:

- **Training:** India plays a critical role in training Maldivian security personnel. **Around 70% of**

the Maldivian National Defence Force (MNDF) receives training in India.

- **Joint Exercises:** Regular military exercises like Ekuverin, Dosti, and Ekatha, along with disaster relief drills, strengthen coordination and preparedness.
- **Infrastructure & Equipment:** India has assisted in developing defense infrastructure, provided radars, and supplied military hardware to the Maldives.

- **Information Sharing:** Regular exchange of intelligence and security information is crucial for maintaining regional security.
- **Disaster Relief:** India has consistently provided aid during natural disasters like the 2004 tsunami, showcasing its commitment as a reliable partner.

Benefits for Maldives:

- Enhanced capabilities of the MNDF to protect its territorial waters and borders.
- Improved preparedness for maritime threats and natural disasters.
- Access to advanced training and military equipment.
- A dependable security partner with a proven track record.

Benefits for India:

- Strategic influence in the Indian Ocean, a vital region for its security.
- Enhanced regional security and



stability, creating a more favorable environment for India's interests.

- Potential market for Indian defense equipment.

Recent Developments:

- In a surprising move, the Maldivian President requested the withdrawal of Indian troops stationed in the country.
- India agreed to the withdrawal, which was completed in May 2024.
- The Maldives has also signed a defense agreement with China, indicating a potential shift in its strategic partnerships.

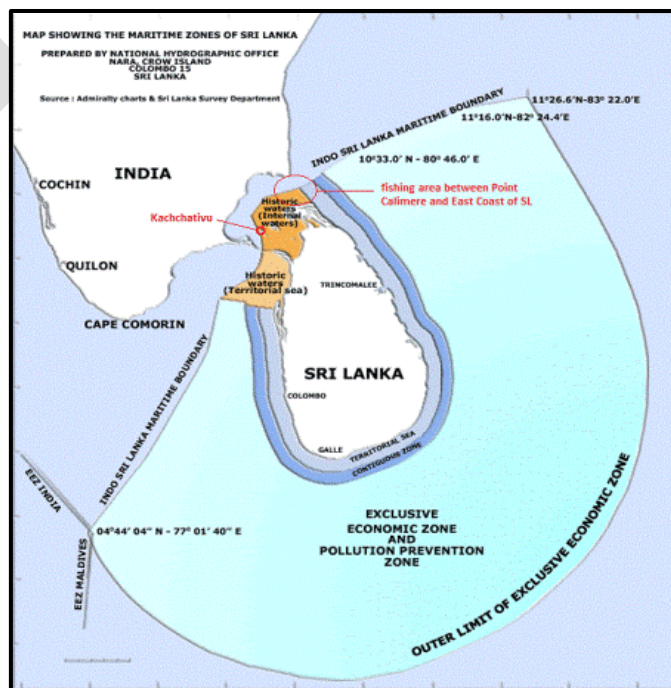
Conclusion

- The recent developments raise questions about the future of India-Maldives defense relations. Whether the partnership can be revived or if the Maldives will forge closer security ties with China remains to be seen.

2.3 INDIA-SRI LANKA RELATIONS

Context

- New Delhi had objected to a Chinese energy project in the location and offered to give grant for the initiative instead of a loan; the Sri Lankan government and U-Solar Clean Energy Solutions sign contract for building hybrid renewable systems.
- Three years after objecting to a Chinese energy project in northern Sri Lanka, barely 50 km off Tamil Nadu, India is set to implement a hybrid power project in three islands off Jaffna peninsula with a \$11-million grant.
- Sri Lanka Sustainable Energy Authority, the Government of Sri Lanka, and Indian company U-Solar Clean Energy Solutions on March 1 signed the contract for building "Hybrid Renewable Energy Systems" in Delft or Neduntheevu, Nainativu and Analaitivu islands off Jaffna peninsula in the island's north.



Historical and Cultural Links:

- The relationship stretches back millennia, with cultural and religious exchanges forming a strong foundation.

- Over 60% of Sri Lanka's population adheres to Buddhism, a religion that originated in India.

Economic Partnership:

- India is Sri Lanka's largest trading partner, with bilateral trade exceeding \$4 billion in 2021.
- India is a major source of foreign direct investment (FDI) for Sri Lanka.
- Recent developments like an Indian firm being chosen over a Chinese company to build a hybrid power plant project in Sri Lanka's northern islands highlight the ongoing economic cooperation.

Strategic Importance:

- Both nations share security concerns related to piracy and maritime security in the Indian Ocean.
- India has been a provider of security assistance and training to Sri Lanka.

Areas of Cooperation:

- **Infrastructure development:** India has assisted with projects in various sectors like power, transportation, and renewable energy.
- **Cultural exchange:** Regular programs and initiatives promote cultural understanding and people-to-people ties.
- **Disaster relief:** India has consistently provided humanitarian aid during natural disasters in Sri Lanka.

Challenge

- The Sri Lankan Civil War (1983-2009) and the issue of Tamil Nadu fishermen entering Sri Lankan waters have sometimes caused friction.
- China's growing influence in Sri Lanka is a concern for India's strategic interests in the region.

Conclusion

- Despite occasional tensions, India and Sri Lanka share deep-rooted ties. Continued economic cooperation, cultural exchange, and collaborative efforts to address regional security concerns can pave the way for a more stable and prosperous future for both nations.



2.4 G4 MODEL FOR UNSC REFORMS

Context

- India presents detailed model on behalf of G4 nations for UNSC reform that displays flexibility on veto.
- India, on behalf of the G4 nations, presented a detailed model for UN Security Council reform. The proposal suggests increasing the Council's

Little Satisfaction

On January 1, India began its tenure as non-permanent member of the powerful 15-nation UN organ for 2021-22 term

- India, Norway, Kenya, Ireland and Mexico join non-permanent members Estonia, Niger, Saint Vincent and the Grenadines, Tunisia and Vietnam and the five permanent members in the Council for 2021
- India will be UNSC President in August 2021 and will preside over the Council again for a month in 2022. The presidency of the Council is held by each member in turn for one month, following the English alphabetical order of the member states' names

THE G4 CASE

- By 1992, India, Brazil, Germany, and Japan staked their claims demanding inclusion as permanent members
- India has been part of UN since inception, has the world's second-largest population, is the world's largest democracy and has contributed maximum peacekeepers to UN
- Brazil is the largest country in Latin America (unrepresented continent) and fifth largest in the world
- Japan and Germany are one of the largest financial donors to the UN
- Besides G4 countries, South Africa (largest economy in African continent) is also a claimant, as the continent remains unrepresented on high table of permanent members
- The roadblock is that Articles 108 and 109 of the United Nations Charter grant P5 veto over any amendments to the Charter, requiring them to approve of any modifications to the UNSC veto power, that they themselves hold
- So even if one member of P5 doesn't agree to any reform, the UNSC cannot be reformed

- On June 17, India was elected to the UN Security Council with 184 of the total 192 votes. A member country needs two-thirds majority of votes in the General Assembly to become a non-permanent member. This is the eighth time India has been elected as a non-permanent member

- The UNSC has 15 members and five of them (P5) — US, UK, Russia, China and France — are permanent members with veto rights
- The ten elected or non-permanent members have a tenure of two years and no veto rights. This makes them a toothless grouping

membership from 15 to 25-26, adding six permanent and four or five non-permanent members. The G4 model offers flexibility on the veto issue and emphasizes addressing the "glaring under-representation and un-representation" of key regions.

G4 nations' proposal for UN Security Council reform

- The G4 nations - **Brazil, Germany, Japan, and India** - have suggested enlarging the UN Security Council's membership from 15 to 25-26 members. **This entails adding six new permanent and four or five non-permanent members** to better align with the current geopolitical landscape. The objective is to enhance the Council's representation, credibility, and efficacy.

Key Highlights of the Proposed Model

- **Enlarged Membership:** The United Nations Security Council (UNSC) consists of **11 permanent members and 14/15 non-permanent members elected for two-year terms.**
- **Equitable Regional Representation:** Six new permanent members will be added, with two each from **Africa, Asia-Pacific, and Latin America and the Caribbean**, and one from **Western Europe and Other Member States.**
- **Working Methods of Council:** Decisions require an affirmative **vote of 14/15 out of 25/26 total members.**
- **Veto:** New permanent members will not possess veto rights until a review, conducted fifteen years after the reform's implementation, determines otherwise.
- **Relationship between UNSC and UNGA:** The council must engage in regular consultations with the President of the United Nations General Assembly (UNGA) and submit annual and special reports to the UNGA.

Benefits of the proposed Model

- **Increased Representation:** The proposal aims to expand the Security Council by adding new permanent and non-permanent members, potentially giving a stronger voice to under-represented regions like **Africa, Asia, and Latin America.**
- **Enhanced Legitimacy:** By including more countries in the decision-making process, the Council could gain broader legitimacy and reflect the **geopolitical realities of the 21st century.**
- **Improved Effectiveness:** A more diverse Council might foster better understanding of global issues and potentially lead to more effective solutions to international conflicts.
- **Greater Transparency:** Increased membership could lead to a more transparent Security Council, with decisions made under greater scrutiny from the international community.
- **Power Sharing:** The inclusion of new permanent members could lead to a more balanced distribution of power within the Council, potentially reducing the dominance of the current P5 (permanent members).

Limitations of the G4 Nations' UN Security Council Reform Proposal

- **Veto Power:** The proposal doesn't address the issue of veto power held by



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the **P5 (US, UK, France, China, and Russia)**. This could still hinder the Council's ability to take decisive action.

- **Selection Bias:** The criteria for selecting new permanent members remain unclear, and the process could be susceptible to political maneuvering by major powers.
- **Potential Gridlock:** A larger Council might lead to more complex decision-making processes, potentially resulting in increased gridlock and hindering efficient action.
- **Regional Competition:** The selection of new permanent members could intensify rivalries between regional powers, further complicating the reform process.
- **Implementation Challenges:** Amending the UN Charter requires approval from **two-thirds of the General Assembly** and **ratification by all permanent members**, making actual reform a difficult and lengthy process.

Conclusion

- Looking ahead, the 21st century poses diverse challenges like **climate change, cybersecurity threats, and economic inequality**. The United Nations (UN) holds a vital role in addressing these issues due to its convening power, diplomatic function, and extensive agency network. **To maximize its effectiveness, reforms must streamline bureaucracy, reduce inefficiencies, and ensure equitable representation.**
- Despite these hurdles, the UN remains essential in global governance, humanitarian aid, and crisis management. Reform is necessary, but the **UN's role in fostering cooperation and collective action** remains crucial in confronting the world's most urgent problems.

2.5 INTER-GOVERNMENTAL FRAMEWORK AGREEMENT

Context

- The Union Cabinet has given ex-post facto approval to the Inter-Governmental Framework Agreement (IGFA) signed on 13th February 2024 between India and the United Arab Emirates.

About Inter-Governmental Framework Agreement (IGFA)

- The IGFA includes areas of cooperation between the two countries to explore further potential of future joint investment and collaboration in respect of the development of the IMEC. The IGFA aims to enhance bilateral relations and to further strengthen the relations between the two countries in the Ports, Maritime, and Logistics sectors. The Agreement contains a detailed framework for cooperation between the two countries. The cooperation will be based on a set of mutually agreed upon principles, guidelines, and agreements consistent with the relevant rules and regulations of the countries' jurisdiction.



About IMEC India-Middle East-Europe Economic Corridor (IMEC)

- **Membership:** On the sidelines of the G20 Leaders' Summit, Leaders of India, European Union, France, Germany, Italy, Saudi Arabia, UAE and US announced the India-Middle East-Europe Economic Corridor (IMEC).
- **Purpose:** Integration of Asia, Europe and the Middle East.
 - The IMEC will include of two separate corridors:

- The east corridor connecting India to the West Asia/Middle East and
- The northern corridor connecting West Asia/Middle East to Europe.
- **Connectivity:** The corridor will provide reliable and cost-effective cross-border ship to rail transit networks to supplement current maritime routes.

Significance

- **Economic Development:** By linking Asia, West Asia, the Middle East and Europe by more suitable connectivity and monetary integration, the corridor aims to give a boost to economic development in the areas.
- **Connectivity:** The corridor will consist of a rail line, which, upon completion, will provide a **reliable and cost-effective cross-border ship-to-rail transit community**.
 - The rail line will supplement the existing multi-modal delivery routes enhancing trans-cargo of products and offerings from South East Asia through India to West Asia/Middle East and Europe.
- **Eco-friendly Infrastructure:** It places emphasis on developing environmentally friendly infrastructure.
- **Transformative Integration:** It intends to **increase performance, reduce costs, secure local supply chains, increase exchange** accessibility, promote financial cooperation, generate jobs and decrease greenhouse gas emission, resulting in a transformative integration of Asia, Europe and the Middle East (West Asia).

Limitations of IMEC

- **Financial Constraints:** Constructing the necessary infrastructure will be a massive undertaking with significant costs. Securing funding and ensuring all participating countries can contribute their share can be challenging.
- **Regional Instability:** The Middle East region has a history of **political instability and conflict**. These issues can disrupt trade flows and create uncertainty for investors.
- **Rivalry with Existing Initiatives:** IMEC is sometimes seen as a **rival to China's Belt and Road Initiative (BRI)**. Geopolitical competition between major powers can influence the success of IMEC.
- **Cost Competitiveness:** While IMEC aims to reduce transit times compared to maritime routes, ensuring cost-effectiveness compared to existing sea freight options can be a challenge. Factors like **fuel prices, infrastructure maintenance, and transshipment costs need to be considered**.

Conclusion

- IMEC has the potential to be a game-changer, but its success hinges on overcoming these limitations. Addressing implementation challenges, navigating geopolitical complexities, and ensuring operational efficiency will be crucial for its long-term viability.

2.6 INDIA AND BRAZIL 2+2 DIALOGUE

Context

- India and Brazil on Thursday explored ways to expand cooperation in areas of energy, critical minerals, technology and counter-terrorism at their first '2+2' defence and foreign ministerial dialogue.

What is India and Brazil 2+2 Dialogue?

- India and Brazil conducted their first-ever '2+2' defence and foreign ministerial dialogue,

discussing cooperation in key areas. The talks focused on expanding cooperation in various areas, including energy, critical minerals, technology, and counter-terrorism.

About 2+2 Meetings:

- The 2+2 meetings symbolize the **participation of two high-level representatives**, Ministers keeping Foreign and Defence portfolios, from both nations who aim to enhance the scope of dialogue between them.

- Having this kind of mechanism allows the partners to better understand and appreciate each other's strategic issues and sensitivities deliberating political elements on each sides, to build a more potent, more integrated strategic relationship.
- India has held 2+2 meetings with ministers from the **USA, Australia, Japan, the UK and Russia.**

About India- Brazil Relations

Diplomatic Relations

- Established in 1948; upgraded to Strategic Partnership in 2006.

Trade Relations

- Bilateral trade surged by **32% in 2022 to US\$15.2 billion.** Trade Monitoring Mechanism in place.

Defence & Security

- Defence cooperation agreement signed in 2003. Joint Defence Committee meetings are held regularly.

Security Cooperation

- Strategic Dialogue mechanism was initiated in 2006. Extradition Treaty and other legal agreements exist.

Space Cooperation

- Framework agreement for peaceful space use signed in 2004. Data sharing and satellite monitoring are ongoing.

Multifora Relations

- Engaged in various



plurilateral and multilateral forums including **BRICS, G-20, UN, WTO, etc.**

Challenges in the Relations

- **Geopolitical Competition:** Both India and Brazil are emerging powers with **aspirations for greater global influence.** This can sometimes lead to opposition, especially in international forums like the **UN, where each country is seeking greater representation and influence.**
- **Trade Barriers:** Trade between India and Brazil has not reached **its full potential, partly because of various trade barriers** and protectionist measures in both countries. These boundaries restrict the growth of bilateral trade and investment.
- **Infrastructure and Connectivity:** Improving infrastructure and connectivity between the two countries remains a challenge.
- **Better air and sea connectivity,** as well as improved transportation links, are essential for boosting trade and people-to-people contacts.

Conclusion

- Addressing challenges requires continual diplomatic endeavors, bolstered economic collaboration, and a dedication to identifying shared solutions to global issues. Despite hurdles, the prospective benefits of a fortified India-Brazil alliance render surmounting these challenges a valuable pursuit.

2.7 MOU BETWEEN INDIA AND BHUTAN

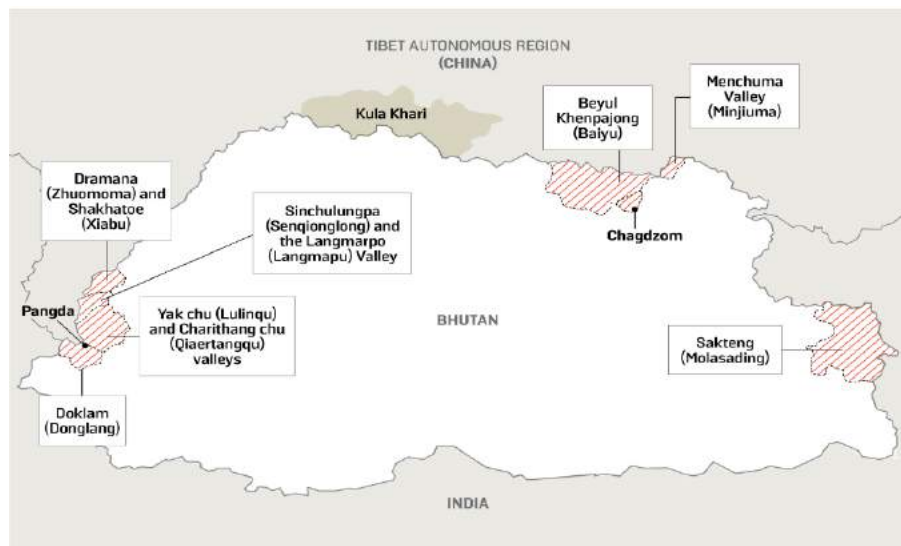
Context

- Recently, Bhutan's Prime Minister visited India, where India held wide-ranging talks with Bhutan and signed a slew of agreements between India and Bhutan.
- *In the Interim Budget 2024-25, the Ministry of External Affairs (MEA) has been allocated Rs 22,154 crore for fiscal year 2024-25. India's 'Neighbourhood First' policy is reflected in the largest share of aid portfolio granted to Bhutan with an allocation of Rs 2,068 crore against Rs 2,400 crore in 2023-24.*

Key Highlights of the India-Bhutan Bilateral Talks:

- An agreement was inked by **both nations concerning the supply of petroleum products,** aimed at ensuring a consistent and reliable supply from India to Bhutan, thus promoting economic cooperation and growth in the hydrocarbon sector.

- **Bhutan's Food and Drug Authority and India's Food Safety and Standards Authority (FSSAI)** entered into an agreement to bolster collaboration in food safety measures. This pact aims to streamline trade between the two countries by ensuring adherence to food safety standards and reducing compliance costs.



- **A Memorandum of Understanding (MoU) on energy efficiency and conservation** was signed by both countries, underscoring their dedication to sustainable development. India intends to support Bhutan in enhancing energy efficiency in households, advocating for the use of energy-efficient appliances, and establishing standards and labelling schemes.
- **The visit of the Bhutanese Prime Minister** coincides with the ongoing discussions between China and Bhutan to resolve their border dispute, particularly concerning the Doklam region, which has implications for regional security.
 - **In August 2023, China and Bhutan agreed upon a plan to address their border disagreement,** formalizing the agreement in October 2021. This agreement followed a conflict between India and China in Doklam in 2017, sparked by China's efforts to construct a road in the area.
- **Bhutan's endeavor to establish a regional economic hub in Gelephu** signifies a significant stride towards regional development and connectivity. Spearheaded by Bhutan's King in December 2023, the project aims to create the "Gelephu Mindfulness City" (GMC), spanning 1,000 square kilometers.
- Diverging from conventional financial hubs typified by skyscrapers, Gelephu will prioritize sustainable development, focusing on non-polluting industries such as IT, education, hospitality, and healthcare. Positioned at the nexus of India's "Act East" policy and emerging connectivity initiatives across Southeast Asia and the Indo-Pacific region, Gelephu holds strategic importance in fostering economic integration and facilitating trade.



Significance of Bhutan for India

Strategic Importance

- Bhutan's strategic position between India and China is vital for regional stability. India aids Bhutan in defence, infrastructure, and communication sectors.
- Bhutan's territory serves as a crucial buffer zone, especially during conflicts like the Doklam standoff in 2017.

Economic Importance

- India is Bhutan's primary trade partner, with significant reliance on Bhutan's hydropower potential.
- India supports Bhutan in developing hydropower projects, contributing to its economic growth.

Cultural Importance

- Strong cultural bonds exist between Bhutan and India, rooted in shared Buddhist heritage.
- India assists Bhutan in preserving its cultural legacy, including education opportunities for Bhutanese students in India.

Environmental Importance

- Bhutan's commitment to carbon neutrality aligns with India's assistance in **renewable energy, forest preservation, and sustainable tourism.**
- India plays a crucial role in aiding **Bhutan's environmental conservation efforts.**

2.8 NUCLEAR ENERGY SUMMIT

Context

- Brussels hosted a first-of-its-kind Nuclear Energy Summit that was billed as the most high-profile international meeting on nuclear energy ever, boasting the attendance of representatives from 30 countries.

Details

- Global nuclear advocates have of late highlighted its energy potential. It is also being projected as a solution for the clean energy transition that the world so desperately needs to achieve its climate change goals. However challenges to its uptake remain significant. The International Atomic Energy Agency (IAEA), which organized last week's event, called it a "landmark" and a "turning point" in the efforts to expand the use of nuclear energy for generating clean electricity.

About Nuclear Energy Summit

- The Nuclear Energy Summit, an initiative in collaboration with the IAEA's 'Atoms4Netzero' programme, is part of the multilateral approach to decarbonisation.
- World leaders gathered to emphasize nuclear energy's role in combating climate change.

Need:

- The **UN Climate Change Conference (COP28) in Dubai (UAE) in December 2023** stated the indispensable role of nuclear energy to meet climate goals.
- The declaration signed by 22 world leaders mentioned the need to triple nuclear energy capacity by 2050.
- Nuclear power emits four times less carbon than solar farms or other renewable sources such as wind, hydropower, and geothermal.

- Nuclear power can supply uninterrupted energy irrespective of geographical constraints making it a crucial component of the wider renewable energy mix.
- Nuclear power plants also have low operating costs, smaller land imprints, and a longer life cycle compared to all the other renewable energy sources.

Financing of nuclear energy – a challenge

- **Building nuclear power plants** is expensive due to complex engineering, stringent safety regulations, and lengthy construction times. These high upfront costs create a significant financial burden for investors and utilities compared to other energy sources like natural gas
- **Nuclear projects are prone to delays due to regulatory hurdles**, safety concerns, and unforeseen technical issues. These delays further increase the overall cost of the project, making it less attractive to investors.
- **Renewable energy sources like solar and wind** are becoming increasingly cost-competitive, often benefiting from government subsidies. This makes it difficult for nuclear power to compete on price alone.
- *Recent developments in nuclear technology including **Small Modular Reactors (SMR)**, radiation proofing in existing plants, and extended fuel cycles, have the potential to substantially **mitigate nuclear-related risks.** However, in spite of technical advancements, **Multilateral Development Banks (MDBs)** and private investors have not made any significant contribution to the industry. The **World Bank has not provided financing for a nuclear project since its \$40 million loan to Italy in 1959.***

Status in India

- In India, nuclear energy demonstrates promising potential, exemplified by the competitive pricing of electricity generated at the **Tarapur and Kudankulam nuclear power plants**.
- Despite its versatility, however, **nuclear power accounts for a mere 1.6% of India's renewable energy mix** due to several factors hindering its widespread adoption.



- These obstacles include stigma, concerns regarding weaponization and radiation leaks, regulatory challenges, high initial investments, and prolonged project timelines.

Conclusion

- The Nuclear Energy Summit underscores the importance of nuclear energy in achieving climate goals. Financial innovation and global cooperation are crucial for realizing the full potential of nuclear power in the energy mix.

2.9 INTEGRATED RIVER BASIN MANAGEMENT

Context

- According to the recent report on integrated river basins, an integrated river basin management approach for the Indus, Ganga and Brahmaputra rivers can help flooding affecting people in south Asia.

Details

- The recent report on integrated river basins has been authored by Kathmandu-primarily based International Centre for Integrated Mountain Development (ICIMOD) and Australian Water Partnership, a body funded by the Australian government.

About Integrated River Basin Management (IRBM):

- IRBM is a **comprehensive approach that aims to harmonize the planning and management** of water resources, sustainable development, and strategies within a river basin.
- IRBM involves **coordinating the conservation, management, and development** of water, land, and related sources throughout sectors in a specific river basin.
- It emphasizes the integration of ecological, social, and economic aspects to acquire equitable and sustainable water use.
- **The European Union has actively promoted IRBM through key framework directives:**
 - Water Framework Directive (WFD) and
 - Flood Risk Management Directive (FRMD).

Key Highlights of the Report

Integrated River Basin Management

- Emphasizes basin-wide approach to river planning. Advocates for quality data sharing on **water availability, biodiversity, and pollution among stakeholders**.

Need for Multilateral Treaties

- Highlights absence of multilateral agreements for river management in the region. Advocates for establishment of such treaties for effective governance.

Dependence on Critical Rivers

- **Millions of people in India, Tibet (China), Pakistan, Afghanistan, Nepal, and Bhutan** rely on the Indus, Ganga, and Brahmaputra rivers for food and water security. Comprehensive management strategies are crucial.

Indus-Ganga-Brahmaputra (IGB) Plain

- Encompasses parts of **India, Pakistan, Bangladesh, and Nepal**. All three river basins are part of this vast alluvial plain.

Ganga River Basin

- **Inhabited by 600 million Indians, 29 million Nepalese**, and millions in Bangladesh. No existing agreement involving Nepal, India, and Bangladesh.

Indus River Basin

- Lifeline for 268 million people residing in its basin.

Brahmaputra River Basin

- Approximately 114 million people depend on it for various needs such as water, electricity, food, agriculture, and fishing.

Recommendations

- **Leveraging Local Community Knowledge for Crisis Management:** Utilizing the expertise and insights of local communities to enhance crisis management effectiveness.
- **Empowering Local Communities for Resilience:** Providing resources and technology to local communities to bolster their resilience against crises.
- **Addressing Data Gaps in River Basins:** Tackling data deficiencies concerning water availability, biodiversity, and pollution in river basins to improve management and early warning systems.
- **Adopting a Holistic Research Approach:** Embracing a comprehensive 'whole basin' research strategy that facilitates data-sharing, strategic planning, and understanding climate change impacts for ensuring reliable water supply.
- **Promoting Hydro-Solidarity and Climate Diplomacy:** Advocating for cooperation and solidarity among nations in managing shared

water resources, as well as fostering dialogue on transboundary water issues among researchers from different countries.

- **Enhancing Hydro-Solidarity Through Collaborative Governance:** Implementing fair water-sharing agreements, investing in water infrastructure, and addressing the water-energy-food nexus to promote collaborative governance and solidarity.
- **Integrating Water Diplomacy with Climate Diplomacy:** Recognizing the pivotal role of climate diplomacy in addressing water stress induced by climate change, and advocating for the integration of water diplomacy with climate diplomacy to address interconnected challenges effectively.

Conclusion

- IRBM strives for a balanced and sustainable method to cope with our precious water assets, and subsequently needs to be promoted at every degree of planning.

2.10 SHORT ARTICLES

Pancheshwar Multipurpose Project

Context

- Despite the recent signing of an agreement on long-term power sharing between India and Nepal, progress on the Pancheshwar Multipurpose Project (PMP) remains at a standstill.
- The Pancheshwar Multipurpose Project (PMP) is a bi-national hydropower project proposed on the Mahakali River, forming the border between India and Nepal.

Project Aims:

- **Energy Generation:** The PMP aims to generate a massive 5,040 megawatts (MW) of clean hydroelectric power, potentially addressing energy needs in both India and Nepal.
- **Irrigation:** The project also plans to provide regulated water for irrigation, enhancing agricultural productivity on vast stretches of land in both countries.
- **Flood Control:** The dam's construction could help mitigate downstream flooding, improving safety and reducing potential damage

Current Status:

- **Treaty Signed:** India and Nepal signed the Mahakali Treaty in 1996, paving the way for the PMP's development.
- **Negotiations Stalled:** Despite the treaty, progress on the project has stalled due to disagreements on issues like water sharing, project costs, and environmental concerns.

Potential Benefits:

- **Clean Energy Source:** Hydropower is a renewable and clean energy source, potentially reducing dependence on fossil fuels and mitigating greenhouse gas emissions.

- **Economic Growth:** The project could create jobs during construction and operation phases, boosting economic activity in the region.
- **Improved Infrastructure:** Development associated with the PMP could lead to improved roads, bridges, and other infrastructure in the surrounding areas..

International Intellectual Property Index

Context

- The Index demonstrates the benefits that economies can receive when they adopt robust and enforceable IP standards.
- *The US Chamber of Commerce on Wednesday released the 12th edition of its International IP (intellectual property) Index. India ranked 42 out of the 55 countries in the index with an overall score of 38.64 percent. The United States emerged at the top of the list followed by the United Kingdom and France.*



About the International Intellectual Property Index:

- The International Intellectual Property (IP) Index, created by the U.S. Chamber of Commerce's Global Innovation Policy Center, is a valuable tool for assessing the strength and effectiveness of intellectual property frameworks established by governments worldwide.

Key Points:

- **Purpose:** It serves as a roadmap for economies seeking to strengthen their innovation ecosystems by implementing more robust IP standards.
- **Evaluation Criteria:** The Index uses 50 unique indicators across nine categories to create a snapshot of an economy's overall IP environment. These categories include patents, copyrights, trademarks, trade secrets, enforcement mechanisms, and membership in international IP treaties.
- **Top Performers:** The United States consistently ranks at the top of the Index, followed by countries like the United Kingdom, France, Germany, and other developed nations with well-established IP frameworks.
- **Benefits of a Strong IP Index Ranking:** A high ranking indicates a nation's commitment to fostering innovation by protecting the rights of inventors, creators, and businesses. This can attract foreign investment, encourage domestic innovation, and stimulate economic growth.

Blue Leaders Alliance

Context

- The Blue Leaders High-Level Event on Biodiversity Beyond National Jurisdiction was held in Belgium on March 7, 2024.

What is the Blue Leaders alliance?

- It is a coalition comprising 24 nations that advocate for immediate action to tackle global ocean threats such as the climate crisis, overfishing, and pollution. Key members include Belgium, Costa Rica, Ecuador, Germany, and Italy. While India is not part of the coalition, it endorsed the treaty's implementation during the G20 New Delhi Leaders' Declaration in 2023.



Aim: Blue Leaders strive to achieve two primary objectives:

- Setting a new international target to protect at least 30% of the global ocean with highly and fully protected marine areas by 2030.

- **Concluding a new High Seas Treaty** to establish fully and highly protected marine areas in the high seas and improve management of human activities beyond these areas.
- **The first Blue Leaders event took place in New York on the margins of the 2019 United Nations General Assembly and the second in Madrid, Spain during the 2019 UN Climate Change Conference, 'The Blue COP.'**

Importance of Protected Areas:

- Blue Leaders consistently advocate for the **achievement of the 30x30 goal**, emphasizing the necessity of **protecting 30% of the ocean, both fully and highly**.
- **"Fully protected"** areas prohibit extractive or destructive activities entirely, while **"highly protected"** areas permit limited, low-impact extractive activities, such as **subsistence or small-scale fishing**.
- Protected areas play a crucial role in preserving marine ecosystems by serving as sanctuaries where harmful human activities are restricted, providing safe havens for marine wildlife.

North Atlantic Treaty Organization

Context

- Sweden reversed two centuries of neutrality to become the 32nd member of the North Atlantic Treaty Organization (NATO).
- *The North Atlantic Treaty Organization, often referred to as NATO, is an intergovernmental military alliance established in 1949 by the signing of the North Atlantic Treaty.*

Why was NATO founded?

- Its purpose is to safeguard the freedom and security of all its members by military and non-military means. The principle of collective defence is central to NATO's founding document – the North Atlantic Treaty. This principle, enshrined in **Article 5 of the Treaty, binds NATO Allies together**, declaring an armed attack against any one of them 'an attack against them all'. NATO strives to secure a lasting peace in Europe, based on **common values of democracy, individual liberty, human rights and the rule of law**.



Key Points:

- **Purpose:** Formed in the aftermath of World War II, NATO's primary objective was to counter the threat posed by the Soviet Union and its Eastern Bloc countries during the Cold War. The alliance functions under the principle of collective defense, meaning an attack on one member is considered an attack on all.
- **Membership:** Originally consisting of **12 founding members**, NATO has grown to include **32 member states – 30 European and 2 North American** (Canada and the United States). Membership requires unanimous approval from all existing members.
- **Structure:** NATO's decision-making body is the North Atlantic Council, **where all member states have equal representation**. The alliance also has an international staff led by the Secretary General, who serves as the organization's chief civilian official. The supreme military commander of NATO is the **Supreme Allied Commander Europe (SACEUR)**.

- **Activities and Operations:** Beyond its core function of collective defense, NATO is involved in a range of activities including:
 - Crisis management operations (peacekeeping and conflict resolution)
 - Cooperative security initiatives with non-member states
 - Military exercises and training

Yaounde Declaration

Context

- The Yaounde Declaration made by the Health Ministers from 11 African countries that accounts for the majority of malaria cases and fatalities worldwide.
- *The largest burden of malaria infections and deaths worldwide is borne by the 11 African nations: Burkina Faso, Cameroon, Democratic Republic of the Congo, Ghana, Mali, Mozambique, Niger, Nigeria, Sudan, Uganda, and Tanzania.*

About Yaounde Declaration:

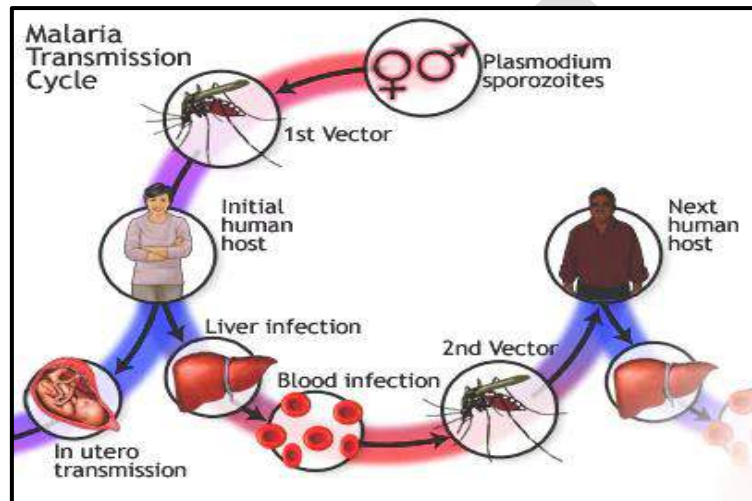
- The declaration was signed by the **health ministers of 11 African countries with the highest malaria burden** during the Yaoundé conference, co-hosted by the **World Health Organization (WHO)** and the **Government of Cameroon**. This conference brought together health ministers, global malaria partners, funding agencies, scientists, civil society organizations, and other stakeholders.
- **The signatory countries include Burkina Faso, Cameroon, the Democratic Republic of the Congo, Ghana, Mali, Mozambique, Niger, Nigeria, Sudan, Uganda, and Tanzania**, collectively responsible for about **70% of global malaria cases**.
- They pledged to address malaria sustainably and equitably, especially in the African region, which sees 95% of global malaria deaths. Commitments include increased leadership, **domestic funding, investment in data technology, application of technical guidance, and strengthening of malaria control efforts at national and sub-national levels**.
- Additionally, they promised to boost **health sector investments**, foster multi-sectoral collaboration, and build partnerships for funding, research, and innovation. The signatories expressed unwavering commitment to accelerating malaria mortality reduction and holding each other accountable for fulfilling the declaration's commitments.

Key Points:

- **Purpose:** Ending malaria deaths in Africa.
- **Parties Involved:** Health Ministers from High Burden High Impact (HBHI) countries in Africa.
- **Goal:** The declaration signifies a renewed commitment by these African nations to achieve zero malaria deaths.

Strategies:

- Strengthening health infrastructure to improve diagnosis and treatment.
- Expanding personnel capacity for effective malaria control programs.
- Fostering partnerships for increased funding, research, and innovation in malaria eradication efforts.



Eastern Maritime Corridor

Context

- The Red Sea crisis has shifted attention to the Eastern Maritime Corridor (EMC) - the proposed trade route for coking coal, crude oil, LNG, fertilizers and containers.

About Eastern Maritime Corridor:

- It is a proposed sea route between the Indian port of Chennai and the Russian port of Vladivostok.
- The corridor is estimated to bring down transportation time between Indian and Russian ports in the Far East Region by up to 16 days.
- Once complete, it will take 24 days, down from presently over 40 days, to transport goods from India to Far East Russia.
- The present trade route between Mumbai and St. Petersburg covers a distance of 8,675 nautical miles.
- The EMC will cover a distance of about 5,600 nautical miles, which is significantly shorter than the current route via the Suez Canal.
- For India, it will provide a shorter and more efficient route to access the markets of the Far East, such as China and Japan.



The potential of EMC:

- Reduced Costs and Time:** Compared to traditional routes through the Suez Canal or around Africa, the EMC can significantly reduce shipping times and transportation costs between India and Russia. This could lead to a surge in bilateral trade, benefiting both economies.
- Faster Delivery of Resources:** The EMC can facilitate quicker and more efficient transportation of crucial resources like oil, gas, and coal from Russia to India. This bolsters India's energy security by diversifying its import sources.
- Strengthened India-Russia Ties:** Operationalizing the EMC signifies deeper cooperation between India and Russia, not just in trade but also in infrastructure development and maritime security.
- Route Optimization:** The EMC could potentially reduce overall shipping distances compared to existing routes, leading to lower fuel consumption and emissions.

Uniting for Consensus Model

Context

- India on Tuesday slammed the Uniting for Consensus (UFC) model on UNSC reforms, citing that it won't empower Africa or Global South nations or change permanent seat membership.
- The UFC, which comprises 12 countries and two observers, including a P5 nation, stands against the idea advocated by a majority of the UN member states -- which is an expansion in the permanent and non-permanent categories of an expanded Security Council.

About Uniting for Consensus (UfC):

- The Uniting for Consensus (UfC), also known as the **Coffee Club**, originated in the 1990s to resist the enlargement of permanent seats in the **United Nations Security Council**.
- This coalition comprises several countries, notably **Italy, China, Argentina, Pakistan, and others**.
- UfC posits that expanding the number of **permanent members** may diminish the efficiency and effectiveness of decision-making processes within the Security Council.

About the United Nations Security Council:

About

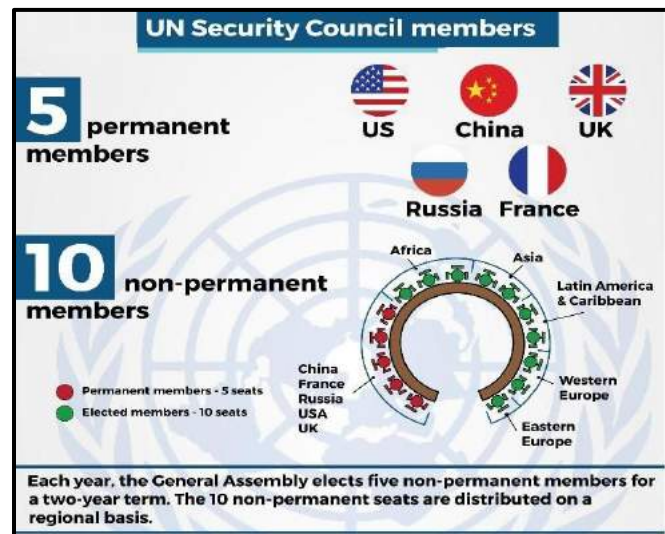
- **Established by the United Nations Charter.**
Primary responsibility for maintaining international peace and security.
- Member States are obliged to comply with Council decisions.
- Permanent residence at the **United Nations Headquarters in New York City**.

Powers

- Establishment of peacekeeping operations. Imposition of international sanctions. Authorization of military action through Security Council resolutions.

Members

- **5 permanent members (P5):** United Kingdom, China, France, Russia, United States.
- Each possesses **veto power over UNSC decisions**.
- 10 non-permanent members elected by the General Assembly for two-year terms.



Digital Innovation Board of ITU

Context

- Dr. Neeraj Mittal, Secretary of India's Department of Telecommunications, was elected co-chair of ITU's Digital Innovation Board, fostering collaboration among 23 member countries.

About International Telecommunication Union (ITU):

- **Organization:** The International Telecommunication Union (ITU) serves as the United Nations specialized agency for information and communication technologies.
- **Establishment:** Originally formed in 1865 as the International Telegraph Union, the ITU transitioned into a specialized agency of the United Nations in 1947.
- **Purpose and Coordination:** Functioning as an intergovernmental organization, the ITU facilitates coordination between governments

and private sector entities in matters about global telecommunication and information communication technology (ICT) services.

- **Membership:** With a membership spanning 193 countries and including over 1000 companies, universities, and international and regional organizations, the ITU fosters a diverse network of stakeholders.
- **Functions:** The ITU undertakes critical functions such as the allocation of global radio spectrum and satellite orbits, coordination and establishment of technical standards for telecommunication/ICT, and endeavors to enhance access to ICTs in underserved communities worldwide.
- **India's Engagement:** India has maintained active participation in the ITU since 1869 and has held a regular membership position on the ITU Council since 1952.
- **Headquarters:** Situated in Geneva, Switzerland, the ITU operates from its

headquarters to oversee its global operations and initiatives.

About Digital Innovation Board:

Formation

- Established under the **Innovation and Entrepreneurship Alliance for Digital Development**.

Composition

- The Board consists of Ministers and Vice Ministers of Telecom/ICT from **23 Member Countries** of the ITU, spanning **Asia, Europe, Africa, North, and South America**.

Purpose and Initiative

- Initiated in response to the unmet needs of ITU Membership in innovation, as outlined in the **Kigali Action Plan** adopted at the **World Telecommunication Development Conference 2022**.

Vehicles

- Digital Transformation Lab, Network of Acceleration Centres, Digital Innovation Board

Digital Innovation Board

- Established to offer strategic guidance, expertise, and advocacy for fostering innovation and entrepreneurship in digital development.
- Aims to build critical local enablers and create a more inclusive and equitable digital future for all.

Order of the Druk Gyalpo

Context

- The Prime Minister of India received a prestigious recognition from Bhutan, being conferred the Order of the Druk Gyalpo, Bhutan's highest civilian honour.

About Order of the Druk Gyalpo:

- Bhutan's most esteemed civilian accolade**, the Order of the Druk Gyalpo, is bestowed upon individuals who have demonstrated exceptional contributions to society, reflecting values of service, integrity, and leadership.
- Established according to a ranking and precedence system**, the Order of the Druk Gyalpo is the highest honor in Bhutan, surpassing all other orders, decorations, and medals, serving as a recognition of lifetime achievement.
- The award was conferred upon the Prime Minister of India** in acknowledgment of his remarkable contributions to enhancing India-Bhutan relations and his distinguished service to the people and nation of Bhutan.
- The current Prime Minister of India became the first foreign head of government to receive Bhutan's highest civilian honor.
- Other notable recipients of this award include **Her Majesty The Royal Queen Grandmother Ashi Kesang Choden Wangchuckin 2008**, **His Holiness Je Thrizur Tenzin Dendup in 2008**, and **His Holiness Je Khenpo Trulku Ngawang Jigme Choedra in 2018**.

2.11 SNIPPETS



Operation Indravati

- Operation Indravati is India's initiative to evacuate its citizens from Haiti amidst the country's turmoil. Launched on March 21, it aims to transfer Indians to the neighbouring Dominican Republic due to escalating violence and chaos in Haiti. According to the Ministry of External Affairs, approximately 75 to 90 Indian nationals are currently present in Haiti, with around 60 of them having formally registered their intention to return to India with the Indian authorities.

3. ECONOMY

3.1 MILK PRODUCTION

Context

- The government's latest Household Consumption Expenditure Survey (HCES) for 2022-23 shows milk emerging as India's top food spend item, both in rural and urban areas.

HCES Key Finding

- In both rural and urban India, the **monthly expenditure on milk and dairy products per person exceeds that of other food items**, including vegetables, cereals, egg, fish & meat, fruits, edible oil, spices, and pulses.

India's Milk Production

- India is the highest milk producer and ranks first position in the world **contributing 24.64% of global milk production in the year 2021-22**. The milk production of India has registered a **58% increase during the last nine years** and increased to **230.58 Mn Tonnes in the year 2022-23**. The milk production has increased at a CAGR of **5.85% over the past 9 years**.
- The **top 5 milk-producing states** are Rajasthan (15.05%), Uttar Pradesh (14.93%), Madhya Pradesh (8.6%), Gujarat (7.56%) and Andhra Pradesh (6.97%). They together contribute 53.11% of total Milk production in the country.
- India's Export of Dairy products was 67,572.99 MT to the world worth \$284.65 Mn during the year 2022-23.

Initiatives taken to increase milk production in the country

Operation Flood

- Launched in 1970, aimed at creating a nationwide milk grid and increasing milk production.

National Dairy Plan

- Implemented to increase the productivity of milch animals and the output of milk, with a

focus on breed improvement, nutrition management, and better animal healthcare.

Rashtriya Gokul Mission

- Launched to conserve and develop indigenous cattle breeds to increase milk productivity and make dairying more remunerative for farmers.

National Programme for Bovine Breeding and Dairy Development

- Aims to enhance milk production and productivity of dairy animals through breed improvement and extension services.

