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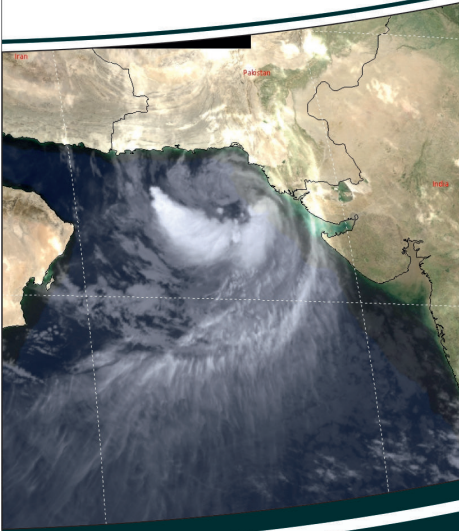
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Current Affairs

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Neolithic Discoveries in Mauxi Village

Syllabus: GS1/Ancient History

Context

- Mauxi (Mhaus) village in the Sattari taluka of Goa has emerged as a hotbed of neolithic discoveries.

About

- The 11th edition of the Cultural and Heritage Walk, also known as Parikrama, organised inside the Ravalnath Temple.
- The Lord Shiva is a form of the universal god worshipped by Hindus. He is also called Shivnath Ravalnath in Konkani as a mark of reverence.
- The Archaeological Survey of India (ASI) has confirmed that the Ancient rock carvings that were found etched into the meta basalt rock along the dry riverbed of the Zarme river some two decades ago belong to the neolithic period.
- The carvings were initially discovered by local residents some 20 years ago and tell a lot about the early inhabitants of the region.

Archaeological Survey of India (ASI)

– ASI is the premier organization for the archaeological research and protection of the cultural heritage of the nation under the Ministry of Culture.

– Maintenance of ancient monuments and archaeological sites and remains of national importance is the prime concern of the ASI.

– It regulates all archaeological activities in the country as per the provisions of the Ancient Monuments and Archaeological Sites and Remains Act, 1958. It also regulates the Antiquities and Art Treasure Act, 1972.

Major Findings

- The carvings are of animals such as zebus, bulls, and antelopes, alongside footprints and cupules.
- The circular cavities on the rock surface signifies the community involvement in discovering historical artifacts.
- Some 20 rock etchings, showcasing the use of the bruising technique, have been identified in this region, with tools from the same period found on the riverbed. This validates the site's historical significance.
- Another worth-mentioning feature is a rock done with cupules, revered outside the Puravati Temple.
- Initially interpreted as representing a star constellation with 27 cupules, further research revealed 31 cupules, which made people curious about their significance but the exact purpose of these remains unknown.

Significance

- The ASI have confirmed its Neolithic origins, as this period signifies an important period when humans started domesticating cattle.
- A carving at Mauxi depicting a trident—a symbol associated with the Iron Age—suggests the site's enduring significance through various historical epochs.
- The presence of the Dhawad community, early settlers, and ironsmiths adds another layer to the historical narrative, although eventually displaced by new settlers.

The Stone Age

– The Stone Age is a prehistoric period characterized by the use of stone tools. It's typically divided into three major periods: the Paleolithic, Mesolithic, and Neolithic, based on technological advancements, cultural developments, and changes in human societies.

a. Paleolithic Age: Also known as the Old Stone Age, this period began around 2.6 million years ago with the earliest known stone tool usage by hominids such as Homo habilis. It lasted until around 10,000 BCE. During this time, humans were primarily hunter-gatherers, relying on stone tools for tasks such as hunting, butchering, and processing food.

b. Mesolithic Age: This transitional period occurred roughly between 10,000 BCE and 5,000 BCE, depending on the region. It was characterized by the development of more specialized tools, as well as adaptations to changing environments and the domestication of certain plants and animals.

c. Neolithic Age: The New Stone Age began around 12,000 years ago and ended in various parts of the world between 4500 BCE and 2000 BCE. It is distinguished by the widespread adoption of agriculture and the domestication of animals, leading to settled communities, the development of pottery, weaving, and more complex social structures.

d. The transition to agriculture revolutionized human societies, allowing for the rise of civilizations.

Hampi's Virupaksha Temple

Syllabus: GS1/Art & Architecture

Context

- A section of the pillars holding up the pavilion at Hampi's Virupaksha temple collapsed recently following heavy rains.

About the Virupaksha Temple of Hampi

- It is a historic Hindu temple located in Hampi, Karnataka, India.
- It holds immense religious and cultural significance and is part of the Group of Monuments at Hampi, which has been designated as a UNESCO World Heritage Site.

Historical Significance

- It dates back to the 7th century CE. Some historians suggest that it existed even before the Vijayanagara Empire established its capital in Hampi.
- During the 14th to 16th centuries, under the Vijayanagara rulers, the temple underwent extensive expansion and flourished as a vital centre for religious and cultural activities.
- The Vijayanagara empire was founded by Harihara I of the Sangama dynasty, it expanded from a strategic position on the banks of the Tungabhadra river to become one of the most powerful kingdoms of its time.

Architectural Marvels

- The Vijayanagara Empire (1336 to 1646), known for its grand architecture, built Dravidian-style temples and palaces in Hampi, including the Virupaksha Temple.
- Notable features include towering gopurams (gateways), pillared halls, and shrines dedicated to various deities.
- The Vitthala Temple within the complex stands out for its exquisite ornate structure, representing the pinnacle of Vijayanagara temple architecture.
- It features a grand bazaar street, a stepped tank, and beautifully carved mandapas.

Religious Significance

- The temple is dedicated to Lord Virupaksha, a form of Lord Shiva.
- It is associated with the local goddess Pampadevi, linked to the Tungabhadra River.
- Worship at the Virupaksha Temple has persisted over centuries, even after the city's destruction in 1565.

Chapter-
2

POLITY & GOVERNANCE

Cabinet Secretary

Syllabus: GS2/Governance

Context

- Recently, Dr. T.V. Somanathan assumed as the Cabinet Secretary after the superannuation of his predecessor, Shri Rajiv Gauba.

About the Cabinet Secretary

- He is the administrative head of the Cabinet Secretariat who is also the ex-officio Chairman of the Civil Services Board, and serves as the head of the Indian Administrative Service (IAS).
- He plays a critical role in coordinating policy implementation, inter-ministerial communication, and administrative matters at the highest level.

Roles and Functions

- Coordinating Cabinet Meetings: It ensures smooth functioning of Cabinet meetings, where crucial decisions are made. These meetings involve discussions on policy matters, legislative proposals, and administrative issues.
- Inter-Ministerial Coordination: It acts as a bridge between various ministries and departments by facilitating communication, resolves conflicts, and ensures effective implementation of government policies.
- Advising the Prime Minister: It provides expert advice to the Prime Minister on administrative matters, policy formulation, and governance. Its insights are invaluable in shaping the country's direction.
- Administrative Leadership: As the senior-most civil servant, the Cabinet Secretary leads the bureaucracy. His decisions impact the functioning of the entire administrative machinery.

Cabinet Secretariat

– It is responsible for the administration of the Government of India (Transaction of Business) Rules, 1961 and the Government of India (Allocation of Business) Rules 1961, facilitating smooth transaction of business in Ministries/Departments of the Government.
– It provides Secretarial assistance to the Cabinet and its Committees, and also assists in decision-making in Government by ensuring Inter-Ministerial coordination, ironing out differences amongst Ministries/Departments and evolving consensus through the instrumentality of the standing/ad hoc Committees of Secretaries.
– It ensures that the President, the Vice President and Ministers are kept informed of the major activities of all Ministries/Departments by means of a monthly summary of their activities.
– Management of major crisis situations in the country and coordinating activities of various Ministries in such a situation is also one of the functions of the Cabinet Secretariat.

University of Southampton's New Campus

Syllabus :GS 2/Education

In News

- The University of Southampton (UK) has been granted a license by the Indian government to set up a comprehensive campus in Gurgaon.

About

- The campus will be located in Gurugram, National Capital Region (NCR).
- It is expected to begin offering programs in July 2025.
- This initiative is part of the National Education Policy (NEP) 2020, aimed at enhancing India's educational standards and providing world-class education domestically.

- Courses Offered: The campus will offer programs in business and management, computing, law, engineering, art and design, biosciences, and life sciences.
- Degrees awarded by the Indian campus will be equivalent to those from the main University of Southampton in the UK.
- Regulatory Framework: The University Grants Commission (UGC) Regulations for setting up foreign higher educational institutions in India were notified in November 2023.

Importance of the Initiative

- Addresses challenges like visa restrictions and job uncertainties for Indian students pursuing education abroad.
- Provides access to top international education without leaving India.
- The initiative aims to develop world-class, work-ready graduates and contribute to India's growing knowledge economy.

Lakhpati Didi Sammelan

Syllabus: GS1/Social Justice; GS2/Government Policy and Intervention

Context

- Recently, the Prime Minister participated in 'Lakhpati Didi Sammelan' at Jalgaon, Maharashtra.

About the Lakhpati Didi Sammelan

- It is an inspiring gathering that recognises and celebrates the achievements of women who have become 'Lakhpati Didis' – those who earn an annual sustainable income of at least   1 lakh (approximately $1,350).
- This income is calculated for at least four agricultural seasons and/or business cycles, with an average monthly income exceeding Rupees Ten Thousand (Rs. 10,000), so that it is sustainable.

Lakhpati Didi Yojana

- It aims to uplift women in rural areas by providing them with skill development, training programmes, and financial support, organised under the Deendayal Antyodaya Yojana – National Rural Livelihoods Mission (DAY-NRLM) scheme of the Ministry of Rural Development (MoRD).
- It facilitates diversified livelihood activities, by ensuring convergence across all Government departments/ Ministries, Private sector and Market players. The strategy includes focused planning, implementation and monitoring at all levels.
- The government disburses funds to self-help groups (SHGs) through a revolving fund.
- Since the inception of the Lakhpati Didi Yojana, one crore women have already achieved Lakhpati status, and the government has set a target of three crore Lakhpati Didis, reflecting its commitment to women's economic empowerment.

Plea Bargaining

Syllabus: GS2/Polity and Governance

Context

- According to the Ministry of Law and Justice, only 0.11% of cases were resolved through plea bargaining in 2022.

About Plea Bargaining

- A "plea bargain" is a practice whereby the accused forgoes his right to plead not guilty and demand a full trial and instead uses a right to bargain for a benefit.
- Plea bargaining was incorporated into the Code of Criminal Procedure (CrPC) in 2005 with the expectation that it would streamline the judicial process by allowing accused persons to admit guilt in exchange for leniency in sentencing.
- It applies only to offences punishable by up to seven years of imprisonment, with further restrictions excluding cases involving crimes against women, children, or socio-economic offences.

Jan Poshan Kendras

Syllabus: GS2/ Governance

Context

- The Union Minister of Consumer Affairs, Food and Public Distribution launched a pilot project to transform 60 ration shops in 4 States as "Jan Poshan Kendras"
- On the occasion, he also launched FPS Sahay application, and Mera Ration app 2.0.

About

- Jan Poshan Kendra provides solutions to the demand of Fair Price Shop (FPS) dealers across India to raise their income level.
- The Kendras will offer a diverse range of nutrition-rich food items to consumers as well as provide an additional source of income to the FPS dealers.
- The Jan Poshan Kendra will have provision for storing 50% products under the category of nutrition while the rest for keeping other household items.

FPS-Sahay and Mera Ration app 2.0

- FPS-Sahay, is an on-demand Invoice Based Financing (IBF) application designed to offer completely paperless, presence-less, collateral-free, cash flow-based financing to FPS dealers.
- Mera Ration App 2.0 mobile app is launched with more value added features for the beneficiaries across the nation.

SHe-Box

Syllabus: GS2/ Governance

Context

- The Union Ministry of Women and Child Development has launched SHe-Box, a centralised portal for registering and monitoring complaints of sexual harassment of women at the workplace.

About

- It serves as a centralized repository of information related to Internal Committees (ICs) and Local Committees (LCs) formed, encompassing both the government and private sectors.
- It offers a common platform to file complaints, track their status, and ensure a time-bound processing of complaints by ICs.
- It also provides assured redressal of complaints and a streamlined process for all stakeholders.
- The portal through a designated nodal officer will enable real-time monitoring of complaints.

Gender Budgeting

Syllabus: GS2/Governance

Context

- The Gender Budget reached 1% of GDP estimates in 2024-25 for the first time.

About

- Women-led development remains at the core of announcements made by the Finance Minister (FM) in this year's Budget.
- Overall allocations currently stand at more than 3 lakh crore for pro-women programmes.
- There has been a remarkable 218.8 percent rise in the budget allocation for women's welfare from FY14 to FY25.

What is Gender Budgeting?

- Gender budgeting is a strategy that includes gender considerations in the budgeting process.
- It was first introduced in 2005-06.
- It involves analysing and allocating budget resources in a way that addresses the specific needs and priorities of women and girls and promotes gender-sensitive policies and programs.

Gender Budget 2023-24

- The previous Gender Budgets consistently reported an average share of 5% of the total budgetary allocations.
- This year the share of allocations to pro-women schemes stands at approximately 6.8% of the total budget expenditure for 2024-25, which is way above the usual trends.
- The Gender Budget is divided into three parts.
- While Part A covers schemes with 100% provision for women, Part B includes schemes with 30-99% allocations for women.
- For the first time ever, Part C includes schemes with allocations of up to 30% for women.

Significance

- The Economic Survey highlights the importance of women-led development, starting with the health and education of the girl child.
- Key indicators show progress in this area, with the national sex ratio at birth (SRB) improving from 918 to 930, and the maternal mortality rate decreasing from 130 to 97 per lakh live births.
- Women's participation in skill development has increased.
- Under the Pradhan Mantri Kaushal Vikas Yojana (PMKVY), it grew from 42.7 per cent in FY16 to 52.3 per cent in FY24.
- The Jan Shikshan Sansthan (JSS) Scheme has 82 percent female beneficiaries.
- Women's involvement in Industrial Training Institutes (ITIs) and National Skill Training Institutes (NSTIs) rose from 9.8 per cent in FY16 to 13.3 percent in FY24.
- In the National Apprenticeship Promotion Scheme (NAPS), it went up from 7.7 percent in FY17 to 20.8 per cent in FY24.