Promotion of Dairy Entrepreneurship Development Scheme

- Aimed at generating self-employment opportunities in the dairy sector, particularly for the unemployed youth.

Dairy Processing and Infrastructure Development Fund

- To modernize the dairy sector infrastructure and increase the processing capacity to handle the growing milk production.

Establishment of Milk Cooperatives

- Promotion of milk cooperatives like Amul has played a significant role in increasing milk production and providing better returns to farmers.

National Programme for Dairy Development

- Aims to enhance infrastructure for high-quality milk production, procurement, processing, and marketing. Operates through State Implementing Agencies or State Cooperative Dairy Federations.

Animal Husbandry Infrastructure Development Fund

- Provides INR 15,000 Cr for new or expanding units in dairy processing, meat processing, and animal feed plants. Benefits include a 3% interest subvention, 2-year moratorium, and INR 750 Cr credit guarantee.

FDI Norms

- 100% FDI permitted through automatic route for Animal Husbandry. The Dairy sector has seen substantial foreign direct investment (FDI)

constituting about 40% of FDIs Indian food sector.

Dairy Processing and Infrastructure Development Fund

- Objective is to upgrade milk processing and chilling plants, including value addition in dairy

infrastructure. Eligible entities receive a 2.5% interest subsidy on the loan component.

National Livestock Mission

- Focuses on breed improvement, livestock nutrition, disease control, and market access.

White Revolution

- The White Revolution, also known as Operation Flood, was a dairy development program implemented in India to increase milk production and improve the dairy industry. Led by the National Dairy Development Board (NDDB), the program aimed to replicate the success of the Green Revolution in agriculture by promoting dairy farming as a viable livelihood option for farmers. The White Revolution significantly increased milk production in India. For about 25 years, India has been the largest milk-producing nation in the world.
- It has produced twice as much milk in the last 20 years.

Top of Form

The Challenge: Rising Milk Prices in India

Consumer Demand and Inflation

- Indians are spending more on milk, considering it a superior food.
- The all-India modal price of milk has risen from
- Rs 42 to Rs 60 per litre in the last five years, with a significant increase from Rs 52 to Rs 60 in the last year alone.

Cost of Fodder, Feed, and Raw Materials

- The cost of fodder, feed, and raw materials/ingredients has significantly increased.
- Dairies have had to raise procurement prices paid to farmers and pass on the increase to consumers.

PRICE OF FODDER, FEED AND INGREDIENTS

	2018-19	2023-24
Amul Dan*	1117@	1540@
Amul Power Dan**	1345@	1950@
De-oiled Rice Bran	8-11	16-19
Rice Bran	16-18	23-28
Maize	14-16	23-25
Rapeseed Extraction	18-19	23-29
Molasses	4-6	11-16
Dry fodder	5-7	8-14
Green fodder	3-4	5-7

Note: *Type II cattle feed containing 20% crude protein and 3% crude fat;
**Type I feed with 22% protein and 4% fat;
@Rs per 70-kg bag. Source: Amul.

Addressing the challenge

- There is a limit to how much more consumers can pay for milk without causing demand destruction.
- To raise farmer incomes without reducing domestic demand or eroding global competitiveness, the cost of milk production must be reduced.

Ways of reducing the cost of milk production

- **Feed Management:** Efficient use of feed resources, including cultivating high-yielding fodder crops and reducing reliance on expensive concentrates, can lower costs.
- **Water Management:** Efficient water management practices, such as rainwater harvesting and drip irrigation for fodder cultivation, can reduce water costs.

- **Economies of Scale:** Increasing the scale of operations, through cooperative farming or consolidation of small farms, can reduce per-unit production costs.
- **Technological Interventions:** Adoption of technologies such as automated milking machines, biogas plants for energy generation, and efficient waste management systems can reduce operational costs.
- **Training and Education:** Providing training and education to farmers on best practices in dairy farming can improve efficiency and reduce wastage.
- **Government Support:** Government schemes and subsidies for dairy farming inputs, infrastructure development, and credit facilities can help reduce production costs for farmers.

- **Market Diversification:** Diversifying into niche markets or direct sales to consumers can increase profitability and reduce reliance on volatile commodity markets.
- **Energy Efficiency:** Implementing energy-efficient practices, such as using solar power for farm operations and improving the efficiency of milk cooling systems, can reduce energy costs.
- **Disease Prevention:** Investing in disease prevention measures, such as biosecurity protocols and regular health check-ups, can reduce veterinary expenses and production losses.
- **Research and Development:** Investing in research and development for innovative farming practices and technologies can lead to cost-saving solutions specific to the dairy industry.

Ways of Achieving Higher Milk Yield

Genetic Improvement and Breeding Technologies

- Use of sex-sorted (SS) semen increases the probability of female calves, enhancing future milk production potential.
- Embryo transfer (ET) technology allows for multiple calves from a single genetically superior cow, increasing milk-producing cows in the future.

In Vitro Fertilisation (IVF) and Embryo Transfer (ET)

- IVF technology enables the production of several calves from a single high-genetic-merit (HGM) cow, significantly increasing the number of future milkers.

- With IVF-ET, there can be 33-35 calves per donor cow per year, compared to 5-7 calves through normal breeding.

Animal Nutrition

- Farmers can reduce feeding costs by cultivating high-yielding protein-rich green fodder grasses.
- Amul is setting up a Total Mixed Ration (TMR) plant to provide a ready-to-eat mashed form of fodder, along with concentrates, vitamins, and mineral mixtures, saving farmers the cost of purchasing and storing fodder separately.

Way Ahead

- The need for a "**White Revolution 2.0**" arises from the challenges faced by the dairy industry, such as rising production costs, fluctuating milk prices, and increasing competition. This initiative would focus on **modernizing dairy farming practices, improving milk yield per animal, reducing production costs, and enhancing the overall efficiency and sustainability of the dairy sector.**
- It would also aim to address issues related to **feed management, animal health, and value addition in dairy products** to meet the growing demand for high-quality milk and dairy products in India.
- The focus of White Revolution 2.0 would have to be on **lowering the cost of producing milk at the farm-gate, as opposed to increasing procurement prices year after year.**

3.2 MARKET MONOPOLY AND ANTI-COMPETITIVE PRACTICES

Context

- Google announced the removal of almost a dozen firms' apps from its Android app marketplace. The core of the problem lies in Google's platform fees. Regulators, including the Competition Commission of India (CCI), have taken action.

Issue

- For in-app purchases of purely digital services, such as ebooks or OTT streaming subscriptions, Google charges fees ranging from 11% to 30% per transaction.
- While Google argues that these fees support the development of the Android ecosystem, many developers, including Indian firms like Bharat Matrimony and Disney+ Hotstar, consider them excessive.

- In contrast, Apple has faced less resistance in India due to its smaller market share. However, both Apple and Google have faced international backlash over these fees.
- In 2022, the CCI fined Google for its Play Store policies, and the company is appealing this decision.
- The key demand from developers and experts like Rohit Kumar is for regulations that increase competition in the app store market, such as allowing the adoption of other app stores and enabling side loading of apps via websites.

Market Monopoly

- Market monopoly refers to **a situation where a single company or entity dominates a particular market or industry**, effectively controlling the supply of goods or services and exerting significant influence over prices and competition.
- Monopolies can arise due to various factors, such as **barriers to entry, economies of scale, or legal protections**. They are often regulated to prevent abuse of market power and to ensure fair competition.

Features of Market Monopoly

- **Single Seller:** A monopoly market has only one seller or producer, giving it complete control over the supply of goods or services.
- **No Close Substitutes:** In a monopoly, there are no close substitutes for the product or service being offered, giving the monopolist significant pricing power.
- **Price Maker:** The monopolist acts as a price maker, meaning it can set prices independently of market forces, based on its own production costs and profit objectives.
- **High Barriers to Entry:** Monopolies often have high barriers to entry, such as control over essential resources, economies of scale, or legal restrictions, which prevent or deter potential competitors from entering the market.
- **Profit Maximization:** Monopolies typically focus on maximizing profits, as they do not face competitive pressures to reduce prices or improve efficiency.
- **Limited Consumer Choice:** Consumers in a monopoly market have limited choice, as they must purchase the product or service from the monopolist, often at the price set by the monopolist.
- **Potential for Price Discrimination:** Monopolies may engage in price discrimination, charging different prices to different customers based on their willingness to pay.
- **Potential for Inefficiency:** Monopolies may be less efficient than competitive markets, as they lack the competitive pressures that drive firms to minimize costs and improve quality.



Mechanisms of Anti-Competitive Practices

- **Cartels:** Competitors agree to fix prices, limit production, or allocate markets, which reduces competition and harms consumers.
- **Exclusive dealing:** A supplier restricts a buyer to dealing exclusively or primarily with the supplier, foreclosing competitors from the market.

- **Tying and bundling:** A seller requires a buyer to purchase one product (the tying product) in order to purchase another product (the tied product), which can harm competition by leveraging market power.
- **Predatory pricing:** A firm sets prices below cost to drive competitors out of the market, with the intention of raising prices once competition is eliminated.
- **Resale price maintenance:** A supplier requires retailers to sell their products at a minimum price, preventing retailers from offering discounts and limiting price competition.
- **Refusal to deal:** A dominant firm refuses to supply goods or services to a customer, preventing the customer from dealing with competitors.
- **Price discrimination:** Charging different prices to different customers for the same product or service, which can harm competition by giving certain customers a competitive advantage.
- **Market allocation:** Competitors agree to divide up markets or customers among themselves, rather than competing for all customers.
- **Bid rigging:** Competitors agree in advance who will win a contract, rather than competing fairly for the business.
- **Misuse of intellectual property rights:** Using patents, copyrights, or trademarks to exclude competitors from the market, rather than for legitimate business purposes.

Initiatives taken by India to deal with market monopoly and promote fair competition

Competition Act, 2002

- In India, the Competition Act, 2002 governs competition law and establishes the Competition Commission of India (CCI) to enforce it. The Act replaced the ineffective Monopolies and Restrictive Trade Practices (MRTP) Act, 1969, with objectives including preventing practices adverse to competition, promoting innovation, and regulating mergers to avoid monopolies.
- The CCI has the power to investigate and penalize violations, including anti-competitive agreements and abuse of dominant position, ensuring a competitive market and consumer protection.

Competition (Amendment) Act, 2023

- It enhances competition regulation by introducing a new deal value threshold, expanding the definition of "control," and streamlining the combination implementation timeline. These changes aim to improve competition enforcement and benefit businesses and consumers.

Competition Commission of India (CCI):

- Established to enforce the Competition Act and investigate anti-competitive behavior.

Prohibition of Anti-Competitive Agreements:

- The Act prohibits agreements that restrict competition, including price fixing and market division.

National Company Law Appellate Tribunal (NCLAT)

- NCLAT is an appellate tribunal established under the Companies Act, 2013, to hear appeals against NCLT and other bodies, including the CCI. It has jurisdiction over company law, competition law, insolvency law, and more.



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International initiatives to deal with market monopoly and promote fair competition

- **International Competition Network (ICN)**: A network of competition authorities from around the world that promotes cooperation and convergence in competition law enforcement and policy.
- **Organisation for Economic Co-operation and Development (OECD)**: Provides a forum for countries to discuss and coordinate policies related to competition, including through the OECD Competition Committee.
- **World Trade Organization (WTO)**: Ensures that trade agreements do not create or maintain monopolies or other restraints on competition that distort international trade.
- **United Nations Conference on Trade and Development (UNCTAD)**: Provides research and analysis on competition issues and offers technical assistance to developing countries to strengthen their competition laws and policies.

Certain benefits of Monopoly

- **Economies of scale**: Monopolies can achieve economies of scale by producing goods or services at lower costs due to their large size and production capabilities.
- **Research and development**: Monopolistic companies often invest heavily in research and development (R&D) activities since they have fewer competitors challenging their innovations. **For example**, pharmaceutical companies rely on patents to protect their investments in new drugs, driving medical progress.
- **Stability**: Monopolistic markets tend to be more stable compared to highly competitive markets where businesses may struggle financially.
- **Standardization**: In some cases, monopolies can establish industry standards that promote compatibility and interoperability among different products or services.

Challenges of Enforcing Monopoly Regulation

- **Defining the Scope of the Market**: Determining the relevant market in which a firm operates is challenging, especially in rapidly changing industries with new technologies and entrants.
- **Identifying Anti-Competitive Practices**: Proving practices like predatory pricing or exclusive dealing requires extensive evidence and analysis.
- **Balancing Interests**: Enforcing regulation requires balancing consumer protection and competition promotion with considerations for innovation and economic growth.
- **Political Influence**: Companies with market power may wield significant political influence, making it challenging for regulators to take action.
- **Globalization**: Operating in multiple jurisdictions with differing regulations makes it difficult to coordinate enforcement actions against anti-competitive behavior.

Way Ahead

- **Strengthening Antitrust Laws**: Amend and strengthen existing antitrust laws to ensure they effectively prevent monopolistic practices, including price-fixing, predatory pricing, and market allocation agreements. **Example: impose stricter penalties.**
- **Promoting Competition**: Encourage competition by **actively supporting new entrants and startups** through policies that reduce barriers to entry. **Example: provide funding or tax incentives to encourage competition in industries dominated by a few players.**
- **Market Surveillance**: Establish a dedicated authority for **monitoring and surveillance of markets to detect and deter anti-competitive behavior**, with the power to conduct investigations and impose penalties.
- **Promoting Consumer Awareness**: Educate consumers about their rights and the benefits of competition to empower them to make informed choices, which can help prevent monopolistic practices. **Mode: public**

awareness campaigns and consumer protection initiatives.

- **Encouraging Innovation:** Support research and development activities that promote innovation and technological advancements, which can create opportunities for new market entrants and disrupt monopolies. Eg: grants/tax incentives for companies investing in innovation.
- **Sector-specific Regulations:** Introduce sector-specific regulations tailored to address the unique challenges of different industries, such

as digital markets, to prevent the emergence of monopolies.

- **International Cooperation:** Collaborate with international bodies and other countries to share best practices and coordinate efforts to prevent and address monopolistic practices that transcend national borders.
- **Balancing Regulation and Innovation:** Striking a balance between regulating monopolies and encouraging innovation is crucial. Over-regulation can stifle innovation, while under-regulation can harm competition and consumers.

3.3 GIG WORKERS

Context

- Recently, a study was conducted by People's Association in Grassroots Action and Movements, Indian Federation of Appbased Transport Workers.

Study Details

- 5302 cab drivers and 5028 delivery persons across eight cities participated.
- 78% of respondents aged 21 to 40 years.

Findings of the study and recommendation

Working Hours Statistics:

- Almost a third of app based cab drivers work over 14 hours daily.
- More than 83% work over 10 hours, and 60% over 12 hours.
- Over 60% of Scheduled Castes and Tribes drivers work over 14 hours, compared to only 16% from the unreserved category.

Income and Social Disparities:

- 43% of participants earn less than ₹500 a day or ₹15,000 a month.
- 34% of delivery persons earn less than ₹10,000 a month.
- Income disparities exacerbate social inequalities, especially among different castes.

Financial Strain:

- 72% of cab drivers struggle with managing expenses.

- 76% of delivery persons struggle to make ends meet.
- Over 68% of cab drivers' expenses exceed earnings, leading to debt like situations.

Dissatisfaction with Payment:

- Over 80% of cab drivers and 73% of delivery persons are dissatisfied with their fares.
- Companies deducting more than officially claimed commission rates.
- 68% of respondents find deductions arbitrary and unfair.

Work Conditions:

- 41% of drivers and 48% of delivery persons are unable to take a weekly day off.
- Less than 37% of drivers belong to a union.
- ID deactivation and customer misbehavior are major concerns affecting work negatively.

Recommendations from Study Authors:

- Stronger social security for appbased workers.
- Government oversight on fairness of algorithms and monitoring mechanisms used by platforms.

About

Gig Economy

- A market system where temporary positions are common, and organizations hire independent workers for short term commitments instead of fulltime employees. Workers are paid for individual tasks or "gigs".

Examples of Gig Workers

- Freelancers, Independent contractors, Project based workers, Temporary or part time hires, Utilization of gig apps and digital technology to connect workers and customers.

Drivers of the Gig Economy

- Emergence in the Digital Age: Highly mobile workforce. Work can be done remotely, anytime, and from anywhere. Avoids long term obligations like pensions, suits the disruptive era.

Advantages for Firms

- Cost effective, as it avoids long term obligations. Provides flexibility in workforce management. Offers a wide pool of specialized talents.

Other Contributing Factors

- Technological advancements reducing the need for human labor. Temporary nature of projects and increasing specialization. Uncertain business climate and declining profits leading to short term labor engagements.

Pros and Cons

- **Advantages for Workers:** Increased flexibility and mobility. Freedom to choose jobs. More opportunities to earn a higher income.
- **Advantages for Businesses:** Operating efficiency. More choices in hiring. Lower fixed costs.



- **Disadvantages:** Lack of benefits for workers. Tax responsibilities on workers. Less stable income. Reliability issues for businesses.

Associated Challenges

- Uncertainty and lack of job security. Termination risks for workers. Limited bargaining power. Lack of financial services accessibility. Neglect of social welfare objectives.

India's Gig Economy

- Approximately 15 million gig workers in India. Predicted to reach 90 million in 810 years, contributing significantly to GDP. Recommendations from recent reports include financial access, skilling, social inclusion, and enumeration exercises.

Way Forward

- Implementation of Social Security Code: Acknowledges platform workers and gig workers, providing them benefits. Urgency in implementation. Global Best Practices: Consideration of granting employee status to gig workers for minimum wage and welfare benefits. Empowering Gig Workers: Providing loan schemes for independent entrepreneurship. Upscaling Technology Platforms: Leveraging technology for job creation, economic growth, and financial inclusion.

3.4 INDIA'S R&D FUNDING

Context

- The announcement in the interim Budget for 2024-25, unveiling a corpus of ₹1 lakh crore to strengthen the research and innovation ecosystem within India, has ignited enthusiasm within the scientific and research communities.
- The decision to augment the iconic slogan 'Jai Jawan Jai Kisan' to 'Jai Jawan, Jai Kisan, Jai Vigyan, Jai Anusandhan' underscores the government's commitment to bolstering the



foundation of research and innovation for national development.

Current R&D Landscape in India

Investment Trends:

- India's Gross Expenditure on Research and Development (GERD) **surged from ₹6,01,968 million in 2010-11 to ₹12,73,810 million in 2020-21, yet R&D investment as a percentage of GDP remains at 0.64%, trailing behind major economies.**

Research Output:

- Despite lower R&D expenditure, **India ranks third globally in producing PhDs and research publications**, reflecting a commitment to intellectual capital and advancing knowledge.
- **India ranks sixth globally in patent grants**, showcasing its evolving innovation landscape and potential for growth in intellectual property creation.

Investment in R&D

Government Dominance:

- India's total R&D investment reached \$17.2 billion in 2020-21, **with 54% allocated to the government sector**, primarily utilized by key scientific agencies.
- **Private sector contribution lags at 37%**, contrasting with global norms where business enterprises typically contribute over 65% of R&D.

Challenges and Opportunities

Private Sector Engagement:

- India's R&D ecosystem **could benefit from stronger private sector involvement and industry-academia collaboration to foster innovation and knowledge transfer**.

Role of HEIs:

- **Higher Education Institutions (HEIs) play a minor role in R&D investment**, warranting strategies to enhance their contribution and strengthen academia-industry linkages.

Impact of Initiatives

National Deep Tech Startup Policy (NDTSP):

- Signals commitment to technological progress and innovation, potentially incentivizing private sector engagement in R&D.

Anusandhan National Research Foundation (ANRF) Act:

- Aims to bridge India's R&D investment gap and nurture a robust research culture within HEIs, contributing to strategic guidance for research and innovation.

Conclusion

- India's aspirations in technology and manufacturing **hinge on transformative shifts in its R&D landscape**.
- Initiatives such as the NDTSP and ANRF Act, coupled with the interim Budget allocation, signify a proactive approach towards incentivizing private sector-led research and innovation, crucial for India's economic growth and competitiveness in the global arena.

3.5 UNNATI - 2024

Context

- The Union Cabinet approved the proposal of the Ministry of Commerce and Industry, Department for Promotion of Industry and Internal Trade for **Uttar Poorva Transformative Industrialization Scheme, 2024 (UNNATI - 2024)** for a period of 10 years.

About

- Government of India has formulated New Industrial Development Scheme, UNNATI (Uttar Poorva Transformative Industrialization Scheme), 2024 as a Central Sector Scheme for the development of Industries and generation of employment in the states of North East Region.

Aim and Objective

- The scheme's main objective is to **generate gainful employment, which will lead to the area's overall socio-economic development**.
- It will **create productive economic activity in the manufacturing and service sectors**.
- Industrial development in the NER needs to be given a fresh thrust with emphasis on job creation, skill development, and sustainable development by attracting new investments and nurturing existing ones.

- However, to maintain a proper balance between the industrial growth and pristine environment of the NER, certain industries are kept in positive list such as **Renewable energy, EV charging stations etc** and there is a **Negative list for certain sectors which may hamper the environment such as cement, plastic etc.**

Incentives

- The following incentives would be available under the scheme to investors for setting up new units or undertaking significant expansion of the existing units.

S. N.	Where GST is applicable	Where GST is not applicable
1	<ul style="list-style-type: none"> • Capital Investment Incentive (For Both New & Expanding Units): • Zone A: 30% of eligible value of investment in plant and machinery / construction of building & durable physical assets with cap of Rs. 5Cr. • Zone B: 50% of eligible value of investment in plant and machinery / construction of building & durable physical assets with cap of Rs. 7.5 Cr. 	<ul style="list-style-type: none"> • Capital Investment Incentive (For Both New & Expanding Units): • Zone A: 30% of eligible value of investment in plant and machinery / construction of building & durable physical assets with cap of Rs. 10 Cr. • Zone B: 50% of eligible value of investment in plant and machinery / construction of building & durable physical assets with cap of Rs. 10 Cr.
2	<ul style="list-style-type: none"> • Central Capital Interest Subvention (For Both New & Expanding Units): • Zone A: 3% interest subvention offered for 7 years • Zone B: 5% interest subvention offered for 7 years 	<ul style="list-style-type: none"> • Central Capital Interest Subvention (For Both New & Expanding Units): • Zone A: 3% interest subvention offered for 7 years • Zone B: 5% interest subvention offered for 7 years
3	<ul style="list-style-type: none"> • Manufacturing & Services linked incentive (MSLI)- For New Units only - linked to Net Payment of GST, i.e., GST paid less Input Tax Credit with upper limit of • Zone A: 75% of eligible value of investment in P&M • Zone B: 100% of eligible value of investment in P&M 	<ul style="list-style-type: none"> • NIL
Maximum Eligible benefits to one unit from all components of the scheme: Rs. 250 Cr.		

Expenditure involved

- The financial outlay of the proposed scheme is **Rs.10,037 crore for the scheme period from the date of notification for 10 years.**
- (Additional 8 years for committed liabilities). This will be a **Central Sector Scheme.**
- The scheme is proposed to be divided into two parts. Part, A caters to the incentives to the eligible units (Rs. 9737 crores), and Part B, is for implementation and institutional arrangements for the scheme. (Rs. 300 Crore).

Targets

- The proposed scheme envisages approximately 2180 applications, and it is anticipated that direct employment opportunities of about 83,000 will be generated during the scheme period. A significant number of indirect employment is also expected to be generated.

Salient features of the scheme

- **Scheme period:** The scheme will be effective from the date of Notification and up to 31.03.2034 along with 8 years of committed liabilities.
- **Application period for registration:** Industrial unit will be allowed to apply for registration from the date of notification up to 31.03.2026
- **Grant of registration:** All applications for registration shall have to be disposed of by 31.03.2027
- **Commencement of Production or operation:** All eligible Industrial Units to commence their production or operation within 4 years from the grant of registration.
- **Districts are categorized in two zones:** Zone A (Industrially Advanced Districts) & Zone B (Industrially Backward Districts)

- **Earmarking of funds:** 60% of the outlay of Part A has been earmarked to 8 NE states and 40% on First-In-First-Out (FIFO) basis.
- For Micro industries (defined as per MSME industry norms), the P&M calculation will include the building construction and P&M costs for Capital Investment Incentive.
- **All new Industrial units and Expanding units would be eligible for the respective incentives.**

Implementation strategy

- DPIIT will implement the scheme in cooperation with the states. Implementation will be overseen by following committees at the national and state levels.
 - i. **The Steering Committee, headed by the Secretary, DPIIT (SIIT), will decide upon any interpretation** of the scheme within its overall financial outlay and issue detailed guidelines for execution.
 - ii. **State Level Committee, headed by the state's Chief Secretary,** will monitor implementation, checks and balances, ensuring transparency and efficiency.
 - iii. **Secretary Level Committee, headed by the senior Secretary of the state (Industries), will be responsible for implementing the scheme, including the recommendation of registration and incentives claims.**

3.6 EFTA & TEPA

Context

- Recently, India formalized the signing of the Trade and Economic Partnership Agreement (TEPA) with the European Free Trade Association (EFTA), comprising Switzerland, Iceland, Norway, and Liechtenstein.

Background

- The Union Cabinet, chaired by the Hon'ble Prime Minister, approved the signing of the TEPA with EFTA States.
- EFTA, established in 1960, promotes free trade and economic integration among its four Member States.

The Agreement

- This agreement marks the first time India is signing a Free Trade Agreement (FTA) with four developed nations, constituting a significant economic bloc in Europe.
- Notably, the TEPA includes **binding commitments of \$100 billion investment and creation of 1 million direct jobs in India over the next 15 years**, enhancing opportunities for Make in India initiatives and leveraging the nation's skilled workforce.
- This landmark agreement represents a significant milestone in India's trade relations with the EFTA countries and underscores the nation's commitment to fostering

international economic integration and trade cooperation.

Key Provisions of the Agreement

- The TEPA comprises 14 chapters focusing on market access, rules of origin, trade facilitation, investment promotion, services, intellectual property rights, and sustainable development, among others.
- EFTA has committed to promoting investments totaling USD 100 billion in India over the next 15 years, aiming to generate 1 million direct jobs.
- EFTA offers significant tariff concessions, covering 92.2% of its tariff lines, benefiting 99.6% of India's exports.
- India reciprocates by offering tariff concessions on 82.7% of its tariff lines, covering 95.3% of EFTA exports.
- Sensitive sectors such as pharma, medical devices, and processed food are safeguarded, and certain products remain excluded from tariff concessions.
- Both parties have exchanged offers across various sectors, facilitating better market access and promoting services exports, particularly in IT services, business services, education, and audio-visual services.

Implications and Opportunities

- The TEPA is **expected to stimulate services exports and create a conducive environment for trade and investment**, bolstering India's manufacturing sectors and promoting **Atmanirbhar Bharat initiatives.**
- It provides a **gateway for Indian exporters to access European markets**, with Switzerland serving as a potential base for expanding market reach into the EU.
- The agreement **accelerates job creation and facilitates technology collaboration**, fostering innovation and R&D in sectors such as precision engineering, health sciences, and renewable energy.

Conclusion

- The TEPA between India and the EFTA countries heralds a **new era of economic cooperation and mutual benefit.**
- By promoting trade liberalization, facilitating investments, and fostering innovation, this agreement paves the way for enhanced economic growth, job creation, and sustainable development in India and the EFTA region.

3.7 INAUGURATION OF KEY AGRICULTURAL INITIATIVES

Context

- Union Minister for Agriculture & Farmers' Welfare inaugurated four major initiatives in the agricultural sector at Krishi Bhawan, New Delhi.
- These initiatives aim to revolutionize various aspects of agricultural practices and rural development, fostering sustainable growth and empowering farmers across the nation.

Revamped Soil Health Card Portal and Mobile Application

- The Soil Health Card portal and mobile application have been overhauled to streamline soil sample collection and testing processes.

- The portal features a revamped interface, including **real-time soil lab registry, geo-coordinates mapping, and centralized dashboards at the national, state, and district levels.**
- A mobile application with QR code-enabled soil sample collection system facilitates easy sample tracking and generation of Soil Health Cards.
- Features such as **fertilizer management, Emoji-based Soil Health Cards, and nutrient dashboards** enhance user experience and promote efficient agricultural practices.

School Soil Health Programme

- A pilot project on the School Soil Health Programme, conducted in collaboration with

the Department of School Education and Literacy, aims to educate students about soil health and agricultural sustainability.

- Twenty soil labs were established in rural Kendriya and Navodaya Vidyalayas as part of the pilot project, with plans to scale up the initiative to 1000 schools.
- Students engage in soil sample collection, testing, and dissemination of Soil Health Card recommendations to farmers, fostering practical learning and environmental stewardship.



Krishi Sakhi Convergence Programme

- The Krishi Sakhi Convergence Programme, a joint initiative between the Ministries of Agriculture & Farmer Welfare and Rural Development, empowers rural women as para-extension workers.
- Krishi Sakhis play a pivotal role in disseminating agricultural knowledge, promoting sustainable farming practices, and bridging the gap between farmers and government initiatives.
- Certified Krishi Sakhis become



community resource persons, facilitating awareness programs, and enhancing the livelihoods of rural communities through sustainable agriculture.

CFQCTI Portal

- The Central Fertilizer Quality Control and Training Institutes' (CFQCTI's) portal introduces One Time Password (OTP) / SMS application facility for sample collection and testing at ports.
- The portal ensures transparency and efficiency in fertilizer quality control processes, with sample allotment to labs based on randomized selection and analysis report dissemination through email.

Conclusion

- The inauguration of these key initiatives marks a significant step towards modernizing agricultural practices, promoting environmental sustainability, and empowering rural communities.
- By leveraging technology, education, and community engagement, these initiatives pave the way for a brighter and more prosperous future for Indian agriculture.

3.8 BOOSTING EXPORTS FROM MSMEs REPORT

Context

- In a bid to invigorate India's export sector, particularly focusing on Micro, Small, and Medium Enterprises (MSMEs), NITI Aayog has put forth a comprehensive set of recommendations.

Details

- NITI Aayog emphasizes the need for reforms to facilitate smoother export processes.
- This comes in light of the significant gap between India and countries like China in e-commerce exports, highlighting the challenges faced by smaller players in navigating complex compliance procedures.

- NITI Aayog's report underscores the importance of simplifying the e-commerce route for MSME exports.
- It advocates for not only streamlining merchandise trade processes but also establishing a unified national trade portal to centralize approvals and compliances. These measures are aimed at alleviating the hurdles faced by MSMEs, thus fostering a conducive environment for their participation in global trade.

Current Scenario

- Despite the rapid growth of e-commerce globally, India lags behind in leveraging this platform for exports.

- While China boasts a staggering \$200 billion in e-commerce exports in 2022, **India's figure stands at a modest \$2 billion.**
- The report identifies the **cumbersome compliance process, particularly concerning payment reconciliation, as a major impediment to Indian exports.**
- This bureaucratic maze poses a significant challenge, especially for new or small exporters, hindering their ability to compete effectively in the international market.

Key Recommendations

To address the challenges, NITI Aayog proposes a series of key recommendations:

- Establishing a **clear distinction between 'Exporter on Record' and 'Seller on Record' to streamline export processes.**
- Introducing an **annual financial reconciliation process specifically tailored for e-commerce exporters.**
- Advocating for the **exemption of import duties on returns, thus reducing the financial burden on exporters.**

Addressing Challenges

- The report emphasizes that **embracing e-commerce platforms can effectively resolve market access issues that have long plagued MSMEs.**
- Simplifying export processes is imperative for enabling MSMEs to capitalize on global opportunities and expand their market reach.
- By removing bureaucratic bottlenecks, **the government can facilitate a more conducive environment for MSMEs to thrive in the export arena.**



Accuracy of MSME Export Data

- Despite the significant contribution of MSMEs to India's manufacturing output and exports, the accuracy of current estimates is called into question. The report suggests that the **existing data may be unreliable, primarily due to outdated criteria used for classification.** Therefore, there is **an urgent need to recalibrate the measurement metrics to provide a more accurate reflection of MSME export performance.**

Export Potential of Indian MSMEs

- Highlighting the untapped potential of Indian MSMEs, the report identifies various sectors with promising export opportunities.
- These include **handicrafts, handloom textiles, ayurveda, leather goods, and wooden products, among others.**
- While the domestic market for these products may be limited, **the global demand exceeds \$340 billion.** Leveraging this export potential can significantly contribute to economic growth and job creation.

Conclusion

- In conclusion, NITI Aayog's recommendations serve as a roadmap for unleashing the export potential of Indian MSMEs.
- By simplifying export processes, enhancing data accuracy, and capitalizing on sector-specific opportunities, the government can foster a conducive environment for MSMEs to thrive in the global market.
- These reforms are not only crucial for economic growth but also for **positioning India as a formidable player in the international trade landscape.**

3.9 HUMAN DEVELOPMENT INDEX (HDI)

Context

- India has moved up a rank on the global Human Development Index (HDI), according to the United Nations Development Programme (UNDP) report **'Breaking the**

gridlock: Reimagining cooperation in a polarised world'.

Findings of the Report

- India ranks 134th in global human development index, says United Nations Development Programme Report.
- Country moves up a rank compared to 2021 but still falls behind that of Bangladesh, Sri Lanka, Bhutan and China
- India, Bhutan and Bangladesh are all in the Medium Human Development category.
- India's southern neighbour Sri Lanka has been ranked much ahead at 78, while China is ranked 75, both categorised under the High Human Development category.
- India also ranks below Bhutan that stands at 125 and Bangladesh, which is in the 129th position.
- Switzerland has been ranked number one.
- Nepal (146) and Pakistan (164) have been ranked lower than India.
- India's life expectancy at birth has slightly improved from 67.2 years in 2021 to 67.7 years in 2022.
- There is an overall increase (5.88%) in expected years of schooling (EYS) from 11.9 years to 12.6 years, leading to an improvement of 18 places when the EYS aspect was considered.
- The Gross National Income (GNI) per capita also improved from \$6,542 to \$6,951.
- The widening human development gap revealed by the report shows that the two-decade trend of steadily reducing inequalities between wealthy and poor nations is now in reverse.

Analysis

- Despite our deeply interconnected global societies, we are falling short.
- This gridlock carries a significant human toll. The failure of collective action to advance action on climate change, digitalisation or poverty and inequality not only hinders human development but also worsens polarization and further erodes trust in people and institutions worldwide.
- Nine in 10 people worldwide endorse democracy, but over half of the respondents expressed support for leaders who may

undermine it, for instance, by bypassing fundamental rules of the democratic process.

- Also, half of the people surveyed reported having no or limited control over their lives, and over two-thirds believed that they have little influence on their government's decisions.
- Political polarization in countries is also responsible for protectionist or inward-turning policy approaches.
- In a world marked by increasing polarization and division, neglecting to invest in each other poses a serious threat to our wellbeing and security.
- Protectionist approaches cannot address the complex, interconnected challenges we face, including pandemic prevention, climate change, and digital regulation.
- We must leverage our interdependence as well as our capacities to address our shared and existential challenges and ensure people's aspirations are met.

Details

Publication

- The United Nations Development Programme (UNDP) published its first Human Development Report (HDR) in 1990.

Development Measure

- The report introduced the Human Development Index (HDI), aiming to define and measure the level of development of economies.

Development Team

- The HDI was developed by a team led by Mahbub ul Haq and Inge Kaul, comprising leading scholars, development practitioners, and members of the Human Development Report Office of the UNDP.

Components

- The HDI combines three indicators: Health (life expectancy at birth), Education (mean years of schooling), and Standard of Living (Gross National Income (GNI) per capita at Purchasing Power Parity).

Aggregation Method

- The scores for the three HDI dimension indices are aggregated into a composite index using the geometric mean.

Comparison Tool

- The HDI facilitates instructive comparisons of development experiences within and between different countries.

Goalposts

- The HDI sets minimum and maximum goalposts for each dimension, expressed as a

value between 0 and 1, to indicate where each country stands relative to these benchmarks.

Classification

- Countries are classified into three broad categories based on their HDI scores: High Human Development (0.800–1.000), Medium Human Development (0.500–0.799), and Low Human Development (0.000–0.499).

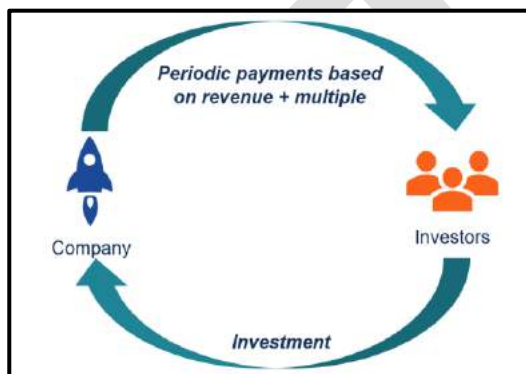
3.10 REVENUE BASED FINANCING

Context

- Start-ups these days are now focusing more on revenue-based funding.

Understanding Revenue-Based Finance

- Revenue-Based Financing (RBF) is a **capital-raising strategy where investors receive a portion of a company's gross revenues in exchange for their investment.**
- Purpose:** It provides an alternative funding avenue for startups and digital SMEs, particularly in the absence of traditional credit facilities and during dry spells in venture capital investments.



Mechanism of Revenue-Based Financing

- Investor Compensation:** Investors are compensated with a recurring share of the company's profits until a predetermined sum is paid, typically three to five times the initial investment.
- Evaluation Process:** The lending decision considers parameters like revenues, cash

flow, scalability, and growth potential of the business.

Key Characteristics of RBF

- Flexible Repayment Structure:** Monthly repayments are proportional to the company's revenue, making it suitable for businesses with fluctuating cash flows.
- Fixed Fee Component:** RBF agreements include a fixed fee (usually 8-10% of the principal amount) to compensate investors for the associated risk.

Applications and Benefits of RBF

- Target Audience:** RBF is well-suited for digitally-enabled businesses with steady revenue streams, such as e-commerce merchants and SaaS firms.
- Equity Preservation:** It allows companies to retain ownership and control over their enterprise, unlike equity financing options.
- Fast Funding:** Compared to traditional loans and venture capital funding, RBF offers quicker access to capital, often within a week.

Who Benefits from Revenue-Based Financing?

- E-commerce Businesses:** Online retailers benefit from the flexibility to invest in marketing or inventory.
- Seasonal Performance Companies:** Businesses with seasonal revenue fluctuations find RBF advantageous due to its flexible repayment structure.

- **SaaS and Subscription Businesses:** Companies with predictable monthly incomes can optimize their cash flow with revenue-based repayments.

Drivers and Challenges of RBF Adoption

- **Market Demand:** Dry spells in venture capital funding and limited traditional credit availability drive businesses towards alternative financing options like RBF.
- **Cost Considerations:** RBF may come at a higher cost compared to traditional loans, impacting the company's profitability.

Investor Perspective

- **Risk-Return Balance:** Investors seek returns that justify the risks associated with RBF investments, considering factors like revenue projections and scalability.

Conclusion

- Revenue-Based Financing presents an innovative and flexible financing option for startups and digital SMEs, addressing working capital needs while preserving equity.
- Despite challenges, its growing popularity reflects its potential to support the growth of emerging businesses and fill the financing gap in the market.

3.11 INDIA EMPLOYMENT REPORT 2024

Context

- Recently, the India Employment Report 2024 released by the International Labour Organisation (ILO) and the Institute of Human Development (IHD).

Unemployment Trends

- The report reveals concerning trends regarding youth unemployment, with nearly 83% of the unemployed workforce comprised of young individuals.
- Moreover, there has been a significant rise in the proportion of educated unemployed youth, indicating a growing mismatch between skills and job requirements.
- Analysis of key labour market indicators such as the **Labour Force Participation Rate (LFPR)**, **Worker Population Ratio (WPR)**, and **Unemployment Rate (UR)** underscores a long-term deterioration from 2000 to 2018.

Paradoxical Improvements

- Despite the grim long-term outlook, the report highlights paradoxical improvements in certain labour market indicators.
- Notably, the growth of non-farm sectors has outpaced agricultural employment, yet challenges persist in absorbing workers from the agricultural sector.

- The report underscores the need for cautious interpretation of these improvements, especially considering the economic distress experienced pre and post-COVID-19.

Informal Employment and Livelihood Insecurities

- One of the critical issues highlighted in the report is the prevalence of informal employment, with approximately 90% of workers engaged in such work arrangements.
- Moreover, there has been a decline in regular employment opportunities post-2018, exacerbating livelihood insecurities.
- The limited coverage of social protection measures, particularly in the non-agricultural organized sector, further compounds the challenges faced by workers.

Skill Gap and Gender Disparities

- A significant aspect addressed in the report is the widening skill gap among India's youth, leading to a mismatch between available jobs and requisite skills.
- The findings reveal alarming statistics, such as **75% of youth unable to perform basic digital tasks**. Additionally, the report underscores gender disparities in the labour market, with low female labour force participation rates

contributing to overall unemployment challenges.

Social Inequalities and Policy Implications

- The ILO report also highlights social inequalities, particularly among marginalized communities such as Scheduled Castes and Tribes.
- Despite affirmative action and targeted policies, these groups continue to face barriers in accessing quality employment opportunities.
- The report emphasizes the need for tailored interventions to address structural issues and promote inclusive growth.

Conclusion

- In conclusion, the ILO report provides a comprehensive assessment of India's employment landscape, highlighting persistent challenges and areas for improvement.
- Addressing the identified issues requires concerted efforts from policymakers, employers, and other stakeholders to create an enabling environment for sustainable and inclusive employment generation.

3.12 BLUE ECONOMY

Context

- The Ministry of Earth Sciences (MoES) recently convened an Inter-Ministerial Joint Workshop in New Delhi to discuss the status of the Blue Economy Pathways study report.
- The workshop brought together experts from various key ministries, including the World Bank, to deliberate on the collaborative efforts required for the preparation of the report.

India's Blue Economy Vision

- MoES has partnered with the World Bank to undertake a technical study aimed at preparing a seminal report titled 'India's Blue Economy: Pathways for resource-efficient, inclusive and resilient growth in India'.
- The report seeks to highlight global best practices in Blue Economy implementation, establish an ocean accounting framework, strengthen institutions, and explore innovative finance mechanisms to support the Blue Economy Policy framework.

Role of Blue Economy in Economic Growth

- The Blue Economy holds the potential to drive economic growth and enhance societal well-being, with a focus on sustainability and socio-economic welfare.

- It aims to benefit coastal communities, preserve marine ecosystems, and ensure the security of marine areas, contributing to India's economic development.

India's Maritime Advantage

- India's extensive coastline and vast Exclusive Economic Zone (EEZ) provide significant opportunities for the Blue Economy.
- With over 4 million fisherfolk and coastal communities reliant on coastal resources, India's Blue Economy strategy aims to accelerate employment, gross value addition, and environmental sustainability, aligned with UN Sustainable Development Goals (SDGs).

Harnessing Marine Resources

- India's aspiration to become a high-growth economy necessitates the optimal utilization of marine resources, including living and non-living resources.
- The development of a robust maritime economy encompassing ports, coastal infrastructure, shipping, fishing, tourism, and renewable energy assets is crucial for India's economic growth and strategic influence in the region.

Details

What is Blue Economy?

- According to the World Bank, the blue economy is the "sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of ocean ecosystem."
- Blue economy refers to the multitude of ocean resources available in the country that can be harnessed to aid the production of goods and services, while ensuring economic growth, environmental sustainability, and national security.
- The blue economy presents a significant socio-economic opportunity for coastal nations like India to utilize ocean resources responsibly for societal benefit.

How significant is India's Blue Economy?

- India's blue economy encompasses the entire ocean resources system and human-made economic infrastructure in marine, maritime, and coastal zones within the country's legal jurisdiction.
- With a coastline of approximately 7,500 kilometers and 1,382 islands, India has a unique maritime position. It sustains over 4 million fisherfolk and coastal communities and handles nearly 1,400 million tons of cargo annually through its ports.
- India's Exclusive Economic Zone (EEZ) of over 2 million square kilometers holds significant living and non-living resources, including crude oil, natural gas, and marine biodiversity.

Why has the Government come out with a draft Blue Economy Policy?

- India's vast maritime interests highlight the importance of the blue economy in its

economic growth trajectory. The draft blue economy policy aims to unlock the country's potential for economic growth and welfare.

- The policy seeks to center sustainability and socio-economic welfare while focusing on thematic areas such as national accounting framework, marine spatial planning, fisheries, aquaculture, manufacturing, logistics, and offshore energy.

What are the important elements of this policy?

- The draft blue economy policy focuses on seven thematic areas, including national accounting framework, coastal marine spatial planning, marine fisheries, aquaculture, manufacturing, logistics, coastal mining, and offshore energy.
- It proposes the establishment of a National Blue Economy Advisory Council to oversee policy implementation and coordination among relevant ministries, departments, coastal states, and industry representatives.

Has India fully leveraged this part of its overall economy?

- India has made progress in utilizing its coastline for ports and shipping assets; however, its full potential in harnessing ocean resources remains untapped. Other countries like Australia, Brazil, and the US have developed dedicated policies and institutions to maximize their blue economy potential.
- With the draft blue economy policy framework, India aims to leverage its ocean resources more effectively and align with global best practices in blue economy governance and sustainability.

3.13 SHORT ARTICLES

Regulatory Sandbox

Context

- The Reserve Bank of India has updated the 'Enabling Framework for Regulatory Sandbox', extending timelines for sandbox stages and permitting applicants to form in-principle partnerships before applying.

What is a Regulatory Sandbox?