Government initiatives

- Mission Shakti is a women empowerment programme launched by the Ministry of Women and Child Development (MWCD) for the period 2021-2025.
- It aims to strengthen interventions for women's welfare, safety, and empowerment, making women equal partners in nation-building.
- Initiatives like Beti Bachao, Beti Padhao, Sukanya Samriddhi Yojana, Janani Shishu Suraksha Karyakram, and PM Matru Vandana Yojana have also contributed to significant improvements in the welfare and empowerment of women and girls.
- The Mission Saksham Anganwadi and Poshan 2.0 programmes focus on improving women's health beyond just calorie intake and improving overall health and immunity with proper micronutrients.
- The Women in Science and Engineering-KIRAN (WISE KIRAN) program has supported nearly 1,962 women scientists from 2018 to 2023.

Conclusion

- Incorporating explanations for allocations in GBS would not only ensure accounting accuracy but will help in gender audits and provide pathways for improved gender outcomes in government programmes.
- Several years of advocating for improved reporting in the GBS by experts is reflected in the inclusion of a third part.
- Gender responsive budgeting is a powerful tool to close the gender gaps in an economy.

10 Years of Pradhan Mantri Jan Dhan Yojana (PMJDY)

Syllabus: GS2/Governance

Context

- The Pradhan Mantri Jan Dhan Yojana (PMJDY), launched in 2014 under the Ministry of Finance has completed a decade of successful implementation.

About

- PMJDY being the largest financial inclusion initiative to provide support to the marginalised and economically backward sections through its financial inclusion interventions.
- PMJDY provides one basic bank account for every unbanked adult.

Key Features of the Jan Dhan Yojana

- Under the PMJDY, individuals can open a basic savings bank deposit (BSBD) account at any bank branch or through a Business Correspondent ('Bank Mitra').

Key benefits of the scheme include:

- No requirement to maintain a minimum balance in PMJDY accounts;
- Interest earned on deposits in PMJDY accounts;
- Provision of a RuPay Debit card to account holders;
- Accident insurance cover of Rs 100,000 (increased to Rs 200,000 for new accounts opened after August 28, 2018) with the RuPay card;
- Overdraft facility of up to Rs 10,000 for eligible account holders;
- Eligibility for Direct Benefit Transfer (DBT), Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY), Pradhan Mantri Suraksha Bima Yojana (PMSBY), Atal Pension Yojana (APY), and Micro Units Development and Refinance Agency Bank (MUDRA) scheme.

Significance

- The PMJDY serves as a platform for hassle-free subsidies/payments made by the government to the intended beneficiary without any middlemen, seamless transactions, and savings accumulation.
- They have been crucial in providing life and accident insurance to millions of unorganized sector workers through Jan Suraksha schemes (micro insurance schemes).

Successful Implementation of the Scheme

- The success of the initiative is reflected in 53 crore people having been brought into the formal banking system through the opening of Jan Dhan Accounts.
- These bank accounts have garnered a deposit balance of Rs. 2.3 lakh crore, and resulted in the issuance of over 36 crore free-of-cost RuPay cards, which also provide for a 2 lakh accident insurance cover.
- 67% of the accounts have been opened in rural or semi-urban areas, and 55% of accounts have been opened by women.

Conclusion

- PMJDY's success highlights its mission-mode approach, regulatory support, public-private partnerships, and the importance of digital public infrastructure like Aadhaar for biometric identification.
- Account holders can now show saving patterns, which makes them eligible for loans from banks and financial institutions.
- PMJDY being the world's largest financial inclusion scheme, with its transformative power and its digital innovations have revolutionised financial inclusion in India.

Education Ministry Defines Literacy and Full Literacy

Syllabus: GS2/ Education

Context

- In a letter to all States, the Ministry of Education (MoE) has defined 'literacy,' and what it means to achieve 'full literacy,' in the light of the renewed push for adult literacy under the New India Literacy Programme (NILP).

What is literacy and full literacy?

- The Ministry of Education (MoE), has stated that literacy may be understood as the ability to read, write, and compute with comprehension, i.e. to identify, understand, interpret and create along with critical life skills such as digital literacy, financial literacy etc.
- The full literacy, to be considered equivalent to 100% literacy, will be achieving 95% literacy in a State/UT that may be considered as equivalent to fully literate.

New India Literacy Programme (NILP)

– It is a Centrally Sponsored Scheme to be implemented during five years from the FYs 2022-23 to 2026-27 with financial outlay of Rs.1037.90 crore.

1. The central share is Rs.700.00 crore and the State share is Rs.337.90 crore.

– The scheme aims to cover a target of 5.00 crore non-literates in the age group of 15 years and above.

– The Scheme has five components; such as Foundational Literacy and Numeracy, Critical Life Skills, Vocational Skills Development, Basic Education and Continuing Education.

Beneficiaries under the scheme

– The beneficiaries are identified through door to door surveys on Mobile App by the surveyors in the States/UTs.

1. The non-literate can also avail the benefit of the scheme through direct registration from any place through mobile app.

– The teaching learning material and resources have been made available on the DIKSHA platform of NCERT and can be accessed through the mobile-apps.

1. Further, other modes like TV, Radio, Samajik Chetna Kendra etc. are also to be used for dissemination of Foundational Literacy and Numeracy.

Literacy Challenges in India

- As per Census 2011, the literacy rate in the country was 74% in 2011 as compared to 64.8% in 2001.
- There are 25.76 crore non-literate individuals in the 15 years and above age group, comprising 9.08 crore males and 16.68 crore females.
- Despite the progress made under the Saakshar Bharat programme, which certified 7.64 crore individuals as literate between 2009-10 and 2017-18, an estimated 18.12 crore adults in India remain non-literate.

Reasons of low literacy in India

- Educational Utility: In rural areas, education may not be perceived as valuable due to limited economic opportunities, leading to lower enrollment rates.
- Additionally, the availability of schools nearby is often limited, further restricting access to education.
- Caste disparities: Discrimination against lower castes has resulted in high dropout rates and low enrollment rates.
- Female Literacy: A significant proportion of illiterate individuals in India are women, contributing to the overall low literacy rate.
- Lack of Basic Facilities: The absence of essential facilities like drinking water, toilets, and electricity in schools deter attendance, particularly for girls.

Challenges faced by non-literate individuals

- Non-literate individuals often face social stigma, which can lead to low self-esteem and marginalization within their communities.
- The increasing reliance on digital technology for communication, education, and services exclude non-literate individuals.
- Non-literate individuals are excluded from higher productivity sectors that require technical skills or formal education, limiting their economic mobility and keeping them in cycles of poverty.
- The cycle of illiteracy can continue across generations, as children of non-literate parents may be at a higher risk of dropping out of school or not receiving the educational support they need.

Government Initiatives

- Nipun Bharat: it was launched with a vision to ensure universal literacy and numeracy for Class 3 children by 2026-27.
- It envisaged a five-tier implementation mechanism, set up at the National- State- District- Block- School level in all States and UTs, under the aegis of the Centrally Sponsored Scheme of Samagra Shiksha.
- Samagra Shiksha Abhiyan: An integrated scheme for school education, covering Pre-school to Class XII. It aims to ensure inclusive and equitable quality education.
- The National Education Policy (NEP), 2020: It has provisions for the National Mission on Foundational Literacy and Numeracy for attaining universal foundational literacy and numeracy in all primary schools.

- It also aims to identify state-wise targets and goals to be achieved by 2025.
- Jan Shikshan Sansthan (JSS): Provides vocational training and skill development to non-literate and neo-literate individuals, with a focus on rural areas.

Concluding remarks

- The initiatives reflect the government's commitment to improving literacy and educational outcomes across India, with a focus on inclusivity and equity.
- The potential of technology should be harnessed in improving literacy rates in India by making education more accessible, interactive, and tailored to the needs of diverse learners.

Need to Prohibit use of Pesticides to ensure food safety

Syllabus: GS2/ Health/GS3/Economy

Context

- The Food Safety and Standards Authority of India (FSSAI) has urged states to establish an inter-ministerial committee to focus on reducing pesticide use and developing strategies to regulate pesticide at the farmer level.

Benefits of Pesticides

- Increased Crop Yields: By controlling pests that damage crops, pesticides help farmers achieve higher yields and more reliable harvests.
- Economic Efficiency: Pesticides reduce crop losses, which in turn lowers food prices and increases the profitability of farming.
- Disease Prevention: Some pesticides control vectors like mosquitoes, which are responsible for spreading diseases such as malaria and dengue fever.
- Weed Control: Herbicides, a type of pesticide, effectively manage weed populations that compete with crops for nutrients and water.

Issues

- Ecological Impact: Pesticides can harm non-target species, including beneficial insects like bees, butterflies, and predatory insects that help control pest populations naturally.
- Soil Health: Prolonged use of pesticides can degrade soil health by killing microorganisms essential for soil fertility.
- Water Contamination: Pesticides can leach into groundwater or run off into surface water bodies, causing contamination.
- Human Health Risks:Pesticides, when used excessively or inappropriately, can leave harmful residues in food products, posing significant health risks to consumers.
- These risks include acute poisoning, endocrine disruption, and long-term effects such as cancer and neurological disorders

Governments Steps

- Food Safety on Wheels: The FSSAI's emphasis on regulating pesticide use aligns with global standards to minimize these risks and promote public health.
- The FSSAI has highlighted the need to identify key locations within states where mobile labs, known as "Food Safety on Wheels,"can be deployed.
- These mobile labs will play a crucial role in raising consumer awareness and disseminating vital information about food safety practices.
- Maximum Residue limit (MRLs) of pesticides : MRLs of pesticides are fixed differently for different food commodities based on their risk assessments.
- Insecticide Act, 1968 : Pesticides are regulated by the Ministry of Agriculture through the Central Insecticide Board and Registration Committee (CIB & RC) constituted under the Insecticide Act, 1968.
- The CIB & RC regulate the manufacturing, import, transport, storage of pesticides and accordingly the pesticides are registered/ banned/restricted by CIB & RC.
- The Food Safety Standards Authority of India (FSSAI) increased the maximum residue limit (MRL) of pesticides in herbs and spices from 0.01 milligrammes per kilogramme (mg / kg) to 0.1 mg / kg.

- MRLs fixed by CODEX for spices and culinary herbs range from 0.1 to 80 mg/kg.
- FSSAI aligns with the updated standards of MRLs set by Codex Alimentarius Commission (an International Food Safety and Quality Standard setting body created by WHO and FAO of UN) and the European Union.
- Anupam Verma Committee: It was constituted by the Department of Agriculture & Farmers Welfare to review 66 pesticides which are banned/restricted in other countries but continued to be registered for use in India.
- Organic farming: Organic farming avoids the use of pesticides which results in food products that are free from harmful chemical residues with higher levels of essential nutrients.
- The government is promoting use of biopesticides, which are generally safer than chemical pesticides.
- FSSAI has also asked State Food Safety Commissioners to undertake an awareness campaign on pesticides/ insecticides residues in fruits and vegetables.

Conclusion and Way Forward

- Pesticides remain a vital tool in modern agriculture, contributing to food security and economic stability.
- However, their use must be carefully managed to balance agricultural productivity with environmental sustainability and human health.

Subhadra Scheme

Syllabus: GS2/Governance

Context

- Odisha Chief Minister Mohan Majhi announced the implementation of the Subhadra scheme.

About

- Under the scheme, 50,000 will be provided over five years to one crore poor women aged between 21 and 60.
- A total of 10,000 per annum will be paid in two instalments of 5,000 each on Rakhi Purnima Day and International Women's Day (March 8).
- Women who are receiving assistance of 1,500 or more per month, or 18,000 or more per year under any other government scheme, will be ineligible for inclusion under Subhadra.
- The money will be deposited directly into the beneficiary's Aadhaar-enabled single-holder bank account; A Subhadra Debit Card will also be issued to them.

Model Code of Conduct

Syllabus: GS2/Governance

Context

- Recently, the Election Commission of India (ECI) asked the Haryana government not to declare the results of its ongoing recruitment drive in the State till the completion of the Assembly polls.

About the Model Code of Conduct

- It is like the rulebook for political parties and candidates during elections in India. It's a set of guidelines published by the Election Commission of India (ECI).
- The MCC came into action as soon as the EC announced the election schedule.
- It isn't a statutory document enforceable by Parliament-made laws.
- However, some actions listed in the MCC are also considered "electoral offences" and "corrupt practices" under the Representation of the People Act, 1951.

What does the MCC cover?

- Election Campaign and Polling Behavior: It sets standards for how political parties and candidates should conduct themselves during election campaigns and polling.
- Complaint Mechanism: It explains how parties can lodge complaints with EC observers in case of disputes.
- Ministers in Power: When the MCC is in force, it even tells ministers from ruling parties how to behave.
- Election Manifestos: Parties shouldn't promise things that go against the ideals of our Constitution.

Vaccine-derived Poliovirus (VDPV)

Syllabus: GS 2/ Health

In News

- Senior Union Health Ministry official said that the Polio case in Meghalaya is vaccine-derived.

About

- Vaccine-derived poliovirus (VDPV) is a strain related to the weakened live poliovirus in the oral polio vaccine (OPV).
- If VDPV circulates in under- or unimmunized populations or replicates in an immunodeficient person, it can revert to a form that causes illness and paralysis.
- VDPVs arise in under-immunized populations where the weakened virus from OPV can spread and mutate.

Polio

- It is a highly infectious disease mainly affecting children under five, causing permanent paralysis in about 1 in 200 infections or death in 5-10% of those paralyzed.
- Transmission: The virus spreads from person-to-person primarily through the fecal-oral route or occasionally via contaminated water or food.
- Symptoms: Initial symptoms include fever, fatigue, headache, vomiting, neck stiffness, and limb pain. Paralysis occurs in a small percentage of cases and is often permanent.
- Vaccine and Prevention: There is no cure for polio, but it is preventable through immunization.

New Foster Care Rules in India

Syllabus: GS 2 / Governance

In News

- The Women and Child Development (WCD) Ministry in India now allows single individuals, regardless of marital status, to foster children, with the option for adoption after two years.

About foster care rules in India

- Eligibility: Individuals aged 35 to 60 can foster children.
- Single women can foster and adopt any gender, while single men can only foster and adopt male children.
- Previously, foster care was restricted to married couples, with a mandatory five-year fostering period before adoption.
- The mandatory fostering period before adoption is now reduced to two years.
- Married couples must have a stable marital relationship of at least two years to foster.
- Age Criteria: For married couples, the combined age must be at least 70 years for fostering children aged 6-12 or 12-18.
- Single individuals must be between 35-55 years for fostering children aged 6-12 and between 35-60 years for those aged 12-18.
- Registration: Prospective foster parents can now register online via the Child Adoption Resource Information and Guidance System (CARINGS) and a new dedicated online portal.
- Alignment with Laws: The revised guidelines align with the 2021 amendments to the Juvenile Justice Act and the 2022 Model Rules, distributed to states in June 2024.