- A regulatory sandbox is a **controlled environment that allows fintech startups and other innovators to test their products, services, and business models in a live market setting on a limited set of eligible customers, for a specified period, with certain relaxations in the extant SEBI regulations and guidelines.**

- The sandbox enables regulators, innovators, financial service providers, and customers to conduct field tests to gather evidence on the benefits and risks of new financial innovations, while monitoring and containing their risks.
- In India, financial regulators such as the Reserve Bank of India, Securities and Exchange Board of India, Insurance Regulatory and Development Authority and the International Financial Services Centres Authority **run their own sandboxes.**

Benefits of Regulatory Sandbox

Fosters 'Learning by Doing'

- Provides empirical evidence on benefits and risks of emerging technologies.
- Helps in realizing the need for new regulations to support innovation while managing risks.
- Enables existing financial service providers to understand and integrate new technologies.
- Helps innovators and FinTech companies understand regulatory requirements and shape their products accordingly.
- Allows customers to provide feedback on services and benefits.

Opportunity to Test Product Viability

- Enables testing product viability without expensive, large-scale roll-outs.
- Acts as a testing ground for making appropriate modifications before market launch.

Increases Financial Inclusion

- Improves innovation, technology absorption, and financial reach.
- Benefits areas like microfinance, small savings, mobile banking, remittances, and digital payments.

Reduces Dependence on Industry Consultation

- Offers a structured environment for evidence-based regulatory decision making.
- Reduces dependence on industry/stakeholder consultations.

Better Outcomes for Consumers

- Increases range of products and services.
- Lowers costs and improves access to financial services.

Note:

- The RBI introduced its sandbox scheme in 2019, organized into thematic cohorts. The first four cohorts focused on retail payments, cross-border payments, MSME lending, and the prevention of financial fraud. RBI's fifth cohort allows for innovative products, services, or technologies across various functions in the RBI's regulatory domain to apply. The RBI has seen success with its sandbox initiative. In contrast, SEBI's sandbox framework, introduced in 2020, has been slow to start, with few applications received so far.

Financial Intelligence Unit-India (FIU-IND)

Context

- The finance ministry's Financial Intelligence Unit-India (FIU-IND) has imposed a fine of Rs 5.49 crore on Paytm Payments Bank for "violating its obligations" under the Prevention of Money Laundering Act.

FIU-IND

- FIU-IND is an organization **under the Department of Revenue**, responsible for collecting financial intelligence about offenses under the Prevention of Money Laundering Act, of 2002. It **reports directly to the Economic Intelligence Council (EIC) headed by the Finance Minister.**

Function

Collection of Information

- Receives reports from reporting entities such as Cash Transaction reports (CTRs), Non-Profit Organisation Transaction Reports (NTRs), Cross Border Wire Transfer Reports (CBWTRs), Reports on the Purchase or Sale of Immovable Property (IPRs), and Suspicious Transaction Reports (STRs).

Analysis of Information

- Analyzes received information to uncover patterns of transactions suggesting suspicion of money laundering and related crimes.

Sharing of Information

- Shares financial intelligence with national intelligence/law enforcement agencies,

national regulatory authorities, and foreign

Act as Central Repository

- Maintains the national database based on reports received from reporting entities.

Coordination

Research and Analysis

- Monitors and identifies strategic key areas on money laundering trends, typologies, and developments.

Punitive Action

National Bank for Financing Infrastructure and Development (NaBFID)

Context

- Union Minister for Finance and Corporate Affairs chaired the meeting to review the performance of the National Bank for Financing Infrastructure and Development (NaBFID) in New Delhi.

Development Finance Institutions (DFIs)

Development Finance Institutions (DFIs) in India are specialized financial institutions that provide long-term finance for infrastructure and industrial projects. The **first Development Finance Institution (DFI) in India, the Industrial Finance Corporation (IFC),** was operationalized in 1948. Some of the prominent DFIs that have operated in India include Industrial Development Bank of India (IDBI), Industrial Finance Corporation of India (IFCI), National Bank for Agriculture and Rural Development (NABARD), Small Industries Development Bank of India (SIDBI), National Housing Bank (NHB), Export-Import Bank of India (EXIM Bank) etc.

All about National Bank for Financing Infrastructure and Development (NaBFID)

- **About:** The National Bank for Financing Infrastructure and Development (NaBFID) is a **specialized Development Finance Institution in India.**
- **Establishment:** It was **established in 2021 by an Act of Parliament,** known as The National

Financial Intelligence Units.

- Coordinates and strengthens the collection and sharing of financial intelligence through an effective national, regional, and global network to combat money laundering and related crimes.
- Can take punitive action for violations of the PMLA. For example, in December 2020, imposed a fine of Rs. 96 lakh (9,600,000) on PayPal.

Bank for Financing Infrastructure and Development Act, 2021.

Aim and Objectives

- NaBFID **aims to support India's infrastructure sector** by enabling credit flow through attractive instruments and channelized investment.
- The institution's primary objectives include **addressing gaps in long-term non-recourse finance for infrastructure development.**
- NaBFID also **aims to strengthen the development of bonds and derivatives markets in India.**
- Additionally, **NaBFID seeks to sustainably boost the country's economy through its activities.**

Shareholding:

- Shares of NaBFID can be owned by various entities, including the **Central Government, Multilateral Institutions, Sovereign Wealth Funds,**
- **Pension Funds, Insurers, financial institutions, banks,** and any other institution prescribed by the central government.

Ownership:

- Initially, the central government **will hold 100% of the shares of the institution, which may later be reduced to up to 26%.**

Functions

- **Investment Attraction:** Attracting investment from private sector and institutional investors for infrastructure projects.
- **Dispute Resolution:** Assisting in negotiations with government authorities for resolving disputes related to infrastructure financing.
- **Loan Refinancing:** Refinancing or taking over existing loans for infrastructure projects.

- **Loans Extension:** Extending loans and advances for infrastructure projects.
- **Foreign Investment Facilitation:** Facilitating foreign investment in infrastructure projects.
- **Consultancy:** Offering consultancy services in infrastructure financing.

Funding

- NaBFID can raise funds through loans or other means, **in both Indian rupees and foreign currencies**, and by issuing financial instruments like bonds and debentures.
- It can borrow funds from entities including the Central government, RBI, commercial banks, Mutual funds, and Multilateral institutions like the World Bank and Asian Development Bank.

Udgam Portal

Context

- The Reserve Bank announced that 30 banks are already facilitating the search for unclaimed deposits/accounts through the UDGAM portal, while the remaining banks are in the process of joining the platform.

What is UDGAM portal?

- UDGAM refers to Unclaimed Deposits-Gateway to Access inforMation, which is **an online portal developed by RBI**.
- It **facilitates the registered users to search unclaimed deposits/accounts across multiple banks at one place in a centralised manner**.

Whether user can settle/ claim his/her unclaimed deposits through UDGAM portal or from RBI?

- No, the UDGAM portal facilitates only (a) the search of unclaimed deposits/accounts across multiple banks at one place and (b) provides information on claim/settlement process of each bank (which will be available in the search result).
- The unclaimed deposits can be claimed only from the respective bank.

Are all banks part of the UDGAM portal? What percentage of the unclaimed deposits they represent?

- No. As on March 4, 2024, there are 30 banks, which are part of UDGAM portal, and they cover around 90% of unclaimed deposits (in

value terms) in Depositor Education and Awareness (DEA) Fund of RBI.

What are the types of deposits/accounts covered in UDGAM portal?

- All unclaimed deposits/accounts that are part of Depositor Education and Awareness (DEA) Fund of RBI can be searched in UDGAM portal.
- The accounts include
 - savings bank deposit accounts;
 - fixed or term deposit accounts;
 - cumulative/recurring deposit accounts;
 - current deposit accounts;
 - other deposit accounts in any form or with any name;
 - cash credit accounts;
 - loan accounts after due appropriation by the banks;
 - margin money against issue of Letter of Credit/Guarantee etc., or any security deposit;
 - outstanding telegraphic transfers, mail transfers, demand drafts, pay orders, bankers cheques, sundry deposit accounts, vostro accounts, inter-bank clearing adjustments, unadjusted National Electronic Funds Transfer (NEFT) credit balances and other such transitory accounts, unreconciled credit balances on account of Automated Teller Machine (ATM) transactions, etc.;
 - undrawn balance amounts remaining in any prepaid card issued by banks but not amounts outstanding against travellers cheques or other similar instruments, which have no maturity period;
 - rupee proceeds of foreign currency deposits held by banks after conversion of foreign currency to rupees in accordance with extant foreign exchange regulations; and
 - such other amounts as may be specified by the Reserve Bank from time to time.



Local Currency Trade between India-Indonesia

Context

- The Reserve Bank of India (RBI) and the Bank of Indonesia (BI) signed a Memorandum of Understanding (MoU) for establishing a framework to promote the use of local currencies viz. the Indian Rupee and the Indonesian Rupiah for cross-border transactions.

Details

- The MoU on establishing a framework for cooperation in the area of cross-border transactions in local currencies between India and Indonesia aims to promote the use of INR and IDR bilaterally.
- The MoU covers all current account transactions, permissible capital account transactions, and any other economic and financial transactions as agreed upon by both countries.

Significance

- This framework would enable exporters and importers to invoice and pay in their respective domestic currencies, which in turn would enable the development of an INR-IDR foreign exchange market.
- Use of local currencies would optimize costs and settlement time for transactions.
- This collaboration marks a key milestone in strengthening bilateral cooperation between RBI and BI.
- More extensive use of local currencies in bilateral transactions will ultimately contribute to promoting trade between India and Indonesia as well as deepen financial integration and strengthen the long historical, cultural, and economic relations between India and Indonesia.

India Outlook Report

Context

- Recently, the India Outlook Report was released by Crisil.

Indian Economy Growth Projections by Crisil

Growth Trajectory:

- Projections by Crisil suggest a robust expansion of India's Gross Domestic Product (GDP) by 6.8% in the upcoming fiscal year.
- This trajectory positions India on a significant growth path, foreseeing the attainment of upper middle-income status by 2031.
- Crisil anticipates the Indian economy to double in size, reaching USD 7 trillion.

Supporting Factors:

- Crisil attributes India's economic progress to a combination of domestic structural reforms and cyclical factors.
- The report highlights the potential for India to exceed its growth prospects, potentially emerging as the world's third-largest economy by 2031.

Growth Outlook:

- India's real GDP growth is expected to moderate to 6.8% in fiscal 2025 following a better-than-expected performance of 7.6% in the current fiscal year.
- Over the next seven fiscal years (2025-2031), India's economy is projected to cross the USD 5 trillion-mark and approach USD 7 trillion, with an average expansion of 6.7% annually.

Entry into Upper Middle-Income Group:

- By fiscal 2031, India is anticipated to join the upper middle-income category, with per-capita income reaching USD 4,500.
- This transition signifies a significant milestone for India, currently ranked as the fifth-largest economy, with expectations to expand to USD 6.7 trillion by fiscal 2031.

Manufacturing Sector Outlook:

- India's manufacturing sector is positioned favorably due to several factors, including high-capacity utilization across key sectors, opportunities from global supply-chain diversification, infrastructure investment, and a growing emphasis on green transition initiatives.
- Crisil projects that the share of manufacturing in India's GDP will surpass 20% by fiscal 2031.

Challenges Ahead:

- Despite the positive outlook, Crisil identifies near- and medium-term challenges to India's

growth trajectory. These challenges include geopolitical uncertainties, potential slowdowns in global economic recovery, impacts of climate change, and disruptions caused by technological advancements.

Sectoral Growth Expectations:

- Emerging sectors such as electronics, electric vehicles (EV), and energy transition-intensive industries are experiencing rapid growth, accounting for a significant portion of incremental capital expenditure in recent fiscal years.
- Crisil forecasts robust growth in both manufacturing and services sectors, with manufacturing **projected to grow at 9.1% and services at 6.9% between fiscals 2025 and 2031.**
- Despite this growth, services are expected to remain the dominant driver of India's overall economic growth.

Bharat Startup Ecosystem Registry

Context

- The government has announced the launch of the Bharat Startup Ecosystem Registry, a platform aimed at consolidating information about various stakeholders in the startup ecosystem.

Objectives:

- The Registry **seeks to create a comprehensive database containing details of all startup ecosystem stakeholders across different categories.**
- It aims to **facilitate easy access and discovery within the ecosystem, fostering collaboration and growth.**

Features and Functions:

- The platform **will serve as a one-stop database, providing detailed information on all ecosystem participants.**
- It will include various categories of entrepreneurs, encompassing those in the early stages of ideation, social impact ventures, and high-growth businesses.
- Each registered user **will receive a unique ID and gain access to a personalized dashboard**

for connecting with relevant stakeholders and accessing resources.

Integration with Startup Mahakumbh:

- The launch of the Bharat Startup Ecosystem Registry coincides with the Startup Mahakumbh festival, which aims to showcase entrepreneurship, technology, and innovation.
- The Registry's integration with the festival underscores the collective effort to bring together stakeholders and promote the growth of the startup ecosystem.

Significance:

- By centralizing information and resources, the **Registry is poised to strengthen the overall startup base in India.**
- It reflects the government's proactive approach to supporting and nurturing entrepreneurship, innovation, and technology-driven ventures across the country.

Mutual Fund Stress Test Report

Context

- Mutual fund (MF) houses have started releasing a SEBI Stress Test Report.

Background

- Looking back at history, there were certain events in the stock market when it witnessed significant crashes, such as the Lehman Brothers crisis in 2008 or the downturn following the pandemic in 2020.
- In such situations, investors rush to withdraw their money from the market to minimize their losses.
- In the case of mutual funds, when investors opt for redemption, the fund must have sufficient liquidity.
- A stress test is a **method to check how quickly these funds can liquidate their portfolios in extraordinary circumstances.**

What is Stress Test?

Purpose:

- SEBI emphasizes the **need for mutual fund houses to conduct stress tests to evaluate liquidity and risk ratios in small and midcap schemes.**

- The aim is to **protect investors in case of unfavorable market conditions and potential rush for redemptions.**

Policy Framework:

- Mutual fund houses are **required to develop policies including measures like moderating inflows and portfolio rebalancing to safeguard investors.**
- These policies aim to counteract the advantage of early redeemers and ensure fairness to all investors.

Interpreting Stress Test Results:

Comprehensive Analysis:

- Investors should not base redemption decisions solely on stress test results.
- Other factors such as **standard deviation, portfolio beta, risk appetite, investment horizon, and financial goals should also be considered.**

Liquidity Evaluation:

- Stress tests assess the liquidity of mid and smallcap portfolios by calculating the time required to liquidate a portion of the portfolio.
- Typically, the time to liquidate 50% and 25% of the portfolio is evaluated on a pro-rata basis, excluding the least liquid 20%.

e-Shram portal

Context

- The government plans to persuade unorganised workers registered on its e-Shram portal to opt for pension and health insurance schemes.

Description

Introduction

- The Ministry of Labour & Employment introduced the e-SHRAM portal in 2021 to create a National Database of Unorganized Workers (NDUW)

Understanding Unorganised Workers

- Individuals engaged in home-based work, self-employment, or wage labor in the unorganized sector, including those not affiliated with ESIC or EPFO, fall under this category.

e-Shram Card: Key Features

- Upon successful registration, workers receive an e-Shram Card granting eligibility for various benefits.
- Each worker is **assigned a 12-digit Universal Account Number (UAN).**
- Registration requires Aadhaar number, active mobile number, bank account details, and age between 16-59 years.

Objectives of e-SHRAM Portal

- Creation of a centralized database of unorganized workers.
- Enhance implementation efficiency of social security services.
- Facilitate information sharing with stakeholders.
- Enable portability of benefits for migrant and construction workers.
- Provide crisis management support during national crises.

New Additional Features

- Collection of Migrant Worker Family Information.
- Registration of e-Shram Construction Workers.
- Implementation of Data Sharing Portal (DSP) for secure exchange of beneficiary data with state/UT governments.

Tobacco Board

Context

- The Tobacco Board has authorised a crop size of 100 million kg for Karnataka during the year 2024-25.

Tobacco Board

- Tobacco Board is a statutory body established under an Act of Parliament with effect from 1976.
- The Board is working under the administrative Control of the Department of Commerce, Ministry of Commerce & Industry.
- It's headquartered in Guntur, Andhra Pradesh.

Functions and Duties of the Tobacco Board:

Promotion of Tobacco Industry:

- The primary duty of the Tobacco Board is to foster the development of the tobacco industry.

Regulation of Virginia Tobacco Production:

- The Board regulates the production and curing of Virginia tobacco considering factors such as demand, land suitability, soil characteristics, marketability, crop rotation, and grower holdings.

Market Monitoring and Price Stability:

- It monitors the Virginia tobacco market domestically and internationally to ensure fair and stable prices for growers, along with maintaining and enhancing existing markets and exploring new ones abroad.

Establishment of Auction Platforms:

- With prior approval from the Central Government, the Board establishes auction platforms for the sale of Virginia tobacco by registered growers or curers, functioning as an auctioneer under specified conditions.

Marketing Regulation and Export Promotion:

- The Board regulates Virginia tobacco marketing in India and exports, safeguarding the interests of growers, manufacturers, dealers, and the nation, while also devising marketing strategies for international demand.

Information Dissemination:

- It disseminates useful information to growers, dealers, exporters, manufacturers, and other stakeholders involved in Virginia tobacco and its products.

Tobacco Purchases and Grading:

- The Board purchases Virginia tobacco from growers when necessary, ensures its proper disposal, and promotes tobacco grading at the grower level.

Research Promotion:

- It sponsors, assists, coordinates, or encourages scientific, technological, and economic research to promote the tobacco industry.

Other Prescribed Matters:

- The Board attends to other matters as prescribed by regulations.

Regulatory Framework:

- The Tobacco Board operates under rules set by the Central Government, ensuring close coordination with relevant Union agencies and avoiding duplication of efforts.

Negative Interest Rate

Context

- Japan's central bank raised its benchmark interest rate for the first time in 17 years, ending a longstanding policy of negative rates meant to boost the economy.

Interest Rates:

- Interest rates represent the cost of borrowing money.
- When individuals or institutions borrow, they repay the initial loan amount along with an additional sum, representing the interest.

Negative Interest Rates Definition:

- Negative interest rates **occur when interest rates fall below 0%**.
- This phenomenon typically arises **during deflationary periods when prices decrease, causing the value of a nation's currency to rise.**

Causes of Negative Interest Rates:

- Deflationary pressure prompts central banks to **lower interest rates into negative territory to stimulate economic activity and combat the rising currency value.**

Implications of Negative Interest Rates:

- In a scenario with negative interest rates, **borrowers may receive interest payments instead of paying them.**
- For instance, a -2% interest rate means borrowers receive \$2 after a year for utilizing a \$100 loan, rather than having to repay additional funds.

Role of Central Banks:

- Central banks, such as the Federal Reserve or the European Central Bank, **play a crucial role in implementing negative interest rates to manage monetary policy and support economic objectives.**

Effects on Financial Institutions:

- Negative interest rates **can impact financial institutions by squeezing their profitability margins and altering traditional lending practices.** This may lead to adjustments in investment strategies and financial market dynamics.

Adaptation and Economic Stimulus:

- While negative interest rates represent an unconventional monetary policy tool, **they aim to spur lending, investment, and consumption to revitalize economic growth during challenging economic conditions.**
- Negative interest rates are used by central banks as a monetary policy to stimulate economic growth and combat deflation.
- The policy results in charges being imposed on commercial banks and financial institutions for holding large reserves.

Inauguration of Agriculture Integrated Command and Control Center

Context

- Union Minister of Agriculture & Farmers' Welfare and Tribal Affairs, inaugurated the Agriculture Integrated Command and Control Center at Krishi Bhawan, Delhi.
- The initiative aims to empower farmers across the country by leveraging digital technology.

Vision and Objectives:

- The initiative aligns with Prime Minister Shri Narendra Modi's vision of making farmers self-reliant.
- It operates on the principle of "Minimum Government-Maximum Governance" to ensure minimal interference in the lives of citizens while promoting self-sufficiency.

Benefits and Impact:

- The Command and Control Center facilitates real-time data analysis to address challenges faced by the agriculture sector.
- It enables farmers to access information about farm realities, government schemes, and market insights, fostering transparency and trust.

Role of Technology:

- Technology plays a pivotal role in empowering farmers, and the government aims to support this endeavor.
- The Ministry of Agriculture and Farmers' Welfare endeavors to provide transparent,

accessible, and technology-driven solutions to farmers.

Agri Stack and Digital Crop Survey:

- The initiative includes the implementation of Agri Stack and digital crop survey, enhancing the accuracy and efficiency of agricultural data collection.

Multifunctional Center:

- The Command Center serves as a hub for monitoring and analyzing various digital innovations in the agriculture sector, facilitating informed decision-making.

Indian Agricultural Research Institute (IARI)

Context

- Amidst projections of record-high basmati rice exports, Indian Agricultural Research Institute (IARI) scientists raise concerns over the 'illegal' cultivation of its premium varieties in Pakistan.

All about IARI

- Known as the Pusa Institute, IARI serves as India's premier national institute for agricultural research, education, and extension.
- Originating from Pusa, Bihar, it was initially established as the Imperial Institute of Agricultural Research in 1911, later renamed as the Imperial Agricultural Research Institute in 1919.
- **Relocated to Delhi in 1936** after a seismic event in Pusa, the institute is currently funded and administered by the Indian Council of Agricultural Research (ICAR).
- Notably, IARI played a pivotal role in catalyzing the "Green Revolution in India" during the 1970s.

Robusta Coffee

Context

- **Robusta coffee** farmers in South India are jubilant post-harvest with their produce fetching an all-time high price.

Robusta coffee

- **Origin:** Coffea canephora, commonly known as robusta coffee, originates from central and western sub-Saharan Africa.
- **Scientific Identification:** The plant is scientifically identified as Coffea canephora and has two main varieties: robusta (C. c. robusta) and nganda (C. c. nganda).
- **Market Share:** Robusta coffee represents between 40% and 45% of global coffee production, with Coffea arabica constituting most of the remainder.
- **Bean Composition:** Robusta beans have lower acidity, higher bitterness, and a more woody flavor compared to arabica beans.
- **Caffeine Content:** Robusta beans contain approximately 2.7% caffeine, significantly more than arabica beans.
- **Geographical Distribution:** C. canephora grows indigenously in Western and Central Africa and is also cultivated in various regions worldwide.
- **Primary Use:** Robusta coffee beans are primarily used in instant coffee, espresso, and as fillers in ground coffee blends.
- **Cultural Significance:** Vietnam has become the world's largest exporter of robusta coffee, accounting for over 40% of total production.
- **Crop Yield:** Robusta has a greater crop yield and is less susceptible to pests and disease compared to arabica.
- **Cost of Production:** Due to its ease of cultivation and higher yield, robusta coffee is cheaper to produce than arabica.
- **Taste:** Robusta coffee has low acidity and high bitterness, often with a distinct woody and nutty taste.
- **Usage in Blends:** While arabica beans are preferred for their smoother taste, robusta beans are often used in blends to add perceived strength and finish, particularly in Italian espresso blends.
- **Health Benefits:** Robusta coffee is used as a stimulant, diuretic, antioxidant, antipyretic, and to relieve spasmodic asthma.


3.14 SNIPPETS



APTI PLUS

Bima Sugam

- An innovative online insurance marketplace approved by IRDAI, providing a seamless digital journey for policyholders.
- Customers benefit from paperless transactions, centralized policy management, and enhanced affordability and transparency in the insurance sector.



APTI PLUS

Smart Metering

- A smart meter is an electronic device that records information—such as consumption of electric energy, voltage levels, current, and power factor—and communicates the information to the consumer and electricity suppliers.
- Such an advanced metering infrastructure (AMI) differs from automatic meter reading (AMR) in that it enables two-way communication between the meter and the supplier.

4. DEFENSE & SECURITY

4.1 PROJECT SEABIRD

Context

- Hon'ble Raksha Mantri to inaugurate the infrastructure/ facilities of Project Seabird.

Project Seabird

- Project Seabird is a vital project for the Indian Navy. It aims to establish a comprehensive naval base near Karwar, Karnataka, along India's western coastline. This project represents a strategic advancement, strengthening India's naval presence and protecting its strategic interests in the Indian Ocean region.

Background

Indo-Pakistan War:

- Due to congestion in the shipping lanes from commercial shipping traffic the Indian Navy faced security challenges for its Western Fleet in Mumbai Harbour, during the **Indo-Pakistan War of 1971**.
- To address these concerns various options were considered and alternative locations including **Thiruvananthapuram, Kannur and Thoothukudi** for a base on the west coast were evaluated.
- In the early 1980s, then Chief of the Naval Staff Admiral Oscar Stanley Dawson conceived of a dedicated naval base between the craggy hills of the **Western Ghats and the Arabian Sea** near Karwar in Karnataka state.

Location Advantages:

- It had significant advantages being located south of the naval bases in Mumbai and Goa and north of Kochi.
- It is out of range of most strike aircraft from neighbouring countries and is located very close to the world's busiest shipping route between the **Persian Gulf and East Asia**.
- It also offered a **natural deep-water harbour** and significant land area for expansion, allowing larger aircraft carriers to berth.

Delayed Reason:

- However, the development was delayed due to a variety of reasons, including the 1991 economic crisis.

Facilities construction in phased manner

- Its first phase, which included the construction of facilities like **deep-sea harbour, breakwaters dredging, a township, a naval hospital, a dockyard uplift centre and a ship lift**, was commissioned in 2005.
- The development of **phase 2 of INS Kadamba** commenced in 2011.
- The second phase is further divided into 2A and 2B. It was planned to expand the facilities to dock additional **warships and a new Naval Air Station**, among other projects.

INS Kadamba

- INS Kadamba, located in Karwar, Karnataka, is a major Indian naval base on the western coast. It ranks third in size, behind Mumbai and Visakhapatnam.
- INS Kadamba serves as the home base for the INS Vikramaditya.
- Upon completion, INS Kadamba is set to become the largest naval base in Asia and the largest east of the Suez Canal.
- The name "**Kadamba**" honors the **Kadamba Dynasty**, the region's first Kannada royal dynasty, which originated in Banavasi, Uttara Kannada district.

INS Vajrakosh

- **INS Vajrakosh:** The Ammunition Hub for INS Kadamba. INS Vajrakosh is a naval base near INS Kadamba, housing the Indian Navy's missile and ammunition storage in Karwar.
- It serves as an **arsenal, equipping warships and aircraft** with munitions. INS Vajrakosh also offers specialized servicing for advanced missiles and ammunition.
- Constructed by DRDO, the base is home to the long-range **BrahMos missiles**, further enhancing its strategic importance.

Economic Benefits of this project

Employment

- The ongoing construction activities at **Naval Base Karwar** have directly generated employment opportunities for approximately 7,000 personnel and indirectly led to around 20,000 jobs across the nation.

Aligned aatmanirbhar Bharat

- The infrastructure development has been aligned with the principles of **Aatmanirbhar Bharat** with more than 90% of the materials and equipment being sourced from within the country.

Private company participation

- The project's execution involves renowned Indian industry infrastructure leaders such as AECOM India Ltd., Larsen & Toubro, ITD Cementation India Ltd, Nagarjuna Construction Company, Navayuga Engineering Company Ltd., and Shapoorji Pallonji Group.

Local economy

- Once fully operational, with an estimated 50,000 individuals residing in the Naval Facilities spread over the 25-kilometer expanse, a substantial contribution to the local economy is foreseen.

Catalysts for the industrial growth

- The establishment of the **Naval Dockyard** and the maintenance needs of ships will act as catalysts for the industrial growth of the region.

Attract investment

- This development is also expected to attract significant investments to the Uttara Kannada region, along with the necessary infrastructure, and create employment opportunities for the local community.

Improve air connectivity

- The Naval Air Station, along with **the Civil Enclave**, is poised to improve air connectivity to Uttar Karnataka region and boost the tourism industry in both North Karnataka and South Goa.

Conclusion

- INS Kadamba's expansion and strategic positioning are transforming India's naval capabilities. Its potential will elevate India's maritime dominance, reinforcing regional security and reflecting its growing maritime influence. The base will become a pivotal hub, safeguarding India's interests and shaping future maritime dynamics in the Indo-Pacific region.

4.2 GREY ZONE WARFARE

Context

- On the last day of the 2024 Raisina Dialogue, India's Chief of Defence Staff General Anil Chauhan said that "grey zone warfare" is the latest in informal warfare.

Details

- Gray zone warfare, also known as **hybrid warfare or ambiguous warfare**, describes a spectrum of conflict that exists between traditional state-on-state warfare and peaceful competition. In this arena,

actors employ a combination of military, economic, diplomatic, and informational tactics to achieve strategic objectives without triggering a full-scale armed conflict.

Nature

- Grey zone warfare generally means a middle, unclear space that exists **between direct conflict and peace in international relations.**
- Multitude of activities falls into this zone – from nefarious economic activities, influence operations, and cyberattacks to mercenary operations, assassinations, and disinformation campaigns.
- They **involve state and non-state actors engaging in actions** that fall below the threshold of traditional armed conflict but still aim to achieve strategic goals.

Ways Grey Zone warfare is waged

Cyber Operations:

- This includes system intrusions to deny availability of **information systems, hacking and stealing data, corrupting data, spreading disinformation, and conducting cyber espionage to disrupt or influence a target country's critical infrastructure,** political systems, or economy without causing direct physical harm.

Information Warfare:

- **Propaganda, rumours and fake news, social media manipulation, and psychological** operations are used to shape public opinion, create divisions, and undermine trust in institutions within the target nation.

Support to Proxy Forces

- Providing support to **non-state actors, insurgents, or militias** in a way that enables them to advance the **supporting nation's agenda** without officially engaging in direct conflict.

Economic Coercion

- **Imposing sanctions, trade restrictions, or manipulating financial markets** to undermine the target nation's economy or coerce policy changes without resorting to military action. Like china did against Australia.

Political Subversion

- **Using covert means to influence elections, manipulate political processes, or support political groups or movements that align with the aggressor's interests.**
- As per a report of Alliance for Securing Democracy, Russia and China spent more than \$300 million in interference operations in democratic processes.

Irregular Warfare

- Deploying unconventional military tactics such as **guerrilla warfare, sabotage, or asymmetric attacks** by leveraging smaller, specialized units or non-traditional military forces forms part of Irregular Warfare.
- The use of **maritime militia and fishing boats** by China in the South China Sea to bully its maritime neighbours is part of this tactics.

Legal and Diplomatic Manoeuvring

- China is careful while **exploiting legal or diplomatic loopholes, leveraging international institutions, or manipulating alliances** to weaken the target country's position on the global stage while proffering a justification for its



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Military Intimidation

- This involves the use of **military assets to convey the threat** of a potential military attack or a risk of military escalation.
- The massing of PLA troops at the contested borders with India **opposite Galwan in Ladakh** was part of this military intimidation.

Countering Grey Zone Warfare

- Grey Zone warfare is characterized by its **ambiguity and the difficulty in attributing actions to a specific aggressor.**
- Countering Grey Zone warfare involves a combination of proactive measures to deter adversaries and resilience-building to mitigate the impact of such tactics.

Active Monitoring and Early Warning Systems

- Develop systems to monitor activities across various domains (**cyber, information, political, economic, educational, industrial, medical, and agricultural**) to detect early signs of Grey Zone attempts and respond promptly.

Clear Communication of Red Lines

- These should be **reaffirmed and reiterated in public statements by Political leaders.** Establishing and communicating policies that define unacceptable behaviour, help in deterring adversaries from crossing boundaries.

Deterrence through Capability Demonstration

- Sometimes pre-emption is the best prevention. This can be achieved through showcasing capabilities in **cyber, information, economic, irregular and other domains** to deter adversaries from initiating Grey Zone activities by demonstrating the ability to respond effectively.

Enhance Cyber-security

- Strengthen defences against **cyber-attacks** by investing in robust cyber-security measures to protect critical infrastructure, sensitive data, and governmental systems.
- **India's electricity grid the government has brought in the Electricity Amendment Act 2022** comprising provisions for improving cyber hygiene of the SCADA systems and their periodic cyber audit.
- Also necessary to protect **banking and National Stock Exchanges, Railways Traffic monitoring Systems, the Civil Air Traffic Management System (ATMS) and Advanced-Surface Movement Guidance and Control System (ASMGCS).**

Counter Disinformation

- Due to the technological advancements and easy availability of the means of **disseminating disinformation** at the blink of an eye, the threat from disinformation to societies and states.

Build Alliances and Partnerships

- Forging strong alliances with other states and international organizations to **collectively address and deter Grey Zone tactics offers** a good alternative to going alone.
- **India US defence cooperation in the ISR domain may help India to timely deter, discern and respond to China's grey zone attacks.**

Diversify Economy and Supply Chains

- **Dependence on a single** source comes with the possibility of economic coercion but economic disentanglement cannot be done overnight unless other sources and supply chains are identified and developed.
- India has developed alternative suppliers or markets after the **Galwan conflict with China in 2020** and has met with some success in diversifying supply chains to minimize vulnerabilities to trade manipulations as evidenced by **slowdown in bilateral trade in first half of 2023.**

Improve Intelligence and Attribution Capabilities

- Sometimes Grey Zone attacks- **especially those in cyber domain**- can also be routed through a third country to conceal the identity of the true sponsor.
- In this domain **bilateral cooperation between likeminded democratic states can be beneficial**.
- Investing in emerging technologies pertaining to **cyber-security, AI and information warfare** can assist in intelligence gathering.

Legal and Diplomatic Responses

- **Developing international norms and regulations** to govern and respond to Grey Zone activities can help to some extent since these attacks are always not detectable or cannot be attributed immediately to a source.

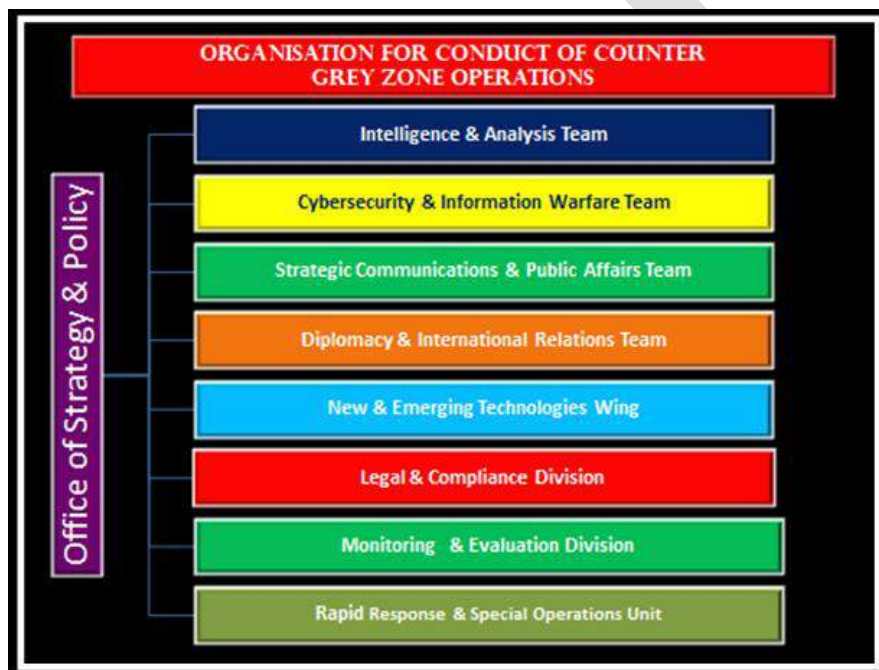
Adaptive Military Strategies

- India had entered into an agreement with China on **“Border Peace and Tranquillity Agreement” (BPTA)** signed in September 1993.
- This was followed with the **“Agreement on Confidence Building Measures (CBM) in the Military Field along the LAC** in the India-China Border Areas” in November 1996.
- India must develop adaptive military strategies to effectively respond to instances like in **Galwan, Doklam** and any other hybrid threats while retaining its core values without triggering a full-scale conflict.

Strategic Communication among strategies

- No single approach can entirely prevent Grey Zone warfare, but a combination of these strategies can significantly reduce **vulnerability, effectively deter adversaries from employing such tactics against a nation’s interests and mitigate the damage caused**.

Organisational Structure for Grey Zone Response



Examples of Gray Zone Conflicts recent time

- **Russia's Actions in Ukraine:** Annexation of Crimea, support for separatist movements in Eastern Ukraine, and cyber attacks against Ukrainian infrastructure.
- **China's South China Sea Expansion:** Construction of artificial islands, maritime patrols, and economic coercion to assert territorial claims without provoking armed conflict.

Conclusion

- Responding to Grey Zone warfare without it escalating into armed conflict requires a delicate balance between deterrence, resilience-building, and strategic responses. India must understand that certain grey zone activities will always be going on and some of these may actually have little effect. As a democratic polity India is well adept at ignoring and tolerating such chaos these activities will create.

4.3 INTERNATIONAL ARMS TRANSFERS

Context

- SIPRI released new data on international arms transfers.

Details

Report Data

India's Data

- **India was the top arms importer in the world in the period 2019-23.**
- **Increase:** imports having gone up by 4.7% compared with the period 2014-18.

Arms Suppliers to India

- **Russia remained India's main arms supplier** [accounting for **36% of its arms imports**], this was the first five-year period since 1960-64 when deliveries from Russia [or the Soviet Union prior to 1991] made up less than half of India's arms imports.
- India also imported arms during this five-year period from **Israel, South Korea, and South Africa** which are among the **top arms exporters globally**.
- The **largest single recipient of French arms exports was India**, which accounted for nearly 30%. The increase in French arms exports was largely due to deliveries of combat aircraft to India, Qatar and Egypt.

Arm Supply from India:

- India was the third-largest arms **supplier to Myanmar** during this period after Russia and China and comprised 14% of its imports.

Factors Driving Arm Imports:

- India's **tensions with Pakistan and China** largely drive its demand for arms imports.

Global Arms Importers

- Nine of the 10 biggest arms importers in 2019-23, including the **top three of India, Saudi Arabia and Qatar**, were in Asia and Oceania or the **West Asia**.

Middle East

- **Saudi Arabia** was the world's second largest arms importer in 2019-23, receiving 8.4 per cent of global arms imports in the period. Saudi Arabian arms imports fell by 28 per cent in 2019-23, but this was from a record level in 2014-18.
- **Qatar** increased its arms imports almost fourfold (+396 per cent) between 2014-18 and 2019-23, making it the world's third biggest arms importer in 2019-23.
- The majority of arms imports by **Middle Eastern states were supplied by the USA (52 per cent), followed by France (12 per cent), Italy (10 per cent) and Germany (7.1 per cent).**

Asia

Pakistan

- **Pakistan** also significantly increased its arms imports (+43 per cent).
- Pakistan was the **fifth largest arms importer** in 2019-23 and **China became even more dominant as its main supplier**, providing 82 per cent of its arms imports.

Japan and South Korea

- Japan's by **155 per cent and South Korea's by 6.5 per cent.**

China

- China's own arms imports **shrank by 44 per cent**, mainly as a result of substituting imported arms—most of which came from Russia—with locally produced systems.

Top worldwide Supplier

USA

- The USA's arms exports grew by 17 per cent between 2014-18 and 2019-23, and its share of total global arms exports rose **from 34 per cent to 42 per cent.**

France

- France's arms exports increased by 47 per cent between 2014–18 and 2019–23 and for the first time it was the **second biggest arms exporter, just ahead of Russia.**
- The largest share of France's **arms exports (42 per cent) went to states in Asia and Oceania, and another 34 per cent went to Middle Eastern states.**

Russia

- Russian arms exports fell by **53 per cent between 2014–18 and 2019–23.**
- The **decline** has been rapid over the course of the past five years, and while Russia exported major arms to 31 states in 2019, it exported to only 12 in 2023.
- **States in Asia and Oceania received 68 per cent of total Russian arms exports in 2019–23,** with India accounting for 34 per cent and China for 21 per cent.

India's Self-Reliance in Defence Sector

Initiatives/ steps taken by Government for indigenisation of manufacturing of technology-intensive defence equipment and weapons and for creating a domestic defence production ecosystem:

Defence Acquisition Procedure (DAP 2020)

- Government of India has ensured that the most preferred option for capital acquisition is '**Buy Indigenously Designed Developed and Manufactured (IDDM)**' category equipment followed by '**Buy (Indian)**' category.
- The '**Make**' categories aim to achieve the **objective of self-reliance by involving greater participation of Indian industrial eco-system** including private sector.

Technology Development Fund (TDF)

- The provisions of Government funding have been introduced for **Make-I, Technology Development Fund (TDF) and Innovations for Defence Excellence (iDEX) projects.**
- TDF Scheme executed by DRDO supports indigenous development of components, products, systems and technologies by MSMEs and Start-ups
- Funding under TDF scheme was enhanced from Rs 10 crore to Rs 50 crore per Project,

and the same under **iDEX Prime scheme** has been enhanced from Rs 1.5 crore to Rs 10 crore It will give further boost to the vision of '**Aatmanirbharta in defence.**'

- Four '**Positive Indigenization Lists**' of defence equipment and platforms for which there would be an embargo on the import.

Development cum Production Partner (DcPP) model

- The '**Development cum Production Partner (DcPP)**' model of DRDO is implemented where-in Industry is taken up as DcPP in system development projects. Both development and production units are manufactured by industry along with life cycle support.

Defence Industrial Corridors

- Two Defence Industrial Corridors have been set up in **Uttar Pradesh and Tamil Nadu to catalyse indigenous production of defence and aerospace-related items.**
- Defence R&D has been opened up for industry, **start-ups and academia with 25% of defence R&D budget** earmarked for the purpose.

Capital Acquisition Budget

- In order to promote indigenous design and manufacturing, funds have also been earmarked for procurement from indigenous sources. For the FY 2023-24, funds have been earmarked in the **ratio 67.75:32.25 between Domestic and Foreign procurement in the Capital Acquisition Budget of the Ministry of Defence (MoD).**
- In addition, the MoD has also directed for spending an amount of **Rs 1,500 crore towards procurement from start-ups.**

Other steps

- Nil **Transfer of Technology (ToT) fees** are being charged from DcPPs/PAs/LSI.
- Industries have been provided with **free access for DRDO patents.**
- DRDO is **skilling youth (Internships, apprenticeship, electives in B Tech, M Tech courses)** to make ready for Defence industries.

4.4 SHORT ARTICLES

DEFCONNECT 2024

Context

- US Coast Guard Ship visits Port Blair for the joint exercise “Sea Defenders-2024” with Indian Coast Guard.

Details

- The joint exercise is codenamed “Sea Defenders-2024” and is scheduled to take place on 9-10th March 2024.

Participation

- The Indian Coast Guard (ICG) and the United States Coast Guard (USCG), will be participating in a joint exercise to bolster bilateral cooperation between the U.S. and India.
- The USCG Ship Bertholf arrived at Port Blair, the capital city of the Andaman and Nicobar Islands.

Objective

- The exercise is aimed at enhancing readiness and coordination between the Coast Guards by simulating scenarios relevant to maritime piracy and asymmetric threats, including simulated drone attacks on commercial merchant traffic, joint maritime search and rescue operations, major firefighting, marine pollution response, and counter-drug interdiction exercises.

USCGC Bertholf

- The Legend-class United States Coast Guard Cutter (USCGC) Bertholf is equipped with advanced technology and weaponry, a helicopter landing pad, state-of-the-art sensors and communication equipment.
- Its operational functions include complex law enforcement, defence, and national security missions.

Significance

- The joint exercise underscores the importance of international cooperation between the U.S. and India in addressing maritime challenges.
- The USCG Ship Bertholf’s visit to India reflects the shared commitment to upholding

maritime norms and promoting a rules-based order in the Indo-Pacific region.

- Reaffirming the strategic partnership between the two countries, the extensive interactions between the Indian Coast Guard and the United States Coast Guard have been a regular feature to enhance professional relationships.

Strengthening Indian Coast Guard

- In recent years the Indian Coast Guard has received greater attention from the national security apparatus and is receiving greater budget allocation amounting to Rs 7.651.80 crore.
- Strengthening the Multi Mission Service of the Indian Coast Guard, its capital expenditure is at Rs 3,500 crore builds its capabilities to facilitate maritime challenges and humanitarian assistance to other nations.

Yars Missile

Context

- Day after Putin's nuke war warning, Russia tests nuclear ballistic Yars missile

About

- The RS-24 (Yars) missile is 23 meters long and is designed to carry multiple independently targetable re-entry vehicles (MIRVs).

Capability

- MIRVs enable the Yars missile to deliver multiple nuclear warheads, each capable of targeting different objectives.
- It is a three-stage, solid propellant, MIRV-capable (Multiple Independently Targetable Reentry Vehicles) ICBM.
- It has the capability to manoeuvre during flight and deploy both active and passive decoys.

Other Features

- The Yars is a modified version of the Topol-M missile system.
- The missile can be launched from a silo or mobile launcher.
- It has a range of 10,500 km.

- The missile can be armed with up to 10 MIRVs, each containing a thermonuclear warhead weighing 300 kilotons.

Deployment

- Russia started the deployment of Yars Intercontinental Ballistic Missile (ICBM) systems in 2009, with the Yars launcher accepted for experimental combat duty in the Strategic Missile Force.
- In December, Russian rocket forces loaded a new Yars ICBM into a silo at the Kozelsk base in the Kaluga region, southwest of Moscow.

Vajra Sentinel System

Context

- Start-up BBS lands anti-drone systems contract worth Rs 200 crore

Details

Vajra Sentinel: A Comprehensive Anti-Drone Solution

- Vajra Sentinel stands out with its dual-pronged approach to drone neutralization:
- **Soft Kill Technology:** Jamming signals disrupt communication links between a drone and its controller, forcing it to land or return to base.
- **Hard Kill Technology:** When jamming proves insufficient, the system deploys interceptor drones to physically disable the hostile drone.
- This two-tiered approach ensures maximum effectiveness against a wide range of drone threats, from single incursions to coordinated swarm attacks.
- With an operational range of 10 km and a hard-kill reach of 5-6 km, Vajra Sentinel provides ample protection for sensitive installations.