Lateral Entry into Indian Bureaucracy

Syllabus: GS2/Role of Civil Services in a Democracy

Context

- A recent advertisement to recruit 45 members laterally to posts under the aegis of the Union Service Public Commission has sparked controversy.

About the Lateral Entry

- It refers to the practice of recruiting individuals from outside the traditional civil services (such as the

Indian Administrative Service, Indian Police Service, and Indian Revenue Service) to fill senior and mid-level positions in government ministries and departments.

- The appointments are mainly to be made for the posts of the Director, Joint Secretary and also Deputy Secretary.
- A Joint Secretary, appointed by the Appointments Committee of the Cabinet (ACC), has the third highest rank (after Secretary and Additional Secretary) in a Department, and functions as administrative head of a wing in the Department.
- Directors are a rank below that of Joint Secretary.
- These recruits typically come from diverse backgrounds — private sector, academia, or other specialised fields — and are brought in to infuse fresh perspectives, domain expertise, and efficiency into the bureaucracy.

Historical Context

- Congress-Led Rule: The concept of lateral entry isn't entirely new. During previous Congress-led governments, lateral appointments were made.
- For instance, Dr. Manmohan Singh, who later became Prime Minister, was appointed as Financial Secretary through lateral entry.
- Similarly, Montek Singh Ahluwalia served as Deputy Chairman of the Planning Commission via the same route.
- NDA's Approach: Under Prime Minister's leadership, the process of lateral entry was organised and made more transparent. Experts from relevant fields are now recruited on a contractual basis through the UPSC, which aims to enhance efficiency and bring specialised skills into the bureaucracy.

UPSC's Role

- The UPSC plays a crucial role in lateral entry. Online applications are invited for ministries, departments, public sector undertakings, and autonomous bodies.
- The contractual appointments are initially for three years, extendable based on performance.

Arguments in Favour

- Specialized Talent and Expertise: Proponents argue that lateral entry brings fresh perspectives and specialised skills.
- By tapping into talent from diverse fields—such as technology, economics, or management—the government can enhance its decision-making processes and service delivery.
- Efficiency and Innovation: Lateral entrants can inject new ideas, improve efficiency, and drive innovation.
- Their experience in the private sector or academia can lead to more effective policy implementation and administrative reforms.
- Transparency and Meritocracy: When done transparently, lateral entry ensures that qualified individuals are selected based on merit rather than just exam scores. This can strengthen the meritocratic principles of the bureaucracy.
- Shortfalls in number of Recruits: There is nearly 20% shortage of IAS officers in 24 state cadres in India. (Baswan Committee).
- The number of appointees is insignificant to bridge the gap, especially as India faces a shortage of civil servants.

Arguments Against

- Reservation Concerns: Critics worry that lateral entry bypasses reservation policies for Scheduled Castes (SC), Scheduled Tribes (ST), and Other Backward Classes (OBC).
- They fear that it might disproportionately affect representation from marginalised communities.
- Lack of Institutional Memory: Traditional civil servants have a deep understanding of bureaucratic processes and institutional memory.
- Lateral entrants may lack this context, leading to potential challenges in navigating complex administrative systems.
- Risk of Political Influence: There's a risk that lateral entrants could be politically influenced or used to further specific agendas.
- Striking the right balance between expertise and neutrality is crucial.

Why does lateral entry sidestep reservations?

- Single-Post Classification: When a ministry advertises a position for lateral entry, it treats it as a single vacancy. Unlike regular recruitment through the UPSC, where multiple candidates are selected for a cadre, lateral entry focuses on filling specific roles.
- As a result, the mandatory quotas for SC/ST/OBC candidates don't apply.
- Upside: Proponents argue that lateral entry brings fresh perspectives, domain expertise, and efficiency. After all, sometimes you need a seasoned chef to spice up the bureaucratic curry.
- Downside: Critics worry that this approach might sideline deserving candidates who've slogged through the UPSC exams.
- They fear it could lead to a talent drain from the traditional civil services.

Conclusion and Way Forward

- The government should first focus on the creation of in house specialisation and out of government work deputation.
- For specialised technological upgrades where no Civil Servant is competent enough, a semi-permanent team may be created by Lateral Entry.
- The Limited Lateral Entry with focus on upskilling the in-house teams will help create a balance between much-needed experience and technological upgrades along with smooth functioning constitutional mechanisms.
- Lateral entry remains a contentious yet necessary reform. Striking the right balance between tradition and innovation is crucial for an efficient and responsive bureaucracy. As India continues to evolve, so must its administrative machinery.

Violence Against Healthcare Workers in India

Syllabus: GS2/Governance

Context

- Violence against healthcare workers is a disturbingly common occurrence in India.

About

- Statistics reveal a pattern of increasing aggression, particularly in public healthcare facilities.
- These incidents highlight the harsh reality that violence is more prevalent in public health facilities and disproportionately affects younger and female professionals.

What kind of Violence is faced by Healthcare Professionals?

- According to a 2016 paper in the National Medical Journal of India, 75% of the violence against doctors is verbal, including intimidation and threats.
- Workplace violence is mostly directed at junior doctors and residents.
- Studies also show that female medical professionals, with lesser years of experience, are objectively more at risk of being on the receiving end of both physical and verbal workplace violence.
- The violence also happens more often in high-stake settings, such as in the emergency wing and intensive care units.

What are the Reasons for the Violence?

- The perpetrators of violence are family members or relatives of the patient in 82.2% of cases, as per a paper published in PLoS ONE in 2020.
- Often, patients or their relatives turn to violence because the healthcare system hasn't met their expectations.
- Some perpetrators become violent over concerns of the patient's condition, such as actual or perceived deterioration of their condition or doubts about the wrong treatment being administered.
- Some others become violent due to issues such as high payment dues and protracted waiting times. Doctors aren't responsible for either.

Impact of Violence

- Psychological Impact: Being on the receiving end of verbal or physical violence has an immense psychological impact.

- Some studies have reported symptoms of post-traumatic stress disorder, anxiety, and depression in doctors who have faced violence from patients or their kin.
- Effect Rural Healthcare: India has a skewed doctor-patient ratio, doctors often decide to operate in resource-abundant settings for their own security. This in turn affects rural healthcare.
- Effect of Quality of Healthcare: After experiencing violence, doctors wish to stop offering emergency services, refer patients sooner to more specialists, and over-investigate symptoms and prescribe more tests.

Present Scenario of Legal Protection to Healthcare Professionals

- No central law existed to safeguard healthcare workers nationwide.
- As of 2020, 19 States had implemented their statutes, each with varying provisions. Other States and Union Territories had no laws at all.
- This lack of uniformity meant protection is inconsistent.
- Among States, Kerala and Karnataka now provide their healthcare workers with the most robust legal protections in India.
- Challenges in enacting a Central law: A central law has not been enacted because public health is a State subject, and VAHCW is primarily a public health-related issue.
- While the concurrent list allows for a central law, the central government has not prioritised this issue, leaving it to the States to manage.

Way Ahead

- Strengthen the System: To eliminate this 'threat', we must spend more money to strengthen the system from the grassroots level, such as reducing long waiting periods for treatment.
- The availability and accessibility of medicines, tests, and financial aid for those in need will greatly reduce their stress, instead of leaving them to hold their physicians responsible for it.
- Policy and Institutional Measures: Installing CCTV cameras and metal detectors at hospital entrances to deter relatives from carrying weapons are workable, but they are currently easier to realise in private settings and not at public facilities.
- Ensuring that there are counselors to help patients and relatives in times of high emotional distress can eliminate any miscommunication regarding a patient's condition and treatment.
- In addition, a robust security system and not allowing more than a few relatives by a patient's bedside may also be important.
- After the West Bengal incident, the Central Government has declared that it will form a high-level committee to review the 2019 bill tabled in parliament for making the Central Act for protection of healthcare workers.
- Until a central law becomes a reality, these State-level reforms represent a significant step forward in safeguarding those who dedicate their lives to caring for others.

Revised Model Foster Care Guidelines

Syllabus: GS2/Governance

Context

- The Women and Child Development (WCD) Ministry has released the revised model foster care guidelines.

Revised Guidelines

- It has broadened the scope of foster care in India by permitting single individuals — regardless of their marital status — to foster children, with the option of adoption after two years.
- This change represents a significant departure from the previous regulations, which restricted foster care to married couples.
- Individuals aged between 25 and 60 can now foster children, regardless of their marital status.
- This includes those who are unmarried, widowed, divorced, or legally separated.
- Single women can foster and adopt children of any gender, while single men are restricted to fostering and adopting male children.
- For married couples, a stable marital relationship of at least two years is now required before they can foster a child.

Foster Care

- Foster care involves placing a child with either extended family members or unrelated individuals temporarily.
- Eligible children for foster care in India are typically over the age of six, residing in childcare institutions, and without suitable guardians.

Supreme Court Forms Task Force to Protect Doctors

Syllabus: GS2/ Polity and Governance

Context

- The Supreme Court constituted a National Task Force (NTF) of senior medical professionals to formulate comprehensive safety protocols for healthcare workers across India.

About National Task Force (NTF)

- The NTF has been tasked with the critical responsibility of devising an action plan to ensure the safety and well-being of medical professionals, with a particular focus on preventing gender-based violence and creating dignified working conditions for interns, resident doctors, and non-resident doctors.

The action plan will address several key areas, including:

- Enhancing security in emergency rooms and other critical areas;
- Providing restrooms and gender-neutral spaces for medical staff;
- Introducing biometric and facial recognition systems, Improving lighting and installing CCTV in all hospital areas.
- Performing quarterly audits of institutional safety measures;
- Applying the Prevention of Sexual Harassment (POSH) Act to medical establishments, ensuring the constitution of an Internal Complaints Committee (ICC).

Challenges Faced by the Healthcare Workers

- Workload and Burnout: High patient-to-staff ratios result in overwhelming workloads. Healthcare workers experience burnout due to long hours, high stress, and insufficient time to rest.
- Violence and Abuse: Instances of violence against healthcare workers, including verbal abuse and physical attacks, have been reported in several instances.
- Inadequate Compensation: Salaries for healthcare workers, particularly those in the public sector or rural areas, are relatively low compared to the cost of living and the demands of the job.
- Infrastructure Issues: Poor infrastructure in healthcare facilities such as lack of proper sanitation, unreliable electricity, and inadequate medical waste management compromise patient care and worker safety.
- Health and Safety Risks: Healthcare workers face health and safety risks, including exposure to infectious diseases, particularly in under-resourced settings where personal protective equipment (PPE) and infection control measures are inadequate.

Present Scenario of Legal Protection to Healthcare Professionals

- Currently no central law exists to safeguard healthcare workers nationwide.
- As of 2020,19 States had implemented their statutes, each with varying provisions. Other States and Union Territories had no laws at all.
- This lack of uniformity meant protection is inconsistent.
- Among States, Kerala and Karnataka provide their healthcare workers with the most robust legal protections in India.

Challenges in Enacting a Central Law

- A central law has not been enacted because public health is a State subject, and VAHCW is primarily a public health-related issue.
- While the concurrent list allows for a central law, the central government has not prioritized this issue, leaving it to the States to manage.

Way Ahead

- Incident Reporting: Develop a robust mechanism for reporting incidents of violence that ensures confidentiality and protection for those who report.
- Workplace Safety Policies: Develop and enforce comprehensive workplace safety policies and procedures to prevent and respond to violence against healthcare workers.

India AI Mission and Graphics Processing Units (GPUs)

Syllabus: GS2/Government Policy; GS3/Science and Technology

Context

- Recently, India has finalised a tender document to procure 1,000 Graphics Processing Units (GPUs) as part of its ambitious IndiaAI Mission and offer computing capacity to Indian start-ups, researchers, public sector agencies and other entities approved by the government.

About the IndiaAI Mission

- It is rooted in the vision of 'Making AI in India' and ensuring that AI truly works for India. Recognizing the transformative potential of AI, the government has allocated substantial resources to foster AI development, research, and application across various sectors.

Key Components

- Compute Capacity: At the heart of the IndiaAI Mission lies the goal to build cutting-edge compute capacity. This involves deploying over 10,000 Graphics Processing Units (GPUs) through strategic public-private collaborations.
- By democratising access to powerful compute resources, the mission aims to bridge the 'AI divide' and empower startups, researchers, and innovators.

Graphics Processing Units (GPUs)

– These are specialised chips or electronic circuits designed primarily for rendering graphics and visual content on electronic devices.

Origins and Purpose

– Initially, GPUs were created to handle complex 3D scenes and objects, such as those found in video games and computer-aided design software.

1. Their parallel processing architecture allowed them to crunch massive amounts of graphical data efficiently.

– Over time, GPUs evolved to handle additional tasks, including video stream decompression and scientific simulations.

Parallel Processing Power

– Unlike the Central Processing Unit (CPU), which acts as the 'brain' of most computers, GPUs excel at parallel processing. They can perform multiple calculations simultaneously, making them ideal for tasks that involve massive data sets or repetitive computations.

– This parallelism is especially valuable for applications like machine learning, where neural networks require extensive matrix operations.

AI and Machine Learning

– The recent AI boom has thrust GPUs into the spotlight. Researchers and data scientists realised that GPUs could accelerate training deep learning models.

– It is because training neural networks involves matrix multiplications, GPUs are exceptionally good at handling these matrix operations in parallel.

– As a result, GPUs have become the workhorses behind AI breakthroughs, powering everything from natural language processing to computer vision.

Innovation and Application Development

- The AI mission establishes innovation centres focused on developing and deploying indigenous Large Multimodal Models (LMMs) and domain-specific foundational models.
- These models will find applications in critical sectors such as healthcare, education, agriculture, and smart cities.

- Imagine AI-powered solutions that improve crop yield predictions, enhance medical diagnostics, or optimise traffic management in our cities.

Data Platforms

- The IndiaAI Datasets Platform streamlines access to quality non-personal datasets for AI innovation.
- Researchers and startups can tap into a unified data platform, making it easier to experiment, train models, and create impactful AI applications.

FutureSkills

- IndiaAI FutureSkills aims to mitigate barriers to entry into AI programs. It will increase the availability of AI courses at undergraduate, master's, and Ph.D. levels.
- By nurturing a skilled workforce, the mission ensures that India remains competitive in the global AI landscape.

Safe and Trusted AI

- Responsible AI development is crucial. The mission emphasises building tools and practices for safe, ethical, and transparent AI.
- As AI systems become more pervasive, ensuring their trustworthiness is essential.

Global Context

- Other nations have also recognized the importance of AI. The European Union (EU) recently passed the AI Act, which categorises AI systems based on risk and sets guidelines for their deployment.
- China, the United States, and various international forums prioritise AI development.
- India's mission positions it as a frontrunner, aligning with the global race for AI leadership.

Challenges Ahead

- While the allocation of Rs. 10,372 crore is significant, execution and effective utilisation are key.
- Balancing innovation with ethical considerations, privacy, and security remains a challenge.
- Collaboration between academia, industry, and startups will be crucial for success.

AUKUS New Deal

Syllabus: GS2/Regional Groupings

Context

- Australia had signed a deal to allow the exchange of nuclear secrets and material with the United States and Britain.

About

- It is a key step toward equipping its navy with nuclear-powered submarines.
- It binds the three countries to security arrangements for the transfer of sensitive U.S. and U.K. nuclear material and knowhow as part of the tripartite 2021 AUKUS security accord.

Major Highlights

- It specifies that the agreement will remain in force until December 31, 2075, but any party can exit it with a one-year written notice.
- In the event of a breach or termination, the remaining countries can demand the return or destruction of any exchanged information, material, or equipment.
- The material, to be transferred in complete, welded power vgunits, must only be used for naval propulsion.
- The treaty also allows the US and UK to cease cooperation and demand the return of materials if Australia breaches the Nuclear Non-Proliferation Treaty or detonates a nuclear device.
- Australia will be responsible for any nuclear safety risks and will indemnify the US and UK against liabilities related to the nuclear material and equipment.
- The treaty includes a non-legally binding document outlining additional political commitments but does not specify any obligation for Australia to participate in US-led military actions.

What is AUKUS?

- AUKUS is a trilateral defence and security partnership between Australia, the United Kingdom and the United States.
- It was established in 2021 to bolster their allied deterrence and defense capabilities in the Indo-Pacific.
- The trilateral partnership has two pillars.
- Pillar I revolves around the acquisition and development of conventionally armed nuclear-powered submarines for the Royal Australian Navy;
- and Pillar 2 focuses on cooperation in eight advanced military capability areas: artificial intelligence (AI), quantum technologies, innovation, information sharing, and cyber, undersea, hypersonic and counter-hypersonic and electronic warfare domains.

Why was AUKUS formed?

- Increasing Presence of China: The Indo-Pacific region has witnessed increasing geopolitical tensions, including territorial disputes, military build-up, and assertive behavior by China.
- The participating countries share concerns about maintaining peace, stability, and freedom of navigation in the region.
- Technological Cooperation: AUKUS aims to enhance technological cooperation, particularly in the field of defense and security.
- Alliance Strengthening: AUKUS represents a deepening of security ties between Australia, the United Kingdom, and the United States.
- Response to Regional Dynamics: The formation of AUKUS is seen as a response to shifting regional dynamics and evolving security challenges in the Indo-Pacific.
- It reflects a broader trend of countries in the region seeking to forge closer security partnerships and alliances to address common concerns and counterbalance China's influence.

Way Ahead

- Achieving the core objectives will take years, with Pillar I likely requiring decades, even with all states moving forward at full speed.
- Regardless, AUKUS still holds immediate promise for participating countries.
- Critically, it will help catalyze technological innovation and enhance research and development for emerging capabilities necessary to maintain a competitive edge, strengthen defense ties, and deepen the three countries' presence in the Indo-Pacific.

Draft Broadcasting Services (Regulation) Bill, 2024

Syllabus: GS2/Governance

Context

- The Ministry of Information and Broadcasting has proposed the draft Broadcasting Services (Regulation) Bill, 2024.

About

- The government is set to replace the 30-year-old Cable TV Networks Act 1995 with the bill.
- The government has expanded its remit from OTT content and digital news to include social media accounts and online video creators.
- Need for the Bill: There were a number of instances where creators made videos on current affairs which made some sensational claims about the government and its senior leaders in the run up to the elections.
- That's when it was decided that there has to be an accountability measure for these creators as well, to create a level-playing field between mainstream press and independent creators.

Definition of the Independent News Creators Online

- In the 2023 version of the draft, the Bill defined news and current affairs programmes as:
- newly-received or noteworthy audio, visual or audio-visual programmes or live programmes, including analysis, about recent events primarily of socio-political, economic or cultural nature, or
- any programmes transmitted or retransmitted on broadcasting network, where the context, purpose, import and meaning of such programmes implies so.

- In the 2024 draft has a new category called "digital news broadcaster" or "publisher of news and current affairs content".
- It is defined as any person who broadcasts news and current affairs programmes through an online paper, news portal, website, social media intermediary, or other similar medium as part of a systematic business, professional, or commercial activity but excluding replica e-papers.
- The term 'systematic activity' has also been defined to mean any structured or organised activity that involves an element of planning, method, continuity or persistence.

Major Highlights of the Bill

- Individual Creators: The Bill specifically includes individual creators in the definition of digital news broadcasters, unlike the definition in the Information Technology Rules, 2021 that specifically excludes individual users.
- Obligations for Creators: If a creator is categorised as a digital news broadcaster, they must 'intimate' the MIB about their work and existence.
- They will also have to form one or more content evaluation committees (CEC) at their own expense – and "strive to make" the committee diverse by including individuals with a knowledge of different social groups, women, child welfare, scheduled castes, scheduled tribes, minorities.
- The names of people in their CEC will also have to be shared with the government.
- Penalty: The news creators who do not intimate the Central Government names, credentials and other details of members of their CEC will be fined Rs 50 lakh in the first contravention, and Rs 2.5 crore for subsequent violations in the next three years.
- Exemption: The draft Bill allows the government to "exempt a distinct class of players or a group for avoiding genuine hardship".
- Social Media Companies: Online intermediaries like Facebook, YouTube, and X are exempted from liability for third-party content, if:
- the function of the intermediary is limited to providing access to a communication system over which information made available by third parties is transmitted or temporarily stored or hosted;
- the intermediary does not initiate the transmission;
- the intermediary does not select or modify the information, except in compliance with government orders;
- the intermediary observes due diligence while discharging his duties under this Act and observes other prescribed guidelines.
- The Bill also has criminal liability provisions for social media companies if they do not provide information "pertaining to OTT Broadcasters and Digital News Broadcasters" on its platforms for compliance.
- Concerns: The proposed regulations on content creators of Instagram, YouTube and X have already raised concerns about the freedom of speech and expression and the government's powers to regulate it.

Conclusion

- In Singapore, both traditional broadcasters, and over the top (OTT) content providers fall under the country's broadcasting law.
- Under the country's copyright law, OTT platforms are regulated and they require a licence from a regulator, although licensees do not have the same level of obligations as other television services.
- The Bombay and Madras High Courts had stayed rule 9(1) and 9 (3) of the IT Rules 2021 that mandate news and current affairs publishers to adhere to Code of Ethics, citing its adverse impact on press freedom.
- These court orders may serve as a precedent if digital news broadcasters seek a stay on provisions in the Broadcasting Bill, if it were to be published in its current form.

PM KUSUM Scheme Faces Implementation Hurdles

Syllabus: GS2/Governance

Context

- According to a report by the think tank Centre for Science and Environment (CSE), the PM KUSUM scheme has achieved only 30 percent of its targets after six years.

PM KUSUM Scheme

- PM KUSUM stands for the Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan.
- The scheme was launched in 2019, with the objective to provide energy and water security to farmers, enhance their income, de-dieselize the farm sector, and reduce environmental pollution.

Different parts of the scheme

- Component-A: Farmers can set-up Decentralized Ground/ Stilt Mounted Grid Connected Solar or other Renewable Energy based Power Plants on their land up to the capacity of 2MW.
- The renewable power generated from these power-plant is purchased by DISCOMs at the pre-fixed levelized tariff.
- Component-B: Farmers can install the Stand-alone Solar Agriculture Pumps for irrigation. The Government provides the Central Financial Assistance (CFA) of 30% (or 50% for North Eastern Region/Hilly region/Islands) for the stand-alone solar Agriculture pump.
- Component-C: This Component enables solarisation of grid-connected Agriculture Pumps under its Individual Pump Solarisation (IPS) mode & also Feeder Level Solarisation (FLS) of agricultural load.
- The Government provides the Central Financial Assistance (CFA) of 30% (or 50% for the North Eastern Region/Hilly region/Islands) for both IPS & FLS.

What are the implementation challenges?

- The report says that progress has been slow, with most efforts focused on Component B, while Components A and C have seen minimal progress.
- One of the principal challenges the scheme faces is the availability of cheap electricity for farmers, which diminishes the incentive to shift from electric water pumps to solar water pumps.
- Implementation model of the scheme: In Punjab, the scheme's implementation is overseen by the Punjab Renewable Energy Development Agency, in contrast to Rajasthan, where each component has a different implementing agency.
- Uniform approach: Farmers are often forced to opt for pump sizes larger than needed for their land.

Way Ahead

- The scheme needs to be tailored to meet farmers' specific requirements to be financially viable.
- The pump sizes should be based on the land size and water requirements of different areas, rather than being kept uniform throughout the country.
- A decentralized model is important to realize the potential of the scheme. Also farmers should be allowed to pay for solar pumps in installments, which will make it financially more viable for them.
- The central government should increase financial support to states, especially to cover the rising costs of solar modules.

The Oilfields (Regulation and Development) Amendment Bill, 2024

Syllabus: GS2 /Governance

Context

- The Ministry of Petroleum & Natural Gas (MoPNG) introduced a Bill in Parliament to amend the Oilfields (Regulation and Development) Act, 1948.

About

- The Bill amends the Oilfields (Regulation and Development) Act, 1948.
- The Act regulates the exploration and extraction of natural gas and petroleum.

Key features of the Bill

- Definition of mineral oils expanded: The Act defines mineral oils to include petroleum and natural gas. It will not include coal, lignite or helium. The Bill expands the definition to include:
- Any naturally occurring hydrocarbon,
- Coal bed methane,
- Shale gas/oil.

- Introduction of petroleum lease: The Act provides for a mining lease. The lease provides for various activities such as exploration, prospecting, production, making merchantable, and disposal of mineral oils.
- The Bill replaces the mining lease with a petroleum lease, which also covers a similar set of activities. Existing mining leases granted under the Act will continue to be valid.
- Rule making powers of the central government: The Act empowers the central government to make Rules on several matters.
- These include regulating the grant of leases, conservation and development of mineral oils, methods for producing oil, and manner of collection of royalties, fees, and taxes.
- The central government may also make Rules on merger and combination of petroleum leases, sharing of production and processing facilities, obligations of lessees towards protecting environment and reducing emissions, alternative mechanisms for resolving disputes in relation to the grant of petroleum leases.

The Bill adds following offenses:

- Undertaking activities related to mineral oils such as exploring, prospecting, and production without a valid lease, and
- Non-payment of royalty.
- Adjudication of penalties: The central government will appoint an officer of the rank of Joint Secretary or above for adjudication of penalties.
- Appeals against the decisions of the Adjudicating Authority will lie before the Appellate Tribunal specified in the Petroleum and Natural Gas Board Regulatory Board Act, 2006.
- The 2006 Act designates the Appellate Tribunal for Electricity, constituted under the Electricity Act, 2003, as the Appellate Tribunal.

Secular Civil Code

Syllabus: GS2/ Polity and Governance

Context

- In his 11th Independence Day speech, PM Modi called for a Uniform Civil Code (UCC), framing it as a "Secular Civil Code" as distinct from the existing "communal civil code".

What is Uniform Civil Code (UCC)?

- A Uniform Civil Code refers to the provision of one law for the entire country, applicable to all religious communities, in their personal matters such as marriage, divorce, inheritance, adoption, etc.
- Currently, separate personal laws apply for the members of different major religions.
- The Supreme Court in 2019 hailed Goa as a "shining example" of an Indian State which has a functioning UCC.

Constitutional Provisions

- Article 44 contained in part IV of the Constitution says that the state "shall endeavor to secure for the citizens a uniform civil code throughout the territory of India".
- Part IV of the Constitution outlines the Directive Principles of State Policy, which, while not enforceable or justiciable in a court of law, are fundamental to the country's governance.

UCC in India

- UCC in Goa: It follows the Portuguese Civil Code of 1867, which means that people of all religions in Goa are subject to the same laws on marriage, divorce, and succession.
- The Goa Daman and Diu Administration Act of 1962, which was passed after Goa joined the union as a territory in 1961, gave Goa permission to apply the Civil Code.
- States like Gujarat, Madhya Pradesh and Assam have expressed their willingness to follow the UCC, none have officially adopted it.

Arguments in favor of UCC

- Uniformity in Governance: Having a common set of laws would streamline governance and administrative processes, making it easier for the state to administer justice and ensure the rights of its citizens.

- Women's Rights: Personal laws in different religions may have discriminatory provisions, particularly against women, and a uniform code will provide a more egalitarian legal framework.
- Secularism: A Uniform Civil Code is seen as a way to reinforce the secular fabric of the country by treating all citizens equally irrespective of their religious affiliations.
- International Image: Implementing a UCC may enhance India's international image by demonstrating a commitment to principles of equality, secularism, and human rights.
- The Supreme Court in various judgments including Mohd. Ahmed Khan vs Shah Bano Begum judgment of 1985, has called for the implementation of the Uniform Civil Code.
- Promote national Spirit: The implementation of a UCC will promote the integration of India by establishing a shared platform for diverse communities.

Arguments against UCC

- Plurality in existing laws: Experts argue that if there is plurality in already codified civil and criminal laws, how can the concept of 'one nation, one law' be applied to diverse personal laws of various communities.
- Issues with implementation: The implementation of the code has been difficult because India is a diverse country with various religious communities following their own personal laws.
- It has been argued that the marriage and death rituals observed by tribal communities differ from Hindu customs, and there is concern that these practices may also face prohibition.
- Challenge for Law and Order: It would be a tyranny to the minority and when implemented could bring a lot of unrest in the country.
- Against Constitutional provisions: UCC is perceived as an infringement upon the constitutional right to freely exercise one's chosen religion found in Article 25 and 26 and the Sixth Schedule of the Constitution
- Fear among minorities: There is a contention that the Uniform Civil Code may potentially enforce a code that is influenced by Hindu practices in all communities.
- The Law Commission of India stated that a UCC "is neither necessary nor desirable at this stage". It recommended that discriminatory practices, prejudices and stereotypes within a particular religion and its personal laws should be studied and amended.