AI-Powered Precision and Autonomy

- This allows for the precise identification, classification, and tracking of incoming drones. The system's decision-making matrix then autonomously chooses the best response, maximizing efficiency and minimizing reaction time.
- Emphasis on passive Radio Frequency (RF) sensors reduces false positives, a crucial aspect in high-stakes military scenarios.

- The entire system is built to withstand the rigors of combat and adverse environments.

Scalability for Future Threats

- Its modular design allows for upgrades with cutting-edge technologies like **AESA radar and even expendable kamikaze drones**. This ensures the system can adapt as drone capabilities become more sophisticated.

Implications for India and Beyond

- This contract win is a watershed moment for Indian defence startup sector. It demonstrates the growing maturity of India's indigenous defence technologies and fosters greater self-reliance in a critical domain.
- Vajra Sentinel's capabilities are highly relevant not only for India's defence forces but also for potential export markets facing similar security concerns.

Bharat Shakti Exercise

Context

- The Prime Minister recently witnessed the tri-service exercise 'Bharat Shakti' in Pokhran, Rajasthan.

Details

The Exercise

- It is an integrated tri-service firepower and manoeuvre exercise, showcasing the prowess of indigenously manufactured defence equipment across the three services. Held at Pokhran, Rajasthan.
- It displayed realistic, synergised, multi-domain operations displaying the integrated operational capabilities of the Indian armed forces to counter threats across land, air, sea, cyber, and space domains.

What was on display?

- The exercise displays an array of indigenous weapon systems and platforms as a demonstration of the prowess of the country, premised on the nation's Aatmanirbhara initiative.

Weapon systems

- It features indigenous weapon systems: T-90 (IM) Tanks, Dhanush and Sarang Gun Systems, Akash Weapons System, Logistics Drones, Robotic Mules, ALH, and various

unmanned aerial vehicles from the Indian Army showcasing the advanced ground warfare and aerial surveillance capabilities.

Navy

- The Indian Navy displays Naval Anti-Ship Missiles, Autonomous Cargo Carrying Aerial Vehicles, and Expendable Aerial Targets.

Air Force

- The Indian Air Force showcases indigenous aircraft: Light Combat Aircraft Tejas, Light Utility Helicopters, and Advanced Light Helicopters.

Nausena Bhawan

Context

- Indian Navy Gets Its Own Headquarters Named 'Nausena Bhawan'

Details

- It established as the Navy's first independent headquarters in Delhi.
- Previously, the Navy operated from 13 different locations, making it difficult to coordinate.

Architectural design

- The architectural design of the complex was selected through a "rigorous all-India competition process", ensuring the building's functionality and aesthetic appeal. The building incorporates innovative construction technologies to optimise efficiency and sustainability.

Conservation efforts

- Efforts toward energy and water conservation, with the integration of solar generation systems and advanced building materials.

State-of-the-art integrated building management system

- Internally, the 'Nausena Bhawan' boasts a comfortable and congenial atmosphere facilitated by central heating, ventilation and air conditioning system utilising advanced oxidation plasma technology.
- The complex is equipped with a state-of-the-art integrated building management system, ensuring efficient coordination and monitoring of security services.

Integrated Habitability Assessment Rating

- The building has achieved a green rating IV under the Integrated Habitability Assessment, underscoring its commitment to sustainable practices.

Three-tier security system

- Additionally, the complex features a comprehensive three-tier security system, including technologies such as automatic underbelly scanning of vehicles, power fence, face recognition cameras, bollards, vehicle stoppers, access control, and security cameras.
- In line with modern office practices, equipped with extensive IT infrastructure supported by UPS systems, promoting a paperless work environment and meeting the stringent network requirements of the Navy.

Tiger Triumph-24

Context

- India and the United States have conducted exercise "Tiger Triumph" 2024

Details

- This is the third Tiger Triumph Exercise. The first edition and second edition was conducted in 2019 and 2022 respectively.

Objective

- It is a bilateral tri-service humanitarian assistance and disaster relief (HADR) exercise.
- The exercise aimed at enhancing readiness and cooperation between the two forces and is part of the ongoing partnership between India and the United States.

Significance

- The exercise improved interoperability for conducting HADR operations and refined Standard Operating Procedures (SOPs) to enable rapid and smooth coordination between the armed forces of both countries.
- Tiger Triumph 2024 has added value towards improving capabilities, capacities, processes, and procedures to save human lives and to undertake coordinated relief activities during HADR operations.

Represented by:

- Amphibious transport ships – INS Jalashwa of the Indian Navy and the USS Somerset of the US Navy along with other vessels including the USS Halsey, the INS Airavat and the INS Kesari are participating in the Tiger Triumph Exercise.

LAMITIYE-2024

Context

- Indian Army contingent departed for Seychelles on March 17, 2024, to carry out a joint military exercise named 'LAMITIYE-2024' with the Seychelles Defence Forces (SDF).

Details

- LAMITIYE' meaning 'Friendship' in the Creole language is a biennial training event and has been conducted in Seychelles since 2001.

Aim

- The aim of the Exercise is to enhance interoperability in Sub-conventional Operations in Semi-Urban environment under Chapter VII of the United Nations Charter on Peace Keeping Operations.

Significance

- The Exercise will enhance cooperation and interoperability between both the sides during Peace Keeping Operations.
- The exercise will also build and promote bilateral military relations in addition to exchanging skills, experiences and good practices between both armies
- The exercise will contribute immensely in developing mutual understanding and magnify jointness between the troops of both the Armies.

Participating Forces

- A contingent of 45 personnel from the Gorkha Rifles regiment of the Indian Army will join forces with the SDF for the exercise.

Activity

- Both sides jointly trained, planned and executed a series of well-developed tactical drills for neutralization of likely threats that may be encountered in Semi-Urban environment, while exploiting and

showcasing new-generation equipment and technology.

- Exercise included Field Training Exercise, combat discussions, lectures & demonstrations.

Digital Criminal Case Management System (CCMS)

Context

- Union Home Minister and Minister of Cooperation Shri Amit Shah virtually inaugurated a unique digital Criminal Case Management System (CCMS), designed by the National Investigation Agency (NIA) in New Delhi.

Details

- The new stand-alone version of CCMS has been developed by NIA as a user-friendly and easy-to-deploy, customizable, browser-based software to help the State Police forces in their investigations and prosecution.

Significance

- The newly developed Criminal Case Management System will enable the NIA personnel to better coordinate in terrorism and organized crime cases, thereby improving justice delivery.
- The state-of-the-art CCMS software would not only bring standardisation into investigations but also enable easy and streamlined compilation of terror-related data across the country.
- The software will facilitate to address new challenges in the form of extensive use of cyber-space, dark-web, drones, crowd-funding, use of crypto-currencies, encrypted communication platforms, besides use of new technologies for terrorist financing, movement of arms and other terror support activities.

Use by state agencies

- It will help the State forces organise, integrate and digitalise the data generated during investigations, such as case documents, extracted data, collected evidence, and the charge sheets presented to the court.

- CCMS would foster stronger cooperation between the central and state agencies, including the Anti-Terror Squads of the State Police.
- System will also boost supervision by providing clear frameworks for assessment and guidance by both the senior police officers and the prosecutors.
- It will assist NIA and the State Police forces' preparedness to implement the newly legislated post-colonial era Criminal laws in the form of Bharatiya Nyaya Sanhita, Bharatiya Nagarik Suraksha Sanhita and the Bharatiya Sakhsya Sanhita.

Signals Technology Evaluation and Adaptation Group

Context

- The Indian Army has established the “Signals Technology Evaluation and Adaptation Group” (STEAG), a first-of-its-kind specialised technology unit.

Details

- The Signals Technology Evaluation and Adaptation Group (STEAG), a pioneering unit dedicated to exploring futuristic communication technologies for defence applications.
- Comprising approximately 280 personnel, STEAG is poised to revolutionize communication infrastructure within the army.

Army's vision

- STEAG's establishment aligns perfectly with the Indian Army's vision of embracing

cutting-edge technologies to prepare for future challenges.

- As part of the army's “On Path to Transformation” initiative, STEAG marks a pivotal development in the Year of Tech Absorption, declared for 2024.

Objective

- Its primary objective is to evaluate and harness advanced technologies such as AI, 5G, 6G, machine learning, and quantum technologies, among others, to bolster the army's communication capabilities.

Significance

- STEAG aims to identify and implement the most suitable technologies to enhance the army's communication infrastructure, ensuring readiness for the challenges ahead.
- The STEAG conforms to cover the entire spectrum of wired and wireless systems to include electronic exchange, mobile communications, Software Defined Radio (SDR), Electronic Warfare (EW) systems, 5G and 6G networks, quantum technologies, Will help in maintaining and developing technologies.
- It will help bridge the divide between the armed forces on the one hand and industry and academia on the other, aligned with Atmanirbhar Bharat and Start-Up India.

Where will it be located?

- Based in Delhi and operating under the Signals Directorate, STEAG is led by a Colonel rank officer from the Corps of Signals.

Nimmu-Padam-Darcha Road

Context

- Border Roads Organisation (BRO) connected the strategic Nimmu-Padam-Darcha road in Ladakh on March 25, 2024.

Details

- This 298-km road will connect Manali to Leh through Darcha and Nimmu on Kargil – Leh Highway.

Third Axis

- The road is now the third axis apart from Manali-Leh and Srinagar-Leh which connects Ladakh to the hinterland.

Strategic Importance

- The strategic importance of the Nimmu-Padam-Darcha road lies in its efficiency compared to the other two routes, as it **is not only shorter but also traverses only one pass, the Shinkun La, standing at 16,558 feet.**
- The Border Roads Organisation (BRO) is set to commence tunnel work on this pass, **ensuring all-weather connectivity to the Ladakh region.**
- This enhanced connectivity not only **bolsters defense preparedness but also promises to catalyze economic development in the Zaskar valley.**



4.5 SNIPPETS



INS Jatayu

- INS Jatayu is being commissioned days after the inauguration of an airstrip and a jetty that India has built on Agaléga, Mauritius.
- The existing Naval Detachment Minicoy, which is under the operational command of the Naval Officer-in-Charge (Lakshadweep), will be commissioned as INS Jatayu.
- A naval detachment has administrative, logistics, and medical facilities. INS Jatayu will be upgraded to a naval base with additional infrastructure such as an airfield, housing, and personnel, after obtaining the requisite environmental and other clearances.
- The fragile ecology of the island may pose challenges for the construction of a jetty. But there are plans to construct a new airfield that will be capable of operating both military and civil aircraft.

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Samudra Paheredar

- External Affairs recently visited Indian Coast Guard ship Samudra Paheredar, which is in Manila Bay in the Philippines, as part of an overseas deployment to ASEAN countries.
- ICGS Samudra Paheredar is an Indian Pollution Control Vessel (PCV).
- The ship was commissioned by then Chief of the Naval Staff Admiral Nirmal Verma in July 2012 in Gujarat.
- It is the second pollution control vessel of India (first being ICGS Samudra Prahari) and was built by ABG Ship Yard Pvt. Ltd.

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5. ENVIRONMENT & ECOLOGY

5.1 GLOBAL WASTE MANAGEMENT OUTLOOK

Context

- The United Nations Environment Programme (UNEP) and the International Resource Panel (IRP) released a new report titled "Global Resources Outlook 2024 - Bend the Trend: Pathways to a Liveable Planet as Resource Use Spikes."

Details

- The Global Resources Outlook 2024, released during the Sixth United Nations Environmental Assembly (UNEA-6), sheds light on the alarming trends in the extraction and use of the world's resources.

Key findings

The United Nations Environment Programme (UNEP) is the leading global environmental authority that sets the global environmental agenda, promotes the coherent implementation of the environmental dimension of sustainable development within the United Nations system, and serves as an authoritative advocate for the global environment..

- **Global Waste Generation:** Annually, the world produces over two billion tonnes of municipal solid waste (MSW), posing significant environmental challenges.
- **Waste Collection Disparity:** More than a third of the global population, primarily in the Global South and developing regions, lacks proper waste collection services. An estimated 540 million tonnes of MSW, equivalent to 27% of the global total, remains uncollected.
- **Projected Increase:** Waste generation is expected to escalate from 2.3 billion tonnes in 2023 to 3.8 billion tonnes by 2050, highlighting a pressing need for effective waste management strategies.
- **Health and Environmental Impacts:** The adverse effects of MSW on climate, biodiversity, and human health are anticipated to nearly double by 2050,

underscoring the urgency of addressing waste management issues.

Barriers to waste management in India

Lack of Public Awareness and Education:

- Inadequate awareness among the public about proper waste management practices. Insufficient education on waste reduction, recycling, and responsible disposal leading to ineffective waste management. A 2021 study by TERI (The Energy and Resources Institute) found that **over 70% of the public lacked adequate knowledge** about waste segregation and recycling processes.

Lack of Inclusion:

- Policies and infrastructure for municipal waste management developed without inclusive, participatory, and representative decision-making are prone to failure.
- Lack of inclusivity can result in decisions that are ill-informed or unsuitable for the local context. A 2022 study by the National Solid Waste Management Association of India (SWMAI) estimated that **over 4 million informal waste pickers** contribute significantly to waste collection, yet face social exclusion and lack of formal recognition in waste management systems.

Technical Barriers:

- Mixed municipal waste collection results in negative value as it is challenging and costly to extract recyclable materials. A 2023 study by the Council on Energy, Environment and Water (CEEW) found that **only 10% of plastic waste** in India gets recycled due to a lack of proper sorting facilities and technologies for mixed waste processing.

Lack of an Enabling Environment:

- Private sector involvement in waste management activities faces bureaucratic barriers related to operating permits and other regulatory hurdles. A 2023 report by the NITI Aayog stated that complex

regulations and bureaucratic hurdles discourage private investment in waste management infrastructure development.

Recommendations

- UNEP advocates redefining waste as a resource to promote circular economy models.
- Circular economy models could lead to a potential **net gain of over USD 108 billion annually by 2050**.
- **Data and digitalization** can enhance the waste management value chain.
- Replicating and scaling up zero waste initiatives is crucial.
- **Implementing producer responsibility fees** can prioritize waste reduction and prevent green washing.
- **Utilizing behavioral science** can engage people in waste reduction efforts effectively.
- Recognizing the expertise of informal waste workers and the influence of women in waste management is essential.

Government initiatives

- **Extended Producer Responsibility (EPR) Mechanism:** EPR mandates producers to manage their product lifecycle, promoting collection, recycling, and disposal to reduce environmental impact.



- **Waste Processing Capacity:** Substantial increase in waste processing capacity since 2014, bolstered by initiatives like **Swachh Bharat Mission (Urban)**, covering solid, hazardous, biomedical, E-waste, plastic, and construction and demolition waste.
- **Swachh Bharat Mission for Solid Waste Management:** Government initiative focusing on "Garbage Free Cities" through door-to-door collection, source segregation, and scientific waste processing. Key areas include **source segregation, single-use plastic reduction, construction waste management, and legacy waste site remediation.**
- **Waste Management Rules and Guidelines:** Implementation of waste management rules and guidelines under the **Environment (Protection) Act, 1986**, addressing solid waste, plastic waste, biomedical waste, construction, etc.

Conclusion

- The Global Resources Outlook 2024 report underscores the urgent need for transformative action to address the crisis of excess resource consumption. It advocates for sustainable resource use paths, innovative business models, supportive regulations, and multilateral cooperation to achieve global sustainability goals.

5.2 MASS BLEACHING OF GREAT BARRIER REEF

Context

- A "mass bleaching event" is unfolding on Australia's famed Great Barrier Reef, authorities said on March 8, as warming seas threaten the spectacular home to thousands of marine species.

Details

- Often dubbed as the world's largest living structure, the Great Barrier Reef is a 2,300 km (1,400 mile) expanse of tropical corals that house a stunning array of biodiversity.

About Great Barrier Reef (GBR)

- The Great Barrier Reef (GBR) is the world's largest coral reef system, situated in the **Coral Sea off Queensland, Australia**. Spanning 2,300 km, it comprises about 3,000 individual reefs and 900 islands.

Home to 400 coral types and 1,500 fish species, it shelters endangered species like dugongs and large green turtles.

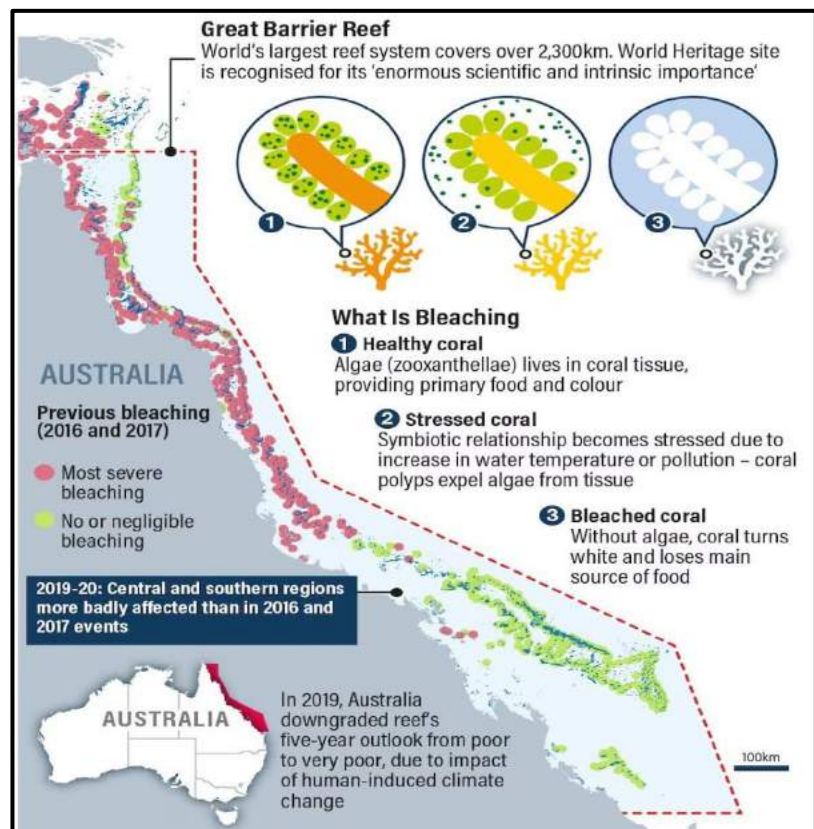
- Designated a **UNESCO World Heritage site** in 1981, the GBR faced threats, including pollution and ocean warming. In 2023, the UNESCO Heritage Committee refrained from listing it as "in danger" but cautioned about serious threats. Mass bleaching incidents occurred in 1998, 2002, 2016, 2017, 2020, 2022, and 2024.

Factors are Contributing to the Coral Bleaching in GBR

- **Rising Sea Temperatures:** Elevated water temperatures can induce coral bleaching, prompting corals to expel symbiotic algae (zooxanthellae), resulting in a whitened appearance. Prolonged exposure to above-average sea surface temperatures exacerbates heat stress, intensifying bleaching events.
 - While bleached corals are not immediately fatal, they become weakened and prone to starvation and disease, potentially leading to mortality.
- **Climate Change Impact:** Increasing ocean temperatures, exacerbated by climate change, heighten coral vulnerability to stress and mortality, contributing to widespread bleaching episodes worldwide, particularly during El Niño conditions.
- **Other Environmental Stressors:** It is triggered by factors like cold water temperatures, pollution, runoff, and extreme low tides, showcasing the diverse influences on this phenomenon.
- **Algae as Food Source:** Disruption of the symbiotic relationship between corals and algae disrupts the corals' food source, rendering them susceptible to diseases.

Implications of Coral Bleaching

- **Ecological Importance:** Coral reefs, often referred to as the "Rainforest of the seas," are crucial ecosystems supporting a diverse array of marine life. Coral bleaching poses a significant threat, resulting in habitat loss and biodiversity decline, impacting fish populations, marine plants, and other organisms reliant on coral reefs.
- **Economic Significance:** Coral reefs play a vital role in coastal protection, tourism, and fisheries, contributing approximately USD 375 billion annually. The degradation of reefs due to bleaching can have severe economic consequences, affecting industries like tourism and fishing that depend on healthy reef ecosystems.
- **Food Security and Livelihoods:** Coral bleaching jeopardizes seafood availability and disrupts the livelihoods of communities reliant on fishing and reef-based tourism.



- **Indicator of Climate Change:** Impact on marine ecosystems, highlighting the urgent need for mitigation and adaptation measures.
- **Loss of Ecosystem Services:** Provides essential ecosystem services, including shoreline protection, nutrient cycling, and carbon sequestration. Bleaching undermines reefs' ability to deliver these services, impacting marine ecosystem health and coastal communities.

Conclusion

- Maintain global average temperature well below 2°C above pre-industrial levels. Collaborate to tackle overfishing and marine pollution effectively. Focus on enhancing climate resilience as per the Paris Agreement and Sustainable Development Goals (SDG) 8 and 12.



5.3 BENGALURU'S WATER CRISIS

Context

- Bengaluru, known as India's IT hub, is grappling with a severe water crisis attributed to a prolonged drought.

Details

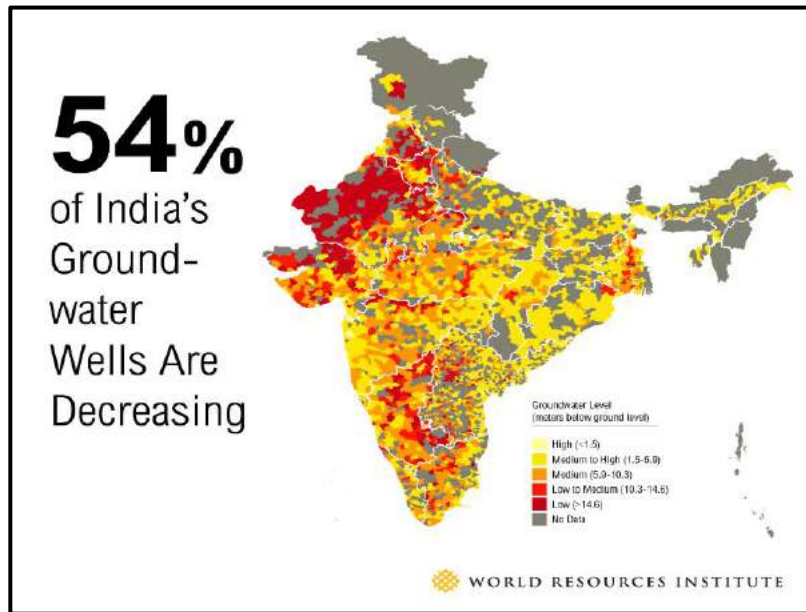
- Water tanker operators have been accused of exploiting the crisis by significantly hiking prices. Previously, a 1000-liter water tanker cost between Rs 600 to Rs 800, but now prices have skyrocketed to over Rs 2000, much to the dismay of Bengaluru residents.
- *Bengaluru, India's tech hub, faces severe water scarcity due to drought, exacerbating issues with borewells drying up. Deputy CM Shivakumar addressed the crisis, as water tanker prices soared. To tackle this, the state plans to use milk tankers for water transport and seize private borewells. Additionally, a Cauvery project aims to alleviate shortages, with Phase-5 set to complete by May 2024, including drainage upgrades.*

Reasons behind Bengaluru's Severe Water Scarcity

- Bengaluru has experienced consecutive monsoon seasons with insufficient rainfall, notably affecting the Cauvery River, a vital water source for the city.
 - With a 38% deficit in northeast monsoon showers and a 25% deficit in southwest monsoon rain, water levels in key reservoirs like Harangi, Hemavathi, and Kabini are at a concerning 39% of total capacity as of 2024.
- **The rapid urbanization of Bengaluru** has led to decreased groundwater recharge due to concretization, resulting in diminishing groundwater levels. Excessive extraction, coupled with declining rainfall, has caused many borewells to dry up, further exacerbating the water scarcity issue.
- **Bengaluru's infrastructure**, including water supply and sewage systems, has failed to keep pace with its rapid expansion. This lack of adequacy worsens water distribution challenges, despite ongoing projects like Phase-5 of the Cauvery project aimed at enhancing water supply.
- Changing weather patterns, linked to climate change, have resulted in erratic rainfall and prolonged droughts, reducing water availability in reservoirs and natural bodies.
 - Factors like the El Niño phenomenon contribute to the region's poor rainfall.
- Pollution from industrial discharge, untreated sewage, and solid waste dumping has contaminated water sources, making them unsuitable for consumption.
 - A significant portion of Bengaluru's water bodies, around 85%, is affected by industrial effluents and sewage, as per studies conducted by the Environmental Management & Policy Research Institute (EMPRI).

Current State of the Groundwater Crisis in India

- **Water Scarcity:** Despite hosting 17% of the global population, India possesses only 4% of the world's freshwater resources, leading to challenges in meeting the water demands of its vast populace.
- **Water Crisis:** According to the "Composite Water Management Index (CWMI)" by NITI Aayog, India faces its worst water crisis, with nearly 600 million people experiencing high to extreme water stress. About 200,000 deaths occur annually due to inadequate access to safe water.
- **Groundwater Depletion:** India is the largest global user of groundwater, with an estimated usage of around 251 bcm per year, primarily for agriculture and drinking water.
 - It's projected that per capita water availability will decrease to 1400 m3 by 2025 and further to 1250 m3 by 2050.
- **Groundwater Contamination:** Groundwater contamination is widespread in India, ranking 120 among 122 countries in water quality index. Pollutants include bacteria, phosphates, heavy metals, and naturally occurring arsenic, fluoride, nitrate, and iron.
- **Access to Safe Drinking Water:** Millions in India lack access to safe drinking water and improved sanitation, leading to high rates of waterborne diseases. The water crisis is compounded by a growing demand for clean water, particularly from the expanding middle class, and widespread open defecation practices, contributing to health concerns.



Way forward

- **Promote Micro-Irrigation:** Encourage the adoption of drip and sprinkler irrigation methods, which can potentially save up to 70% of water compared to traditional flood irrigation.
- **Rainwater Harvesting:** Implement large-scale rainwater harvesting initiatives across urban and rural areas to capture and store rainwater for later use. Central Ground Water Board of India reports a 70% decline in rainwater harvesting structures over the last few decades
- **Water Pricing Reforms:** A 2021 study by the World Resources Institute suggests water pricing reforms can reduce agricultural water use by up to 10%.
- **Promote Wastewater Treatment:** Increase investment in wastewater treatment plants to generate recycled water for non-potable purposes like irrigation. Currently, less than 30% of India's wastewater receives proper treatment.

Conclusion

- **India's water demand is forecasted to double by 2030**, outstripping available supply, leading to severe scarcity and potential GDP loss. **Additionally, groundwater depletion in India may triple by 2041-2080** due to global warming, with researchers estimating a 3.26 times faster decline in groundwater levels compared to current rates across different climate change scenarios.

5.4 CHEMICALS IN PLASTIC MATERIAL

Context

- A recent report released by European scientists says there are 16,000 chemicals in plastic materials around the world.

Facts related to plastic pollution

- *Increased substantially from 15.9 lakh tonnes per annum (TPA) in 2015-16 to 41.2 lakh TPA in 2020-21. The Public Account Committee noted a huge data gap, observing from CAG's 2022 audit findings that many state pollution control boards (SPCBs) did now not provide data on plastic waste generation for the period 2016-18 to the CPCB and there have been inconsistencies in data shared by urban local bodies (ULBs) with SPCBs.*

About

- **Plastic chemical compounds have been found to leach into water and food**, leading to detrimental health effects. While the plastics industry emphasizes the importance of promoting recycling and reuse, **solely focusing on waste management does not adequately safeguard public health.**
 - There is a critical need for increased transparency regarding the chemical composition of plastics, including additives, processing aids, and impurities, particularly in recycled products.
- **The complexity of plastics' chemical composition** poses a significant challenge, with manufacturers often lacking comprehensive knowledge of the chemicals present due to intricate value chains.
- **Globally, only a small fraction (6%) of the chemicals found in plastics are subject to regulation**, indicating a lack of regulatory oversight. Without such regulations, there is little incentive for disclosure of plastic contents, the report emphasizes.

Chemicals of Concern

- **Phthalates:** These are commonly used plasticizers that can disrupt hormone function and have been linked to developmental problems in children.
- **Bisphenol A (BPA):** Once widely used in plastics, BPA has been phased out of many products due to potential endocrine-disrupting effects. However, some BPA-free alternatives might have similar concerns.
- **Per- and polyfluoroalkyl substances (PFASs):** These are a group of chemicals used for water and grease resistance. They are highly persistent in the environment and have been linked to various health problems.
- **Flame Retardants:** Certain types of flame retardants used in plastics can be toxic and have been associated with developmental issues and cancer risks.

Potential Impacts

- **Human Health:** Exposure to some chemicals in plastics, particularly during leaching from food containers or prolonged contact, can potentially lead to hormonal imbalances, developmental problems, and certain cancers.
 - Prenatal and childhood exposure to certain chemicals might be linked to developmental issues like neurobehavioral problems.
- **Environment:** Plastic pollution is a major environmental concern. Chemicals can leach from plastic waste into the environment, contaminating soil and water bodies. These chemicals can harm wildlife and potentially re-enter the food chain.
 - A 2020 report by the World Wildlife Fund (WWF) estimated that plastic pollution could outweigh all the fish in the ocean by 2050.

Addressing the Issue

- **Regulations:** Governments are increasingly implementing regulations to restrict or ban certain harmful chemicals in plastics. The European Union (EU) restricts certain harmful chemicals in plastics.
- **Safer Alternatives:** Research and development are ongoing to find safer alternatives for commonly used plastic additives.
- **Recycling and Waste Management:** Proper recycling practices and improved waste management systems can help reduce plastic pollution and associated chemical risks. A 2021 report by the Organisation for Economic Co-operation and Development (OECD) found that only around 9% of global plastic waste was recycled in 2019.

Government initiatives

- **Plastic Waste Management Rules of 2016** prohibit the production, sale, and use of certain single-use plastic items such as carry bags, straws, and cups.
- The **Ministry of Environment enforced a ban on single-use plastics (SUP)** that are difficult to acquire or recycle, effective from July 1, 2022. Under the regulation, the manufacture, import, sale, and use of plastic carry bags thinner than 120 microns were prohibited starting from December 31, 2022.
- The **National Policy on Solid Waste Management**, established in 2016, prioritizes waste minimization, segregation at the source, proper processing, and disposal, including plastic waste management.
- **Extended Producer Responsibility (EPR) regulations** were also introduced to ensure producers take responsibility for the collection and recycling of plastic waste.
- The **Swachh Bharat Abhiyan encompasses initiatives** such as waste segregation at the source, composting of biodegradable waste, and establishing waste processing facilities, all of which indirectly contribute to managing plastic waste.
- **The Indian Swachhata League is a unique initiative** led by youth across cities, aiming to promote the engagement of young people in activities related to cleanliness and sanitation.

Conclusion

- Tackling plastic waste pollution necessitates a comprehensive approach engaging governmental bodies, industries, civil society, and individual citizens. It's crucial to enforce current regulations effectively, leverage technological innovations, and transition towards a circular economy to promote a cleaner and healthier environment.



5.5 WORLD AIR QUALITY REPORT

Context

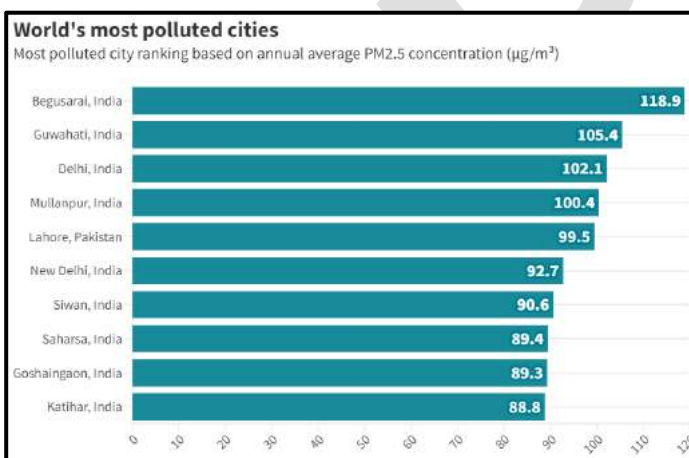
- India has been identified as the world's third most polluted country, as per the World Air Quality Report 2023 by the Swiss organizational QAir.
- Particulate matter (PM) is a major air pollutant consisting of microscopic solid or liquid droplets suspended in the air. These particles can be incredibly small, ranging from a few nanometers to 10 micrometers in diameter.
- The World Health Organization (WHO) estimates that air pollution, largely due to PM2.5, contributes to 4.2 million deaths globally each year. A 2021 study published in The Lancet Planetary Health journal found that exposure to PM2.5 reduces average global life expectancy by nearly 2 years.

Key Highlights of the World Air Quality Report 2023

Health Impacts	WHO Guidelines
<ul style="list-style-type: none"> Increased rates of heart attack, stroke, and oxidative stress. 	<ul style="list-style-type: none"> Approximately 136 million Indians (96% of the population) exposed to PM2.5 levels seven times higher than WHO's recommended levels of 5 µg/m³.
<ul style="list-style-type: none"> linked to health issues such as asthma, cancer, stroke, and mental health complications. 	<ul style="list-style-type: none"> Over 66% of Indian cities report annual averages exceeding 35 µg/m³.
<ul style="list-style-type: none"> Impaired cognitive development in children and exacerbation of existing illnesses, including diabetes. 	<ul style="list-style-type: none"> PM2.5 pollution is primarily attributed to burning fossil fuels.

World's most polluted countries
Most polluted country ranking based on annual average PM2.5 concentration (µg/m³)

Rank	Country	2023	2022	2021	2020	2019
1	Bangladesh	79.9	65.8	76.9	77.1	83.3
2	Pakistan	73.7	70.9	66.8	59	65.8
3	India	54.4	53.3	58.1	51.9	58.1
4	Tajikistan	49	46	59.4	30.9	--
5	Burkina Faso	46.6	63	--	--	--
6	Iraq	43.8	80.1	49.7	--	39.6
7	United Arab Emirates	43	45.9	36	29.2	38.9
8	Nepal	42.4	40.1	46	39.2	44.5
9	Egypt	42.4	46.5	29.1	--	18
10	Democratic Republic of the Congo	40.8	15.5	--	--	32.1



Impacts of Air pollution

- A 2020 study by the Lancet Planetary Health journal found that air pollution **exposure contributes to 1.2 million new asthma cases** in children each year.
- Chronic obstructive pulmonary disease (COPD):** The World Health Organization (WHO) estimates that COPD is responsible for over 3 million deaths annually, with air pollution being a significant risk factor.
- Acid rain:** Air pollution can lead to the formation of acid rain, which damages forests, aquatic ecosystems, and historical buildings.
- Climate change:** Certain air pollutants like greenhouse gases contribute to global warming and climate change, impacting weather patterns and ecosystems.
- The economic burden of air pollution-related illnesses is substantial.** A 2020 report by the **Organisation for Economic Co-operation and Development (OECD)** estimated that the global economic cost of air pollution is in the trillions of dollars per year.

Measures to be taken

- Vehicle Standards Upgrade:** India has implemented stricter emission standards (BS-VI) for new vehicles, similar to Euro 6 norms. A 2021 study by the Centre for Science and Environment (CSE) found that a significant portion of older vehicles fail emission tests
- Promoting electric vehicles and strengthening charging infrastructure** can significantly reduce tailpipe emissions. While EV sales are rising in India, they still represent a small fraction of total vehicles.
 - A 2023 report by the **India Brand Equity Foundation (IBEF)** states that EVs comprised **only 4.7% of car sales in India in 2022.**

- **Adoption of Cleaner Technologies:** Encouraging industries to adopt cleaner production processes and invest in pollution control technologies like scrubbers and filters can significantly reduce emissions.
- **Green Infrastructure Development:** Developing urban green spaces like parks, urban forests, and green roofs can help absorb pollutants and improve air quality.
 - A 2019 study by the Council on Energy, Environment and Water (CEEW) found that increasing green cover in Delhi by just 10% could significantly reduce PM2.5 concentrations.
- **Public awareness campaigns:** Educating the public about the causes and health impacts of air pollution can encourage behavior changes that benefit air quality.

Government Initiatives to Combat Air Pollution

- **National Clean Air Programme (NCAP):** Launched in 2019, NCAP is a central government program aiming for a 20-30% reduction in PM10 and PM2.5 concentrations in 131 cities by 2024.
- **FAME India (Faster Adoption and Manufacturing of Electric and Hybrid Vehicles):** Launched in 2015, FAME India aims to promote electric and hybrid vehicles by offering subsidies for purchase and setting up charging infrastructure.
- **Bharat Stage (BS) VI Emission Standards:** Implementing stricter BS-VI emission norms for new vehicles, similar to Euro 6 standards, is a positive step towards cleaner vehicles. However, ensuring compliance for older vehicles is essential.
- **GRAP (Graded Response Action Plan):** Several cities have implemented GRAPs, which outline measures taken based on the severity of air pollution levels. These can include restrictions on construction activities, vehicle use bans, and industrial operation curbs.

Conclusion

- The World Air Quality Report 2023 highlights the urgent need for coordinated efforts to address air pollution and its negative impact on human health. Policymakers can protect citizens' health and create healthier environments for future generations by prioritizing air quality enhancement measures.



5.6 INDIA'S PLASTIC WASTE MANAGEMENT (AMENDMENT) RULES

Context

- The Environment Ministry has introduced the Plastic Waste Management (Amendment) Rules 2024 to amend the Plastic Waste Management Rules 2016.

Facts related to plastic pollution

- *Global plastic production is estimated to be around 450-470 million tonnes per year in 2024. While there might be a slight decrease due to growing awareness, production remains high. According to projections, between 115 and 130 million tonnes of plastic waste are likely generated annually in 2024. Over 1,000 marine species are estimated to be impacted by plastic pollution in the oceans, with entanglement, ingestion, and habitat destruction being major threats.*

Key Highlights of the Plastic Waste Management (Amendment) Rules 2024

- **Biodegradable plastics are defined as materials capable of undergoing degradation** through biological processes in specific environments such as soil and landfills, while also ensuring the absence of microplastics residue.
- **However, the updated rules lack specificity regarding:**
 - The types of chemical tests acceptable for determining the absence of microplastics.

- The required reduction levels of microplastics in a sample to be considered eliminated.
- The amendment permits the manufacturing of carry bags and commodities using compostable or biodegradable



- plastics, subject to mandatory marking and labeling as per the rules and regulations of the **Food Safety and Standards Authority of India (FSSAI)** for food contact applications.
- Manufacturers of compostable or biodegradable plastic carry bags or commodities must obtain a certificate from the **Central Pollution Control Board (CPCB)** before marketing or selling their products.
- **Every manufacturer of plastic commodities is mandated to:**
 - Ensure the processing of pre-consumer plastic waste generated as reject or discard material during the manufacturing stage.
 - Report such processing to the concerned State Pollution Control Board or Pollution Control Committee.

Concerns Related to Plastic Waste

- **Pollution in Oceans:** Millions of tons of plastic waste end up in our oceans, harming marine ecosystems. Estimates suggest 75 to 199 million tons are already present, threatening marine life through entanglement, ingestion, and habitat destruction.
- **Landfill Overflow:** Plastic waste takes hundreds of years to decompose, clogging landfills and causing potential land contamination.
- **Microplastics:** Plastic breakdown creates microplastics, tiny fragments that pollute air, water, and even the food chain, posing potential health risks.

Addressing the Issue

- **Policy and Regulation:** Governments can implement bans or restrictions on single-use plastics, such as shopping bags, straws, and cutlery.
- **Extended Producer Responsibility (EPR):** Holding manufacturers responsible for the entire lifecycle of their plastic products can incentivize them to design for recyclability and reduce packaging waste.
- **Consumer Awareness Campaigns:** Educating the public about the environmental impact of plastic and promoting reusable alternatives can change behavior.
- **Improved Infrastructure:** Investing in waste collection systems, particularly in developing countries, is crucial for preventing plastic from entering the environment.
- **Advanced Recycling Technologies:** Developing and scaling up efficient recycling technologies for various types of plastic waste can significantly reduce landfilling and create a circular economy.

Government initiatives

- **Plastic Waste Management Rules of 2016** prohibit the production, sale, and use of certain single-use plastic items such as carry bags, straws, and cups.
- The **Ministry of Environment enforced a ban on single-use plastics (SUP)** that are difficult to acquire or recycle, effective from July 1, 2022. Under the regulation, the manufacture, import, sale, and use of plastic carry bags thinner than 120 microns were prohibited starting from December 31, 2022.
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- The **Swachh Bharat Abhiyan encompasses initiatives** such as waste segregation at the source, composting of biodegradable waste, and establishing waste processing facilities, all of which indirectly contribute to managing plastic waste.
- **The Indian Swachhata League is a unique initiative** led by youth across cities, aiming to promote the engagement of young people in activities related to cleanliness and sanitation.

Conclusion

- Combating plastic waste is a continuous effort requiring a multi-pronged approach. By combining these strategies, we can build a more sustainable future with responsible plastic use, efficient waste management, and innovative solutions. Collaboration between governments, industries, and individuals is key to achieving this goal.



5.7 CAPTIVE ELEPHANT (TRANSFER OR TRANSPORT) RULES, 2024

Context

- Recently, the Centre has notified a set of rules called the Captive Elephant (Transfer or Transport) Rules, 2024 that liberalizes the conditions under which elephants may be transferred within or between States.
- *Elephants, classified as **Schedule I species under the Wildlife Protection Act, of 1972** enjoy special protection, but certain provisions allow for their translocation under specific circumstances. **Captive elephants** are elephants that are owned and kept by humans, often for various purposes such as historical roles in forest management, timber transport, religious ceremonies, or entertainment. They are distinct from wild elephants and are subject to regulations regarding their care and management.*

Background

- **Enacted in 1972, the Wildlife Protection Act** prohibits the capture or trade of elephants, regardless of their origin (wild or captive), without proper authorization.
- **Special provisions within the Act** allow for exceptions to the strict regulations governing elephant transfer, permitting such actions for educational, scientific, or religious purposes, provided they receive approval from wildlife authorities.
- **The Wildlife (Protection) Amendment Bill of 2022** widened the parameters surrounding elephant transfers, prompting concerns from activists regarding the heightened risks of exploitation and illegal trafficking.

Key Highlights of Captive Elephant (Transfer or Transport) Rules, 2024

Authorization by Notification

- The procedure for the transfer of captive elephants within a State or between two States is delineated in a notification.

- It empowers the Chief Wildlife Warden (CWW) of States and Union Territories (UTs) to approve or disapprove such transfers.

Criteria for Approval

- The CWW may sanction inter and intra-state transfers if the elephant's owner is unable to adequately maintain it or if the animal's welfare would improve in the proposed environment.

Requirement for Genetic Profile Registration

- The transfer of captive elephants is contingent upon the animal's genetic profile being registered in the electronic monitoring application of the Ministry of Environment, Forest and Climate Change (MoEFCC).

Application Submission

- Applications for the transfer of captive elephants must be submitted to the Deputy Conservator of Forests (DCF) with jurisdiction over the area where the elephant is registered.

Verification Process

- The DCF is responsible for conducting an inquiry and physical verification of both the current and proposed housing facilities of the elephant. Additionally, a certificate from a veterinary practitioner is obtained.

Approval or Rejection by CWW


- Upon receiving the details, the Chief Wildlife Warden (CWW) has seven days to either accept or reject the transfer request.

ELEPHANT SPECIES

Asian Elephant

African Savannah Elephant

African Forest Elephant



There are three recognized elephant species: Asian, African savannah and African forest. Adult female elephants are called cows; adult males, bulls; and sub adults, calves.

SPECIES		
Asian elephant	African savannah elephant <i>(also called African bush elephant)</i>	African forest elephant
SCIENTIFIC NAME		
<i>Elephas maximus</i>	<i>Loxodonta Africana</i>	<i>Loxodonta cyclotis</i>
SUBSPECIES		
Indian, Sri Lankan and Sumatran		
CONSERVATION STATUS		
Endangered	Vulnerable	Endangered
HOME RANGES		
Southeastern Asia, including India, Thailand, Nepal, Sumatra, Cambodia, Myanmar, Bhutan, Borneo, Vietnam, Bangladesh and China. They inhabit grasslands, different types of forests and scrublands. They can live at altitudes ranging from sea level to more than 9,800 feet.	Sub-Saharan Africa, including Uganda, Kenya, Tanzania, Botswana, Zimbabwe, Zambia, Angola and Ethiopia. The elephants move among a variety of habitats, including grasslands, forests, woodlands, wetlands and agricultural land from sea level to mountain slopes. In Mali and Namibia, there are small populations of elephants who also live in desert areas.	West Africa and the Congo River Basin, including Ivory Coast, Ghana, Cameroon, Gabon and Democratic Republic of the Congo. They live in evergreen moist deciduous forests and rainforests.
PHYSICAL CHARACTERISTICS		
Largest living land mammal in Asia. Their forehead has two hemispherical bulges; their back is convex; and they have five toes on each forefoot and four on each hind foot. Their trunk has one finger-like tip.	Largest living land mammal in Africa. Their backs are concave and their trunks have two finger-like tips. Their skin appears loose with parallel folds, which create maximum surface area for heat disbursement. The savannah elephant has large ears that are pointed and triangular shaped whose shape resembles the African continent.	Smallest of the three living elephant species. Their ears are rounder and tusks straighter than the savannah elephant's.
AVERAGE WEIGHT		
8,000 pounds	8,000 pounds	4,000-8,000 pounds

What are the Rules around the Transfer and Transport of Elephants?