Way Ahead

- The authorities should consult with different sections of society before implementing the UCC to foster an environment of inclusivity, transparency, and respect for diverse perspectives throughout the process.
- The Law Commission expressed its support for achieving "equality within communities" as opposed to pursuing "equality between" communities.

Bail is rule and jail is exception': SC

Syllabus: GS 2/Governance

In News

- The Supreme Court emphasized the principle that "bail is the rule and jail is the exception," even for offenses under special statutes like the Unlawful Activities (Prevention) Act (UAPA).

Key Observations

- Once a case for bail is made, courts should grant bail if the legal conditions are met. Serious allegations do not automatically justify the denial of bail.
- Denying bail in deserving cases would violate the constitutional right to life and personal liberty under Article 21.

About the Bail

- Bail is a fundamental aspect of the criminal justice system in India, designed to ensure that an accused person is not deprived of their liberty unnecessarily while awaiting trial.
- Article 21 of the Indian Constitution guarantees the right to life and personal liberty, which includes the right to seek bail.

Types of Bail

- Regular Bail: Granted under Sections 437 and 439 of the Criminal Procedure Code (CrPC) for an accused who is in custody.
- The grant of regular bail generally involves evaluating: (a) risk of the accused fleeing, (b) potential for tampering with evidence, and (c) possibility of influencing witnesses. The gravity of the offence may also be considered.
- Interim Bail: Temporary bail granted until the application for regular or anticipatory bail is decided.
- Anticipatory Bail: Provided under Section 438 of the CrPC, Allows an accused to seek bail from a Sessions Court or High Court before arrest for non-bailable offences.

Presumption of Innocence:

- The foundational principle in Indian criminal jurisprudence is that an accused is presumed innocent until proven guilty, leading to bail being a common practice during investigation and trial.
- Exceptions for Certain Offences:Strict bail conditions apply to offences under special statutes such as the Unlawful Activities Prevention Act, Narcotic and Psychotropic Substances Act, and the Prevention of Money Laundering Act.
- Sections 436 (bailable offences) and 437 (non-bailable offences) of the CrPC reflect the legislative intent to make bail the rule and jail the exception.

Judicial Pronouncements

- The Supreme Court of India has emphasized that bail is the rule and jail is the exception.
- In the landmark case of State of Rajasthan v. Balchand, the Court held that the basic principle is that an accused should not be detained unless absolutely necessary
- The Supreme Court reiterated that prolonged pre-trial detention violates the right to personal liberty.
- The Court highlighted the need for speedy trials and cautioned against the misuse of bail provisions.

Challenges

- Overcrowded Prisons: A significant number of undertrial prisoners contribute to overcrowded prisons.
- The discretionary power of judges in granting bail can lead to inconsistencies.
- Despite numerous Supreme Court rulings, inconsistencies and arbitrary decisions sometimes occur, affecting the right to personal liberty as envisaged under Article 21.
- Many accused individuals lack access to legal representation, affecting their ability to secure bail.

Conclusion and Way Forward

- The bail provision in India is a crucial mechanism to uphold the principles of justice and liberty.
- The provision of bail balances the individual's right to freedom with the need to ensure their presence at trial and the protection of society.
- The legal framework provides robust guidelines, continuous reforms and vigilant judicial oversight are necessary to ensure that the right to bail is exercised fairly and effectively.
- The grant of bail, especially for non-bailable offences, is at the discretion of the judge and should be guided by facts and circumstances, not by public sentiment.
- Judicial orders for bail must be reasoned and not cryptic.

Central Law on Health Care Professions

Syllabus: GS2/ Polity and Governance

Context

- The Supreme Court of India expressed its concern regarding the non-implementation of the National Commission for Allied and Healthcare Professions (NCAHP) Act, 2021.

Background

- A PIL was filed in the Supreme court in 2023, over non-implementation of the National Commission for Allied and Healthcare Professions (NCAHP) Act, 2021.
- It was observed that even after three years, the Union and the states have failed to discharge their responsibility.

- Out of all states and UTs, only 14 states have constituted the state councils under the Act. It has been urged that the above state councils are not functional either.
- The Court asked the Centre, states and the UTs to ensure compliance of the Act by October 12.

About the NCAHP Act

- The Act is aimed at "regulation and maintenance of standards of education and services by allied and healthcare professionals," including those in fields such as medical laboratory sciences, physiotherapy, trauma care, and more.
- Allied health professional: It defines 'allied health professional' as an associate, technician, or technologist trained to support the diagnosis and treatment of any illness, disease, injury, or impairment.
- Such a professional should have obtained a diploma or degree under this Bill.
- The duration of the degree /diploma should be at least 2,000 hours (over a period of two to four years).
- Healthcare professional: A 'healthcare professional' includes a scientist, therapist, or any other professional who studies, advises, researches, supervises, or provides preventive, curative, rehabilitative, therapeutic, or promotional health services.
- Such a professional should have obtained a degree under this Bill.
- The duration of the degree should be at least 3,600 hours (over a period of three to six years).
- National Commission for Allied and Healthcare Professions: The Commission will perform the following functions;
- framing policies and standards for regulating education and practice,
- creating and maintaining an online Central Register of all registered professionals, providing basic standards of education, courses, curriculum, staff qualifications, examination, training, maximum fee payable for various categories, and
- providing for a uniform entrance and exit examination, among others.
- Professional Councils: The Commission will constitute a Professional Council for every recognised category of allied and healthcare professions.
- State Councils: state governments will constitute State Allied and Healthcare Councils. It will;
- Enforce professional conduct and code of ethics to be observed by allied healthcare professionals,
- Maintain respective State Registers,
- Inspect allied and healthcare institutions, and
- Ensure uniform entry and exit examinations.

SC has Designated Senior Advocates

Syllabus: GS2/Polity

Context

- The Supreme Court has designated 39 lawyers, including 10 women as senior advocates recently.

Senior Advocates

- Section 16 of the Advocates Act, 1961 prescribes two different classes of advocates: senior advocates and other advocates.
- The designation of senior advocate is a mark of excellence to advocates who have distinguished themselves and have made a significant contribution to the development of the legal profession.
- It identifies advocates whose standing and achievements would justify an expectation that they can provide outstanding services as advocates in the best interest of the administration of justice.
- Section 16 also states that senior advocates may be subject to certain additional restrictions.
- They are barred from filing a vakalatnama, appearing before a court without a junior or an advocate-on-record, doing drafting work, or directly accepting briefs for cases from clients.
- Recommendation: The Chief Justice of India, along with any other Supreme Court judge, can recommend in writing the name of an advocate for the designation.
- The new guidelines prescribe the minimum age as 45 years to apply for the 'senior advocate' designation.
- This age limit may, however, be relaxed by the Committee for Designation of Senior Advocates, the CJI, or a Supreme Court judge, if they have recommended an advocate's name.
- Grading: Applicants for the designation are graded out of 100 marks.

Pradhan Mantri Awas Yojana-Urban (PMAY-U) 2.0

Syllabus: GS2/Governance

Context

- The Union Cabinet has approved the Pradhan Mantri Awas Yojana-Urban (PMAY-U) 2.0.

PMAY-U

- In pursuance of Government's vision of facilitating Housing for All, Ministry of Housing and Urban Affairs (MoHUA), is implementing Pradhan Mantri Awas Yojana- Urban (PMAY-U) – 'Housing for All' Mission since 2015.
- The original mission period was up to 2022 which has been extended till 2024 for completion of houses sanctioned up to 2022.

About PMAY-U 2.0

- It aims to construct 1 crore houses, while also focusing on equity among different segments of the populations.
- The scheme will provide financial support to the middle class as well as impoverished urban families for building, buying, or renting reasonably priced urban homes.
- Beneficiary: Special attention will be given to marginalized groups, including slum dwellers, SC/STs, minorities, widows, persons with disabilities, and other underprivileged sections of society.
- Additionally, groups like Safai Karmi, street vendors, artisans, anganwadi workers, and residents of slums/chawls will receive focused support under this scheme.
- Eligibility: It can be availed by families who belong to the Economically Weaker Section (EWS), Low Income Group (LIG), and Middle Income Group (MIG) segments and do not currently own a pucca house anywhere throughout the country.
- The eligible income criteria are as follows:
- EWS households with an annual income up to 3 lakh.
- LIG households with an annual income between 3-6 lakh.
- MIG households with an annual income between 6-9 lakh.

Verticals Under the Scheme:

- Beneficiary-Led Construction (BLC): Under this vertical, financial assistance will be provided to individual eligible families belonging to EWS categories to construct new houses on their own available vacant land. In case of landless beneficiaries, land rights (pattas) may be provided by States/UTs.
- Affordable Housing in Partnership (AHP): Under AHP, financial assistance will be provided to EWS beneficiaries for owning houses being built with different partnerships by States/UTs/ Cities/Public/ Private agencies.
- Redeemable Housing Vouchers will be given to beneficiaries who purchase house from private projects.
- An additional Grant in the form of Technology Innovation Grant (TIG) @ 1000 per sqm/unit shall be provided to AHP Projects using innovative construction technologies
- Affordable Rental Housing (ARH): This vertical will create adequate rental housing for working women/ industrial workers/ urban migrants/homeless/destitute /students and other eligible beneficiaries.
- ARH shall ensure affordable and hygienic living spaces for urban dwellers who do not want to own a house but require housing for short term basis or those who do not have the financial capability to construct/buy a house.
- Interest Subsidy Scheme (ISS): Up to a 4% interest subsidy on the first 8 lakh loan for a maximum duration of 12 years can be availed by recipients who can take loans up to 25 lakh, with a property worth up to 35 lakh.
- The eligible beneficiaries will receive a maximum subsidy of 1.80 lakh, paid in five-year installments.

'Model Solar Village' under 'PM-Surya Ghar: Muft Bijli Yojana'

Syllabus:GS2/Government Policy and Intervention; GS3/Renewable Energy

Context

- Recently, the Scheme Guidelines for implementation of 'Model Solar Village' under PM-Surya Ghar: Muft Bijli Yojana have been notified by the Union Ministry of New and Renewable Energy.

About Model Solar Village

- A Model Solar Village, a scheme component, aims to be developed in each district of the country to act as a role model for adoption of rooftop solar in rural areas, with the goal of promoting solar energy adoption and enabling village communities to become self-reliant in meeting their energy needs.
- A total financial outlay of 800 crore has been allocated for this component, providing 1 crore per selected Model Solar Village.
- A Model Solar Village must be a revenue village with a population size above 5,000 (or 2,000 for special category states).
- In these model villages, households will install solar panels on their rooftops. These panels convert sunlight into electricity, which can be used for lighting, appliances, and other energy needs.

Benefits

- Energy Independence: By generating their own electricity, households reduce dependence on conventional power sources. This not only saves money but also contributes to national energy security.
- Environmental Impact: Solar energy is clean and green. By adopting it, villages reduce their carbon footprint and combat climate change.
- Economic Empowerment: Lower electricity bills mean more disposable income for families. Additionally, surplus energy sales can provide an additional revenue stream.
- It is estimated that the scheme will create around 17 lakh direct jobs in manufacturing, logistics, supply chain, sales, installation and other services.

About the PM Surya Ghar Muft Bijli Yojana

- It aims to light up 1 crore households by providing up to 300 units of free electricity every month, marking a significant step towards sustainable development and people's wellbeing.
- It aims to increase the share of solar rooftop capacity and empower residential households to generate their own electricity.
- The subsidy will cover up to 40% of the cost of the solar panels. The remaining costs have to be borne by the aspirant consumer.
- The Centre will fund 60% of the cost for installing 2 kW (kilowatt) systems and 40% of the cost for systems from 2-3 kW capacity.

20 Afghan Sikhs get Citizenship under Citizenship Amendment Act

Syllabus: GS2/ Governance

Context

- Twenty Sikhs from Afghanistan, have been accorded citizenship under the Citizenship Amendment Act (CAA), 2019.

Citizenship Amendment Act (CAA), 2019

- It amended the Citizenship Amendment Act, 1955, making two key changes to facilitate citizenship to undocumented migrants belonging to six non-Muslim communities — Hindu, Sikh, Buddhist, Jain, Parsi or Christian from Afghanistan, Bangladesh and Pakistan, who entered India on or before December 31, 2014.
- It reduced the period to qualify for citizenship from the existing requirement of continuous stay of 11 years to continuous stay of five years.
- However, Pakistani Hindus were anyway eligible for citizenship under Section 5 and Section 6 (1) of the Citizenship Act, 1955. The CAA only helped fast track the application process.

- The Rules grant the final authority to accord citizenship to an empowered committee headed by the Director, Census Operations, while the scrutiny of applications filed online on the portal was done by a district level committee (DLC) headed by Department of Post officials.
- On successful verification of documents, the DLCs administered the oath of allegiance to the applicants.

Challenges with the Act

- The right to equality: The challenge to the CAA rests on the ground that it violates Article 14 of the Constitution, which says that "the State shall not deny to any person equality before the law or the equal protection of the laws within the territory of India".
- Secularism: There is also the larger issue of whether making religion a ground for eligibility for citizenship violates secularism, which is a basic feature of the Constitution.
- Section 6A of The Citizenship Act, 1955 and Assam: Section 6A was introduced in the Citizenship Act after the signing of the Assam Accord in 1985 which determines who is a foreigner in the state of Assam and sets March 24, 1971 as a cut off date which contradicts the cut off date given in the CAA 2019.

Citizenship

– Citizenship is listed in the Union List under the Constitution and thus is under the exclusive jurisdiction of Parliament.

– The Constitution does not define the term 'citizen' but details of various categories of persons who are entitled to citizenship are given in Part II (Articles 5 to 11).

Acquisition of Indian Citizenship

– The Citizenship Act of 1955 prescribes five ways of acquiring citizenship:

1. Citizenship conferred by birth
2. Citizenship through descent
3. Citizenship through registration
4. Naturalization leads to citizenship.
5. Territorial incorporation (by the Government of India)

– Under The Indian Citizenship Act, 1955, Persons of Indian Origin are not allowed dual citizenship. If a person has ever held an Indian passport and has obtained the passport of another country, they are required to immediately surrender their Indian passport.

Termination of Indian Citizenship

– Renunciation: Any Indian citizen who is also a national of another country who renounces his Indian citizenship in the prescribed manner through a declaration ceases to be an Indian citizen.

– Termination: An Indian citizen's citizenship can be revoked if he or she knowingly or voluntarily adopts the citizenship of another country.

– Deprivation: In some cases, the Indian government may deprive a person of his citizenship. However, this does not apply to all citizens. Conditions for deprivation are:

1. Obtained the citizenship by fraud.
2. Citizens have shown disloyalty to the Constitution of India.
3. Citizens have unlawfully traded or communicated during the times of war.
4. Within 5 years of naturalization, the said citizen is imprisoned for a term of two years.
5. Citizen has been ordinarily resident out of India for a period of 7 years.

Changes in Pradhan Mantri JI-VAN Yojana

Syllabus: GS2/Government Policy and Intervention

Context

- Recently, the Union Cabinet approved the extended Pradhan Mantri JI-VAN Yojana to boost advanced biofuel projects.

About

- Pradhan Mantri JI-VAN (Jaiv Indhan- Vatavaran Anukool fasal awashesh Nivaran) Yojana aims to provide financial support to Integrated Bioethanol Projects using lignocellulosic biomass and other renewable feedstock.
- Centre for High Technology (CHT), a technical body under the aegis of Ministry of Petroleum and Natural Gas (MoP&NG), will be the implementation Agency for the scheme.

- Pradhan Mantri JI-VAN Yojana envisages setting up of 12 Commercial scale Second Generation (2G) Bioethanol projects and 10 demonstration scale 2G Bioethanol projects based on non-food biomass feedstocks and other renewable feedstocks.
- Other key objectives include Remunerative Income for Farmers, Environmental Pollution Mitigation, Local Employment Opportunities, Energy Security and Self-Reliance, Net-Zero GHG Emissions by 2070, and Ethanol Blending Program (EBP) by establishing commercially viable projects for 2G Ethanol production etc.

A Viability Gap Funding (VGF) support in two phases:

- Phase-I (2018-19 to 2022-23): wherein six commercial projects and five demonstration projects will be supported.
- Phase-II (2020-21 to 2023-24): wherein remaining six commercial projects and five demonstration projects will be supported.

Recent Changes

- Implementation Extension: The modified scheme now extends its implementation period by five years, running through 2028-29.
- Scope Expansion: The revamped JI-VAN Yojana broadens its scope to include advanced biofuels produced from lignocellulosic feedstocks, encompassing a variety of materials, such as agricultural and forestry residues, industrial waste, synthesis gas (syngas), and even algae.
- Eligibility for Existing Plants: Under the modified scheme, both 'bolt-on' plants (which enhance existing facilities) and 'brownfield projects' (revamping existing facilities) are now eligible to participate.
- It encourages existing players to leverage their experience and improve the viability of their operations.

Creamy Layer Principle not Applicable on SCs and STs: SC

Syllabus: GS2/Polity

Context

- The Union Cabinet categorically asserted that the principle of creamy layer does not apply to reservations for Scheduled Castes (SCs) and Scheduled Tribes (STs).

About

- SC Judgement: Recently, a seven-judge Bench of the Supreme Court had ruled in a 6:1 majority judgment that State governments were permitted to sub-classify communities within the SC list based on empirical data, to grant quotas within the reserved category to uplift those who belong to the more underprivileged castes.
- A separate but concurring judgment Justice B.R. Gavai said that States must evolve a policy for identifying the 'creamy layer' even among the SC and ST categories and deny them the benefit of reservations.
- Government's Response: Law Minister told the Lok Sabha that the 'creamy layer' principle was not part of the Supreme Court's recent judgement on sub-categorisation within the SC quota.

Reservation in India

- As per existing instructions, reservation is provided to Scheduled Castes (SCs), Scheduled Tribes (STs) and Other Backward Classes (OBCs) at the rate of 15%, 7.5% and 27%, respectively, in case of direct recruitment on all India basis by open competition.
- In direct recruitment on all India basis, other than by open competition, the percentage fixed is 16.66% for SCs, 7.5% for STs and 25.84% for OBCs.
- The Constitution (103rd Amendment) Act 2019 enables the State (i.e., both the Central and State Governments) to provide reservation to the Economically Weaker Sections (EWS) of the society.
- Since the 1992 order, several states have passed laws breaching the 50% ceiling, including Haryana, Telangana, Tamil Nadu, Andhra Pradesh, Madhya Pradesh, Uttar Pradesh, Rajasthan, Chhattisgarh and Maharashtra.
- Laws made by many of these states have either stayed or are facing legal challenges.

What is the 50% Rule?
– The Supreme Court has historically maintained that reservations, whether in jobs or education, should not exceed 50% of the total seats/posts.
– Mandal Commission Case: In 1992, SC in the Indra Sawhney case had ruled that reservation should not exceed 50%, barring certain extraordinary situations.
1. Such as to provide reservations to communities which hail from far flung areas of the country and have been kept out of the mainstream of the society. This is not a geographical test but a social one.
– EWS Judgement: The Supreme Court upheld the 103rd Constitutional Amendment which provides for 10% additional reservations to the EWS.
– This means, for the time being, that the 50% limit applies only to non-EWS reservations, and States are permitted to reserve a total of 60% of the seats/posts including EWS reservations.

Creamy Layer Principle

- It is a concept used to ensure that reservations in educational institutions and government jobs, are extended to those who are economically and socially disadvantaged within a certain group.
- It aims to prevent the more affluent or advantaged members of a reserved category from availing themselves of these benefits.
- Origin: The concept was first articulated by the Supreme Court of India in the Indra Sawhney case (1992), also known as the Mandal Commission case.
- The Court's ruling emphasized that within the OBC (Other Backward Classes) category, those who are relatively more privileged should not benefit from reservations.
- Criteria: The "creamy layer" is determined based on various criteria, including income and education levels.
- Impact: By applying the creamy layer principle, the government aims to make its affirmative action policies more effective and equitable, ensuring that those who are most in need receive the support intended for them.

Constitutional Provisions

- Article 16: It provides for equality of opportunity for all citizens but as an exception the State can provide for reservation of appointments or posts in favour of any backward class that is not adequately represented in the state services.
- Article 16 (4A): Provides that the State can make any provision for reservation in matters of promotion in favour of the Scheduled Castes and the Scheduled Tribes if they are not adequately represented in the services under the State.
- Article 335: It recognises that special measures need to be adopted for considering the claims of SCs and STs to services and posts, in order to bring them at par.
- 103 Amendment of the Constitution of India: Introduced 10% reservation for Economically Weaker Sections (EWS) of society by amending Article 15 and Article 16 of the Constitution.

Arguments in Favour of Reservation

- Historical Injustice: It is seen as a corrective measure to address the historical injustices and discrimination faced by certain communities.
- Social Equality: It is designed to promote social equality and reduce disparities by providing opportunities for education, employment, and representation.
- Constitutional Mandate: The Constitution of India, under Articles 15(4) and 16(4), empowers the state to make special provisions for the advancement of socially and educationally backward classes of citizens.
- Social Upliftment: Reservation is viewed as a tool for the social upliftment of marginalized communities, providing them with opportunities to break free from the cycle of poverty, illiteracy, and social exclusion.

Argument Against Reservation

- Merit: Critics argue that individuals should be selected for educational and job opportunities based on their abilities, skills, and qualifications rather than their caste or social background.
- Reverse Discrimination: Reservation policies lead to reverse discrimination, as individuals from certain privileged groups may face disadvantages in terms of educational and employment opportunities.

- Creamy Layer: The concept of the "creamy layer" refers to the economically better-off individuals within reserved categories.
- Benefits should be targeted at those who genuinely need assistance, and there should be a reconsideration of the criteria for determining eligibility.
- Division in Society: Some argue that reservation policies reinforce social divisions by categorizing people based on their caste or community.

Conclusion

- The Supreme Court has established a provision that states must collect quantifiable data on the representation of SCs and STs in a particular cadre of service and form a judgement regarding the inadequacy of representation based on that data.
- Positive discrimination as represented can lead to important advances in societies along with deep-seated social inequalities, but such systems must be periodically examined and redesigned.
- The most obvious reform would be to reduce the number of relatively wealthy beneficiaries.

The Railways (Amendment) Bill, 2024

Syllabus: GS2/ Governance

Context

- Union Railway Minister Ashwini Vaishnaw introduced the Railways (Amendment) Bill, 2024 in the Lok Sabha,

Background

- The railway network was established as a branch of the Public Works Department before Independence.
- When the network expanded, Indian Railways Act, 1890 was enacted to enable proper functioning of different railway entities.
- The railways were separated from the Public Works Department and the Railway Board Act was enacted in 1905.
- The Railways Act, 1989 was enacted by repealing the Indian Railways Act, 1890.
- However, the Railway Board continued to function through an executive decision without any statutory sanction.

Key Features of the Bill

- All the provisions in the Indian Railway Board Act, 1905 are proposed to be incorporated in the Railways Act, 1989 through this Bill.
- The Bill seeks to grant statutory powers to the Railway Board and enhance the functioning and independence of the body.
- The expenditure of Railway Board will continue to be met from yearly Budgetary provision under revenue Budget of Indian Railways as being done presently.
- The Bill does not propose to create any new Board or body resulting in additional financial implication.
- The Bill introduces Section 24A into the Railways Act 1989. This section allows the Central Government to sanction the running, extension or diversion of superfast trains through Thawe Junction.
- The provisions regarding the terms and conditions of service of the Chairman, Members of the Board, Secretary and the officers and other employees' are already in place and no change is proposed in the proposed Bill.

Significance

- The current Bill proposes to simplify the legal framework and will reduce the need to refer to two laws.
- The Bill, seeks to amend the Railways Act, 1989 with a view to implement the proposal of North-Eastern Railway to augment the train services to cater the need of the neglected Thawe Junction which is a demand of the various districts of the State of Uttar Pradesh and Bihar.

Eight Railway Projects with Focus on Eastern States

Syllabus: GS2/ Governance, GS3/ Economy

Context

- The Union Cabinet approved eight new railway projects at an estimated cost of 24,657 crore.
- It also approved the Pradhan Mantri Awas Yojana-Urban (PMAYU) 2.0

About the Railway Project

- The railway projects will provide connectivity, facilitate ease of traveling, minimize logistics costs, reduce oil imports and lower carbon dioxide emissions.
- With focus on the development of Eastern states under Purvodaya plan, the projects cover 14 districts in the seven States of Odisha, Maharashtra, Andhra Pradesh, Jharkhand, Bihar, Telangana and West Bengal.
- Expected to be completed by 2030-31, the project will increase the existing network of the railways by 900 km.

Pradhan Mantri Awas Yojana-Urban (PMAYU) 2.0

- Under Pradhan Mantri Awas Yojana-Urban (PMAYU) 2.0 financial assistance will be provided to one crore urban poor and middle-class families to construct, purchase or rent a house at affordable cost.
- A total government subsidy of 2.30 lakh crore will be provided under the scheme which will have a total investment of 10 lakh crore.
- Under PMAY-U, 1.18 crore houses have been sanctioned while more than 85.5 lakh houses have already been constructed.

What is PMAY-U?

- The Ministry of Housing and Urban Affairs (MoHUA) launched the Pradhan Mantri Awas Yojana – Urban (PMAY-U) in 2015, as a flagship Mission of the Government of India.
- Objective: It addresses urban housing shortage among the Economically Weaker Section (EWS)/Low Income Group (LIG) category including the slum dwellers by ensuring a pucca house to eligible urban households.
- Components of the scheme are as;
- In-situ Slum Redevelopment (ISSR)
- Credit Linked Subsidy Scheme (CLSS)
- Affordable Housing in Partnership (AHP)
- Beneficiary-led Individual House Construction/ Enhancement (BLC-N/ BLC-E)
- Implementation period: The scheme was earlier from 25.06.2015 to 31.03.2022. Now it has been extended up to 31.12.2024, except Credit Linked Subsidy Scheme (CLSS) vertical, to complete all the houses sanctioned under the scheme.

Status of the PMAY

- Around 83% of the houses to be constructed under PMAY-U are not meant for the urban landless poor, but rather for families having access to capital and land.
- The slum rehabilitation scheme within PMAY-U has sanctioned only 2.96 lakh homes.
- Under PMAY-G more than 2.94 crore houses have already been sanctioned to the eligible beneficiaries by the States/UTs and over 2.55 crore houses have already been completed as on 01.02.2024.
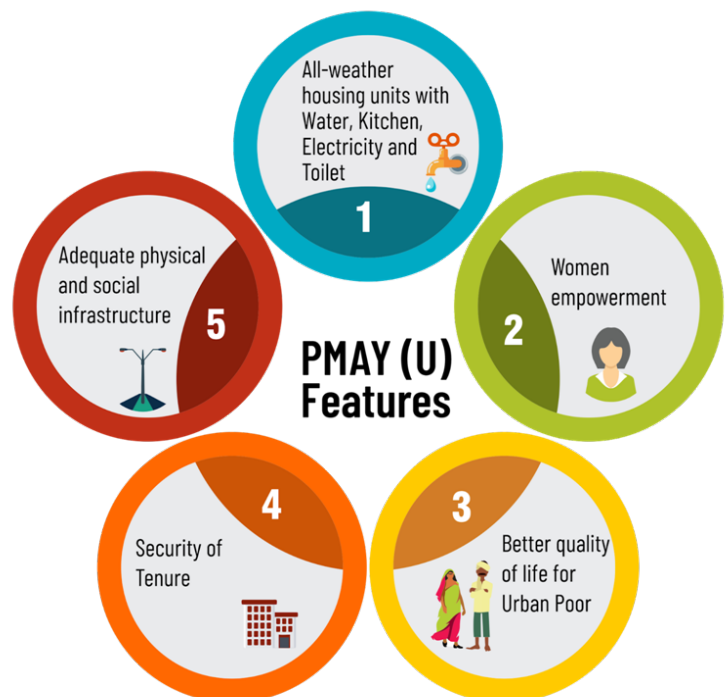
Protection of Civil Rights Act, 1955

Syllabus: GS2/Polity

Context
- Adivasis have been included as persons professing the Hindu religion in the Protection of Civil Rights Act, 1955, the government told the Parliament.
- The Minister's response comes amid the ongoing debate over whether Adivasis, or tribal people, of the country can be categorised as practising Hindus.

Protection of Civil Rights Act, 1955
- It was designed to enforce the fundamental rights guaranteed by the Constitution of India, ensuring that SCs and STs could enjoy equal treatment and opportunities.
- Prohibition of Discrimination: The Act made it illegal to discriminate against individuals based on their caste in various aspects of public life, including access to public places, employment, and educational institutions.
- Penalties: It specified penalties for individuals and entities that engaged in discriminatory practices or violations of the Act. This included fines and imprisonment for those found guilty.
- Enforcement: The Act empowered the state to take necessary steps to enforce its provisions, including the establishment of special authorities or officers to address grievances and oversee implementation.
- Amendments: Over time, the Act has been amended and supplemented by other legislation to strengthen the protection of civil rights and address emerging issues.
- The most notable among these is the Scheduled Castes and the Scheduled Tribes (Prevention of Atrocities) Act, 1989, which further strengthens provisions against discrimination and violence.