- Elephants, designated as Schedule 1 species under the Wildlife Protection Act, 1972 (WPA), cannot be traded or captured, whether in the wild or in captivity, as per the Act's provisions.
- Section 12 of the WPA allows for the translocation of Schedule 1 animals for specific purposes like education, scientific research, wildlife population management, and collection of specimens for recognized zoos and museums.
- Section 40(2) of the WPA mandates that the acquisition, possession, and transfer of captive elephants require written permission from the Chief Wildlife Warden of the State.
- Until 2021, these laws explicitly prohibited transactions involving elephants to have a commercial nature.
- However, in 2021, an amendment introduced by the Environment Ministry allowed the transfer of elephants for religious or other purposes, altering the previous stipulation.



Conclusion

- These new rules mark a significant shift in the regulations surrounding the transfer and transport of captive elephants, reflecting evolving understanding and practices in animal welfare.

5.8 SHORT ARTICLES

International Big Cat Alliance

Context

The Union Cabinet has approved the establishment of the International Big Cat Alliance (IBCA) with headquarters in India.

Details

- A one-time budgetary support of Rs. 150 crore has been sanctioned for a period of five years, covering the span from 2023-24 to 2027-28.
- International Big Cat Alliance (IBCA) is a mega global alliance launched by India in April 2023 during the 50th anniversary of Project Tiger.



About the International Big Cat Alliance

Aim

- To protect and conserve the world's seven major big cats: tiger, lion, leopard, snow leopard, puma, jaguar, and cheetah.

Headquarters

- India

Membership

- Open to 96 range countries containing natural habitats of big cats, as well as other interested parties such as conservation organizations, scientific organizations, businesses, and corporates.

Members

- 16 countries and 9 international organizations (e.g., IUCN, WWF International) have given consent to join.

Governance Structure

- General Assembly consisting of all member countries; Council elected by General Assembly; Secretariat.

Funding

- Supported by **India's grant assistance of Rs.150 crore for the first five years**; sustainability through membership fees, contributions from institutions, and private sector after that.

Activities

- Knowledge and expertise sharing, support for habitat recovery efforts, advocacy, partnership, capacity building, eco-tourism, finance tapping, assistance to species-specific inter-governmental platforms.

Hanguls

Context

- Kashmir's Hangul, a shy and endangered species of deer, has exhibited a robust breeding season, suggesting a hopeful future for its population in the Dachigam National Park.
- Hangul, commonly known as **Kashmir Stag** is a subspecies of the elk.
- Scientific Name: **Cervus hangluhanglu**
- It is a critically endangered animal found in the Indian state of **Jammu & Kashmir (state animal)**.



About Hangul:

Habitat

- Mountain ranges of Central and South Asia, including the Himalayas, Tibetan Plateau, and Altai Mountains

Appearance

- **Medium-sized cat with a thick fur coat adapted to cold climates**, featuring a pale gray or creamy-white base with black rosettes and spots; long, bushy tail for balance and camouflage

Diet

- **Carnivorous**; preys on animals such as Himalayan blue sheep, ibex, marmots, and small rodents

Behavior

- Solitary and elusive; primarily nocturnal and crepuscular, active during dawn and dusk

Conservation Status

- **IUCN: Critically Endangered**
- **CITES: Appendix I**
- **Wildlife (Protection) Act, 1972: Schedule I (highest level of protection)**

Conservation Efforts

- Protection through national parks, conservation programs, and initiatives like the **International Big Cat Alliance**; monitoring and research to understand population dynamics and threats

Importance

- Plays a key role in maintaining ecological balance in its habitat by regulating prey populations

Green Tug Transition Programme

Context

- Union Minister of MoPSW& AYUSH inaugurated the 60T bollard pull tug named 'Ocean Grace' and the Medical Mobile Unit (MMU), virtually on 2nd March, 2024.
- The **Ocean Grace is the first make in India ASTDS Tug developed by the Cochin Shipyard Limited under MoPSW**. The Medical Mobile Unit (MMU) is part of port's commitment to corporate social responsibility. This initiative **highlights 'Aatmanirbhar Bharat' initiative of PM Modi**.

About Green Tug Transition Programme (GTTP):

Goal

The GTTP aims to achieve a two-pronged approach:

- Transitioning at **least 50% of all operational tugs in major Indian ports to green alternatives by 2030**.
- Ensuring the presence of green tugs in **all major ports by 2025**.

Focus

- The program emphasizes replacing conventional, fossil fuel-powered tugboats with more environmentally friendly alternatives. These "green tugs" could utilize various clean technologies, such as:
 - Battery electric
 - Hybrid electric
 - Liquefied natural gas (LNG)
 - Methanol or ammonia-powered options (in later stages).

Benefits

- Reduced Emissions:** Green tugs significantly reduce emissions of harmful pollutants like sulfur oxides and nitrogen oxides, contributing to cleaner air around ports and coastal areas.
- Enhanced Sustainability:** The program promotes sustainable practices in the maritime sector, aligning with India's goals of achieving carbon neutrality by 2070.
- Improved Efficiency:** Certain green tug technologies, like hybrid models, might offer better fuel efficiency compared to traditional tugs.

Implementation

- The **National Centre of Excellence in Green Port & Shipping (NCoEGPS)** plays a crucial role in facilitating the GTTP's implementation.
- The **program encourages partnerships between public and private entities** to invest in developing and deploying green tug technologies.

Oran land

Context

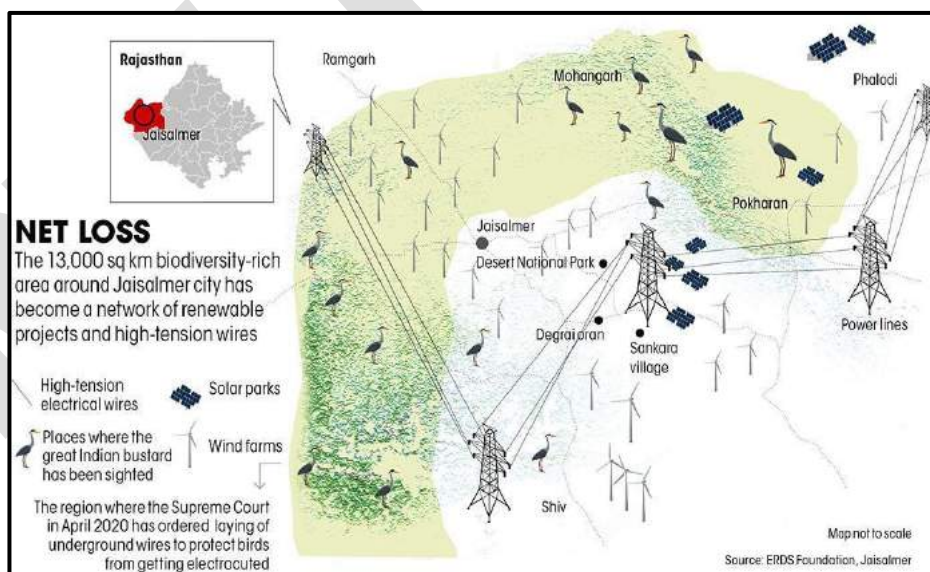
- The proposal by the Rajasthan government to classify orans as "deemed forests" is triggering concerns among communities, particularly in western Rajasthan, who rely on these sacred groves for various purposes.

Details:

- The state govt. of Rajasthan issued a notification on February 1, 2024, proposing to classify orans (sacred groves) as deemed forests.

What are Orans?

- Orans are traditional sacred groves specific to Rajasthan, India.** These community forests are safeguarded and overseen by rural communities, often linked to local deities.
- They boast diverse ecosystems, commonly featuring water bodies,** and have been protected for generations.



- Orans fulfill various functions, serving as grazing lands for livestock, hosting communal events and celebrations, and providing habitats for endangered species such as the Great Indian Bustard.



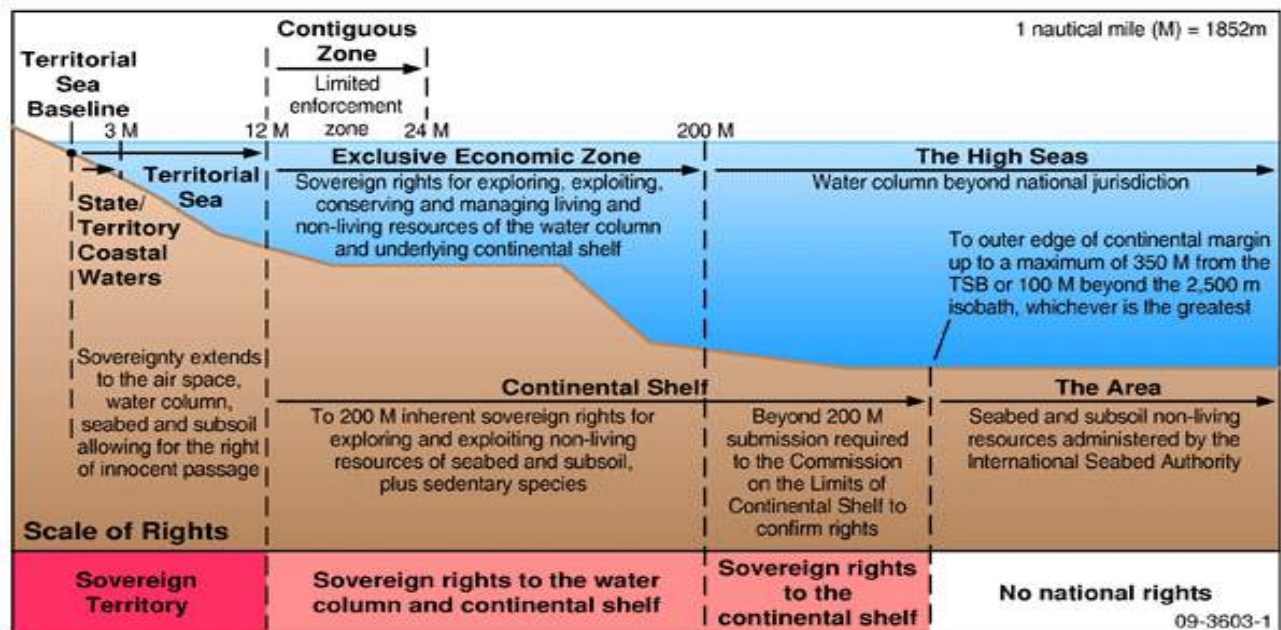
About Sacred Groves:

- Sacred groves are forest patches traditionally safeguarded by communities in reverence to a deity. They serve as crucial repositories of forest biodiversity, offering sanctuary to numerous plant and animal species with conservation significance.
- India boasts over 13,000 documented sacred groves, known by various regional names such as **Kavu/Sarpa Kavu in Kerala, Devarakadu/Devkad in Karnataka, and Deorai/Devrai in Maharashtra.**

Biodiversity beyond National Jurisdiction

Context

- Belgium hosted the Blue Leaders High-Level Event on Biodiversity Beyond National Jurisdiction (BBNJ) to encourage governments to ratify a new convention to safeguard the high seas from pollution, climate change, and overfishing.



About BBNJ Treaty:

About

- The BBNJ treaty, commonly known as the **Treaty of the High Seas**, was finalized in March 2023 with the aim of conserving and sustainably managing marine **biological diversity in areas beyond national jurisdiction.**
- It represents a significant milestone in addressing the challenges faced by the high seas, which extend **beyond 200 nautical miles from coastal countries' exclusive economic zones.**

Ratification Progress

- Currently, **88 countries have signed the treaty, with only Chile and Palau having ratified it.** However, at least **60 ratifications are required for the treaty to come into force.**

Objectives

- The treaty seeks to increase the percentage of protected areas on the high seas, which **currently accounts for a mere 1.44% despite covering more than two-thirds of the global ocean.**

- Additionally, it aims to ensure fair and equitable sharing of profits from **marine genetic resources (MGR)** and establish rules for conducting **Environmental Impact Assessments (EIA)** to evaluate potential impacts of activities on the ocean.

Alignment with 30x30 Target

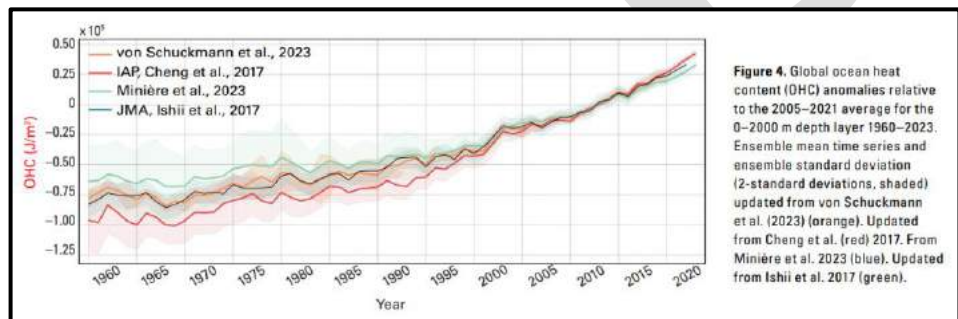
- The treaty aligns with the 30x30 target, a global commitment to **protect at least 30% of the planet for nature by 2030**.
- This target was agreed upon at the **Convention on Biological Diversity (CBD)** during the **Conference of Parties (COP15)** to the UN Convention on Biological Diversity in 2022.
- It is also included in the **Kunming-Montreal Global Biodiversity Framework**.



State of the Global Climate

Context

- Recently, the World Meteorological Organization (WMO) released its State of the Global Climate 2023 report, which highlights that the heat content of the world's oceans reached a record high in 2023.



Details:

- The World Meteorological Organization (WMO) is an intergovernmental organization with a membership of 192 Member States and Territories. India is a member of WMO.
- It originated from the **International Meteorological Organization (IMO)**, which was established after the **1873 Vienna International Meteorological Congress**.

Key Highlights of the Report:

Ocean Heat Content

- In 2023, the **world's oceans** reached a **record-high heat content** due to anthropogenic climate drivers like greenhouse gas emissions.

Contrasting Heating and Cooling

- While most oceans experienced warming, small regions like the **subpolar North Atlantic showed cooling**, attributed to the slowdown of the **Atlantic Meridional Overturning Circulation (AMOC)**.

Global Average Sea-Surface Temperatures

- **2023 saw record-high global average sea-surface temperatures**, notably in regions like the eastern North Atlantic, Gulf of Mexico, Caribbean, North Pacific, and large areas of the Southern Ocean.

Marine Heatwaves and Ocean Acidification

- **Marine heatwave coverage hit a new high of 32%**, impacting marine ecosystems and coral reefs. Ocean acidification rose due to increased carbon dioxide absorption. Severe heatwaves were particularly observed in the North Atlantic.

Global Mean Near-Surface Temperature

- **The global mean near-surface temperature in 2023 surpassed** previous records, marking it as the warmest year on record, primarily driven by increased greenhouse gas concentrations.

Accelerating Glacial Retreat and Antarctic Sea Ice Loss

- **Glaciers globally experienced significant ice loss**, especially in western North America and Europe. **Antarctic sea ice extent reached a satellite-era low**, while Arctic Sea ice remained below normal levels.

Increased Frequency and Intensity of Extreme Weather Events

- 2023 saw a surge in extreme weather events like **heatwaves, floods, droughts, wildfires, and tropical cyclones, causing socio-economic impacts** across continents. Notable events include Mediterranean Cyclone Daniel and Tropical Cyclone Freddy and Mocha.

Renewable Energy Surge

- **Renewable energy generation soared in 2023**, with capacity additions rising **nearly 50% from the previous year**, indicating progress towards decarbonization goals and transitioning to cleaner energy sources.

Climate Financing Challenges

- Although global **climate-related finance flows increased significantly**, they represent only a **small fraction of global GDP**. There's a substantial financing gap, especially in meeting targets for climate finance investments and adaptation financing.



Ethanol 100

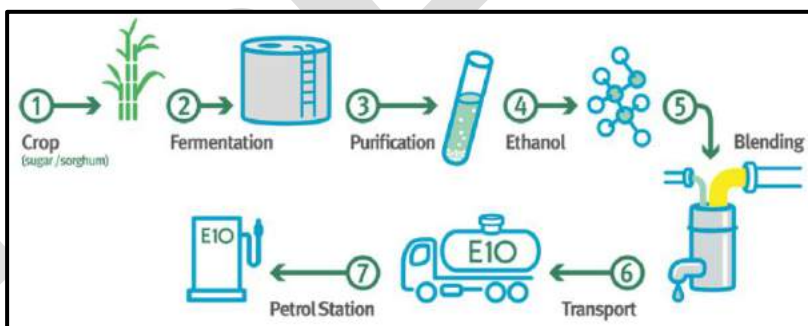
Context

- Union Minister for Petroleum and Natural Gas Hardeep Singh Puri launched Ethanol 100.
- E100 now comprises 93-93.5% ethanol blended with 5% petrol and 1.5% co-solvent (binder). E100 is priced equivalently to petrol: Rs 94.72/liter in Delhi, Rs 104.21/liter in Maharashtra, and Rs 100.75/liter in Chennai.

About BBNJ Treaty:

High-Octane Rating

- ETHANOL 100 boasts a high-octane rating, **typically falling between 100-105**, making it suitable for **high-performance engines**, thereby enhancing efficiency and power output.



Ideal for High-Performance Engines

- It proves **ideal for high-performance engines**, ensuring improved efficiency and power output while minimizing environmental impact.

Versatility

- ETHANOL 100 exhibits versatility, compatible with a wide array of vehicles, including **flex-fuel vehicles (FFVs)** engineered to run on gasoline, ethanol, or any blend of the two.

Practicality and Potential

- Its practicality and potential to become a mainstream fuel option are underscored, contingent upon the presence of the appropriate infrastructure.

Composition

- **Comprising 93-93.5 percent ethanol blended with 5 percent petrol and 1.5 percent co-solvent (a binder)**, ETHANOL 100 maintains a balanced formulation ensuring optimal performance.

Cleaner, Greener Alternative

- As a cleaner, greener alternative to gasoline, **ETHANOL 100 boasts lower emissions of greenhouse gases and pollutants**, thus contributing to the fight against climate change and improving air quality within communities.



Solar Waste

Context

- India generated about 100 kilotonnes (kt) of solar waste in the financial year (FY) 2022-2023, according to a new study published on Wednesday (March 20).
- Around 67% of this waste** is expected to be produced by five states, including **Rajasthan, Gujarat, Karnataka, Tamil Nadu, and Andhra Pradesh**. Out of India's 500 GW renewable energy target, the majority of the GWs will come from these five renewable energy-rich states. **By 2050, it will increase to about 19,000 kt** 77% of which will be generated from new capacities.

About Solar Waste:

About

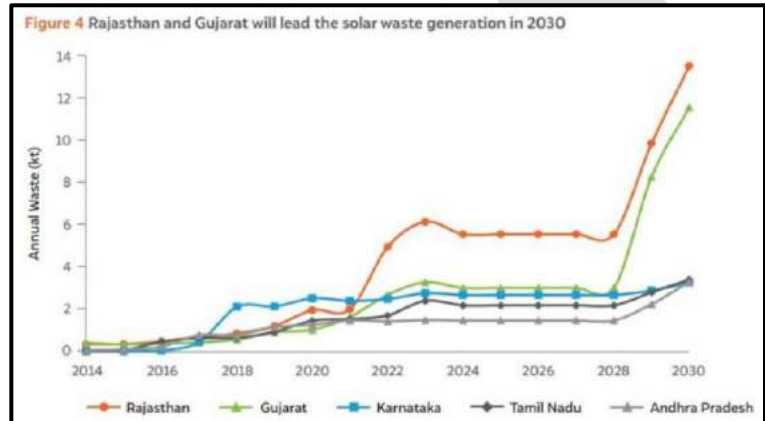
- It is defined as the **waste that is generated during the manufacturing of solar modules and waste from the field during a project's lifetime.**

Current Capacity and Past Waste

- India's current installed capacity stands at **66.7 GW** as of FY23, generating approximately **100 kilotonnes of waste.**

2030 Waste Projection

- By 2030, the waste is anticipated to **surge to 340 kilotonnes.**



Cumulative Waste Projections

- The cumulative solar waste, including existing and new capacity deployment from FY24 to FY30, is estimated to reach about **600 kilotonnes by 2030.**

Rise in Waste Due to New Capacities

- Projected to escalate significantly to **around 19,000 kilotonnes by 2050**, with 77% stemming from new capacities.

Mineral Composition in Discarded Modules

- Discarded solar modules comprise critical minerals such as **silicon, copper, tellurium, and cadmium.**

Recommendations for Solar Waste Management

- Policymakers are urged to maintain a comprehensive database** of installed solar capacity for accurate future waste estimation.
- Incentivizing recyclers and establishing a market for solar recycling** are also recommended strategies.



Lianas

Context

- As the world grapples with rising temperatures, a groundbreaking study led by the University of the Sunshine Coast, Australia exposes an unlikely menace of Lianas.

About Lianas

About

- Lianas, also known as **vines or climbers**, are plants characterized by **long, flexible stems rooted in the ground**, often featuring dangling branches.



Habitat Preference

- **Lianas thrive in disturbed forest areas**, such as those impacted by logging, natural treefalls, or landslides, leveraging trees as support to rapidly ascend toward the forest canopy.

Climate Resilience

- Lianas demonstrate greater resilience to fluctuations in **moisture and temperature compared to trees**, offering them a competitive edge in varied climatic conditions.

Competitive Advantages

- **With their climbing ability, resilience to climatic stress**, and efficient water and nutrient utilization, lianas effectively outcompete trees for sunlight and resources. They compete for canopy space and can suppress tree growth.

Impact on Carbon Storage

- **Lianas possess a lower carbon sequestration capacity** compared to trees, intensifying the threat to carbon storage.



Black Carbon Emissions

Context

- There is constantly growing concern about the black carbon emission in India which needs to be curbed.

Details

- Most black carbon emissions in India arise from burning biomass, including cow dung or straw, in traditional cookstoves.
- According to a 2016 survey, the residential region contributes 47% of India's overall black carbon emissions.
- Industries make a contribution a further 22%, diesel motors 17%, open burning 12%, and different sources 2%.

Black Carbon Emissions

About

- It is a dark sooty material emitted along with other pollutants when biomass and **fossil fuels are not fully combusted**, contributes to global warming and poses severe risks. It is a part of **fine particulate air pollution (PM2.5)**.
- It has been discovered that have a direct link between exposure to black carbon and a higher **risk of heart disease, birth complications, and premature death**.

Sources

- **Diesel engines**: Transportation, especially diesel-powered vehicles, are major contributors to black carbon emissions.
- **Traditional cookstoves** used in developing countries, particularly those burning solid fuels like wood or dung, release significant amounts of black carbon.
- **Open burning**: Forest fires, agricultural burning, and waste burning contribute to black carbon emissions.

Impact

- **Black carbon absorbs sunlight and warms the atmosphere**, contributing to global warming. Its impact is particularly pronounced in polar regions, where it accelerates glacier melting.
- **Black carbon inhalation can cause respiratory problems**, including asthma, chronic obstructive pulmonary disease (COPD), and lung cancer.

Way Forward

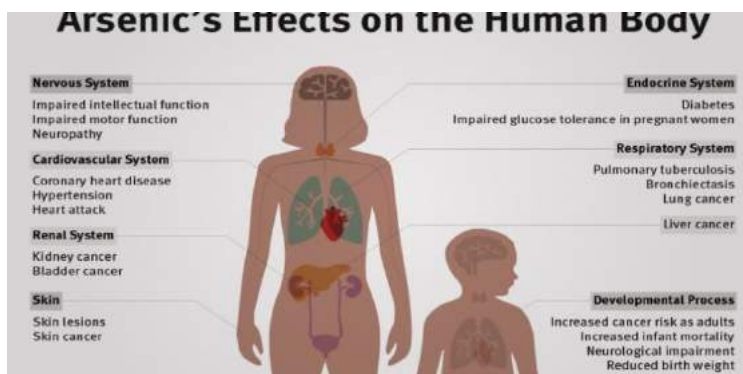
- Reducing black carbon emissions requires a multi-pronged approach involving governments, industries, and individuals. By investing in cleaner technologies, promoting sustainable practices, and raising awareness about the risks, we can mitigate the impact of black carbon on climate change and public health.



Arsenic Contamination

Context

- A new study underlines the risk of using water contaminated with arsenic to cook rice, a staple food serving more than half the world's population.
- Arsenic is a naturally occurring, semi metallic element widely distributed in the Earth's crust. It is widely distributed throughout the environment in the air, water, and land. It is a chemical element in the nitrogen group (Group 15 of the periodic table), existing in both gray and yellow crystalline forms. It is highly toxic in its inorganic form.



Key points:

Sources of Contamination

- Arsenic is naturally present in rocks and minerals. Weathering and erosion can release arsenic into groundwater and soil.
- Coal-fired power plants release arsenic into the air, which can eventually settle on land and water.

Health Risks of Arsenic Exposure

- **Acute Poisoning:** Consuming large amounts of contaminated water can lead to immediate symptoms like vomiting, diarrhea, and even death.
- **Chronic Exposure:** Long-term exposure to lower levels of arsenic can cause various health problems, including:
 - Skin problems like discoloration and thickening
 - Increased risk of cancers, particularly skin and bladder cancer
 - Cardiovascular diseases
 - Developmental problems in children

Challenges

- Implementing effective mitigation measures requires significant investment in infrastructure and technology. Finding cost-effective solutions for developing countries is a challenge.
- Arsenic contamination is a persistent problem requiring long-term management strategies to ensure safe drinking water for future generations.

Permissible Limit

- The **recommended limit is 10 µg/l**. Arsenic contamination in communities across **India has increased by 145 per cent in the past five years**, according to a report by The Guardian.
- In rural parts of the country, it is wreaking havoc in the lives of people.
- Arsenic contamination in **India was widespread in the 1990s** in West Bengal and later in Bihar, Jharkhand, Uttar Pradesh, Assam and Manipur.



South East Africa Montane Archipelago

Context

- A recent study has revealed about undocumented biodiversity in the newly recognized South East Africa Montane Archipelago (SEAMA) Ecoregion.
- The SEAMA is a recently recognized ecoregion **located in Southern Africa**. It spans across **northern Mozambique** and incorporates **Mount Mulanje in Malawi**. It is distinguished by its mountainous terrain,

encompassing diverse habitats such as **montane forests, grasslands, and rock faces**. Despite its relatively recent recognition, SEAMA has been identified as a hub of biodiversity, **hosting numerous species of plants, vertebrates, and invertebrates**.

Key findings:

Species Documentation

- The researchers identified 127 plants, 45 vertebrates, and 45 invertebrate species, including two endemic genera of plants and reptiles.

Endemic Reptiles

- SEAMA is home to 22 strictly endemic reptile species, most of which are threatened by habitat loss due to deforestation.

Global Significance

- The remarkable diversity of SEAMA has prompted proposals to designate it as a new ecoregion of global biological importance.

Conservation Challenges

- SEAMA faces severe deforestation threats, with up to 18% of its primary humid forest cover lost since 2000.
- Slash and burn shifting agricultural practices, along with charcoal production, are the primary drivers of deforestation in the region.
- ***An inselberg, also known as a Monadnock, is a solitary, steep-sided hill or mountain that rises abruptly from surrounding plains, resembling an island in a sea of flat land. Composed mainly of hard, erosion-resistant rocks like granite or sedimentary formations, inselbergs are erosional remnants that can endure for millions of years. Inselberg landscapes exhibit limited erosion, with active erosional processes mainly occurring along valley sides and floors.***



5.9 SNIPPETS

APTI PLUS




Sea Slug

- Sea slugs, or nudibranchs, are colorful marine mollusks without shells. They have a distinctive ruby-red spot at the hind end, are primarily carnivorous, and are hermaphroditic. Found from shallow reefs to deep-sea habitats, their vibrant colors warn predators of toxicity.





APTI PLUS




Early Jacaranda Bloom

- Jacaranda trees, known for their vibrant blooms in spring or early summer, have begun flowering as early as January in some parts of Mexico, alarming residents and scientists. This unusual occurrence is attributed to climate change, with rising temperatures causing winters to end prematurely, disrupting the trees' natural flowering cycle.










Status of Leopards in India

- The Status of Leopards in India report found India's leopard population to be 13,874 individuals, stable compared to 2018. Covering 70% of habitat, the survey revealed a 1.08% per annum growth rate overall, with declines in the Shivalik hills and Gangetic plains but growth in Central India and Eastern Ghats. Madhya Pradesh hosts the largest population (3907), followed by Maharashtra, Karnataka, and Tamil Nadu. Key reserves include Nagarajunasagar Srisailem, Panna, and Satpura.








Parasitoid Wasp

- Entomologists from the Ashoka Trust for Research in Ecology and the Environment (ATREE) have identified a new species of parasitoid wasp in Karnataka's Western Ghats region.
- Named *Taeniogonolalodesepaki*, it was discovered in the Belgaum area and named after nature enthusiast Deepak Deshpande, who collected the specimen.
- Parasitoid wasps are insects that lay eggs inside other insects to complete their life cycle and serve as important biological control agents for gardeners by controlling pests like aphids, caterpillars, and other sucking insects.








Golden Langurs

- The golden langur (*Trachypitecus geei*), also known as the golden leaf monkey, the IUCN status of Golden Langur is Endangered and they are arboreal primate found in northeastern India and southern Bhutan. Listed in Appendix I of CITES, its habitat is confined to the region bounded by four geographical landmarks: the foothills of Bhutan (North), Manas River (East), Sankosh River (West), and Brahmaputra River (South).









Bio CNG Production from Dung

- The Banaskantha District Co-operative Milk Producers' Union in Gujarat has initiated a project to convert dung into BioCNG and fertilizer, providing additional income for dairy farmers while addressing waste management. The BioCNG outlet on the Deesa-Tharad highway in Banaskantha district is India's first and only gas-filling station fueled by dung from cattle and buffaloes, marking a pioneering effort in the country.







Asbestos

- Asbestos is a silicate compound found naturally in the environment and the mining operations used to extract it from the hills which had a rich source of this compound. Asbestos is a strong incombustible fibre that is used for fireproofing and insulation. It also has a very high tensile strength.
- Asbestosis is a notified disease under The Mines Act, of 1952.
- Among the different types of asbestos, crocidolite asbestos, also known as blue asbestos, is deemed the most hazardous.
- Actinolite asbestos, utilized in products such as cement, insulation, paint, and drywall, is another variant.
- Amosite asbestos, commonly known as brown asbestos, finds application in cement, insulation, roofing, and various construction materials.



Great Indian Bustard

- The Great Indian Bustard (*Ardeotisnigriceps*) is India's most critically endangered bird (As per IUCN list), serving as the state bird of Rajasthan.
- As a flagship grassland species, it symbolizes the health of grassland ecology. Its population is primarily concentrated in Rajasthan and Gujarat, with smaller populations found in Maharashtra, Karnataka, and Andhra Pradesh.



Vechur cow

- The Vechur cow, a rare dwarf cattle breed of India, is renowned as the world's smallest cattle breed.
- Originating from Vechur, a small village near Vembanad Lake in Kerala's Kottayam district, these cows come in light red, black, fawn, and white colors.
- Adapted to the region's hot and humid climate, they boast higher milk production than other dwarf cattle breeds.
- Known for their docile nature, disease resistance, and low maintenance, they are resistant to ailments like Mastitis, foot and mouth diseases, and respiratory infections, requiring minimal veterinary care.
- Ayurveda recognizes the medicinal properties of Vechur cow milk due to its higher proportion of smaller fat globules and saturated fatty acids, making it beneficial for malabsorption syndrome. It is also considered an ideal food for children and convalescents.

6. SOCIAL ISSUES

6.1 SHORT ARTICLES

Women, Business and the Law 2024

Context

- According to a recent World Bank report titled "Women, Business and the Law 2024," there are significant variations in the legal rights that men and women have across the globe. According to the survey, women only enjoy, on average, 64.2% of the legal rights that men have.

Key Findings of the Report

- **No country gives women equal legal rights.** The report advocates for reforms to ensure women's equality in society and help them realise their economic potential.
- **Closing the legal gender gap might greatly improve GDP** by allowing women to fully participate in the labour force and own enterprises.
- The report examines legal frameworks in 190 economies in eleven areas critical to women's economic opportunity: safety, mobility, employment rights, pay equality, marriage, parental rights, childcare, entrepreneurship, property rights, and pensions.

Global Challenges

- **Gap in Implementation:** There is a considerable gap between legal reform and actual consequences for women. The majority of countries still lack even 40% of the systems required for complete deployment.
- **Long-Term Pay Disparity:** Even though equal pay laws are in place in 98 economies, few of them have implemented strategies to close the wage disparity that currently exists.
- **Safety Issues:** Women's safety has a low global average score of 36%, which raises serious concerns. This suggests that there are not enough laws protecting people from abuse, harassment, child marriage, and femicide.
- **Limited Assistance for Childcare:** Many countries have weak childcare regulations that provide parents with little financial support and inadequate standards of quality.

India's Performance and Recommendations

- **Rank Improvement:** India's position improved slightly to 113th in 2023, with a score of 74.4%. While this represents some progress, a significant gap remains.
- **Lower Legal Rights:** Indian women have only 60% of the legal rights that males enjoy, showing that they face legal challenges in several sectors.
- **Regional Outperformance:** Despite its challenges, India outperforms South Asian countries, where women receive only 45.9% of legal protections.
- **Strengths and weaknesses:** India performed well in areas such as free movement and marital limitations. However, wage equity laws and childcare policies were noted as areas for development. The World Bank proposes initiatives to boost these areas.
- **Pay Equality:** Mandating equal pay for equal work would ensure that women are fairly compensated for their contributions.
- **Night Work:** Empowering women to work at night on the same basis as men would increase career options and provide them more flexibility in managing work and family lives.
- **Industrial jobs:** Allowing women to hold industrial positions without facing prejudice would reduce barriers to their involvement in a broader range of professions.

Way Forward

- **Governments must prioritise enacting and implementing laws that promote gender equality,** particularly in areas such as pay equity, parental rights, and workplace safety.

- **Establishing strong support networks**, such as childcare services and methods to address gender-based violence, is critical to empowering women in the workplace.
- Collaboration among governments, international organisations, and civil society is critical for making genuine progress towards gender equality.

Conclusion

- The report highlights the urgent need for action to remove legislative challenges to women's economic involvement globally. Closing the gender gap in legal rights and empowering women can help countries unlock tremendous economic potential and promote more inclusive and prosperous societies.

PM Janjati Adivasi Nyay Maha Abhiyaan

Context

- The Union Cabinet approved the Pradhan Mantri Janjati Adivasi Nyay Maha Abhiyaan (PM JANMAN) in November 2023. The initiative aims to address the socioeconomic challenges that tribal groups in India experience.

Key Features of PM JANMAN

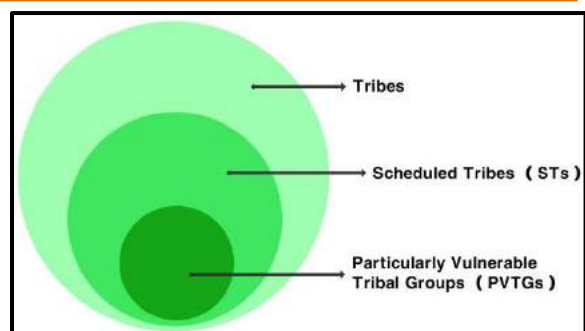
- PM JANMAN aims to **offer basic services and infrastructure to Particularly Vulnerable Tribal Groups (PVTGs)** throughout the country.
- The mission includes a wide range of services, such as safe housing, clean drinking water, healthcare, education, nutrition, road and telecommunications access, and opportunities for sustainable livelihoods.
- It intends to execute a variety of initiatives to uplift tribal communities and improve their quality of life.
- **It received a budgetary allocation of Rs. 24,104 Crore over three years (2023-24 to 2025-26)**, with the Union government contributing Rs. 15,336 crore and the States contributing Rs. 8,768 crore.
- **It involves 11 critical interventions** including housing provision, road connectivity, water supply infrastructure, healthcare services, vocational education, and the construction of community amenities such as Anganwadi and Multipurpose Centres.
- **It utilises initiatives from several ministries**, including the Ministry of Tribal Affairs, the Ministry of Ayush, and the Ministry of Skill Development and Entrepreneurship, among others.

Current Updates and Challenges

- Despite its ambitious goals, PM JANMAN has faced difficulties, particularly in the housing component. **According to the Tribal Affairs Ministry data only 1.59 lakh of the nearly five lakh houses planned for development were sanctioned** due to challenges in gathering accurate beneficiary data.

Particularly Vulnerable Tribal Groups (PVTGs)

- In India, tribal populations account for 8.6% of the total population. PVTGs are particularly vulnerable among tribal communities.
- **In 1973, the Dhebar Commission defined Primitive Tribal Groups (PTGs)** as a unique category of tribal groupings that are less developed. The Indian government renamed the PTGs as PVTGs in 2006.
- PVTGs have several fundamental characteristics, such as being largely homogeneous, having a small population, being physically isolated, not having written language, having relatively simple technology, changing at a slower pace, etc.
- **Odisha has the largest number of PVTGs out of the 75 listed.**



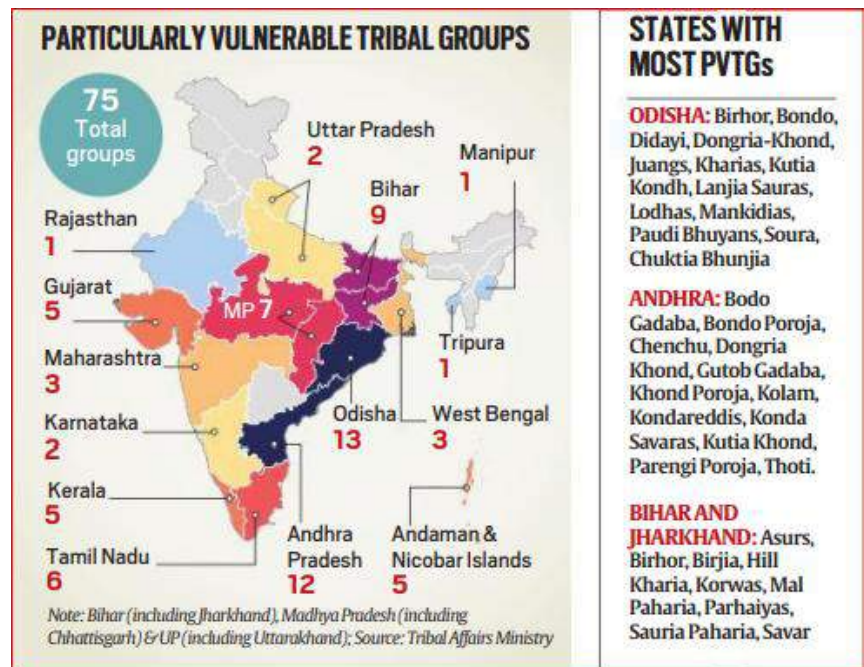
- The government used the PM Gati Shakti portal to determine the total number of 75 PVTG tribes throughout the country. However, differences between data collected by the Tribal Affairs Ministry and state governments have resulted in delays and uncertainty in determining eligible applicants.

Way forward

- To overcome the issues affecting PM-JANMAN, a collaborative effort between the Union and state governments is required to resolve information disparities and ensure proper beneficiary identification. Flexible timeframes and ongoing contact with states can help to ensure a smoother implementation process.
- Utilising technology and data analytics can improve the accuracy and efficiency of beneficiary identification operations. Continuous monitoring and evaluation of the initiative's success is critical for effectively identifying and dealing with developing difficulties.

Conclusion

- PM-JANMAN has enormous potential to empower tribal people and integrate them into the mainstream. Despite challenges in implementation, the government's commitment to tribal welfare is evident through significant budget allocations and inter-ministerial collaboration. By proactively tackling issues and employing creative solutions, PM-JANMAN can achieve its mission of empowering tribal communities and assuring their holistic development.



V-SAT Station in Tribal Villages of India

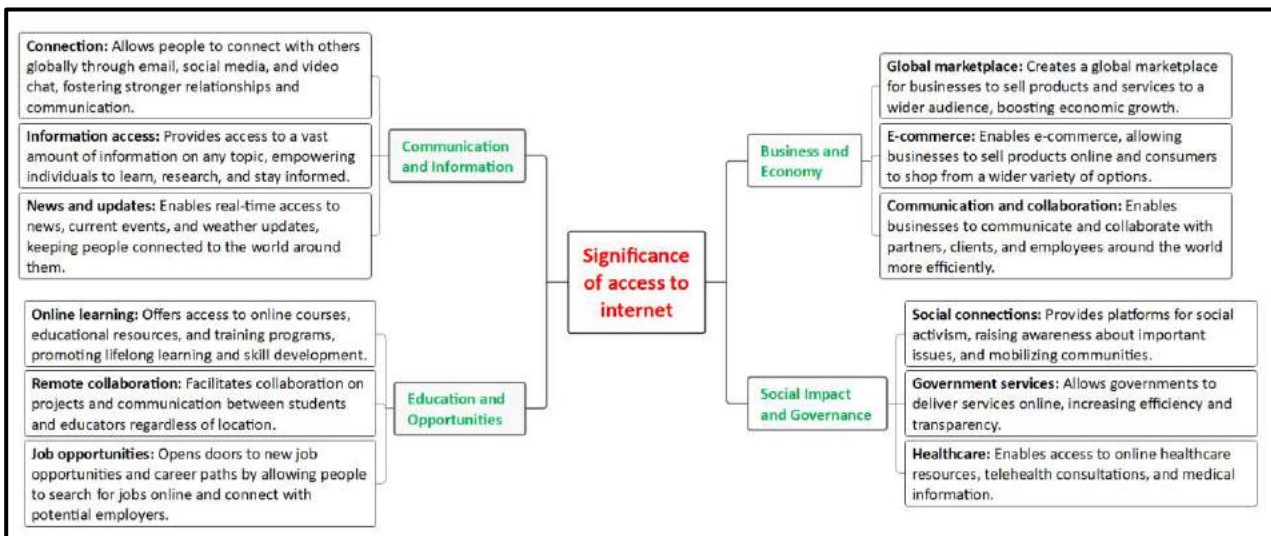
Context

- The Ministry of Tribal Affairs is collaborating with the Indian Space Research Organisation (ISRO) to provide Internet services to address the challenge of connectivity in

Details

- The Ministry of Tribal Affairs is collaborating with the Indian Space Research Organisation (ISRO) to establish **V-SAT stations in 80 villages across four states: Jharkhand, Madhya Pradesh, Odisha, and Maharashtra.**
- The initiative aims to **provide internet service to isolated tribal settlements**, to empower tribal communities in India.

Access to the internet can offer communities access to a wide range of resources, including educational materials, healthcare information, and government services. It can also help to close the digital gap and generate new economic opportunities.

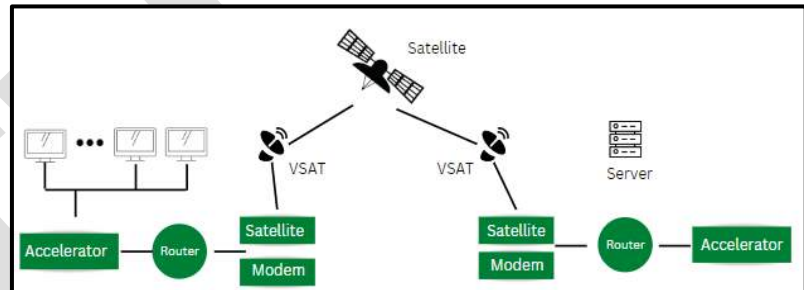


What are V-SAT Stations?

- A VSAT (very-small-aperture terminal) is a type of satellite ground station that **allows two-way communication with orbiting satellites**.
- It essentially **functions like a miniaturized satellite dish that can transmit and receive data**.
- VSATs are known for their small size, typically **ranging from 75 cm to 1.2 meters in diameter**, making them suitable for deployment in remote locations.

Key characteristics of VSATs

- **Data transmission:** VSATs can handle both narrowband data (e.g., credit card transactions) and broadband data (e.g., satellite internet).
- **Orbiting satellites:** They connect with satellites in geosynchronous or geostationary orbits, which appear stationary from the Earth's perspective.
- **Cost-effective:** Advancements in technology have made VSATs a more affordable solution for remote communication needs.



Applications of VSATs

- **Remote Internet access:** VSATs provide internet connectivity to remote areas where traditional options like cable or fibre are unavailable.
- **Corporate communication:** Businesses can use VSATs for data transfer, video conferencing, and other communication needs in remote locations.
- **Government services:** Government agencies can leverage VSATs for disaster relief, e-governance initiatives, and connecting remote communities.
- **Maritime communication:** Ships at sea can use maritime VSATs, which have special features to maintain signals despite constant motion.

Conclusion

- The collaboration between the Ministry of Tribal Affairs and ISRO, along with partnerships with other prestigious institutes, marks a significant step towards empowering tribal communities. By addressing the challenge of connectivity and focusing on holistic development, these initiatives provide the way for a brighter future for tribal villages across India.