Parliamentary Session Adjourned Sine Die

Syllabus: GS2/Polity

Context
- The Lok Sabha was adjourned sine die one sitting ahead of the scheduled end of the session.

About
- The current session of Parliament was scheduled to end on August 12 but Lok Sabha Speaker Om Birla adjourned the House sine die (for an indefinite period).
- Similarly, the Rajya Sabha was also adjourned sine die.
- During this session, the Finance Bill was passed, and a bill to amend the Waqf law was introduced and referred to a joint committee amid protests.
- The productivity of the House was above 130 percent.
- There were a total of twelve government Bills that were introduced in the monsoon session and four Bills were passed.
- The bills which were passed are as follows: The Finance Bill, 2024, The Appropriation Bill, 2024, The Jammu and Kashmir Appropriation Bill, 2024; and The Bharatiya Vayuyan Vidheyak, 2024.
- Parliament holds three Sessions in a year:
- Budget Session—February-May;
- Monsoon Session—July-September; and
- Winter Session—November-December.

No-confidence Motion Against Vice-President

Syllabus :GS 2/Polity and Governance

In News
- 50 Opposition MPs have signed a resolution for a no-confidence motion against Vice-President Jagdeep Dhankhar
- The Opposition accuses the Chairman of making personal remarks against members, violating Rule 238(2) of the Rajya Sabha, which prohibits personal charges against members.

About

- Constitutional Basis: The resolution is being pursued under Article 67(B) of the Indian Constitution.
- Article 67(B) of the Indian Constitution allows the removal of the Vice-President by a Rajya Sabha resolution passed by an effective majority, and agreed upon by the Lok Sabha with a simple majority.
- Article 67(B) requires at least fourteen days' notice before moving the resolution.
- Historical Significance : If successful, this motion will be a historic first in Indian parliamentary history.
- The no-confidence motion against a sitting Vice President represents an extraordinary step, reflecting the depth of the current political discord.
- Historically, such motions have been rare and usually pertain to the Prime Minister or other high-ranking officials.

About No-confidence motion

- It is a parliamentary motion that signifies that the elected government no longer has the confidence of the majority of the members of the Lok Sabha, the lower house of India's Parliament.
- The primary purpose of a no-confidence motion is to test the strength and stability of the ruling government.
- If the motion is passed, it indicates that the government has lost the support of the majority and must resign.
- They have been a part of India's parliamentary history since independence.
- They serve as a crucial mechanism for ensuring accountability and transparency in governance1.
- Procedure: Any member of the Lok Sabha can introduce a no-confidence motion. It requires the support of at least 50 members to be admitted for discussion

Chapter-

3

GEOGRAPHY

Cyclone Asna

Context

- As per the India Meteorological Department (IMD) Cyclone Asna has formed over the Kutch coast in Gujarat and adjoining areas of Pakistan.

About

- This is the first cyclonic storm in the Arabian Sea in August since 1976.
- The name Asna, which means "the one to be acknowledged or praised", has been given by Pakistan.
- Between 1891 and 2023, only three cyclonic storms formed in the Arabian Sea in August (in 1976, 1964, and 1944).

What are Cyclones?

- The word Cyclone is derived from the Greek word Cyclos meaning the coils of a snake. It was coined by Henry Peddington because the tropical storms in the Bay of Bengal and the Arabian Sea appear like coiled serpents of the sea.
- Cyclones are caused by atmospheric disturbances around a low-pressure area distinguished by swift and often destructive air circulation. The air circulates inward in an anticlockwise direction in the Northern hemisphere and clockwise in the Southern hemisphere.
- Worldwide terminology: Cyclones are given many names in different regions of the world:
- They are known as typhoons in the China Sea and Pacific Ocean; hurricanes in the West Indian islands in the Caribbean Sea and Atlantic Ocean; tornados in the Guinea lands of West Africa and southern USA.; willy-willies in north-western Australia and tropical cyclones in the Indian Ocean.

How a Cyclone is formed?

- Conditions: Cyclones typically form over warm ocean waters, the warmth provides the necessary heat and moisture to fuel the cyclone.
- Warm water causes the ocean to evaporate, creating warm, moist air. This moist air rises from the ocean surface, leading to a decrease in air pressure at the surface.
- Formation of a Low-Pressure System: When the air rises up and away from the ocean surface, it creates an area of lower air pressure below.
- It causes the air from surrounding areas with higher pressure to move towards the low-pressure area which further leads to warming up of the air and causes it to rise above.
- Cyclonic Circulation: The rotation of the Earth (Coriolis effect) causes the rising air to start spinning around the low-pressure center. This spinning motion leads to the development of cyclonic circulation.
- As the wind system rotates with increasing speed, an eye gets formed in the middle.
- The centre of a cyclone is very calm and clear with very low air pressure. The difference of temperature between the warm, rising and the cooler environment causes the air to rise and become buoyant.
- Dissipation: A cyclone will eventually weaken and dissipate when it moves over cooler waters, encounters dry air, or interacts with land, which disrupts the system's supply of warm, moist air.

Nomenclature

- The names are maintained and updated by an international committee of the World Meteorological Organization.
- Cyclones in the North Indian Ocean region are named by the regional specialized meteorological centers (RSMCs) in India, Bangladesh, Myanmar, Oman, Pakistan, and Sri Lanka.
- Each country contributes names to a list used on a rotating basis.

- The primary reason for naming cyclones is to make communication easier and more efficient.
- Names help in distinguishing between multiple storms occurring at the same time and make warnings more understandable for the public.

> **India Meteorological Department (IMD)**
> – It was established in 1875.
> – It is the principal government agency in all matters relating to meteorology and allied subjects.
> – It is under the Ministry of Earth Sciences (MoES).

India's Weather Forecasting Needs an Upgrade

Syllabus: GS1/ Geography

Context

- The recent extreme weather events have put the focus back on the country's weather prediction capabilities and ways to improve them.

Weather Prediction in India

- India, at present, depends on satellite data and computer models for weather prediction. The Indian Meteorological Department (IMD) uses the INSAT series of satellites and supercomputers.
- In India three satellites, INSAT-3D, INSAT-3DR and INSAT-3DS are used mainly for meteorological observations.
- Forecasters use satellite data around cloud motion, cloud top temperature, and water vapor content that help in rainfall estimation, weather forecasting, and tracking cyclones.

Initiatives taken to improve the efficiency

- The 'National Monsoon Mission' was set out in 2012 to move the nation over to a system that relies more on real-time, on-the-ground data gathering.
- The IMD is also increasingly using Doppler radars to improve efficiency in predictions. The number of Doppler radars has increased from 15 in 2013 to 37 in 2023.
- Doppler radars are used to predict rainfall in the immediate vicinity, making predictions more timely and accurate.
- The weather agency is now using manned and automatic weather stations, aircraft, ships, weather balloons, ocean buoys and satellites to gather information on atmospheric temperature, pressure humidity, wind speed and direction and sea surface temperatures.
- The data is then fed into a supercomputer at the Indian Institute of Tropical Meteorology in Pune.
- The Ministry of Agriculture & Farmers Welfare have initiated the weather information network and data system (WINDS) under which more than 200,000 ground stations will be installed, to generate long-term, hyper-local weather data.

Challenges

- Lack of weather monitoring ground stations: Currently, IMD operates around 800 automatic weather stations (AWS), 1,500 automatic rain gauges (ARG) and 37 doppler weather radars (DWR).
- This is against the total requirements of more than 3,00,000 ground stations (AWS/ARG) and around 70 DWRs.
- Lack of coordination: Several Indian State governments and private companies operate a significant network of ground stations (more than 20,000), many of which are not currently used by IMD due to inaccessibility and/or reliability of the data.
- Extreme Weather Events: Events, such as extreme rainfall, landslides, and cloudbursts, have become more frequent due to climate change. These events are highly localized and erratic, making them difficult to predict with existing weather simulation models.
- Outdated Prediction Models: Currently, most of the prediction software used in forecasting are based on the global forecasting system and weather research and forecasting models, both of which are not the most modern.
- Forecasting weather in the tropics is more challenging than in areas that are farther from the equator, because of greater variability in weather phenomena.

- Predicting large-scale systems like monsoons, cyclones, or heat waves is easier due to their widespread nature. However localized events like cloudbursts and sudden, unexpected weather phenomena are much harder to forecast accurately
- Need for precision: IMD currently has the ability to forecast weather events over a 12 km x 12 km area. This grid is larger than most Indian cities.
- For hyper-local forecasts there is a need for 1 km x 1 km forecast.

Way Ahead

- Predicting weather events with a high level of accuracy has become increasingly important in India, one of the most vulnerable nations to climate change.
- There is an urgent need for an integrated system to fill the data gaps. New ground stations will have to be installed and the available data have to be shared seamlessly.
- Also the focus should be on greater integration of artificial intelligence and machine learning (AI/ML) in weather forecasting to get more accurate results.

> **Indian Meteorological Department (IMD)**
> – IMD is an agency of the Ministry of Earth Sciences.
> – It is the principal agency responsible for meteorological observations, weather forecasting and seismology.
> – It is also one of the six Regional Specialized Meteorological Centres of the World Meteorological Organisation (WMO).

A23 'spinning'

Syllabus: GS1/Geography

Context

- A23, the world's largest iceberg, is stuck in a vortex over a seamount.

About

- The iceberg is spinning near the South Orkney Islands, about 375 miles northeast of the Antarctic Peninsula.
- A23 was one of three icebergs that broke off, or calved, from the Filchner Ice Shelf in 1986.
- At the time of the calving, A23 was home to a Soviet Union research center and researchers eventually had to abandon the base.

Antarctica

- Antarctica, the world's southernmost and fifth largest continent. Its landmass is almost wholly covered by a vast ice sheet.
- The continental contains about 90 percent of the world's ice and 80 percent of its fresh water.
- Ice shelves, or ice sheets floating on the sea, cover many parts of the Ross and Weddell seas.
- These shelves—the Ross Ice Shelf and the Filchner-Ronne Ice Shelf—together with other shelves around the continental margins, fringe about 45 percent of Antarctica.
- An ice shelf is a huge sheet of ice, connected to land but extending out into the ocean.
- Ice shelves develop mainly from glaciers flowing slowly downhill toward the ocean.
- "Upstream," the ice shelf rests on land, but "downstream," the ice shelf extends out onto and into the ocean, mostly below sea level.

Mount Kilimanjaro

In News

- An expedition team from the Ministry of Defence, led by 'Divyang' Uday Kumar, made history by hoisting the largest Indian flag atop Mount Kilimanjaro.

About Mount Kilimanjaro

- It is a dormant volcano situated in Tanzania, East Africa.
- It holds the title of the highest peak (5,895 meters) in Africa.
- The mountain is also the world's tallest freestanding mountain, meaning it is not part of a mountain range.

- Kilimanjaro is composed of three distinct volcanic cones: Shira, Kibo, and Mawenzi. Kibo is the highest and houses the summit, Uhuru Peak.
- It is a part of UNESCO's World Heritage Site 'Kilimanjaro National Park'.

Nankai Trough

Context

- Recently, Japan issued its first-ever 'megaquake advisory' of strong shaking and large tsunamis on the Nankai Trough, a subduction zone.

About the Nankai Trough

- It is an underwater subduction zone, is characterised by subduction of multiple geological units of the Philippine Sea Plate (the Kyushu-Palau Ridge, the Shikoku Basin, the Kinan Seamount Chain, and the Izu-Bonin Arc) beneath the Eurasian Plate in the southwest of Japan.
- It accumulates tectonic stress which can cause a megaquake — an earthquake with a magnitude larger than 8.
- It sits between Suruga Bay, in central Japan, and the Hyuganada Sea in Kyushu to the south.
- Nankai Trough has a history of producing such megaquakes roughly every 100 to 150 years. They often come in pairs.
- The second quake, following the first, tends to rupture within the subsequent two years. The last 'twin' earthquakes occurred back in 1944 and 1946.
- Japan is a country used to earthquakes. It sits on the Ring of Fire and, as a result, experiences about 1,500 earthquakes a year.

International Day of the World's Indigenous Peoples

Context

- The International Day of the World's Indigenous Peoples is observed on August 9 every year.

About

- The day aws chosen in recognition of the first meeting of the UN Working Group on Indigenous Populations held in Geneva in 1982.
- The day recognises the unique cultures, languages, and traditions of Indigenous peoples, as well as their contributions to global diversity and sustainable development.
- Moreover, the day serves as a call to action for governments, organizations, and individuals to uphold the rights of indigenous peoples, promote their empowerment, and work towards achieving justice, equality, and reconciliation.

About the Indigenous Peoples

- Indigenous Peoples are inheritors and practitioners of unique cultures and ways of relating to people and the environment.
- They reside in remote forests rich in natural resources in Bolivia, Brazil, Colombia, Ecuador, India, Indonesia, Papua New Guinea, Peru and Venezuela.
- There are an estimated 476 million Indigenous Peoples in the world living across 90 countries. They make up less than 6 percent of the world's population, but account for at least 15 percent of the poorest.

Pyrocumulonimbus Clouds

Syllabus :GS 1/Geography

In News

- Wildfires in the U.S. and Canada have become so intense that they are generating 'pyrocumulonimbus' clouds, which can produce thunderstorms and ignite additional fires.