Child Mortality Trends

Context

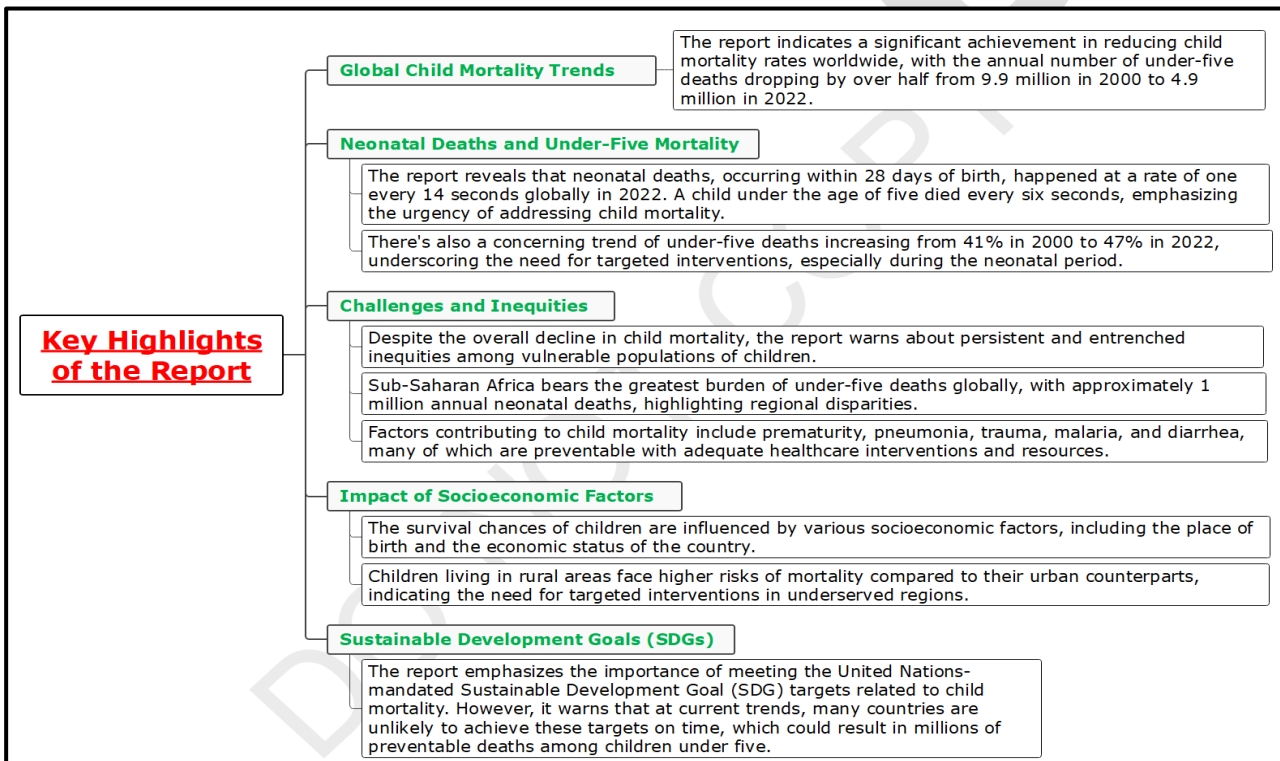
- The United Nations Inter-agency Group for Child Mortality Estimation (UN IGME) report for 2022 highlights the current global challenge of child mortality.

Details

- The report **highlights the current status of global child mortality**, focusing on neonatal deaths and under-five mortality rates.
- It aims to raise awareness about the persisting challenges and disparities in child health outcomes, particularly in vulnerable populations and regions with limited access to healthcare services.

What is the Significance of the Report?

- Understanding child mortality rates is crucial for policymakers, healthcare professionals, and stakeholders** to implement targeted interventions and allocate resources effectively.
- By addressing the underlying causes of child mortality, such as preventable diseases and socioeconomic disparities, countries can work towards achieving the United Nations' Sustainable Development Goals (SDGs) related to child health and well-being.



The decline in child mortality is due to several factors, including:

- Increased access to vaccines and immunizations** has helped to prevent deadly childhood diseases like measles, pneumonia, and diarrhoea.
- Improvements in prenatal and neonatal care**, which has led to a reduction in complications during pregnancy and childbirth.
- Better promotions of breastfeeding**, which provides newborns with essential nutrients and antibodies that can help protect them from illness.
- Improved access to clean water and sanitation** can help to prevent the spread of diarrheal diseases.

Cause for Concern

Despite the progress, millions of children are still dying every year from preventable causes. In 2022, an estimated:

- **Newborn babies die every 14 seconds** - Complications during birth, such as premature birth and breathing difficulties, are major risk factors for newborns.
- **Children under 5 die every 6 seconds** - Common killers of children under 5 include pneumonia, diarrhoea, malaria, and preventable birth complications. These illnesses are often linked to malnutrition, lack of access to clean water and sanitation, and inadequate healthcare.
- **Adolescents die every 35 seconds** - Injuries, violence, and mental health issues are among the leading causes of death for adolescents.
- **Sub-Saharan Africa bears the heaviest burden.** Children there face the highest risk of death before age 5, due to limited access to quality healthcare, malnutrition, and unsafe living conditions.

Way Forward

- **Millions of children can be saved by strengthening healthcare systems, particularly at the primary care level in disadvantaged communities.** This includes ensuring a skilled workforce of midwives, nurses, and doctors, equipped with the necessary supplies and medications to deliver quality care, especially during pregnancy, childbirth, and the newborn period.
- **Addressing malnutrition through better access to nutritious food and promoting breastfeeding practices** can significantly improve children's chances of survival.
- **Investing in girls' education is another crucial step.** Educated girls are more likely to marry later, have fewer children, and provide better care for their own children. This creates a ripple effect that can lead to healthier families and communities over generations.
- **Continued global efforts are needed to reduce poverty and improve living conditions.** This includes ensuring access to clean water and sanitation, safe housing, and social safety nets that can help families meet their basic needs and provide for their children's health and well-being.

Conclusion

- While there has been great progress in reducing child mortality globally, the UN IGME report highlighted the need for continued efforts to address persistent challenges and inequities, especially in regions with the highest burden of under-five deaths. Meeting SDG targets and implementing targeted interventions are crucial steps towards ensuring every child's right to survival and well-being.

World Inequality Lab Report

Context

- The World Inequality Lab has published a report that highlights concerning patterns in income and wealth inequality in India.

Key Findings of the Report

- **The richest one percent of India's population are growing ahead, taking an incredible percentage of the country's wealth (40.1%) and income (22.6%).** This is an all-time high, surpassing even countries known for serious



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inequality, such as South Africa, Brazil, and the United States. The gap between the ultra-wealthy and the common Indian has grown greatly.

- **Even among the wealthiest top 1%, wealth is unevenly distributed.** A tiny elite at the very top, the top 0.001%, controls a significant part (2.1%), highlighting the highly concentrated concentration of wealth. This shows that, even among the most privileged, a small number of people own a disproportionate amount of wealth.
- **Nearly half of the population survives on only 15% of national income.** This suggests a lack of progress in improving their economic well-being. The analysis highlights a large economic opportunity gap, with the great majority of the Indian population failing to benefit from the country's economic growth.
- The report shows an evolving picture of inequality in India. **While income inequality originally declined following independence, it has risen sharply since the 1980s, particularly since the early 2000s.** This shows that previous initiatives aimed at promoting equality may no longer be effective in the current economic situation.

World Inequality Lab

- It is a research centre based at the Paris School of Economics.
- It focuses on researching how wealth is distributed around the world and how these patterns change over time.

Challenges in Addressing Inequality

- **Reliable data on income and wealth distribution is fundamental for effective policymaking.** The WIL report suggests that the quality of economic data collection in India might be declining, making it difficult to precisely assess the extent of the problem and design appropriate solutions.
- **The report raises concerns about the effectiveness of the Indian tax system in addressing wealth inequality.** The current structure might not be adequately capturing wealth accumulated through assets or capital gains, potentially allowing the rich to escape their fair share of taxation.

Recommendations for the Way Forward

- **Progressive Taxation:** Restructuring the tax code to consider both income and wealth could help achieve a more equitable distribution of resources. A system that taxes the wealthy at a higher rate can generate revenue to fund social programs that benefit the less fortunate.
- **Super Tax on the Ultra-Wealthy:** Implementing a temporary "super tax" on the ultra-rich could be a way to generate additional revenue for social programs without significantly impacting long-term economic growth. This could provide resources for investments in education, healthcare, and infrastructure, creating a more level playing field for all.
- **Investments in People:** Broad-based investments in public education and healthcare can play a transformative role. By equipping the population with the skills and knowledge they need to succeed, and ensuring access to quality healthcare, these investments can improve opportunities for all and create a more equitable society.

Why Should We Care About Inequality?

Social Fabric at Risk: High levels of inequality can breed social unrest, erode social bonding, and hinder overall development. A society with a vast gulf between the rich and the poor can become unstable.

Economic Inefficiency: An unequal society might not utilize its resources effectively. When a significant portion of the population lacks purchasing power, it can decrease aggregate demand and hinder economic growth.

Democratic Concerns: Extreme wealth concentration can pose a threat to democratic principles. The wealthy may exert undue influence on policy decisions, shaping them in favor of their own interests and undermining democratic processes.

Conclusion

- The World Inequality Lab report serves as a wake-up call. India's economic success story must become inclusive. By acknowledging the rising inequality, implementing progressive policies that target wealth concentration, and investing in the education and healthcare of its people, India can ensure that its growth benefits everyone, not just the privileged few. Only then can India achieve true and sustainable development.

7. SCIENCE & TECHNOLOGY AND HEALTH

7.1 RISE IN OBESITY RATES

Context

- Obesity rates among children and adolescents worldwide increased four times from 1990 to 2022, while obesity rates among adults have more than doubled, a new study published in The Lancet has revealed.

Facts related to Obesity

- Women:** There has been a substantial increase in obesity among women, with the prevalence rising from 1.2% in 1990 to 9.8% in 2022. The absolute number of women living with obesity in 2022 reached 44 million.
- Men:** Obesity in men also increased by 4.9 percentage points during the same period. In 2022, 26 million men were living with obesity.
- Childhood Obesity:** The study reveals a significant increase in childhood obesity over the 32 years. In 2022, 3.1% of girls and 3.9% of boys were classified as obese. The absolute numbers indicate a substantial rise, with millions of boys and girls being obese in 2022.

India			World		
	1990	2022		1990	2022
Men	1.1	26	Men	67	374
Women	2.4	44	Women	128	504
Boys	0.2	7.3	Boys and girls (total)	31	160
Girls	0.2	5.2			

Source: Lancet
All figures in million

Factors contributing to the higher prevalence of obesity in women compared to men in India

Socioeconomic Factors:

- Unequal Distribution of Work:** A 2019 National Sample Survey Office (NSSO) time-use survey in India revealed that women spend nearly 6 times more time on unpaid domestic work compared to men (10 hours 19 minutes vs. 1 hour 50 minutes). This limited time for physical activity can contribute to weight gain.
- Lower Physical Activity Levels:** The Lancet Global Health study (2023) reported that only 21.1% of Indian women met the recommended levels of moderate-to-vigorous physical activity compared to 38.4% of men. Societal norms and safety concerns might further restrict women's participation in outdoor activities.
- Lower Education Levels:** According to the latest round of the National Family Health Survey (NFHS-5, 2019-21), 42.6% of Indian women have no formal education compared to 24.3% of men. This educational gap might limit access to information about healthy lifestyles and resources for exercise programs.
- Economic Dependence:** A 2020 World Bank report indicated that only 25.9% of Indian women participate in the labor force compared to 82.3% of men.
 - This financial dependence can restrict women's autonomy in making food choices or prioritizing spending on gym memberships or healthy groceries.

Dietary Factors:

- Shifting Food Habits:** As reported by a 2021 study published in PLOS One, the consumption of unhealthy fats and processed foods in India has significantly increased in recent years, driven by urbanization and rising disposable incomes.
- Lack of Nutritional Knowledge:** A 2018 study published in the Journal of Family Medicine and Primary Care found that a significant proportion of women in India lack basic knowledge about balanced diets and portion control.

- **Cultural Practices:** Certain cultural practices, like a focus on fattening brides before marriage, can contribute to unhealthy weight gain habits.
 - E.g.: According to the Indian Council of Medical Research (ICMR), obesity rates in India have nearly tripled in the last three decades.

Biological Factors:

- **Hormonal Differences:** Women experience hormonal fluctuations throughout their lives, like during menstruation, pregnancy, and menopause, which can influence fat storage and metabolism.
 - E.g. A 2016 study published in the journal "Obesity Research & Clinical Practice" found that over 20% of women in India are obese.

Other Considerations:

- **Stress Levels:** A 2022 study published in the Indian Journal of Psychiatry found a higher prevalence of chronic stress among women in India compared to men. This stress can impact dietary choices and sleep patterns, contributing to weight gain.
- **Access to Healthcare:** According to a 2023 report by NITI Aayog, a government think tank, access to quality healthcare services, particularly in rural areas, remains a challenge for women in India. This can limit access to guidance on weight management or addressing underlying health issues.

Government initiatives

- **Eat Right Mela:** Public fairs promoting healthy food choices.
- **Fit India Movement:** A government initiative to encourage physical fitness.
- **Eat Right Station Certification:** Recognizes railway stations with healthy food options.
- **Mission Poshan 2.0:** Umbrella scheme for improving nutritional outcomes in India.
- **Mid-Day Meal Scheme:** Provides cooked midday meals to school children.
- **Poshan Vatikas:** Nutritional gardens promoting kitchen gardening and dietary diversity.
- **Anganwadi:** Centers offering basic healthcare, pre-school education, and nutrition for mothers and children.

Way forward

- **Address both obesity and underweight together,** as the transition between the two can occur rapidly, maintaining or even increasing the combined burden.
- **Prioritize programs promoting healthy nutrition,** including targeted cash transfers, subsidies or vouchers for healthy foods, free healthy school meals, and nutritional interventions in primary care settings.
- **Urgently support weight loss efforts** for individuals with obesity.

Conclusion

- The coexistence of under nutrition and obesity in India presents a complex challenge that demands a comprehensive and multifaceted approach. By addressing the root causes of both issues and promoting healthy



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lifestyles, India can work towards a future where everyone has access to the right kind of food and can lead healthy and productive lives.

7.2 UNETHICAL DRUG PRACTICES

Context

- The Department of Pharmaceuticals ('DoP') issued a policy communication to all pharmaceutical associations on March 12, 2024, enclosing the Uniform Code for Pharmaceutical Marketing Practices 2024 (referred to as 'UCPMP 2024' or 'the Code') for dissemination among members, urging strict adherence.

In a nutshell

- UCPMP 2024 covers critical areas such as the conduct of medical representatives, the provision of brand reminders and free samples, CME, and relationships with HCPs.
- UCPMP 2024 permits brand reminders categorized as informational and educational items and free samples subject to limits and conditions specified.
- UCPMP 2024 prohibits the conduct of CME, CPD conferences, workshops, etc. in foreign locations. Further, it addresses the interaction between pharmaceutical companies and HCPs for research purposes.

Background

- **December 12, 2014:** Central government releases Uniform Code of Pharmaceutical Marketing Practices (UCPMP) for voluntary adoption by pharma industries.
- **March 12, 2024:** The Department of Pharmaceuticals issues policy communication urging strict adherence to UCPMP 2024.
- DoP requests pharmaceutical associations to establish an Ethics Committee for Pharmaceutical Marketing Practices (ECPMP) and create a dedicated UCPMP portal on their websites.
- UCPMP 2024 delineates permissible and impermissible activities for ethically promoting drugs, covering areas such as the conduct of medical representatives (MRs),

brand reminders, free samples, Continuing Medical Education (CME), and relationships with Healthcare Professionals (HCPs).

Key highlights:

- **Engagement between the pharmaceutical industry and healthcare professionals** for Continuing Medical Education (CME) should adhere to clear, transparent, and verifiable guidelines.
- **Conducting CME events in foreign locations** is prohibited according to a uniform code.
- **Medical representatives** must refrain from offering incentives or paying for access to healthcare practitioners.
- **Prohibition of cash or monetary grants** to healthcare professionals or their family members under any pretext.
- **Gifting by pharmaceutical companies** or their agents is **strictly prohibited**.
- **No pecuniary advantage or benefit in kind** may be offered to qualified prescribers by pharmaceutical companies.
- **Paid travel and hotel stays for healthcare professionals** or their family members are **permitted only if the person is a speaker for a CME event**.
- The Union government allows firms to provide research grants for healthcare professionals, following transparent procedures.
- Industry support for research is permissible for studies authorized by bodies such as the **Indian Council for Medical Research or the Drug Controller General of India**.

Highlights of the UCPMP 2024 on Drugs

- Promotion of drugs under the UCPMP **must align with the terms of their marketing approval**.
- Claims regarding a drug's efficacy should be supported by current evaluations of all available evidence.

- The term "safe" cannot be used without qualification, nor can it be asserted unequivocally that a medicine has no side effects, toxic hazards, or risk of addiction.
- The descriptor "new" is prohibited for drugs or therapeutic interventions available or promoted in India for more than a year.

Challenges Associated with the Pharma-Doctor Nexus

- Raises concerns about potential conflicts of interest when doctors receive benefits for prescribing specific drugs, compromising patient care.
- Highlights the risk of eroding patient trust if they perceive doctors' decisions influenced by pharmaceutical companies rather than medical needs.
- Emphasizes the importance of upholding professional ethics and integrity, with acceptance of gifts seen as a breach of standards.
- Points out legal and professional consequences associated with violating guidelines set by regulatory bodies like the Medical Council of India (MCI).

Measure taken by the Government:

- **MCI Guidelines:** Address professional independence and integrity, particularly regarding gifts and benefits in medical practice.
- **NPPA Oversight:** Regulates drug prices and ensures fair trade practices in the pharmaceutical industry.
- **Collaboration with Professional Bodies:** Works with medical associations to develop and implement ethical guidelines addressing interactions between doctors and pharmaceutical companies.

Conclusion

- The Uniform Code of Pharmaceutical Marketing Practices (UCPMP) 2024 represents a crucial initiative in promoting ethical marketing within the pharmaceutical sector. It aims to curb unethical practices and provide stringent guidelines to prevent undue influence on healthcare professionals by pharmaceutical companies when making prescribing decisions.

7.3 INDIA AI MISSION

Context

- The Union Cabinet's approval of the IndiaAI Mission marks a significant step towards addressing India's deficiency in AI computing hardware.
- *Artificial Intelligence (AI) encompasses the ability of computers or robots to execute tasks that traditionally necessitate human intelligence and judgment. Although AI systems may not replicate the entirety of human capabilities, they excel in particular tasks.*

About IndiaAI Mission

Focus

- It aims to set up an AI computing infrastructure comprising more than 10,000 GPUs (Graphics Processing Units).

Implementation

- Led by the 'IndiaAI' Independent Business Division under Digital India Corporation.

Funding

- Approved with an outlay of Rs 10,372 crore for the next five years.

Components

- **IndiaAI Compute Capacity:** Establishing computing capacity of over 10,000 GPUs and developing foundational models with a capacity of over 100 billion parameters trained on datasets covering major Indian languages for priority sectors like healthcare, agriculture, and governance.
- **IndiaAI Innovation Centre:** Focuses on developing and deploying indigenous Large Multimodal Models (LMMs).

- **IndiaAI Datasets Platform:** Provides seamless access to non-personal datasets for Indian startups and researchers.
- **IndiaAI Application Development Initiative:** Concentrates on adopting impactful AI solutions for large-scale socio-economic transformation.
- **IndiaAI Future Skills:** Aims to mitigate barriers to entry into AI programs.
- **IndiaAI Startup Financing:** Aims to help and speed up deep-tech AI startups, offering them easier access to funding for futuristic AI projects.
- **Safe & Trusted AI:** It involves creating indigenous tools and frameworks.
- **Data Availability and Quality:** Access to large, clean, and diverse datasets is crucial for training effective AI models. Ensuring data privacy and ethical collection practices poses additional complexities.
- **Skilled Workforce Gap:** India faces a shortage of qualified AI professionals, including researchers, developers, and data scientists. Bridging this gap requires significant investment in AI education and training programs.
- **Funding and Investment:** Sustaining long-term research and development in AI requires consistent funding. Finding a balance between public and private investment remains a challenge.

Advantages of the IndiaAI Mission

- **Global AI Leadership:** The mission aims to propel India to the forefront of AI research, development, and implementation, fostering innovation and solidifying its position as a global leader in this transformative field.
- **Societal Impact:** IndiaAI prioritizes developing AI solutions with real-world applications that address critical challenges in healthcare, education, agriculture, smart cities, and other sectors, aiming to improve the lives of citizens.
- **Bridging the Gap:** The mission works to bridge the gap between theoretical research and practical applications, ensuring that AI advancements translate into tangible benefits for society.
- **Thriving AI Ecosystem:** By supporting startups, academia, researchers, and industry collaboration, IndiaAI fosters a robust ecosystem for AI development, encouraging innovation and accelerating progress.

Challenges Faced by the IndiaAI Mission

- **Infrastructure Gap:** Developing and maintaining the robust computing infrastructure needed for advanced AI research and development requires significant investment.

Other Government Schemes for AI

- **INDIAai (India AI Mission):** Launched by the Indian government to establish India as a global AI leader.
- **Global Partnership on Artificial Intelligence (GPAI):** Multi-stakeholder initiative involving governments, industry, civil society, and academia.
- **US India Artificial Intelligence Initiative:** Promotes joint research and development projects in AI to leverage the strengths of both nations and tackle shared challenges.
- **Artificial Intelligence Research, Analytics, and Knowledge Assimilation Platform:** Central hub for AI research, data, and knowledge sharing.

Conclusion:

- The India AI Mission, approved by the Cabinet, aims to promote AI development and application across sectors in the country. Positioned as a game-changer, it emphasizes inclusivity and an economy-focused approach, reflecting its significance in the budget allocation and strategic mission design.



7.4 INDIA'S ATMOSPHERIC RESEARCH TESTBED

Context

- Recently the first phase of India's Atmospheric Research Testbed in Central India (ART-CI) was inaugurated at Silkheda in Sehore district, located about 50 km northwest of Bhopal in Madhya Pradesh.

In a nutshell

- It is Funded by the Ministry of Earth Sciences (MoES), the facility will house 25 high-end meteorological instruments for studying vital cloud processes associated with the monsoons over central India's Monsoon Core Zone (MCZ).

Atmospheric Research Testbed (ART)

- The ART is an open-field, focused observational and analytical research program. It will also be used for calibrating and validating various satellite-based observations, part of weather predictions and forecasting.
- It has been developed by the Ministry of Earth Sciences for Rs 125 crore. The Indian Institute of Tropical Meteorology (IITM), Pune, is in charge of the operations.

Function:

- This research initiative seeks to gain a profound understanding of the mechanisms underlying the formation and escalation of monsoon convective systems.
- **Land-Atmosphere Interactions:** It is developed upon the studies of the comprehensive links between the land surface and the atmosphere particularly in the monsoon area where it occurs.
- **Research and Model Improvement:** ART-CI aims to develop observational campaigns and to adjust the basic parameterizations of numerical weather prediction models to improve the children's models.

Instruments and Equipment

- The testbed is equipped with a wide range of instruments for **continuous observation of atmospheric conditions**.
- Key Instruments include **nephelometers** for aerosol studies, cloud condensation nuclei counters, laser **ceilometers**, **micro rain radars**, and more.
- Future installation plans include the installation of a **wind profiler**, **W-Band radar**, **radiosonde**, **LIDAR**, **sky imager**, and a **complete radiation system**.

Phases:

- **First Phase:** Emphasizes research fields such as convection, **land-atmosphere interactions**, and **microphysics over central India**.
- **Second Phase:** The proposed expansion of the study towards **eastern and north-eastern India** to assess the **thunderstorm process**.

Why is it important to have data about monsoons over central India?

- **High Dependence:** Central India, encompassing states like **Madhya Pradesh**, **Chhattisgarh**, **Maharashtra**, and parts of **Gujarat**, is heavily reliant on the monsoon for its water needs.
- According to the **India Meteorological Department (IMD)**, central India receives an average rainfall of **around 1000 mm during the monsoon season**.
- **Dominant Sector:** Agriculture is the primary source of income and livelihood for a large portion of the population in central India. **Crops like soybean, cotton, pulses, and rice** are major agricultural produce in this region.
- **Rainfall Correlation:** The success of these crops depends heavily on the timely arrival, duration, and intensity of the monsoon rains. **A study by the National Institute of Rural Development (NIRD)** found a strong positive correlation between monsoon rainfall and agricultural output in central India.

- For instance, a **10% deficit in monsoon rainfall** can lead to a significant decline in agricultural production.
- **Food Security:** Fluctuations in monsoon rainfall can have a ripple effect on food security in central India. Droughts due to deficient monsoons can lead to crop failure, impacting food availability and potentially pushing up prices.



Conclusion

- ART-CI, a key project in Central India, aims to enhance understanding of monsoon and atmospheric processes. Challenges include equipment upkeep, data management, and securing funding and collaborations. Overcoming these hurdles is vital for leveraging ART-CI's potential in enhancing weather predictions and informing climate policy. Its success holds promise for advancing both regional weather studies and global atmospheric science.

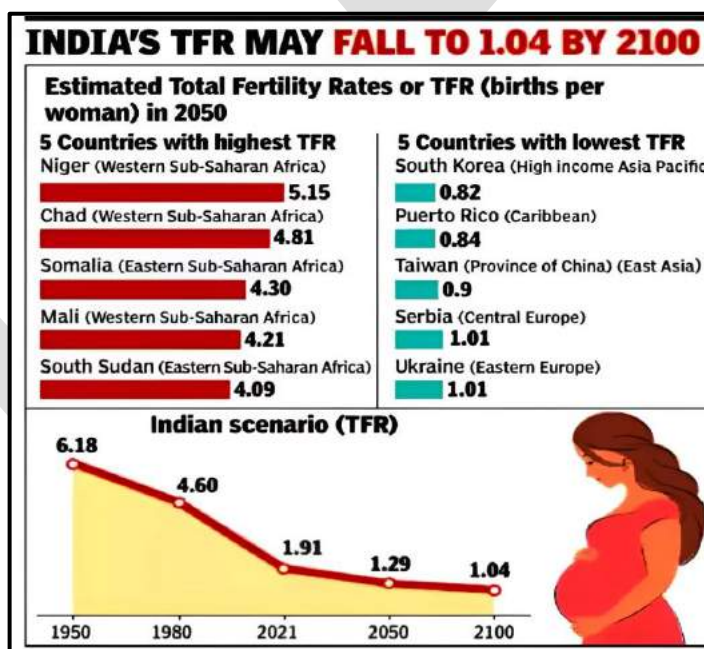
7.5 FERTILITY RATE IN INDIA

Context

- As per research estimates from the Global Burden of Disease, Injuries and Risk Factors Study (GBD)-2021, worldwide, too, the TFR has more than halved in the last 70 years – from around five children for each woman in 1950 to 2.2 children in 2021.

In a nutshell

- By 2050, one in five Indians will be a senior citizen while there will be fewer younger people to take care of them. India's total fertility rate (TFR) – the average number of children born per woman – is dipping irreversibly to 1.29, far lower than the replacement rate of 2.1. This means a rapidly depleting working-age population.
- In India, the TFR was 6.18 in 1950 which reduced to 4.60 in 1980 and further declined to 1.91 in 2021. China is already dealing with the demographic disadvantage of an aging population. India, too, is heading in that direction. These two nations together account for more than a third of the world's population.



Factors Contributing to the Decline in Fertility Rate in India

- **Government Policies:** Following independence, population control became a priority, leading to the implementation of Family Welfare Programs aimed at advocating for no more than two children per family.
 - According to a 2017 report by the Population Reference Bureau, India's Total Fertility Rate (TFR) declined from 5.9 children per woman in 1950 to 2.2 children per woman in 2015.
- **Reduction in Infant Mortality:** Extensive maternal and child health programs, coupled with successful immunization campaigns, have significantly lowered infant mortality rates in India, leading to a shift towards smaller family sizes becoming the societal norm.

- A 2018 report by UNICEF highlights India's success in increasing childhood immunization rates, reaching over 88% for key vaccines.
- **Increase in Female Literacy:** The rise in female literacy rates and greater participation of women in the workforce have led to increased career aspirations, financial independence, and economic autonomy among women, prompting them to reconsider having more than one child.
 - The female literacy rate in India has risen from 18.5% in 1951 to 70.4% in 2021 (Census of India).
- **Economic Considerations:** Economic factors, including rising living expenses, the necessity of dual incomes to support households, and the desire for improved living standards, have contributed to the preference for smaller family sizes.
 - A 2023 report by the World Bank shows a rise in India's inflation rate, impacting the affordability of raising children.

Consequences

- **Aging Population Surge:** The decline in fertility rates will lead to a significant increase in the proportion of elderly individuals within the population.
 - By 2050, India is projected to have over 20% of its population comprising senior citizens, translating to 1 in every 5 people being elderly.
- **Shrinking Workforce:** With fewer young individuals entering the workforce due to declining fertility rates, there will be a decline in the labor force, posing challenges for economic growth and industries in terms of skilled labor availability.
- **Healthcare Demands:** The aging population will drive an increased demand for healthcare services, placing strain on healthcare systems and necessitating adjustments in healthcare policies and infrastructure.

Current TFR and Sex Ratio:

- **TFR Decline:** India's TFR has decreased from 2.2 in 2015-16 to 2.0 at the national level, with variations observed between urban (1.6) and rural areas (2.1).
- **Sex Ratio:** NFHS-5 reports a sex ratio of 1,020 women per 1,000 men, a notable deviation from previous surveys.
- **TFR Target:** Replacement level fertility, set at 2.1, ensures each generation replaces itself. An additional 0.1 child per woman accounts for infant mortality.

Government Initiatives

- **National Health Mission (NHM):** NHM aims to strengthen healthcare systems, particularly in maternal and child health services.
- **Critical Healthcare Services:** NHM provides essential services like antenatal and postnatal care, family planning, and infant immunization, indirectly impacting fertility rates by promoting maternal and child health.
- **Family Planning Program:** India's longstanding family planning program focuses on promoting contraceptive use and reproductive health awareness.
- **Pradhan Mantri Matru Vandana Yojana (PMMVY):** This scheme offers financial assistance to first-time pregnant and lactating mothers, aiming to improve maternal and child health outcomes and indirectly supporting fertility by encouraging safe motherhood.

Conclusion

- The demographic dividend is finite, urging policymakers to draw insights from global experiences for strategic planning. UNPF projections suggest India's working-age population will peak in the late 2030s to early 2040s. Preparing for an aging population



requires future policies to ensure sufficient social security and healthcare provisions, along with leveraging skills for the growing elderly population.

7.6 SHORT ARTICLES

Juice Jacking

Context

- The Reserve Bank of India (RBI) has issued a cautionary message to mobile phone users advising them against charging their devices using public ports.
- **According to the US Army Cyber Command**, "Juice jacking is a cyber-attack in which a compromised Universal Serial Bus (USB) charging station transfers malware to, or steals personal information from, a connected device. Juice jacking, also known as port jacking, is not limited to cell phones but any device capable of being charged via USB plug."



About Juice Jacking:

- **Juice jacking is a form of cyberattack where hackers tamper with public USB** charging ports, infecting them with malware or making hardware changes that allow them to steal data from devices connected to them.

Recent Incidents and Impact

- Instances of juice jacking attacks reported globally, including in India. **Mumbai Police cyber cell uncovered illicit data extraction operations** at public charging stations.
- **Over 50 victims in Mumbai had personal data compromised.** Raises concerns about larger identity theft and financial fraud operations.

RBI's Advisory on Safeguarding Data:

- RBI advises against using public charging ports and recommends personal chargers instead.
- **Users should avoid financial transactions** over public Wi-Fi. To safeguard data, users should refrain from charging devices at public USB ports and carry personal chargers or power banks.
- **Regularly updating phone operating systems and software** is essential to deploy the latest security patches against evolving threats.

Hydrogen Fuel Cell Ferry

Context

- Recently, Prime Minister of India flagged off India's first indigenously built hydrogen fuel cell ferry boat in virtual.

About Hydrogen Fuel Cell Ferry:

Electricity Production

- Hydrogen fuel cells produce electricity via an electrochemical process using hydrogen, emitting only water and heat as by products. A 2022 study by the International Council on Clean Transportation found that hydrogen fuel cell electric vehicles (FCEVs) can achieve near-zero greenhouse gas emissions when using clean hydrogen sources

Emission Reduction

- **Highly attractive for reducing emissions** and combating climate change due to their minimal environmental impact. The U.S. Department of Energy estimates that FCEVs can emit up to 80% less greenhouse gas and 90% fewer pollutants like nitrogen oxides (NOx) compared to conventional cars.

Emission Type

- Zero tailpipe emissions, unlike traditional combustion engines, making them environmentally friendly. A 2021 study by the California Air Resources Board found that widespread adoption of FCEVs could significantly reduce smog-forming emissions in the state.



Noise Pollution

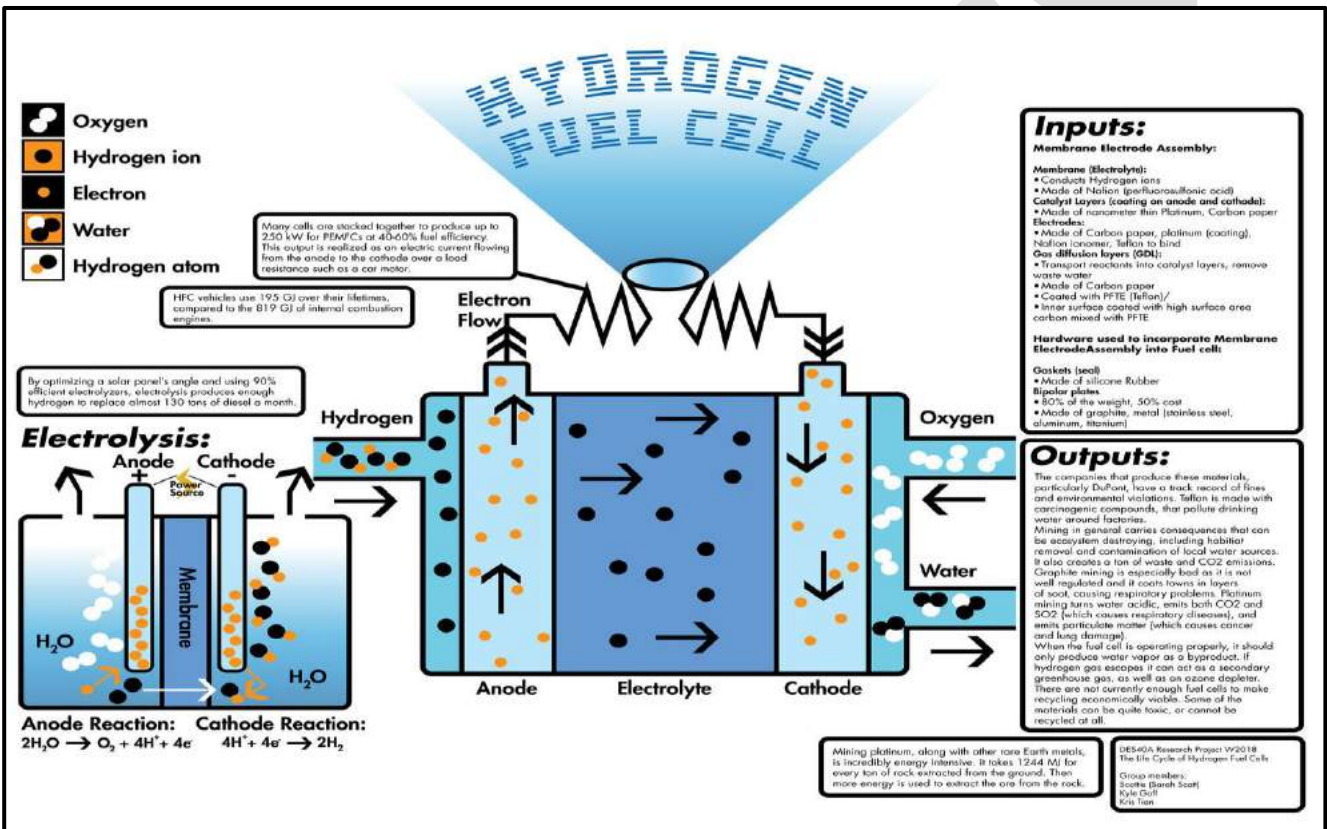
- Operate silently, generating minimal noise pollution, suitable for noise-sensitive environments like hospitals or urban areas. A study published in the journal "Energy Policy" in 2020 found that FCEVs can generate noise levels up to 9 decibels lower than gasoline vehicles at highway speeds.

Fuel Availability

- Hydrogen is the most abundant element in the universe, offering a sustainable and readily available fuel source.

Government Initiatives

- India's 2021-22 Union Budget introduced the National Hydrogen Energy Mission (NHM) to integrate hydrogen into the country's energy mix, recognizing its potential.



Prototype Fast Breeder Reactor

Context

- Prime Minister Narendra Modi will witness the initiation of the core loading of India's indigenous 500 Mwe Prototype Fast Breeder Reactor (PFBR) in the nuclear complex at Kalpakkam, about 70 km south of Chennai.



About Prototype Fast Breeder Reactor:

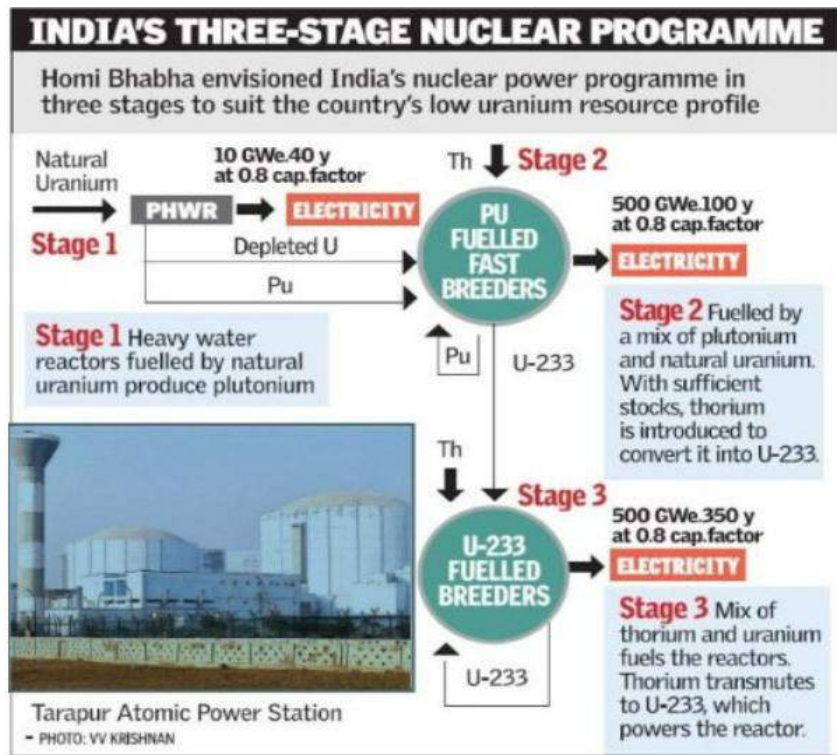
- PFBR marks the second stage of the three-stage nuclear power programme of the country with a "closed fuel cycle", and the spent fuel from the first stage would be "reprocessed and used as fuel" in FBR.
- A unique feature of this sodium-cooled PFBR is that it can produce more fuel than it consumes, thus helping in achieving self-reliance in fuel supply for future fast reactors.

Benefits

- **Resource Efficiency:** The breeding capability of fast breeder reactors can help stretch limited uranium reserves.
- **Reduced Waste:** By consuming more fuel and producing less waste compared to conventional reactors, PFBRs offer a potential path towards a more sustainable nuclear fuel cycle.
- **Energy Security:** Domestic production of fissile material can enhance a nation's energy independence.

Current status:

- India ranks nuclear power as the **fifth-largest source of electricity**, following coal, gas, hydroelectricity, and wind power.
- As of November 2020, India operates 22 nuclear reactors across 8 nuclear power plants, with a total installed capacity of 7,380 MW.



MethaneSAT

Context

- MethaneSAT, designed to track and measure methane emissions globally, was launched aboard a SpaceX Falcon9 rocket from California on March 4.

About MethaneSAT:

- MethaneSAT is a satellite developed by the Environmental Defense Fund (EDF), a US-based nonprofit environmental advocacy group.
- Collaborators on the project include Harvard University, the Smithsonian Astrophysical Observatory, and the New Zealand Space Agency.

Goal:

- MethaneSAT's primary objective is to monitor methane emissions globally, with a particular focus on the oil and gas sector.
- The satellite will orbit the Earth approximately 15 times a day, collecting data on methane emissions from various sources.

Monitoring Global Methane Emissions:

- MethaneSAT is equipped with a high-performance spectrometer that allows it to measure methane levels across the globe with unprecedented precision.
- This data will be crucial for identifying major sources of methane emissions, including the oil and gas industry, agriculture, and landfills.

Significance:

- By providing free and public access to its data, MethaneSAT empowers various stakeholders to track methane emissions and hold polluters accountable. This transparency can incentivize industries and governments to adopt cleaner practices to reduce methane emissions.



About Methane:

- Methane is a potent greenhouse gas with a warming impact on our planet that's 80 times greater than carbon dioxide over 20 years. By pinpointing major methane emitters, MethaneSAT provides valuable data for targeted mitigation strategies to curb climate change.

Advanced Medium Combat Aircraft

Context

- The Cabinet Committee on Security (CCS) this week cleared a Rs 15,000 crore project to design and develop the Advanced Medium Combat Aircraft (AMCA), India's fifth-generation fighter multirole fighter jet.

About AMCA:

- The AMCA (Advanced Medium Combat Aircraft) is a fifth-generation stealth, multirole combat aircraft developed for both the Indian Air Force and Indian Navy. Designed by the Aeronautical Development Agency (ADA) under the Ministry of Defence, production will entail a public-private joint venture involving the Defence Research and Development Organisation (DRDO), Hindustan Aeronautics Limited (HAL), and an Indian private company.

Specifications

- Designed as a single-seat, twin-engine combat aircraft. It weighs 25 tonnes. Equipped with an internal weapons bay.
- Features Diverterless Supersonic Intake (DSI), an indigenous technology developed for the first time in India.

Significance:

- The Advanced Medium Combat Aircraft (AMCA) is designed to execute air supremacy, ground-strike, SEAD, and EW missions. It is set to replace the Sukhoi Su-30MKI, currently the mainstay of the Indian Air Force's fighter fleet.

FUTURE'S FIGHTER

Stealth aircraft are designed to avoid detection by enemy radars and radar-guided weapons. India's Advanced Medium Combat Aircraft (AMCA) Mark-1 will be a fifth-generation stealth aircraft

LENGTH
17.6m

WINGSPAN
11.13m

MAXIMUM TAKE-OFF WEIGHT
25,000kg

MAXIMUM SPEED
2,600 kmph (Mach 2.15)

COMBAT RANGE
1,620km

SERVICE CEILING
20,000m

PAYLOAD CAPACITY
6,500kg

PERFORMANCE
Can achieve supersonic speed without afterburners

COST
₹15,000 crore to develop the first five jets

WINGS
The shoulder-mounted, diamond-shaped trapezoidal wings will reduce drag at supersonic speeds; aligned edges for stealth

FUSELAGE
Faceted design; radar-absorbent surface

COCKPIT
Glass cockpit with single bubble canopy

INTERNAL WEAPONS BAY
Under the fuselage

WEAPONS
Air to Air: Close Combat Missile
Air to Ground: Joint Direct Attack Munitions
Beyond Visual Range Missile
Precision Guided Munitions

AMCA VARIANTS
AMCA Mark-1: US-made engines, Fifth-gen technologies
AMCA Mark-2: Will have indigenously-developed engines, Sixth-gen technologies (expected)

ADVANCED FIGHTER GENERATIONS

FOURTH-GENERATION
F-16
Can switch and swing between air-to-air and air-to-ground roles; first fighter to make regular use of fly-by-wire control system (a fully electronic flight control system)
Development: 1960s to late 1980s
Examples: MiG-29, Su-27, F/A-18, F-15, F-16 and Mirage-2000

4.5-GENERATION
Rafale
Evolved from fourth-gen aircraft; better avionics and limited stealth characteristics, and reduced visibility compared with fourth-gen aircraft
Development: late 1980s and into the 1990s
Examples: Eurofighter Typhoon, Dassault Rafale, MiG-35, Su-30SM, F/A-18E/F Super Hornet

FIFTH-GENERATION
F-22
Advanced stealth characteristics and advanced integrated avionics; improved situational awareness and decision superiority over adversaries
Development: 1990s-present
Examples: F-22, F-35, Su-57 (not inducted yet), Chengdu J-20 (claimed)
Turkey's TF-X has a similar timeline as the AMCA
RAF Systems Tempest and Future Combat Air System are the European programmes working on next-gen fighters
South Korea's advanced fighter KF-21 aims to conduct its first flight this year

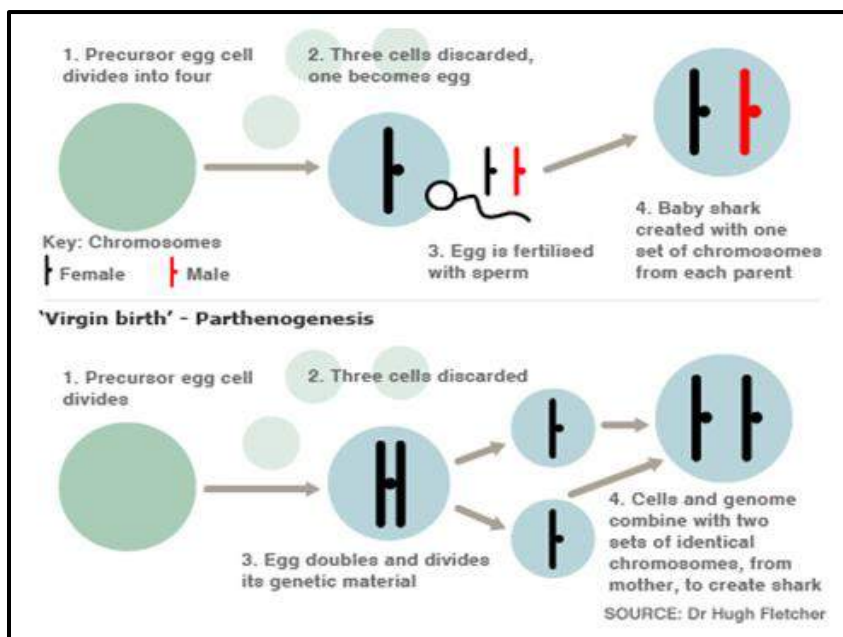
SOURCE: AERONAUTICAL DEVELOPMENT AGENCY GRAPHIC: SREEMANIKANDAN S./RESEARCH PRADIP & SAGAR, JUSTIN PAUL GEORGE



Parthenogenesis

Context

- Researchers from Cambridge University and the California Institute of Technology achieved a significant breakthrough by engineering a sexually reproducing fruit-fly species to reproduce asexually.
- They identified 44 genes in another fruit fly species, *Drosophila mercatorum*, responsible for parthenogenesis and modified the *D. melanogaster genome* to express these genes, resulting in 4% of eggs being parthenogenetic.



About Parthenogenesis:

About

- Parthenogenesis is a natural form of asexual reproduction where an embryo develops from an unfertilized egg cell. In other words, no sperm is needed for reproduction. This strategy is quite common in plants and some invertebrates, but rare among vertebrates.



Types

- **Mitosis-based (Apomictic Parthenogenesis):** Development begins with the mitosis (cell division) of an egg cell that hasn't been fertilized. The resulting offspring are genetically identical clones of the mother. This is common in insects like aphids and some plants.
- **Meiosis-based Parthenogenesis:** The egg cell undergoes meiosis (cell division that reduces the chromosome number by half) before development. However, fertilization doesn't occur. This can lead to offspring with different genetic makeup compared to the mother. Examples include some types of bees and wasps.

Examples

- **Insects:** Aphids, some ants, bees, and wasps can reproduce parthenogenetically.
- **Plants:** Dandelions, ferns, and some flowering plants can reproduce asexually through parthenogenesis.

Drawbacks

- **Limited Offspring Types:** In some cases, parthenogenesis only produces offspring of one sex (e.g., males in some ant species). This can create an imbalance in the population.

Thermonuclear Fusion

Context

- India and Russia are in discussions to collaborate on a range of activities including research on controlled thermonuclear fusion and joint development of the transit potential of the Northern Sea Route, a top official of the state-run atomic energy corporation in Moscow.
- Regarding India's long-term energy strategy and goals, the Rosatom CEO said that the company plans to have a cumulative installed capacity share of non-fossil fuel energy sources of around 50 percent by

2030 and achieve net-zero emissions by 2050. Nuclear energy would play a significant role in attaining those goals.

About Thermonuclear Fusion:

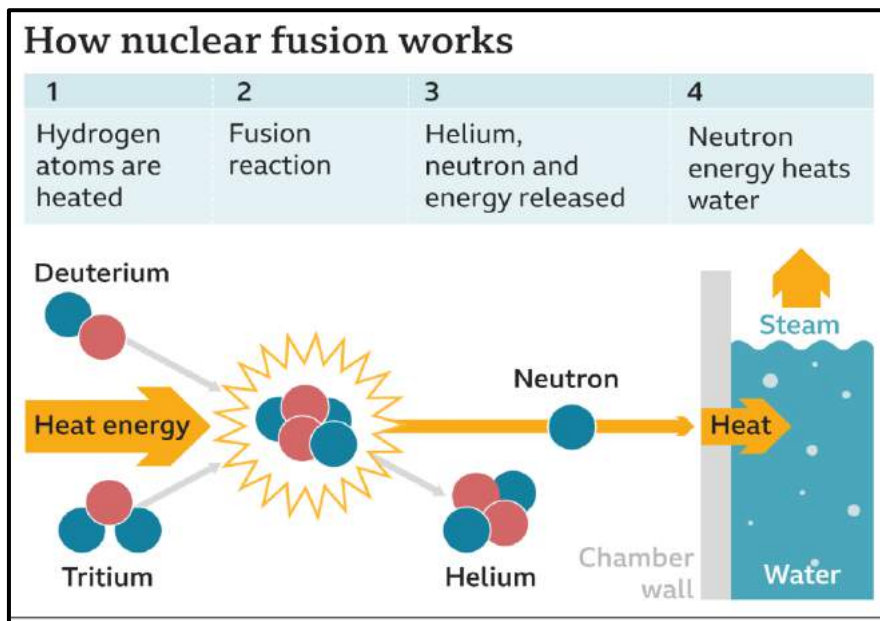
- Thermonuclear fusion is the process that powers stars, including our sun. It involves the combining, or fusing, of atomic nuclei at incredibly high temperatures and pressures to release enormous amounts of energy.

Benefits

- **Clean:** Fusion reactions produce minimal radioactive waste compared to nuclear fission.
- **Abundant Fuel:** The primary fuel source, hydrogen isotopes, are readily available in seawater.
- **High Energy Output:** A small amount of fusion fuel can generate a tremendous amount of energy.

Challenges:

- **Creating and maintaining extremely high temperatures:** This requires powerful technologies like magnetic confinement fields to hold the hot plasma (ionized gas) containing the nuclei.
- **Fuel Source:** The most common fusion reaction uses isotopes of hydrogen (deuterium and tritium) as fuel, requiring the development of methods for safe handling and tritium breeding.
- **Sustaining the reaction:** Maintaining a stable and continuous fusion reaction for extended periods to generate electricity is an ongoing challenge.



Karnataka Bans Use of Harmful Dyes

Context

- The Karnataka government on Monday banned the use of artificial colors in edible items such as Gobi Manchurian and cotton candy.
- *According to Health and Family Welfare Minister Dinesh Gundu Rao, 171 samples of Gobi Manchurian were collected across the state and artificial colors were detected in 107 samples. Similarly, out of 25 cotton candy samples, artificial colors were found in 15.*

About the ban:

- The ban prohibits the use of **Rhodamine B in cotton candy** and imposes restrictions on **Tartrazine in Gobi Manchurian**. Rhodamine B is commonly used in synthetic dyes for coloring various materials such as silk, jute, leather, cotton, and wool, as well as in cosmetics and plastics.
- **Tartrazine, a bright yellow azo dye**, serves as a stable and cost-effective alternative to natural food dyes.
- **The Food Safety and Standards Authority of India (FSSAI)** mandates that no coloring matter should be added to food unless permitted under the **Food Safety and Standards (Food Products Standards and Food Additives) Regulation, 2011**.

Chemicals banned in India:

- India bans the manufacture, import, and use of some pesticides like **Aldrin, Chlordane, and Dichlorvos**.
- Certain pesticide formulations like **Carbofuran 50% SP** are also banned.

- Restricted use applies to chemicals like **DDT (for public health use only)** and **Lindane**.

Why banned?

- **Protecting Consumers:** The government aims to safeguard public health by preventing the consumption of food items containing these harmful coloring agents.
- **Strict Enforcement:** The ban comes with strict penalties for violations, including imprisonment and hefty fines, to deter eateries from using these banned colors.
- **Safer Alternatives:** The focus is likely to shift towards encouraging the use of safer, natural food colorings derived from fruits, vegetables, and minerals.

MIRV Technology

Context

- The successful launch of Mission Divyastra, announced by Prime Minister Narendra Modi, is a significant step towards India's strategic punitive capability.

About MIRV Technology:

- MIRVs, or Multiple Independently Targetable Re-entry Vehicles, were **initially created in the early 1960s** to allow a single missile to deliver multiple nuclear warheads to distinct targets.
- Some nations now possess missiles capable of carrying up to 16 warheads, each housed in separate re-entry vehicles.
- MIRVs can target multiple **locations hundreds of kilometers apart** with a single launch, whether from land-based platforms or submarines.
- **The United States, Russia, China, France, and the United Kingdom** are known to have MIRV-equipped missiles. Additionally, **Pakistan** is developing such a system, while **Israel** is suspected to possess or be developing one.
- MIRV technology requires a delicate balance of large missiles, small warheads, precise guidance systems, and complex mechanisms for sequentially releasing warheads during flight.
- The US pioneered MIRV technology, deploying **MIRVed Intercontinental Ballistic Missiles (ICBMs) in 1970** and **MIRVed Submarine-Launched Ballistic Missiles (SLBMs) in 1971**. The Soviet Union quickly followed suit, developing **its own MIRV-enabled ICBMs and SLBMs by the late 1970s**.

India's MIRV punch
India has joined select group of nations that have Multiple Independently Targetable Re-entry Vehicle (MIRV) technology

Agni-5 missile uses a three-stage solid fuelled engine
5,000km range

USING MULTIPLE WARHEADS

- MIRVs can cause more destruction than missiles that carry single warhead.
- It will allow Agni-V to deliver multiple nuclear warheads against different targets across hundreds of kilometres

India completed its nuclear trial in 2018 when nuclear-powered ballistic missile submarine, INS Arihant, completed its first deterrence patrol

India's nuclear doctrine, promulgated in 2003, commits to a 'no first use' posture, with weapons to be used only in retaliation against a nuclear attack

Proud of our DRDO scientists for Mission Divyastra, the first flight test of indigenously developed Agni-5 missile with Multiple Independently Targetable Re-entry Vehicle (MIRV) technology."
— NARENDRA MODI, Prime Minister



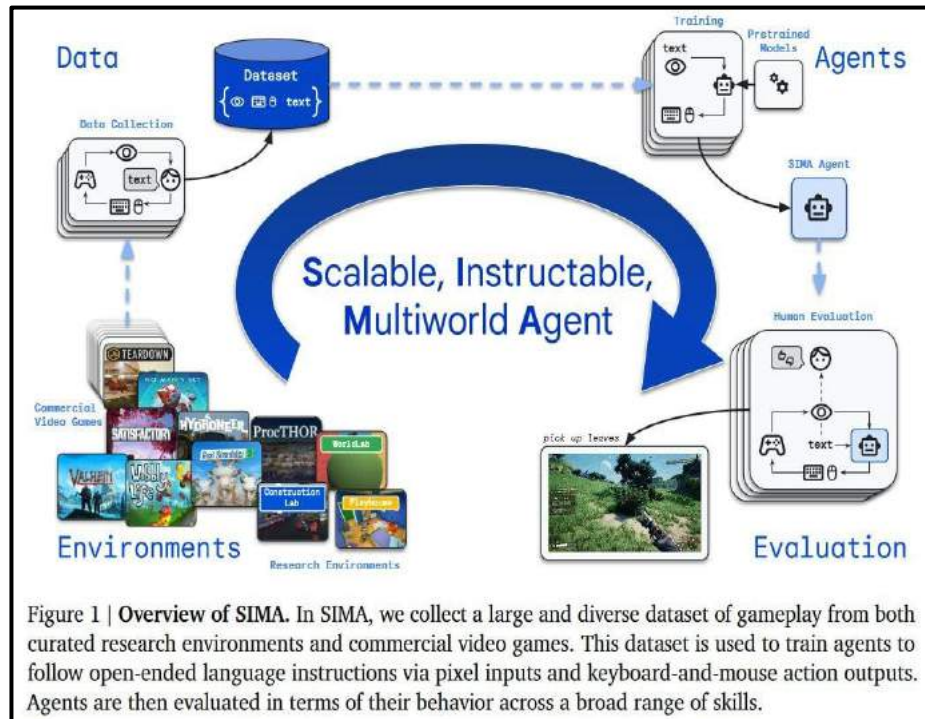
Scalable Instructable Multiworld Agent

Context

- Google DeepMind revealed its latest AI gaming agent called SIMA which can follow natural language instructions to perform tasks across video game environments.

About SIMA (Scalable Instructable Multiworld Agent):

- It is an AI agent that can process data and take actions autonomously. It can be referred to as a generalist AI agent capable of performing various tasks. It can understand and carry out tasks in video games using everyday language commands. Thus, it hints at a gaming future where AI agents could play a crucial role.
- It also brings us closer to AI that can intelligently work alongside humans not only in games but also in doing tasks in real-world environments.



Significance:

- It is uniquely trained to comprehend human language and possesses the remarkable ability to learn and adapt through user interactions, progressively improving its performance over time.
- Unlike most AI systems limited to single-game proficiency, SIMA excels across diverse game settings, showcasing the potential for advanced AI models to translate into practical, real-world actions via language interfaces.
- Google aims to leverage this breakthrough to explore how AI agents like SIMA can evolve to become increasingly helpful, utilizing video games as testing grounds for further advancements.



Haemodialysis

Context

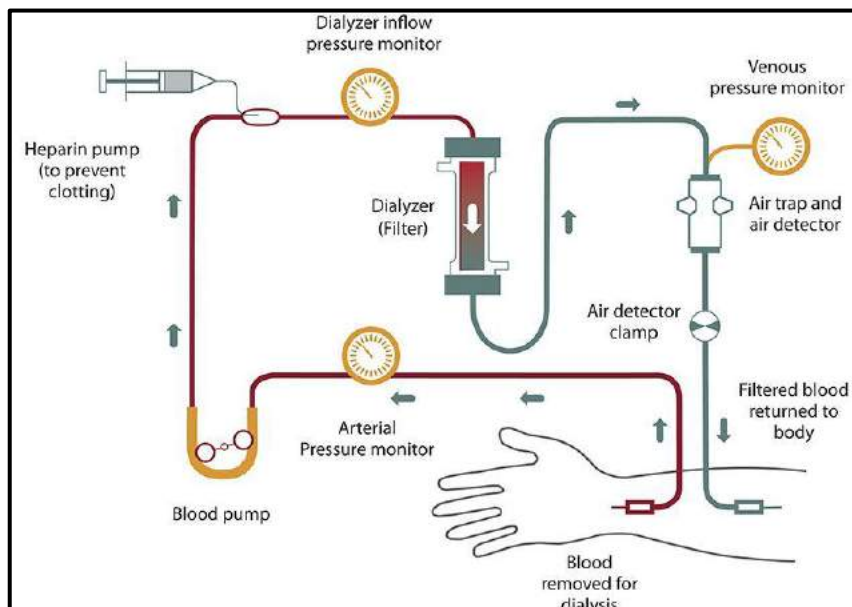
- Recently, there have been some findings from a nationwide private hemodialysis network', *the Lancet Regional Health-Southeast Asia*, on the survival of patients receiving hemodialysis in India.
- India has amongst the highest number of patients receiving chronic dialysis, globally estimated at around 1,75,000 people in 2018. Daily, the number of patients on dialysis has been increasing.
- The launch of the *National Dialysis Service in 2016* to improve access, and ongoing efforts to develop affordable dialysis systems, are all underlined by the rising incidence of end-stage renal disease in the country.

About Hemodialysis:

- Hemodialysis is a medical procedure for individuals with advanced kidney failure, also known as **end-stage renal disease (ESRD)**. It involves using a **dialyzer machine to filter waste products and excess fluids** from the blood when the kidneys can no longer perform this function adequately.
- Sessions, which last a few hours, are typically conducted multiple times per week to maintain the patient's overall health and well-being.

Key findings:

- The study found that both center- and patient-level characteristics are associated with survival rates among patients undergoing hemodialysis.
- The study included a substantial sample size of over 23,600 patients undergoing hemodialysis at any center in the NephroPlus network between April 2014 and June 2019.
- The primary outcome of the study was all-cause mortality, measured from 90 days after patients joined a center.
- The study accounted for various individual-level variables such as sex, smoking status, medical history (e.g., diabetes, heart disease, hypertension, hepatitis B, hepatitis C), education level, monthly household income, dialysis frequency, and vascular access.
- Centre-level variables, including the frequency of nephrologist visits, number of beds, number of staff, and number of patients, were also considered.



START Programme

Context

- The Indian Space Research Organisation (ISRO) will conduct the Space Science and Technology Awareness Training (START) 2024 program during April and May.

About Space Science and Technology Awareness Training (START):

- **The Indian Space Research Organisation (ISRO)** will conduct the Space Science and Technology Awareness Training (START) 2024 program during April and May. **ISRO is inviting Expression of Interest (EOI) from educational institutes**, universities, and colleges within India offering UG and PG courses in physical sciences and technology to host START-2024.

Objective:

- **The START Program aims to attract young individuals to space science and technology fields** by offering training modules covering various verticals, including Indian space exploration programs.
- It is an online introductory-level awareness program in space science and technology.

Eligibility:

- **Eligible students include post-graduate and final-year under-graduate students** studying physical sciences and technology within India.

Significance:

- **The program seeks to inspire students to pursue careers in space science** and foster innovation, and scientific curiosity, aligning with ISRO's commitment to promoting science and technology.
- START will cover various domains, such as space science, that includes **Astronomy and Astrophysics, Heliophysics, Instrumentation, Aeronomy, and Sun-Earth interaction.**



- It also facilitates nationwide outreach to diverse educational institutes, ensuring equal opportunities for learning and growth in space science education.

Pushpak

Context

- ISRO successfully conducts a 'Pushpak' Reusable Landing Vehicle landing experiment.
- The Pushpak, also known as **RLV-TD (Reusable Launch Vehicle Technology Demonstrator)**, serves as India's first uncrewed flying testbed developed for the **Indian Space Research Organisation's (ISRO) RLV Technology Demonstration Programme, which began in 2012.**

About Pushpak RLV:

About

- The Pushpak RLV is designed as an **all-rocket, fully reusable single-stage-to-orbit (SSTO) vehicle**, incorporating several major elements such as the **X-33 advanced technology demonstrator, the X-34 testbed technology demonstrator, and the upgraded DC-XA flight demonstrator.**



RLV-LEX-02 Experiment

- The RLV-LEX-02 (Pushpak) showcased the **autonomous landing capabilities** of the Reusable Launch Vehicle (RLV) from non-standard initial conditions upon release from the helicopter.
- The **winged vehicle underwent more challenging maneuvers**, correcting both cross-range and downrange dispersions to land autonomously on the runway.
- An Indian Air Force helicopter lifted Pushpak to an **altitude of 4.5 km before release.**

Significance

- This mission simulated the high-speed landing scenarios of an RLV returning from space, validating crucial technologies in **navigation, control systems, landing gear, and deceleration systems.**
- The successful reuse of flight hardware and systems from RLV-LEX-01 underscored ISRO's capability to develop indigenous technologies for space missions.

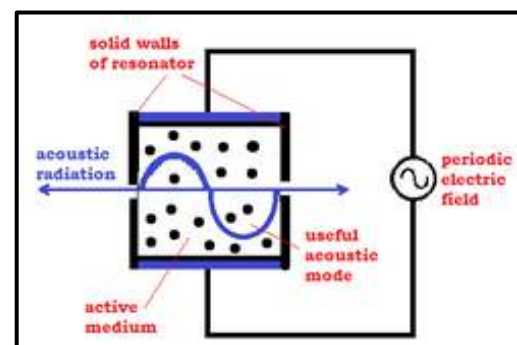
Sound Laser

Context

- Scientists in China have created an unprecedentedly bright laser that shoots particles of sound instead of light.
- In the conventional sense, a laser uses light **amplification by stimulated emission of radiation**. It produces a narrow, coherent beam of light. **There's no such thing as a sound laser using actual sound waves in this way.** A newer concept is the phonon laser, also sometimes referred to as a "**sound laser.**" This device emits a focused beam of sound waves, similar to how a laser emits light.

About Sound Laser:

- At the heart of the device lies a **one-micrometre-long silica bead**, emitting phonons instead of photons like traditional lasers. **These sound lasers, also known as SASERs**, produce a focused beam of uniform sound waves on a **nanoscale.**
- Phonons are less affected by liquids, making **SASERs more effective in imaging watery tissues** and deep monitoring. **The first successful SASERs were developed in 2009.**



Applications:

- These particles find applications in **optoelectronics, terahertz-frequency ultrasound, signal modulation, and manipulating nanoparticles.**
- **Operating in the terahertz frequency range**, the beam can also penetrate clothing in airport scans for security purposes.
- **Ultra-high-frequency ultrasound** for medical imaging or material processing.
- **Secure communication** through the manipulation of sound waves.
- **Studying fundamental physics** of sound and matter interaction.

7.7 SNIPPETS

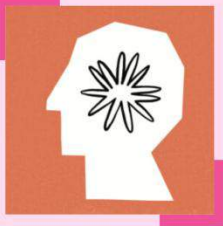
APTI PLUS



Frontier Technology Lab

- The FTL initiative, a partnership between the Atal Innovation Mission (AIM) and Meta (formerly Facebook), aims to bridge the digital gap by establishing Future Technology Labs (FTLs) in selected schools across India.
- These labs are equipped with cutting-edge infrastructure, including components of the Tinkering Lab, enabling students to innovate using technologies such as Artificial Intelligence, Augmented & Virtual Reality, Blockchain, Cybersecurity, Robotics, 3D Printing, and Internet of Things.

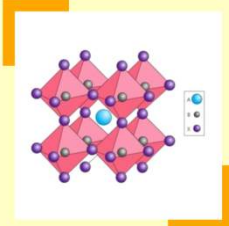
APTI PLUS



Claude 3 AI Chatbot

- Anthropic, founded by former members of OpenAI, has developed a family of advanced AI models named Claude. These models, including Claude 3 Haiku, Claude 3 Sonnet, and Claude 3 Opus, represent a progression in capabilities.
- Claude consists of Large Language Models (LLMs), specializing in generating human-like text. The chatbot created by Anthropic can process text, voice messages, and documents efficiently, providing faster and more contextual responses compared to other models.


APTI PLUS



Hybrid Perovskites


- Hybrid perovskites are a new class of semiconductors that combine the advantages of both organic (low cost, solution-processable, flexible) and inorganic semiconductors (high performance, electrical conductivity).
- This specific type of hybrid perovskite comprises lead (Pb) and iodide (I) as essential components, exhibiting favorable optoelectrical properties.
- They first saw use as a solar cell material, where they have rapidly risen to become competitive with silicon in the space of just a few years, but they have found use in most optoelectronic devices.


APTI PLUS




Ketamine use

- Ketamine, initially developed as an animal anesthetic in the 1960s, gained FDA approval for human use. It induces a trance-like state and is utilized by doctors for general anesthesia without muscle relaxation.
- More recently, it's been explored for treating depression and mental illnesses, alongside its recreational use involving snorting, injecting, or smoking.
- Its effects stem from blocking the N-methyl-D-aspartate (NMDA) receptor, leading to pain relief, euphoria, and hallucinations akin to LSD and angel dust.
- Ketamine falls under the Narcotic Drugs and Psychotropic Substances Act, of 1985, as a regulated psychotropic substance.







Lyme Disease



- Lyme disease, caused by the bacteria *Borrelia burgdorferi*, is primarily transmitted to humans through the bite of infected ticks. Originating in Lyme, Connecticut, this disease has since become a global health concern.
- In India, while Lyme disease has been relatively rare, the changing ecological landscape has led to an increased number of cases.
- Symptoms: It sometimes happens so that the infected arm or leg can continue to feel intense inflammation and soreness, sometimes for weeks, months, or even years, even after the fever goes down.
- Treatment: At the initial stage, oral medication like doxycycline, amoxicillin, or cefuroxime may be utilized.



HbA1C Test



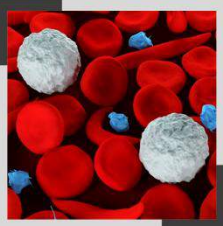
- The HbA1c test (glycated haemoglobin test) provides a comprehensive assessment of long-term blood glucose levels over 2-3 months by measuring sugar-coated red blood cells.
- Unlike fasting and post-meal tests, it remains reliable regardless of recent meals. Normal levels are below 5.7%, while 5.7-6.4% may indicate pre-diabetes, and 6.5% or higher can indicate diabetes.
- Test results may be influenced by factors like kidney or liver failure, anemia, certain medications, and pregnancy.




Project ANAGRANINF



- Project ANAGRANINF, known as "Development of a Novel Class of Antibiotics Against Gram-Negative Bacterial Infections," is a collaborative effort involving Peptris Technologies Pvt. Ltd., FNDR in India, and ABAC THERAPEUTICS SL from Spain.
- Its primary objective is to develop a novel antibiotic targeting the FabI enzyme to combat critical gram-negative pathogens.
- The project aims to produce compounds with enhanced efficacy against these infections and identify a candidate molecule meeting WHO's innovation criteria, ensuring a new chemical structure, no cross-resistance, and a novel mechanism of action.



Sickle Cell Anaemia



- It is an inherited condition characterized by abnormal red blood cells (RBCs) shaped like a sickle due to faulty hemoglobin, hindering oxygen transport.
- The disease results from inheriting a defective 'beta-globin' gene from parents.
- Due to the premature death of sickle cells, there is a constant shortage of RBCs, leading to blockages in small blood vessels and causing pain and various complications like infections and acute chest pain.
- Tribal communities in India have a higher prevalence of hemoglobinopathies, including SCD, compared to non-tribal groups.
- SCD is prevalent in malaria-endemic regions, offering certain individuals immunity during malaria outbreaks due to the sickle cell trait.

8. CULTURE & HISTORY

8.1 HERITAGE SITES ON UNESCO TENTATIVE LIST

Context

- Recently, six heritage sites in Madhya Pradesh have been included in the tentative United Nations Educational, Scientific and Cultural Organization (UNESCO) list.

Details

- The latest additions to the list comprise Gwalior Fort, the Historical Group of Dhamnar, Bhojeshwar Mahadev Temple, the Rock Art Sites of Chambal Valley, Khooni Bhandara in Burhanpur, and the God Memorial of Ramnagar in Mandla.
- Initiated in 2010, efforts were made to nominate the underground water structure, Khooni Bhandara, for UNESCO's World Heritage status.
- In 2013, a team from UNESCO visited the site to assess its potential. Following their recommendations, all identified deficiencies were addressed.
- Presently, the district administration, municipal corporation, and the government of Madhya Pradesh have collaborated to devise an action plan aimed at enhancing facilities at the site.

Khooni Bhandara	<ul style="list-style-type: none"> Located in Burhanpur, Madhya Pradesh, Khooni Bhandara is an underground water management system consisting of eight waterworks. Dating back to the Mughal period, these waterworks are esteemed as one of India's most significant historical water systems. They were constructed in 1615 CE, following the Persian qanat approach similar to those in Aurangabad and Bidar.
Gwalior Fort	<ul style="list-style-type: none"> Situated near Gwalior, Madhya Pradesh, Gwalior Fort is an ancient hill fort with origins tracing back to at least the 10th century, possibly even earlier to the 6th century. Over the centuries, it has been under the control of various dynasties including the Hunas, Gurjara-Pratiharas, Kachchhapaghatas, Tomars, Lodis, and Mughals. The fort boasts numerous temples and structures.
Historical Group of Dhamnar	<ul style="list-style-type: none"> The Dhamnar caves, nestled on a hill near Dhamnar village in Mandsaur district, Madhya Pradesh, comprise a rock-cut site featuring 51 caves of different sizes carved into the laterite hill. This hill is divided into two sections: the Buddhist caves and the Hindu temple complex, also known as the Dharmarajeshwara temple or Dharmanath temple.
Bhojeshwar Mahadev Temple	<ul style="list-style-type: none"> Situated in Bhojpur village, Madhya Pradesh, the Bhojeshwar Temple is an incomplete Hindu temple believed to have been initiated during the 11th century, under the rule of the Paramara king Bhoja. Although the construction was halted for reasons unknown, the architectural plans are etched into the surrounding rocks, offering insights into its design and purpose.

World Heritage Site and UNESCO

- World Heritage sites are distinguished landmarks or areas afforded legal protection under an international convention overseen by the United Nations Educational, Scientific and Cultural Organization (UNESCO).

- Designated by UNESCO, these sites are recognized for their **cultural, historical, scientific, or other significant attributes**.
- UNESCO identifies these sites as containing cultural and natural heritage of exceptional value to humanity.
- The concept of World Heritage arose post-WWII amidst concerns about the extensive destruction of cultural and natural sites.
- In response, **the 1972 Convention Concerning the Protection of the World Cultural and Natural Heritage**, commonly referred to as the World Heritage Convention, was drafted to establish a framework for safeguarding the world's remarkable heritage.

8.2 SHORT ARTICLES

Majuli Masks and Majuli Manuscript Paintings

Context

- The famed Narasapur crochet lace craft has got the Geographical Indications (GI) tag, giving a new lease of life to the dying craft in the Godavari region of Andhra Pradesh.



Majuli Mask:

- *Majuli, the largest river island in the world and the seat of Assam's neo-Vaishnavite tradition, has recently gained recognition for its traditional Majuli masks, receiving a Geographical Indication (GI) tag. These masks hold significant cultural and artistic value, deeply rooted in Assamese heritage.*

Majuli Manuscript Paintings:

- Majuli manuscript paintings, also known as Sattra paintings or Sanchi Pat paintings, are a unique art form with a rich history dating back to the 16th century. These paintings were traditionally created in the Sattras, Vaishnavite monasteries, to illustrate religious texts and narratives, particularly from the epics Ramayana and Mahabharata, and Bhagavad Gita, a sacred Hindu scripture.

Key Features:

Painting Materials

- The beautiful and intricate paintings are **made on Sanchi bark**, a type of bark obtained from the Agar tree.
- **Natural colors, derived from plants, minerals, and insects**, are used to create vibrant illustrations.

Enduring Legacy

- These paintings not only served a religious purpose but also showcased the artistic skills of the **Sattra communities**.
- Today, they are considered valuable historical and artistic treasures, offering a glimpse into the religious and **cultural life of Majuli in centuries past**.

Significance of Majuli Mask

- Majuli masks are not mere decorative items; they are central to the vibrant folk theatre traditions of the island.
- Traditionally used in performances of religious dramas like '**Manohari**' and '**Bhaoriya**,' these masks depict characters from **Hindu mythology, embodying deities, demons, and mythical creatures**.

Preserving the Traditions

- Both Majuli masks and manuscript paintings face challenges in the modern world, including competition from mass-produced items and a decline in interest among younger generations.
- However, efforts are underway to revive these art forms through workshops, exhibitions, and government initiatives. By preserving these traditions, the unique

cultural heritage of Majuli can continue to inspire and captivate audiences for generations to come.

Ayya Vaikundar

Context

- Tamil Nadu Governor R N Ravi sparked controversy with his recent remarks about Ayya Vaikundar, the 19th-century social reformer.
- *Vaikundar, a 19th-century social reformer, emerged as a powerful voice against caste discrimination in southern Tamil Nadu. His teachings emphasized equality and fraternity, challenging the rigid social hierarchies that had persisted for centuries.*



Contributions to Social Equality:

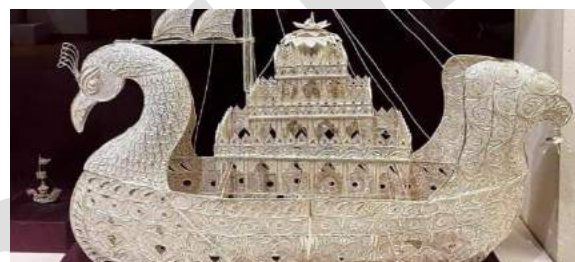
- **Community Initiatives:** Vaikundar championed social cohesion through revolutionary practices like:
 - **Samapanthi-bhojana:** Communal dining where people from all castes could eat together, challenging segregation.
 - **Muthirikinaru:** Shared wells and water resources, dismantling another barrier to inclusivity.
- **Teachings:** Vaikundar emphasized "piranthu" (pure love) as the ultimate goal. He believed true love, devoid of selfishness or conditions, was the key to inner peace and societal harmony.
- **Scriptural Interpretation:** He drew inspiration from Tamil scriptures like Tirukkural and Nalayira Divya Prabandham, reinterpreting them to emphasize love, devotion, and spiritual growth for all.
- **Community Practices:** Vaikundar's followers participate in:
 - **Congregational worship:** Fostering a sense of community and shared beliefs.
 - **Nadai:** Singing devotional songs, promoting spiritual connection.
 - **Ayyavazhi festivals:** Large gatherings that strengthen community bonds.

- **Religious Reforms:** He advocated for inclusive practices like Thottu Namam, a sacred ash mark applied to all devotees regardless of caste, symbolizing equality before the divine.

Rupa Tarakasi

Context

- The famous silver filigree (Rupa Tarakasi) of the millennium Cuttack city in Odisha has received the geographical indication (GI) tag from the Chennai-based Geographical Indications Registry, giving an occasion for the people of the state to celebrate.



Details:

- Rupa Tarakasi, also known as silver filigree work, is a renowned craft originating from Cuttack, Odisha. Recently, it has been granted the Geographical Indication (GI) tag, highlighting its unique characteristics and qualities.

Key features:

Meaning

- The term "**Cuttack filigree**" itself captures the art form's essence. "**Tara**" in Odia translates to "**wire**," and "**kasi**" signifies "**to design**," highlighting the use of intricate wirework in creating beautiful pieces.

Crafting Techniques

- **Skilled artisans transform silver into thin wires or foils**, meticulously shaping them into breathtaking designs. This painstaking process results in exquisite jewelry, showpieces, decorative artifacts, and more.

Products

- **Jewelry:** Delicate and intricately crafted necklaces, earrings, bangles, and more.
- **Decorative artifacts:** Ornate boxes, figurines, and other decorative items.

- **Accessories:** Hairpins, belts, and other embellishments.
- **Home décor:** Exquisite tableware, wall hangings, and decorative elements.
- **Religious and cultural pieces:** Items with spiritual significance used in traditions and celebrations.

Uniqueness

- Cuttack's filigree work sets itself apart from other indigenous silver jewellery with its delicate, handcrafted designs and superior quality.

Lachit Borphukan

Context

- PM Modi unveils bronze statue of Ahom general in Assam.



Who was Lachit Borphukan?

- Lachit Borphukan was a **legendary army commander of the Ahom kingdom (1228-1826)**, known for his leadership in the **1671 'Battle of Saraighat'**. He defeated the Mughal forces, **led by Raja Ramsingh-I**, in this battle, and thwarted a drawn-out attempt by them to take back Assam.

Early Life

- **Born in 1622 in Charaideo, Assam**, Lachit belonged to a noble family.
- He received training in military strategy, philosophy, and the arts, preparing him for a life of leadership.
- Lachit's skills and dedication were recognized, leading to his appointment as the Borphukan (commander-in-chief) of the Ahom army.

The Battle of Saraighat (1671)

- The Mughal Empire, under the reign of Aurangzeb, sought to expand its territory and clashed with the Ahom kingdom.
- **In 1671, a massive Mughal force led by Raja Ramsingh I** laid siege to Guwahati, the Ahom capital, on the banks of the Brahmaputra River.
- Despite being outnumbered and having fewer resources, Lachit Borphukan displayed exceptional leadership and strategic brilliance.
- He used clever **tactics like guerilla warfare**, exploiting the riverine terrain to his advantage, and maintaining high troop morale.
- Lachit's forces inflicted a crushing defeat on the Mughals at the Battle of Saraighat, halting their expansionist **ambitions and securing Assam's independence for decades**.

Legacy

- Lachit Borphukan is revered as a national hero in Assam and a symbol of Assamese resistance against foreign invaders.
- His decisive victory at Saraighat is celebrated annually on his birthday, **November 24th**, as **Lachit Divas (Lachit Day)**.
- The Lachit Borphukan **Gold Medal**, awarded to the best cadet at the National Defence Academy, honors his legacy and inspires future generations of military leaders.

Sabarmati Gandhi Ashram Redevelopment Project

Context

- Prime Minister Narendra Modi will inaugurate the symbolic foundation stone laying ceremony and unveil the master plan for the Rs 1,200 crore Gandhi Ashram Memorial and Precinct Development Project in Ahmedabad.



Historical Significance of the Sabarmati Ashram:

Establishment

- **Founded in 1917 by Mahatma Gandhi**, the Sabarmati Ashram is located on the western bank of the Sabarmati River near Juna Vadaj in Ahmedabad.
- Gandhi established five settlements during his lifetime: **two in South Africa (Phoenix Settlement in Natal and Tolstoy Farm outside Johannesburg)** and **three in India (Kochrab area of Ahmedabad in 1915, Sabarmati Ashram in Ahmedabad, and Sevagram Ashram in Wardha).**

Role in India's Independence Movement

- Served as a base for Gandhi's socio-political activities and experiments with truth and non-violence. Witnessed the launch of seminal movements including the Dandi March in 1930 and other significant movements such as **Champaran Satyagraha (1917), Ahmedabad mills strike and Kheda Satyagraha (1918), Khadi movement (1918), Rowlatt Act and Khilafat Movements (1919), and the Non-Cooperation movement (1920).** Vinoba Bhave lived in a cottage at Sabarmati Ashram called "**Vinoba Kutir**".

Architectural and Philosophical Significance

- Designed by Gandhi himself, embodying simplicity, self-sufficiency, and communal living. Constructed using local materials and traditional techniques, reflecting Gandhi's principles of sustainability and harmony with nature.

Legacy and Symbolism

- Stands as a testament to Gandhi's enduring legacy and his pivotal role in India's freedom struggle. Remains a pilgrimage site for admirers of Gandhian philosophy, offering insights into his life, teachings, and principles.



Savitribai Phule

Context

- India commemorates the 192nd birth anniversary of Savitribai Phule **renowned as India's first woman teacher.**

Details:

- Savitribai Phule, born in 1831, is a pioneering figure in India's social reform movement. She, alongside her husband Jyotirao Phule, played a crucial role in advocating for women's education and upliftment in 19th century India, a time marked by rigid social hierarchies and discrimination.



About Savitribai Phule:

Early Life

- Born into a non-privileged caste, **Savitribai's own education** was limited due to societal norms.
- Married at a young age, as was common during that time, she faced the hardships of child marriage and social restrictions placed on women.

Women's Education

- Undeterred by societal limitations, **Savitribai became an avid learner with Jyotirao's support.** In 1848, they opened **India's first school for girls in Pune**, defying social norms that discouraged female education.
- **Savitribai, herself, became the school's first teacher**, facing criticism and opposition but persevering in her mission.

Fighting Caste Discrimination

- The Phules extended their reform efforts beyond gender to encompass the caste system.
- They campaigned against the injustices faced by **lower castes, particularly the "untouchables,"** who were ostracized and denied basic rights.
- They opened shelters for widows and those ostracized by society, providing them with education and opportunities.

Social Reformer

- Savitribai Phule is widely regarded as the "**Mother of Indian Feminism**" for her unwavering fight for women's rights and education.
- Her contributions, alongside Jyotirao Phule's, paved the way for significant social reforms in India. Numerous educational institutions in India are named after her, and her birthday is celebrated as Savitribai Phule Jayanti, a day to honor her legacy.



Gorsam Kora Festival

Context

- The Gorsam Kora Festival, an annual event in Arunachal Pradesh's Zemithang valley, concluded on March 10.
- *The Gorsam Kora festival is held in Zemithang valley along the Nyanmjang Chu River. It features cultural performances and Buddhist rituals at the Gorsam Chorten, which is older than the Tawang Monastery. The festival attracts Bhutanese nationals and promotes cleanliness through the Vibrant Village Program.*

About Gorsam Kora Festival:

Location

- Held annually in **Arunachal Pradesh's Zemithang valley**.

History

- Centred around the **13th-century Gorsam Chorten**, a 93-foot tall stupa.
- Festival begins with prayers at the revered Khinzemane Holy Tree believed to be planted by the **14th Dalai Lama**.
- Commemorates the occasion on the final day of the first month of the Lunar calendar.

Organizers

- Organized by Zemithang community in collaboration with civil authorities.
- Supported by local Indian Army Units.

Events and Performances

- Features cultural performances by local troupes and Indian army bands.
- Includes martial performances like **Mallakhamb and ZanjhPathaka**.
- Incorporates a '**Zero Waste Festival**' theme.

- Attracts pilgrims and lamas from Bhutan, Tawang, and neighbouring regions.

Tourism Development

- Zemithang valley is part of the **Vibrant Village Programme**.
- Aims to enhance tourist infrastructure and transform Zemithang valley into a thriving tourist destination.



Pandavula Gutta

Context

- Pandavula Gutta, a geological marvel older than the Himalayan hills, has been officially



recognized as the sole Geo-heritage site in Telangana.

Key features:

Pandavula Konda

- Pandavula Konda, also known as Pandavula Gutta, is a geological wonder situated in the **Jayashankar Bhupalpally district of Telangana**.

Rock Shelters

- Abundant in rock shelters, Pandavula Gutta has been inhabited from the **Mesolithic period (approximately 10,000 B.C. to 8,000 B.C.)** through medieval times.

Palaeolithic Cave Paintings

- Pandavula Gutta features Palaeolithic cave paintings dating from **500,000 BCE to 10,000 BCE**, providing a fascinating glimpse into prehistoric life.

Artistic Depictions

- These cave paintings portray wildlife such as **Bison, Antelope, Tiger, and Leopard**,

alongside shapes including **swastika symbols, circles, squares, and weaponry.**

Colorful Palette

- The paintings are adorned with **vibrant hues of green, red, yellow, and white pigments**, showcasing intricate geometrical designs and impressions.

Rock Climbing Hub

- Pandavula Gutta's **unique topography attracts numerous rock-climbing enthusiasts**, making it a favored destination for adventure seekers.



Chausath Khamba

Context

- Recently, as visitors journey to the Nizamuddin Dargah, a 14th-century shrine honoring Sufi saint Hazrat Nizamuddin Auliya, their gaze falls upon a remarkable sight to the right.

Details:

- This striking structure, known as Chausath Khamba or "**64 pillars**," captivates with its marble pillars and intricate latticework, adding to the allure of the surroundings.

About Chausath Khamba:

About

- **Constructed during 1623–24**, it stands as a testament to Mughal architectural brilliance in the heart of **New Delhi's Nizamuddin**

Kalyana Chalukya dynasty

Context

- A 900-year-old Kannada inscription from the Kalyana Chalukya dynasty was discovered in a neglected state at Gangapuram, Mahabubnagar district.

Details:

- Archaeologists found it near Chowdamma temple during a heritage preservation campaign. **The inscription, dated June 8, 1134 CE, records toll tax remission for a temple lamp.**

About

- The Kalyani Chalukyas, also known as the Western Chalukyas or Later Chalukyas, were a prominent Kannada dynasty that ruled parts of South India from the **10th to the 12th centuries.**

Origin

- **Established in 973 AD by Tailapa II**, a feudatory of the Rashtrakuta Empire.
- The Rashtrakutas weakened over time, allowing Tailapa II to declare independence and revive the legacy of the earlier Chalukya dynasty of Badami (6th–8th centuries).

precincts, dedicated to Sufi Muslim shrines and tombs.

Significance

- The name "**Chausath Khamba**" translates to "**64 pillars**" in Urdu and Hindi, aptly describing the architectural feature that distinguishes this monument.

Builder and Purpose

- **Commissioned by Mirza Aziz Koka, son of Ataga Khan**, during the reign of Mughal Emperor Jahangir, the structure served as a mausoleum for Mirza Aziz Koka himself.

Evolution of Structure

- **Originally designed as a hall**, the monument transformed into a tomb, showcasing an innovative blend of eclectic architectural



styles typical of the Mughal era.

Architectural Features

- **Constructed entirely of white marble**, the **square-shaped monument boasts 64 columns** supporting twenty-five bays, each crowned with a dome, illustrating the grandeur of Mughal craftsmanship.

Capital

- Kalyani (present-day Basavakalyan in Karnataka) served as their capital.
- Their empire encompassed a vast region, including parts of present-day Karnataka, Andhra Pradesh, Maharashtra, Telangana, Goa, and western Tamil Nadu.

Significant Rulers

- **Tailapa II (973-997 AD):** Founded the dynasty and established its independence.
- **Vikramaditya VI (1076-1126 AD):** Considered the greatest ruler of the dynasty. He expanded the empire, achieved military success against the Cholas, and fostered cultural growth.
- **Somesvara IV (1064-1068 AD):** Known for his interest in literature and patronage of scholars.



Achievements

- Renowned for their architectural contributions, including temples like the Melakote Temple and the Mallikarjuna Temple at Pattadakal.
- Patronized literature, with Kannada and Sanskrit flourishing during their reign. Notable works include the Kannada epic "Vikramarjuna Vijaya" by Pampa and the Sanskrit treatise "Siddhanta Shiromani" by Bhaskara II.

Ancient Monuments and Archaeological Sites and Remains Act

Context

- The Archaeological Survey of India (ASI) has decided to delist 18 "centrally protected monuments".
- The Archaeological Survey of India (ASI) is tasked with protecting and preserving monuments and archaeological sites of national importance under various acts, including The Ancient Monuments Preservation Act, 1904, and The Ancient Monuments and Archaeological Sites and Remains Act, 1958 (AMASR Act).



Key features:

Purpose

- Declaration and conservation of ancient and historical monuments, archaeological sites, and remains of national importance.

Total Number of Monuments and Sites (MNI)

- 3,693 in India, with Uttar Pradesh having the highest number (745 monuments/sites).

Declaration Process

- Central Government issues a notification of intention to declare any qualifying monument as MNI, inviting views/objections from the public.
- After a two-month notice period, considering received views/objections, the Central Government may declare the monument as MNI via an official gazette notification.

Responsibility

- The Archaeological Survey of India (ASI), under the **Ministry of Culture, is responsible for the protection and upkeep of MNI.**

Conservation and Maintenance

- ASI undertakes conservation, preservation, and maintenance of MNI across the country.

Protected and Regulated Areas

- A **100-meter radius** around the monument is a **'prohibited area,'** where construction activities are banned.
- An additional 200 meters (100+200 meters) constitute a **'regulated area,'** with construction regulations in place.

Delisting Process

- ASI has the power to delist monuments deemed to have ceased to be of national importance under **Section 35 of the Act.** After delisting, **ASI is no longer responsible for their protection.**

Mohiniyattam

Context

- The Kerala Kalamandalam, a deemed university for arts and culture, has unanimously lifted gender restrictions allowing boys to learn Mohiniyattam, a classical dance form.

Details:

- A controversy over whether casteism corrodes the world of classical arts in Kerala erupted with Mohiniyattam artiste R.L.V. Ramakrishnan claiming that he was the latest victim of allegedly institutionalized upper-class privilege in the haloed halls of traditional dance.



About Mohiniyattam:

Definition

- Classical Indian dance form originating from Kerala, India; one of the eight classical dances of India.

Performance

- Solo dance performed by women, often depicting the Hindu myth of Mohini, the female avatar of Vishnu.

Characteristics

- Graceful movements, expressive facial expressions, and elaborate costumes. Based on **Natya Shastra's Lasya style**, emphasizes feminine grace and beauty. Incorporates principles of Lasya, **Trisama (coordination of nritta, nritya, and natya), Abhinaya (facial expression), Mudra (hand gestures), and Tala-Laya (rhythm and tempo).** Mohiniyattam narratives typically revolve around Vishnu's feminine dance.

Historical Evolution

- Evolved from temple rituals, structured into classical format by Travancore Kings **Maharaja Kartika Tirunal and Maharaja Swati Tirunal in the 18th-19th century C.E.**

Notable Dancers

- Kalamandalam Kalyanikutty Amma, Dr. Vyjayanthimala Bali, Dr. Padma Subrahmanyam.

Significance

- Often performed in temples and festivals; evolved through a long process of evolution, **tracing its origin to Kerala temples.**

Colonial Influence

- Like many Indian art forms, Mohiniyattam suffered under British colonial administration.

Gulaal Gota

Context

- Recently, **Gulaal Gota, a unique tradition dating back around 400 years, was celebrated in Jaipur, Rajasthan.**

Details:

- Lac, a resinous substance secreted by certain insects, is shaped, colored, and then blown into a spherical shape with the help of a blower called "phunkni."



About Gulaal Gota:

About

- Gulaal Gota is a small ball made of lac, filled with dry gulaal, weighing around 20 grams when filled.

Raw Material Source

- Lac, the primary raw material, is sourced from Chhattisgarh and Jharkhand.



Manufacturing Process

- Boiling lac in water to make it flexible, shaping it, adding color, heating it, and blowing it into a spherical shape using a blower called "phunkni".

Craftsmen

- Muslim lac makers, known as Manihaars, in Jaipur, learned lac-making from Hindu lac makers in Bagru, a town near Jaipur.

Government Support

- Artisan cards provided by the Government of India to Lac Bangle and Gulaal Gota makers, enabling them to avail benefits from government schemes.

Geographical Indication (GI) Demand

- Some Gulaal Gota makers have demanded a Geographical Indication (GI) tag to protect and preserve the tradition.

9. GEOGRAPHY & DISASTER MANAGEMENT

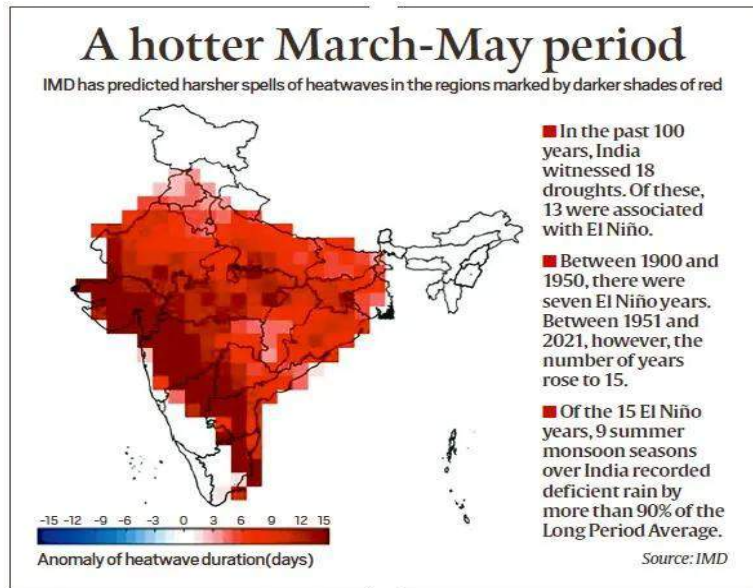
9.1 WARMER SUMMER DUE TO EL NIÑO

Context

- India Meteorological Department (IMD) predicted a hot summer this year, with above-normal temperatures and an above-normal number of heat wave days from March to May.

About El Niño

- El Niño refers to the abnormal warming of sea surface waters in the equatorial Pacific Ocean. El Niño episodes emerge naturally during autumn-summer in the northern hemisphere, typically once every 2-7 years.
- It peaks during winter (October-February) before weakening in the subsequent summer, making it a phenomenon that typically lasts for between 9 and 12 months. Occasionally, El Niño will last up to two years in a row.



El Niño's Influence

- Warmer Pacific, Weaker Monsoons:** El Niño disrupts typical atmospheric circulation patterns. Warmer Pacific Ocean temperatures weaken trade winds, which can lead to a decrease in monsoon rainfall in India and other parts of South Asia.
- Reduced Cloud Cover, More Sunshine:** Weaker monsoons often translate to less cloud cover, allowing more sunlight to reach the surface and heat the landmass.

Impacts in India:

- Higher Temperatures:** While the exact temperature increase is unpredictable, El Niño's influence generally pushes summer temperatures in India a few degrees above normal.
- Uneven Distribution of Rainfall:** Even if the total monsoon rainfall isn't significantly impacted, El Niño can lead to an uneven distribution. Some regions might experience drier conditions, while others could see bursts of intense rainfall. This can disrupt agricultural activities and water resource management.
 - E.g. El Niño disrupts weather patterns, often leading to weaker monsoon rains in India. This can trigger droughts, as seen in several instances since 1871, including 2002 and 2009.
- Weaker monsoons translate to less water for crops,** impacting the yield of summer staples like rice, sugarcane, cotton, and oilseeds. This has a domino effect on India's economy, potentially leading to inflation and lower GDP growth.

Difference between El Nino and La Nina

Feature	El Niño	La Niña
Climate Pattern	Warmer-than-average sea surface temperatures in the central and eastern tropical Pacific Ocean	Cooler-than-average sea surface temperatures in the central and eastern tropical Pacific Ocean
Effect on Monsoon Rains	Weaker than normal, leading to droughts	Stronger than normal, leading to increased rainfall
Trade Winds	Weaker over the Pacific Ocean	Stronger over the Pacific Ocean
Phase of ENSO Cycle	Warm phase	Cold phase
Impact on Coastal Fisheries	Negative impact due to changes in ocean temperatures and currents	Positive impact due to increased upwelling of nutrient-rich cold water
Duration	Lasts for several months to a couple of years	Lasts for several months to a couple of years

Conclusion

- Understanding and monitoring climate patterns like El Niño and La Niña is essential for anticipating and managing their impacts on India's weather and related sectors such as agriculture, water resources, and hazard management. These phenomena are part of the El Niño-Southern Oscillation (ENSO) cycle, which significantly influences global weather patterns.

9.2 ANTHROPOCENE

Context

- Scientists have voted against a proposal to declare a new geological epoch called the Anthropocene to reflect how profoundly human activity has altered the planet.

About an Epoch

- An epoch is a specific instant in time chosen as the origin or starting point for a particular calendar era. It serves as a reference point from which we measure the passage of time.

Eonothem/ Eon	Erathem/ Era	System/ Period	Series/ Epoch	Stage/ Age	millions of years ago
Phanerozoic	Cenozoic	Quaternary	Anthropocene ¹		—1950 CE
			Holocene		—0.0117
			Pleistocene	Upper	—0.126
				Middle	—0.781
				Calabrian	—1.806
				Gelasian	2.588

¹In August 2016 the Anthropocene Working Group (AWG), a special body created within the International Commission on Stratigraphy (ICS), recommended that the Anthropocene Epoch be made a formal interval within the International Chronostratigraphic Chart. The AWG recommended that the year 1950 be used as the starting point of the Anthropocene Epoch.

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Examples:

- Anno Domini (AD):** Refers to "in the year of the Lord" and is used to count years since the supposed birth of Jesus Christ.
- Before Christ (BC):** Used to denote years preceding the supposed birth of Jesus Christ.

- **Unix Epoch:** Represents the number of seconds elapsed since January 1, 1970, at 00:00:00 UTC, excluding leap seconds. This is widely used in computer systems.

What is the Anthropocene epoch?

- The Anthropocene epoch is a suggested geological time unit indicating the era in which human actions profoundly influence Earth's climate and ecosystems. It proposes a new epoch succeeding the **Holocene**, with the term coined in **2000** by **Dutch meteorologist Paul Crutzen** and **American botanist Eugene Stoermer**.
- The commencement of the Anthropocene is subject to debate, with some suggesting the **post-World War II period** due to the significant surge in human activities known as the "**Great Acceleration**."

Why was the proposal rejected?

- **Dispute over the commencement date:** The proposal advocated for **1952 as the starting point** of the Anthropocene, citing global plutonium fallout from nuclear weapons tests. However, detractors argued that human influence began earlier, encompassing activities such as agriculture, and cannot be pinpointed to a specific date.
- **Epoch definition criteria:** The committee of the International Union of **Geological Sciences (IUGS)** determined that introducing an Anthropocene epoch and concluding the Holocene did not adhere to conventional standards for defining geological epochs. Concerns were raised regarding the scientific rigor and requisite criteria needed to establish a new geological epoch.

Future of the Anthropocene Concept

- **Beyond Epochs:** Certain researchers suggest redefining the Anthropocene as an "event" rather than adhering strictly to geological epochs, recognizing its transformative influence outside conventional categorizations.
- **Relevance and Recognition:** Regardless of its formal classification, the Anthropocene concept highlights the significant influence of human actions on Earth's systems, prompting discussions on environmental stewardship and sustainability.

Important related keywords

Eon: The largest division of time on the Geological Time Scale.

Era: The second-largest division of time, encompassing longer periods of geological history within an eon.

Period: A subdivision of an era, representing a distinct interval of time characterized by specific geological and biological events.

Age: The smallest division of time on the Geological Time Scale. Ages represent relatively brief periods, often defined by specific fossil or rock layers.

9.3 FOREST FIRES IN TAMIL NADU

Context

- Forest fires have become a major threat in South India, particularly in areas like the Nilgiris. They pose a severe threat to biodiversity, ecosystems, and human communities.
- A combination of natural and man-made factors is the primary driver of forest fires in South India. A major human cause of forest fires is the **burning of trash, campfires, and abandoned cigarettes**. Natural sources such

as lightning strikes can contribute to the start of flames.

The Indian Air Force (IAF) sent a Mi-17 V5 helicopter to assist the forest department in battling the blaze using "Bambi Bucket" drops

- The **Bambi Bucket**, known as a helicopter bucket or helibucket, is a specialized container suspended beneath a helicopter by a cable. It is **designed to be filled by dipping into a river or pond**, then flown over a fire where it can be emptied aerially by opening a valve at the base of the bucket.
- This equipment plays a crucial role in combating wildfires that are challenging or inaccessible to ground crews.
- Globally, **helicopters are regularly deployed for forest fire suppression**, making the Bambi Bucket an essential tool in fire fighting efforts.

About Forest Fire

- A forest fire, also known as a wildfire, bushfire, or wildland fire, is an uncontrolled fire that burns in vegetation in a natural area. These fires can be large or small, and they can burn for short periods or for days or even weeks.
- From 2002 to 2022, India lost 3.93 lakh hectares of humid primary forest, accounting

Reason for the Forest Fires

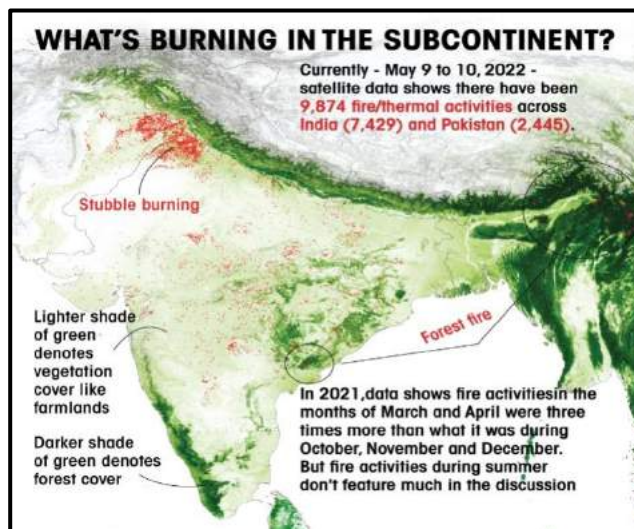
- **Volcanic eruptions:** Volcanic activity can trigger fires through lava flows, burning ash, or the emission of sparks and embers.
- **Climate Change:** Increased temperatures, reduced precipitation, and prolonged droughts create drier conditions that make forests more susceptible to fires.
- **Forest Management Practices:** Practices like clearing dead vegetation or controlled burns can help reduce the risk of intense wildfires by removing fuel sources. However, improper forest management can also contribute to fire risk.
- **Accidental Sparks:** Sparks from machinery,

for 18% of its total tree cover loss during that time-period.

- India lost 3.59 lakh hectares of tree cover from fires and 2.15 million hectares from other drivers of loss between 2001 and 2022.
- In 2023, India experienced an unusually high number of VIIRS fire alerts, with 14,689 high-confidence alerts reported between August 29, 2022, and August 28, 2023.

Present Cases

- According to data from the Forest Survey of India (FSI), Mizoram recorded the highest number of forest fires at 3,738, followed by Manipur with 1,702, Assam with 1,652, Meghalaya with 1,252, and Maharashtra with 1,215 reported incidents.
- Satellite observations from the Indian Space Research Organisation (ISRO) indicate a surge in forest fires since early March 2024 across several regions, including the **Konkan belt in Maharashtra**, the southern coastal areas of **Gujarat encompassing Gir Somnath and Porbandar**, parts of southern Rajasthan, southwestern districts of Madhya Pradesh, coastal and inland areas of Odisha, and adjacent regions of Jharkhand.
- In South India, significant forested regions in **Andhra Pradesh, Karnataka, and Tamil Nadu** have witnessed incidents of fire over the past week.



power lines, or even celebratory fireworks can ignite dry vegetation under certain conditions.

What can be Done to Mitigate Forest Fire?

- **Promoting public awareness and education** regarding forest fire causes and consequences is vital for preventing human-induced fires. Initiatives should focus on fire safety, cigarette disposal, and campfire vigilance.
- **Enforcement of regulations is crucial**, including restrictions on burning debris and campfires during dry periods. Strict penalties for violations are necessary to discourage irresponsible behavior.
- **Implementing firebreaks and fuel management strategies**, such as controlled burns and vegetation thinning, can effectively reduce fire spread and fuel loads.
- **Early detection systems, like surveillance cameras** and satellite monitoring, aid in promptly identifying fires, enabling swift responses to contain them and minimize their impact.

Conclusion

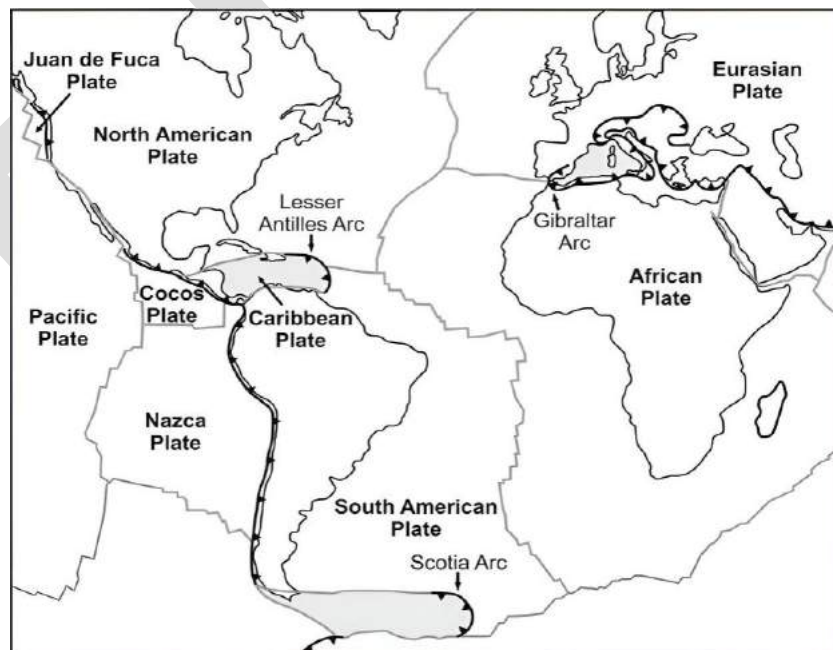
- The increased risk and occurrence of forest fires in southern India in 2024 result from a mix of human actions, weather patterns, aridity, and the abundance of dry biomass. Communities can reduce these risks through proactive strategies and promoting fire safety awareness, fostering resilience to minimize the impact of forest fires.



9.4 SUBDUCTION ZONES

Context

- Recently, Scientists raised concerns about the future of the Atlantic Ocean. They have identified a subduction zone beneath the Gibraltar Strait, situated between Spain and Morocco.
- Subduction Zones (SZs) or Benioff Zones are locations of convergent plate boundaries where one tectonic plate is pushed below the other tectonic plate and sinks into the mantle (a process called subduction).



Details

- It is a narrow gap separating Europe and Africa. It marks the meeting point of the Eurasian Plate and the African Plate.
- **The Ring of Fire:** Similar to the Pacific Ocean's Ring of Fire, where subduction zones encircle the Pacific Ocean, the Atlantic Ocean may witness the formation of a new subduction system.
- Despite its current relatively small size (about 125 miles in length), projections suggest that the subduction zone could expand to approximately 500 miles within the next two decades. This phenomenon is known as "subduction invasion."

Recent Developments

- A recent study from scientists in Portugal has raised concerns about the future of the Atlantic Ocean.
- They have identified a subduction zone, known as the 'Ring of Fire', that could potentially swallow the Atlantic Ocean.
- Currently located beneath the Gibraltar Strait, between Spain and Morocco, this subduction zone is predicted to expand westwards over the next 20 million years.

Subduction initiation

- **This subduction process frequently occurs** because of the two different types of lithosphere that make up tectonic plates: Continental and oceanic.
- Because oceanic material is denser than **continental lithosphere** when the two collide or converge, the **oceanic portion sinks into the mantle beneath** the more buoyant continental lithosphere, and a subduction zone occurs.
- **Subduction zones can also occur when both colliding plate sections** consist of oceanic material. In these cases, older, denser oceanic lithosphere sinks below younger, more buoyant oceanic lithosphere.

Types of Subductions

- **Oceanic-Continental Subduction:** When oceanic crust subducts beneath the continental crust, it typically creates a deep trench, continental volcanic arcs (like the Andes mountains in South America), and mountain building.
- **Oceanic-Oceanic Subduction:** When two oceanic plates collide, the older, denser oceanic plate subducts beneath the younger one. This can form island arcs (like the Mariana Islands) with volcanic activity closer to the trench.

Type of Margin	Divergent	Convergent	Transform
Motion	Spreading	Subduction	Lateral sliding
Effect	Constructive (oceanic lithosphere created)	Destructive (oceanic lithosphere destroyed)	Conservative (lithosphere neither created or destroyed)
Topography	Ridge/Rift	Trench	No major effect
Volcanic activity?	Yes	Yes	No

The Collision

- **Earth's crust is fragmented into large, rigid plates** that move slowly over the hot, viscous mantle below.
- **At convergent boundaries**, these plates collide. Due to differences in density, the denser oceanic crust (thinner and heavier due to the cold, solidified rock) gets forced beneath the less dense continental crust (thicker and lighter) or younger oceanic crust.
- **The subducting plate plunges into the mantle**, sinking hundreds of kilometers.

The Importance of Subduction Zones

- **Recycling of Oceanic Crust:** They act as a mechanism for recycling the older oceanic crust back into the Earth's mantle.
- **Driving Plate Movement:** The sinking of the subducted plate contributes to the movement of tectonic plates, shaping the Earth's continents and oceans.
- **Maintaining Earth's Internal Heat:** The subduction process helps regulate Earth's internal heat by carrying water down into the mantle, where it can be released through volcanic eruptions.

Conclusion

- The findings of the study shed light on the dynamic nature of Earth's tectonic processes and the long-term evolution of ocean basins. The concept of the Atlantic Ocean shrinking and potentially ceasing to exist over a vast timeframe offers a glimpse into the geological forces shaping our planet.



9.5 SHORT ARTICLES

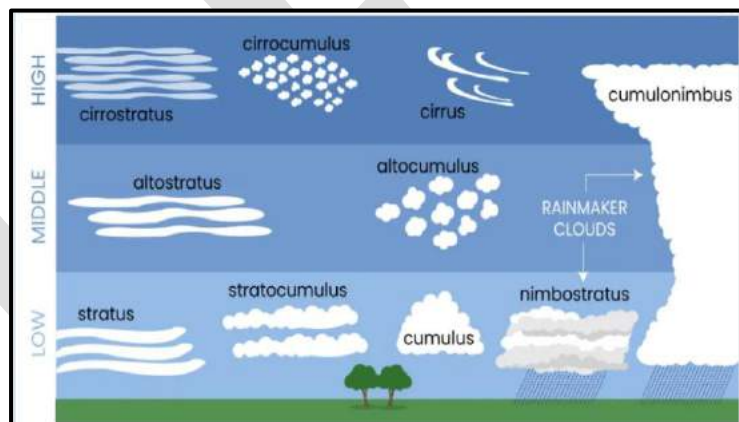
Cavum Cloud

Context

- NASA satellite captures 'odd holes' in clouds caused by airplanes.

About Cavum clouds:

- Cavum clouds, also called **hole-punch clouds** or **fallstreak holes**, are known for their dramatic appearance.
- They **resemble giant circles or ellipses punched** neatly through a layer of clouds, often revealing wispy streaks of ice crystals trailing down from the center.
- This unique formation is a result of **high-flying aircraft** disturbing the delicate balance within altocumulus clouds.



Formation:

- **The formation of cavum clouds is initiated when airplanes disrupt** these delicate atmospheric conditions. As aircraft move through these clouds, the air around their wings and propellers undergoes **adiabatic expansion**, cooling the water droplets **further, sometimes by more than 20°C**.
- This cooling can prompt the **supercooled droplets to freeze**, starting a **chain reaction** where ice crystals form and grow, eventually becoming heavy enough to fall.
- This process leaves behind a void in the cloud layer, with the **falling ice crystals creating the wispy trails** known as **virga visible** in the center of the cavum.

Types of clouds:

Cumulus

- Puffy, white clouds often associated with fair weather, though they can develop into thunderheads.

Stratus

- Low, gray clouds that often cover the sky like a blanket, bringing steady light rain or drizzle.

Cirrus

- Wispy, high-altitude clouds made of ice crystals, typically indicating fair weather but can precede storms.

Cumulonimbus

- Towering clouds associated with thunderstorms, producing heavy rain, lightning, thunder, and sometimes hail.

Stratocumulus

- Low, lumpy clouds with a mix of water droplets and ice crystals, often appearing in rows or patches.



Nimbostratus

- Thick, dark clouds covering the sky, bringing continuous moderate to heavy precipitation.

Cirrostratus

- Thin, sheet-like clouds covering the sky, often creating halos around the sun or moon.

Cirrocumulus

- High-altitude clouds appearing as small, white patches, often arranged in rows or ripples.

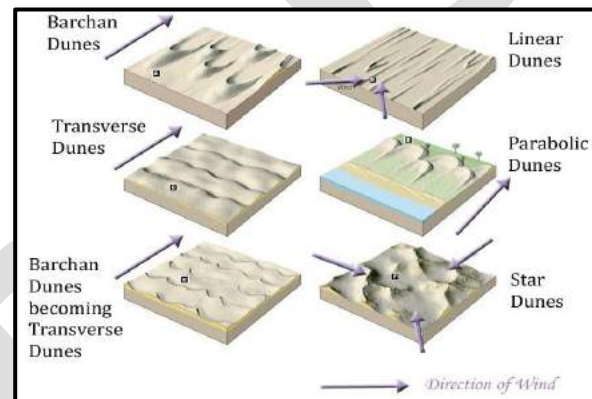
Desert Star Dunes

Context

- Scientists have revealed the secrets of Earth's magnificent desert star dunes, showcasing the internal structure and formation process of these geological wonders.

Details:

- The research concentrated on the Lala Lallia star dune located in eastern Morocco, examining its complex layers and estimating a formation duration of around 900 years. It accumulated sand at a rate of about 6,400 metric tons annually. These star dunes, constituting less than 10% of Earth's desert dunes, stand as the tallest and most striking formations, resembling pyramids with arms extending from a central peak.



Desert star dunes exhibit a unique internal structure and formation process:

- **Internal Structure:** Ground-penetrating radar reveals layers that develop over time due to accumulated sand. Certain sections may resemble other types of dunes.
- **Formation Process:** These dunes are shaped by opposing winds with varying directions, resulting in their distinctive star shape. As winds change direction, sand accumulates, gradually forming towering dunes.

The different types of dunes include:

Barchan Dunes

- Crescent-shaped dunes with tips pointing downwind, typically found in regions with limited sand availability.

Linear Dunes

- Long and straight dunes forming parallel to the predominant wind direction.

Star Dunes

- Pyramid-shaped dunes with arms extending from a central peak, occurring in regions with complex wind patterns.

Transverse Dunes

- Long sand ridges perpendicular to the wind direction, commonly seen in extensive sand seas or deserts.

Parabolic Dunes


- Similar to barchan dunes, but with tips pointing upwind, usually forming in areas rich in sand and vegetation.

Dome Dunes

- Rounded sand mounds lacking a specific orientation to wind direction, often found in coastal areas or sandy plains.

10. PLACES IN NEWS

10.1 IN INDIA



HOOGHLY RIVER

Details

- The Hooghly River starts at Nurpur in West Bengal's Murshidabad district, flowing south for about 260 kilometers before joining the Bay of Bengal.
- Kolkata Port, one of India's oldest, is along its banks.
- Tributaries like the Jalangi, Haldi, and Damodar Rivers feed into it.
- At its mouth, the Hooghly forms the vast Sundarbans, the world's largest mangrove forest and a UNESCO World Heritage Site.

TEESTA RIVER


Details

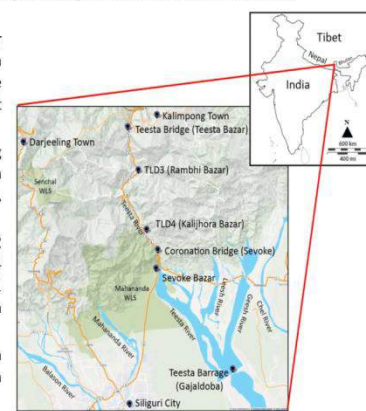
- The Prime Minister emphasized the extensive use of technology in various parts of the country for wildlife conservation. He specifically mentioned the use of drones to monitor crocodiles in the Ken River.
- The Ken River originates near the Barner Range in Katni district, Madhya Pradesh and travels a distance of 427 km, before merging with the Yamuna at district Banda in Uttar Pradesh.
- Sonar River is its largest tributary. Along its course, it receives water from its own tributaries such as Bawas, Dewar, Kaith, Baik, Kopra, Bearma.
- Out of its total length, it flows for 292 kilometres in Madhya Pradesh, 84 kilometres in Uttar Pradesh, and 51 kilometres forms the boundary between the two states.
- Crossing the Bijawar-Panna hills, the Ken Valley separates the Rewa Plateau from the Satna Plateau.
- The Ken River passes through Panna National Park.
- The "Shajar" stone, a type of sandstone found along the Ken River, is known for its unique properties and used in construction.


KAZIRANGA NATIONAL PARK

Details

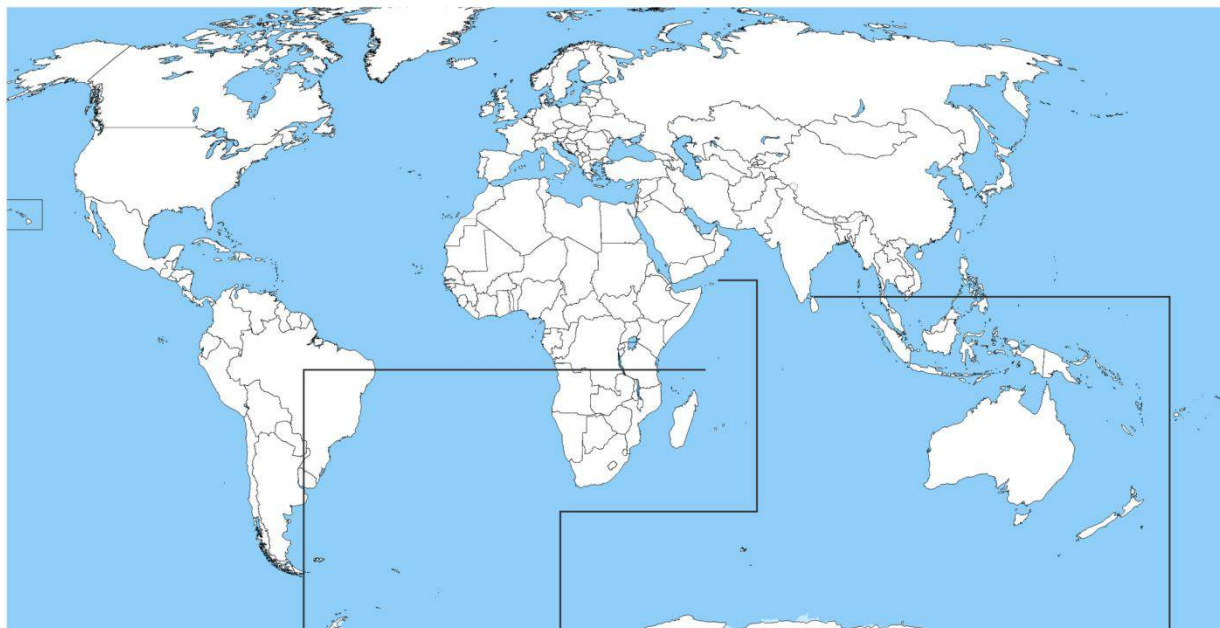
- It is located in Assam, is the largest undisturbed area in the Brahmaputra Valley floodplain. Designated as a UNESCO World Heritage Site in 1985, it's also recognized as an Important Bird Area by BirdLife International.
- Renowned for harboring the world's largest population of one-horned rhinoceroses. (The rhino population in Kaziranga National Park is 2,613.)
- Note: The rhino densities in Pobitora Wildlife Sanctuary are higher than in Kaziranga.
- Conservation efforts in Kaziranga focus on the 'big four' species: rhinoceroses, elephants, Royal Bengal tigers, and Asiatic water buffaloes.
- The park's ecological significance is further heightened by the presence of the Diphlu River running through it.







10.2 IN WORLD



AGALÉGA ISLAND

Details

- Agaléga Island, part of Mauritius, lies approximately 650 nautical miles north of the mainland.
- It comprises two islands and hosts a population of around 330 people, primarily residing in Vingt-Cinq on North Island and Sainte Rita on South Island.
- Descendants of African slaves, originally brought to work on coconut plantations, make up the island's population.



NAINATIVU ISLAND

Details

- Nainativu Island, also known as Nagadeepa Island, lies off the northwestern coast of Sri Lanka in the Gulf of Mannar.
- It holds religious importance for both Buddhists and Hindus, with its name referencing the folklore Naga people.
- The island is renowned for the Nagapooshani Amman Temple, a revered Hindu shrine recognized as one of the 64 Shakti Peethas, sacred pilgrimage sites.
- Nainativu is home to the Hindu shrine of Nagapooshani Amman Temple; one of the prominent 64 Shakti Peethas, and the Buddhist shrine Nagadeepa Purana Viharaya.
- The island is mentioned in the ancient Tamil Sangam literature such as Manimekalai where it was mentioned as Manipallavam and ancient Buddhist legends of Sri Lanka such as Mahavamsa.
- Ptolemy, a Greek cartographer, describes the islands around the Jaffna peninsula as Nagadiba.

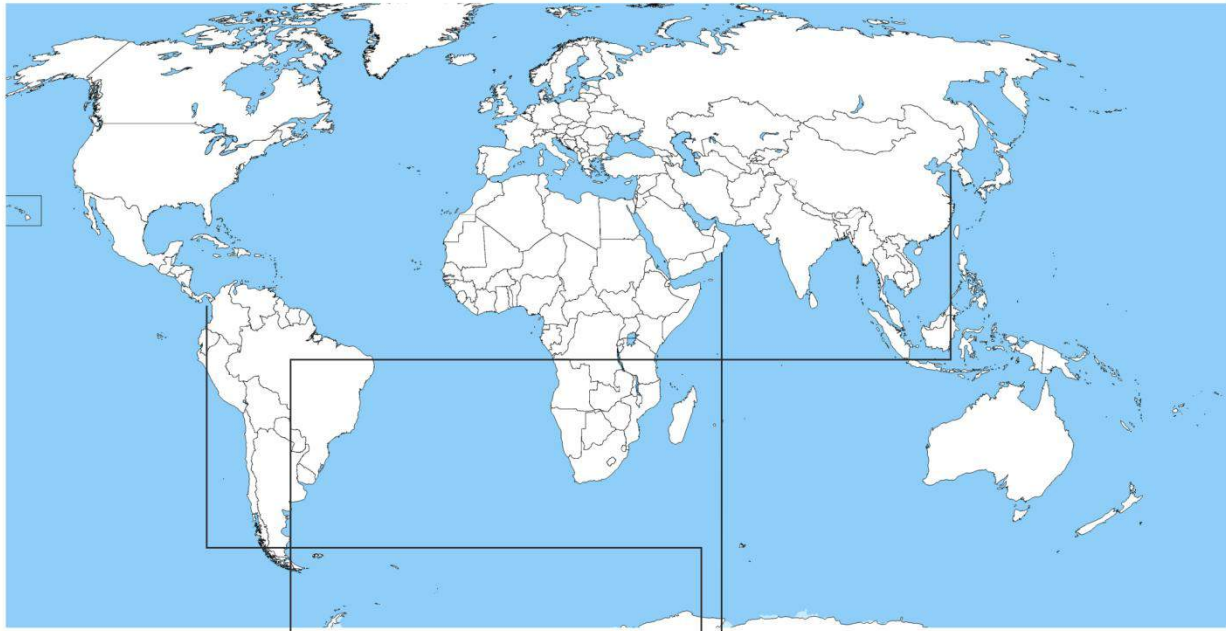


GULF OF ADEN

Details

- The Gulf of Aden is a water body located in the Arabian Sea between Yemen to the north and Somalia to the south.
- It connects the Red Sea to the Arabian Sea via the narrow Bab el-Mandeb Strait. It is bounded to the south by Somali and the Socotra Islands, north by Yemen, east by the Arabian Sea, and west by Djibouti.
- It is connected to the Somali Sea to the south by the Guardafui Channel.
- Major harbors of the gulf are- Aden, Mukalla, Ahnwar, Balhaf, Berbera, Bosaso, and Djibouti City. Around 11% of the world's seaborne petroleum passes through this region.

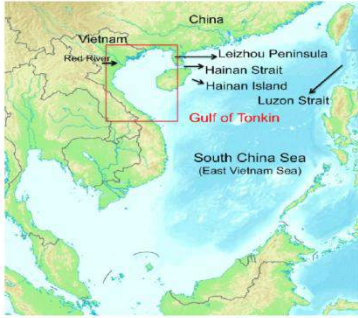
10.2 IN WORLD



GULF OF TONKIN

Details

- The Gulf of Tonkin is a crescent-shaped, shallow, semi-enclosed water body in the northwest of the South China Sea, bordered by China (north and east), Hainan Island (east), and northern Vietnam (west).
- It is referred to as "Beibu Gulf" in Chinese and "Bac Bo Gulf" in Vietnamese.
- It connects to the South China Sea through its southern mouth and the Hainan Strait (Qiongzhou Strait) to the northeast.
- The gulf receives the Red River and hosts major ports like Ben Thuy and Haiphong in Vietnam, and Beihai (Pakhoi) in China.



SOMALIA

Details

- It is the easternmost country of Africa, on the Horn of Africa. The country is bordered by Ethiopia to the west, Djibouti to the northwest, the Gulf of Aden to the north, the Indian Ocean to the east, and Kenya to the southwest. Somalia has the longest coastline on Africa's mainland.
- Somalia's capital and largest city is Mogadishu located just north of the Equator on the Indian Ocean. The climate is mainly dry and hot, with landscapes of thornbush savanna and semidesert.

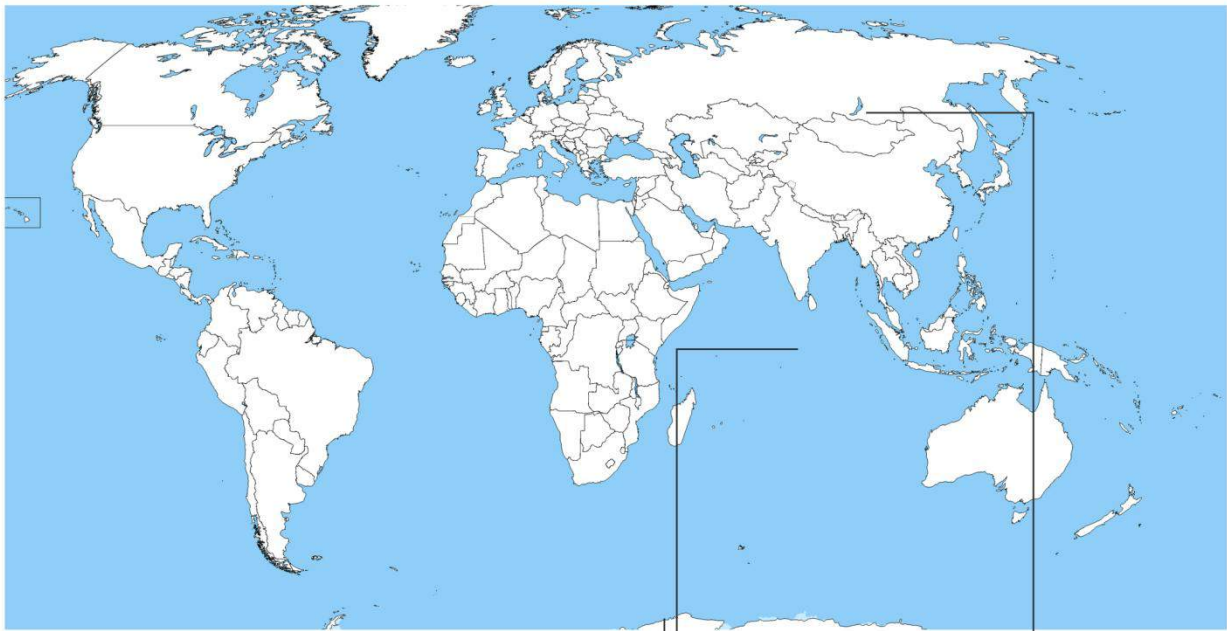


DARIEN GAP

Details

- The Darién Gap, stretching from the easternmost Isthmus of Panama into northwestern Colombia around the Gulf of Urabá, is characterized by rugged terrain encompassing dense forests and mountains in Panama's Darién Province and Colombia's Chocó Department.
- It serves as a vital link between Central and South America, bordered by Costa Rica to the west, Colombia to the southeast, the Caribbean Sea to the north, and the Pacific Ocean to the south.
- Inhabited by indigenous communities, its landscape varies from flat marshlands to mountainous rainforests.
- Despite the absence of paved roads, the Darién Gap has emerged as a significant pathway for global human migration.

10.2 IN WORLD



REYKJANES PENINSULA

Details

- The Reykjanes Peninsula, or Reykjanesskagi in Icelandic, is situated in southwest Iceland, extending from Esja in the north to Reykjanestá in the west. It is a volcanically active region that runs along the Mid-Atlantic Rift, where the Eurasian and the North American tectonic plates are drifting apart. (Fagradalsfjall volcano erupted in this region.)
- It is the on-land continuation of the submarine Reykjanes Ridge, part of the Mid-Atlantic Ridge.
- The peninsula features the village of Grindavik, renowned for its thriving fishing industry and tourist attractions such as hiking trails, volcano tours, and the renowned Blue Lagoon.



LAKE BAIKAL

Details

- Located in the southern part of eastern Siberia within the Republic of Russia, Lake Baikal is the world's oldest existing freshwater lake, estimated to be 20-25 million years old.
- Situated in a Rift Valley where the Earth's crust is slowly pulling apart, it is also the deepest continental body of water, having a mild microclimate around its shores compared to the rest of southern Siberia.
- As the largest freshwater lake by volume, it holds approximately one-fifth of the Earth's fresh water.
- Major rivers feeding into it include the Selenga, Barguzin, Upper Angara, Chikoy, and Uda. Often referred to as the 'Galapagos of Russia', Lake Baikal was designated a UNESCO World Heritage Site in 1996.



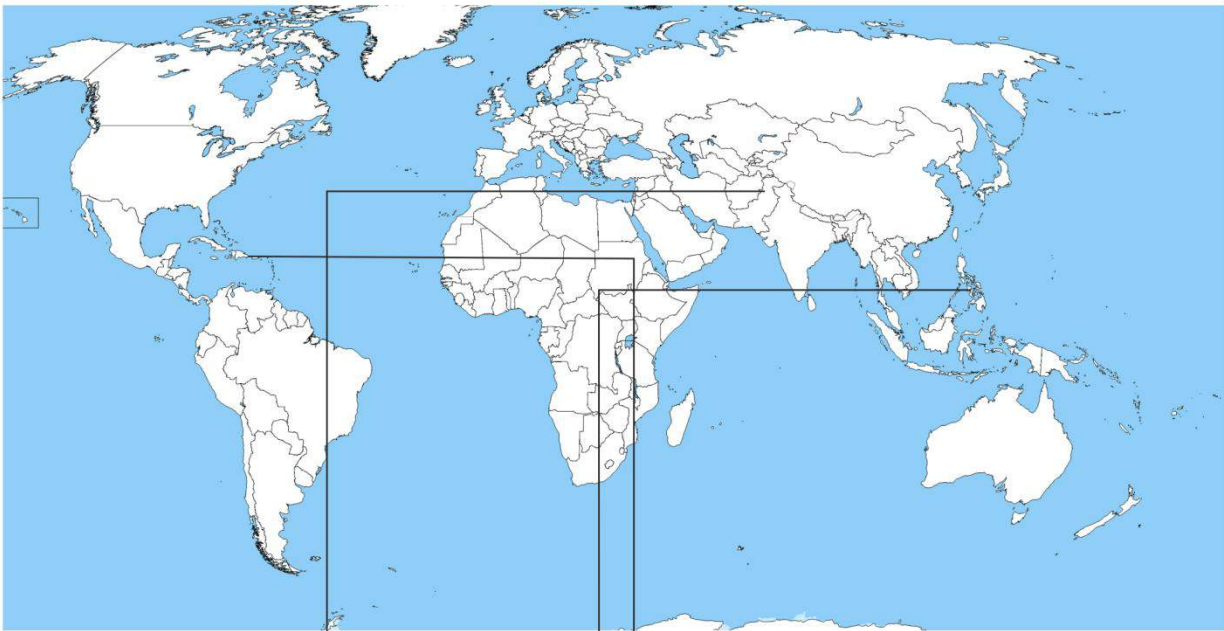
NIKITIN SEAMOUNT

Details

- India has applied to the International Seabed Authority (ISBA) for exploration rights in the Afanasy Nikitin (AN) Seamount in the Indian Ocean outside its jurisdiction.
- The AN Seamount is a significant submarine landform in the Central Indian Ocean Basin, located approximately 3,000 km from India's coast. It measures 400 km in length and 150 km in width, rising from an oceanic depth of about 4,800 meters to approximately 1,200 meters.
- Discovered during the Afanasy Nikitin marine research expedition, it is renowned for its polymetallic nodules containing cobalt, nickel, manganese, and copper.



10.2 IN WORLD



BALUCHISTAN

Details

- Balochistan, Pakistan's largest province, rich in natural resources like gas, oil, copper, and gold, is situated in the southwest. It is primarily a high-altitude plateau, with an average elevation of around 1,000 meters.
- Pre-independence, it comprised various tribes, with the Khan of Kalatas a key figure, forming the Balochistan States Union.
- The plateau is characterized by rugged mountains, including several ranges like the Makran, Toba Kakar, Central Brahui, and Kirthar ranges. The highest point in Balochistan is Tirich Mir.
- Some notable basins include the Kacchi Plain and the Marri-Gomal Plain.



HAITI

Details

- Haiti, officially the Republic of Haiti, occupies the western third of the island of Hispaniola in the Caribbean Sea, adjacent to the Dominican Republic.
- It is the third largest country in the Caribbean, characterized by mountainous terrain dominated by the Massif de la Selle range, including the highest point, Pic la Selle.
- The country features two distinct peninsulas, northern and southern, separated by the Golfe de la Gonave. Haiti experiences a tropical climate with hot, humid summers and mild winters.



PHILIPPINE AND SOUTH CHINA SEA

Details

- The South China Sea, a marginal sea of the Western Pacific Ocean, is bordered by Brunei Darussalam, Malaysia, Indonesia, the Philippines, Singapore, Thailand, Vietnam, and China.
- Connected to the East China Sea via the Taiwan Strait and to the Philippine Sea via the Luzon Strait, it's a contested maritime area subject to territorial disputes among China, Brunei, Taiwan, Vietnam, Malaysia, and the Philippines.
- The Philippines, an archipelagic country in Southeast Asia, is categorized into Luzon, Visayas, and Mindanao. Manila is the capital, while Quezon City is the largest city.
- Bordered by the Philippine Sea to the east, the South China Sea to the west, and the Celebes Sea to the south, it is also proximate to Borneo, Taiwan, Sulawesi, and Palau. Mount Apo is the highest peak, and the Cagayan River in Luzon is the longest.