Pyrocumulonimbus Clouds

- They are formed from extremely hot wildfires or volcanic eruptions.
- Rising global temperatures may lead to more intense and frequent wildfires, which could increase the occurrence of pyrocumulonimbus clouds.
- Process: Intense heat from the fire warms surrounding air, which then rises, expands, and cools. Water vapour condenses on ash to form a pyrocumulus cloud.
- With enough water vapor and intense upward movement, these clouds can develop into pyrocumulonimbus clouds, reaching up to 50,000 feet and creating their own thunderstorms.
- Impact: They can produce lighting, they do not generate much rain.
- They can spark new wildfires far from the main blaze and trigger strong winds that spread fires quickly.
- Data: Before 2023, about 102 pyrocumulonimbus clouds were recorded globally per year, with 50 in Canada.
- In 2023, 140 pyrocumulonimbus clouds were recorded in Canada alone.
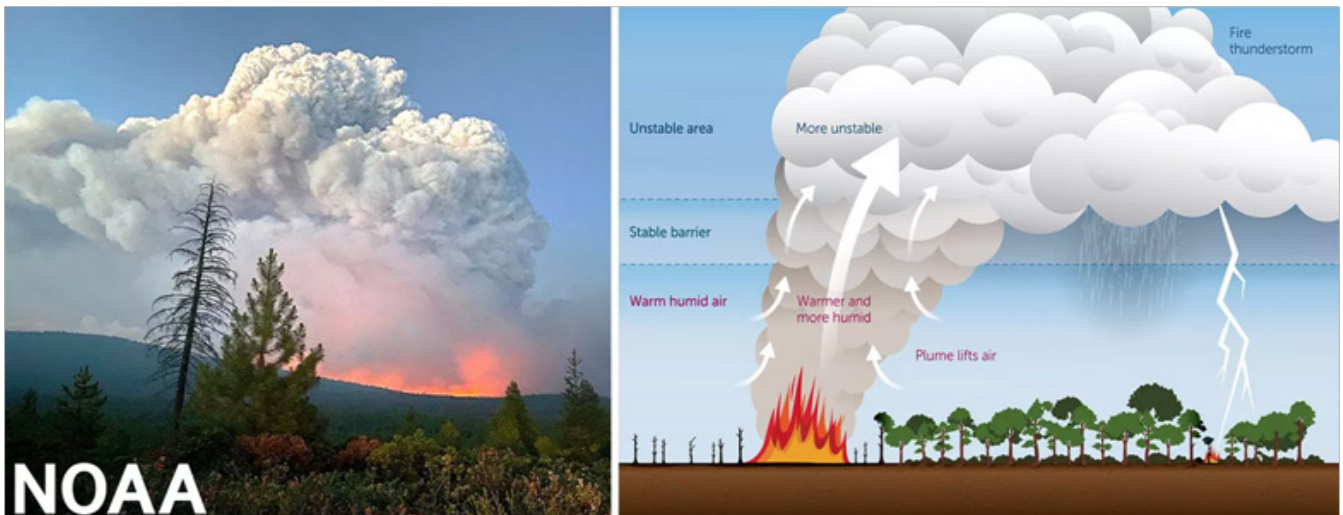
Flying Rivers

Syllabus: GS1/Geography

Context

- The warming of the Indian Ocean is giving rise to flying or atmospheric rivers which are causing devastating floods in India

About

- Flying Rivers are the storms that travel as huge, invisible ribbons of water vapor and dump heavy rains.
- An average atmospheric river is about 2,000 km long, 500 km wide and nearly 3 km deep.
- These "rivers in the sky" carry some 90% of the total water vapor that moves across the Earth's mid-latitudes.
- The water vapor forms a band or a column in the lower part of the atmosphere which moves from the tropics to the cooler latitudes and comes down as rain or snow, devastating enough to cause floods or deadly avalanches.

What are atmospheric rivers?
Long columns of water vapour travel thousands of miles and dump heavy rains
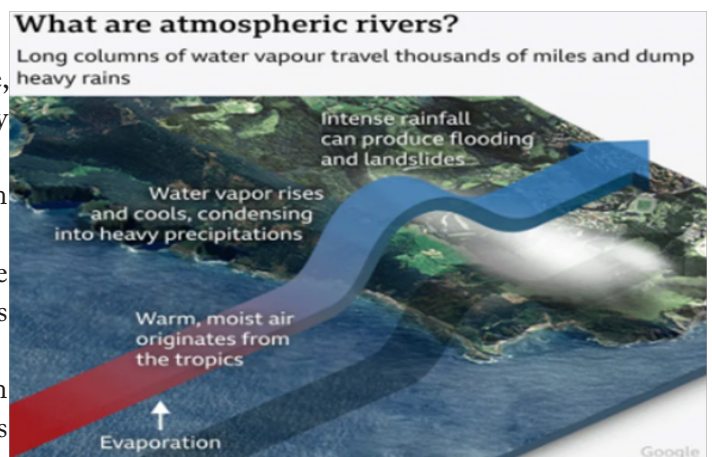
- As the earth warms up faster, scientists say these atmospheric rivers have become longer, wider and more intense, putting hundreds of millions of people worldwide at risk from flooding.

La Niña

Syllabus: GS1/ Geography

Context

- The Indian National Centre for Ocean Information Services (INCOIS) has revised the outlook for the probability of 'La Nina' weather conditions in the Pacific Ocean.

About

- The development of La Niña is said to be high in September to January (50-70%) with a possibility to peak in November (70%).

What is La Nina?

- La Niña is the opposite of El Niño. La Niña witnesses cooler than average sea surface temperature (SST) in the equatorial Pacific region.
- Trade winds are stronger than usual, pushing warmer water towards Asia.
- Impact: This leads to drier conditions in the Southern U.S., and heavy rainfall in Canada. It has also been associated with heavy floods in Australia.

How does it affect the Indian Monsoon?

- In El Niño years, India faces warmer temperatures and less rainfall, causing droughts in some regions.
- This affects agriculture, water resources, and ecosystems.
- The El Nino phenomenon led to 1.4% decrease in food grain production for the 2023-24 (July-June) crop year.
- La Niña brings cooler sea surface temperatures, leading to increased rainfall in certain parts of India.

ENVIRONMENT

Biological Diversity (Amendment) Act, 2023

Syllabus: GS3/ Environment

Context

- The 2023 amendments to India's Biological Diversity Act of 2002 has caused a debate concerning biodiversity protection and India's responsibilities as a signatory to the Kunming-Montreal framework.

Background

- In 2022, at the United Nations Biodiversity Conference, countries all over the world adopted the Kunming-Montreal framework to enhance biodiversity protection and conservation.
- The countries adopted calls to protect 30 percent of all ecosystems by 2030, to protect biodiversity and genetic diversity and ensure fair and equitable sharing of benefits of traditional knowledge with the local and indigenous communities that steward this knowledge.

Amendments under scrutiny

- Under the original 2002 Act, approvals from the National Biodiversity Authority (NBA) were required before applying for intellectual property rights (IPR) related to biological resources.
- The 2023 amendments have eased this requirement, no longer mandating approval from the National Biodiversity Authority for IPR, but only requiring them to be registered with the authority before granting approvals – raising concerns about possible resource overexploitation.
- The exemption of codified traditional knowledge from the benefit-sharing mechanism and stringent regulatory oversight has also raised further concerns.
- These changes undermine the principle of fair and equitable benefit-sharing, which is central to both the original Act and Nagoya Protocol.
- By allowing AYUSH practitioners and related industries to access biological resources without prior approval, the amendments open the door to commercial exploitation without adequate compensation to local communities that hold traditional knowledge.
- Decriminalization of offenses: Previously, violations could result in imprisonment and fines, however the amendments now replace imprisonment with civil penalties.

Nagoya Protocol

– The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS) is a supplementary agreement to the Convention on Biological Diversity (CBD).
– It provides a transparent legal framework for the effective implementation of one of the three objectives of the CBD: the fair and equitable sharing of benefits arising out of the utilization of genetic resources.
– It was adopted in 2010 in Nagoya, Japan and entered into force in 2014.

What are the Concerns?

- The amendments could lead to false claims about the cultivation of bio-resources and potential manipulation by businesses.
- It is argued that without stringent oversight, there could be widespread misuse and exploitation of local resources, adversely affecting both biodiversity and the livelihoods of local communities dependent on these resources.
- In the North East, where traditional knowledge about medicinal plants and ecological management is profound, this change could exacerbate existing socio-economic disparities and contribute to cultural erosion.

Strengthening monitoring systems

- The amendments strengthen the role of Biodiversity Management Committees (BMCs) by clarifying their functions and mandating their establishment in rural and urban areas.
- The new provisions also place a stronger emphasis on monitoring biological resources derived from foreign countries, ensuring compliance with international agreements like the Nagoya Protocol.

Way Ahead

- It is crucial that the regulatory changes are implemented with strong safeguards, robust monitoring, and active involvement of local communities to ensure that biodiversity conservation and sustainable development go hand in hand.
- Balancing economic development with conservation and equitable benefit-sharing will be essential to safeguard India's rich biological heritage for future generations.

Biological Diversity Act, 2002

– The Act was introduced to achieve the objectives of United Nations Convention on Biological Diversity (CBD), 1992.

– It provides a framework for access to biological resources and sharing the benefits arising out of such access and use. It is in line with the Nagoya Protocol on Access and Benefit Sharing.

– The act envisaged a three-tier structure to regulate the access to biological resources: The National Biodiversity Authority (NBA), The State Biodiversity Boards (SBBs) and The Biodiversity Management Committees (BMCs).

– The National Biodiversity Authority (NBA)

a. It is a Statutory Body established in 2003 to implement India's Biological Diversity Act (2002).

b. It advises the Central Government on matters relating to the conservation of biodiversity, sustainable use of its components and equitable sharing of benefits arising out of the utilization of biological resources.

c. It also advises the State Governments in the selection of areas of biodiversity importance to be notified as heritage sites and measures for the management of such heritage sites.

d. It considers requests by granting approval or otherwise for undertaking any activity referred to in Sections 3,4 and 6 of the Act.

– The State Biodiversity Boards (SBBs)

a. They are established under Section 22 of the Act and focus on advising the State Governments, subject to any guidelines issued by the Central Government, on matters relating to the conservation of biodiversity.

b. The SBBs also regulate, by granting of approvals or otherwise upon requests for commercial utilization or bio-survey and bio-utilization of any biological resource by the Indians.

– The Biodiversity Management Committees (BMCs)

a. As per the Act, the local bodies constitute the BMC within their area of jurisdiction for the purpose of promoting conservation, sustainable use and documentation of biological diversity.

State of India's Environment

Syllabus: GS3/Environment

Context

- Recently, the Centre for Science and Environment (CSE) released the State of India's Environment In Figures for 2024.

About the India's Climate Trends in 2023 and 2024

- Second-Hottest Year: India experienced its second-hottest year on record in 2023.
- Record-Breaking Temperatures: At least 102 weather stations across the country shattered their monthly highest 24-hour maximum temperature in 122 years.
- Ten of these stations were in million-plus cities.
- Twenty-seven of the weather stations with record-breaking temperatures were in Andhra Pradesh, Kerala, and Tamil Nadu.
- The country recorded its hottest minimum temperature in 122 years during 2023.
- Minimum Temperatures: Except for October, minimum temperatures remained above normal in the other five months.

- Anomalies increased from 0.57°C in July to 1.71°C in December.
- December saw the highest minimum temperature anomaly in 122 years (1.71°C above normal).
- Consistent Warmth: The average minimum temperature in the southern peninsular region remained above normal during all four months.
- The region consistently experienced its second-highest minimum temperature in 122 years.
- New Normal for Minimum Temperatures: The trend suggests a new normal for minimum temperatures, indicating warmer nights.
- The rising maximum temperature and record-breaking temperatures reported from Delhi and other states are concerning.
- The ongoing trend for minimum temperatures highlights the shift toward warmer nights.

Global Soil Partnership (GSP)

Syllabus: GS3/Environment

Context

- The Global Soil Partnership (GSP), urged for immediate action to enhance soil health, in its 12th Plenary Assembly Hosted by the Food and Agriculture Organization (FAO).

About

- The Global Soil Partnership (GSP) was established in 2012 to promote sustainable soil management.
- It brings together international, regional and national organizations that are working in the area of soil protection and sustainable management.
- GSP aims to implement the provisions of the 1982 World Soil Charter, and maintain the health of at least 50 percent of the world's soils by 2030.
- The achievements of the partnership, include:
- The establishment of an Intergovernmental Technical Panel on Soils and related international networks for different soil matters;
- The proposal for and annual celebration of UN World Soil Day (5 December) and the International Year of Soils 2015;
- Production of the Status of the World's Soil Resources 2015 report.

New Ramsar Sites: Nagi and Nakti Wetlands

Syllabus: GS3/Environment

Context

- Recently, the Nagi and Nakti Bird Sanctuaries of Bihar, have been recognised as wetlands of international importance under the Ramsar Convention.

About the Nagi and Nakti Wetlands

- These man-made wetlands are located in the Jamui district of Bihar, nestled in the Jhajha forest range.
- These are designated as bird sanctuaries in 1984 for their importance as wintering habitats for several migratory species.
- Over 20,000 birds congregate here during the winter months, including one of the largest congregations of red-crested pochard (Netta rufina) on the Indo-Gangetic plain.
- The Nagi Bird Sanctuary hosts one of the largest congregations of bar-headed geese (Anser Indicus) on the Indo-Gangetic plain.
- The wetlands and their fringes provide habitat for over 75 bird species, 33 fish, and 12 aquatic plants, and support globally threatened species, including the endangered Indian elephant (Elephas Maximus Indicus) and a vulnerable native catfish (Wallago Attu).

Recognition under the Ramsar Convention

– The Ramsar Convention (adopted in 1971 in the Iranian city of Ramsar) is an international treaty aimed at conserving wetlands.

– It provides a framework for the conservation and wise use of wetlands and their resources across its 172-member countries including India.

– Currently, the highest number of such sites is in the UK (175) followed by Mexico (144).

a. It places India joint third with China in terms of the number of such 'Ramsar Sites'.

b. With the inclusion of Nagi and Nakti Bird Sanctuaries, the total number of such wetlands in India has risen to 82.

Do You Know?

– These wetlands were originally developed for irrigation through the construction of the Nakti Dam, and have since transformed into a thriving habitat for a wide variety of flora and fauna.

– The Nagi Bird Sanctuary was created following the damming of the Nagi River, which enabled the gradual formation of water bodies with clear water and aquatic vegetation.

'Air of the Anthropocene' Initiative

Syllabus: GS3/Environment

Context

- Recently, researchers and artists joined forces for a so-called 'painting with light' international project to make invisible air pollution in India visible, demonstrating the health risks posed to the population.

About the 'Air of the Anthropocene' Initiative

- Created by artist Robin Price and an environmental scientist at the University of Birmingham to document air pollution levels around the world through photography.
- It employs a unique method known as 'light painting' to make the invisible visible.
- By using digital light painting techniques and low-cost air pollution sensors, researchers and artists have collaborated to produce photographic evidence of pollution levels.
- It has been successful in capturing pollution levels in cities across three countries – India, Ethiopia, and the UK.
- Particulate matter (PM), including PM10 and PM2.5, is a key focus of the project, with PM concentrations measured in real-time using sensors and visualized through a moving LED array.

IUCN Chief urges to Strive for High Seas Biodiversity Treaty

Syllabus :GS 3/Environment

In Context

- The director general of the International Union for Conservation of Nature (IUCN), urged countries worldwide "to strive for a fully functional High Seas Biodiversity Treaty" on World Oceans Day 2024 (8th June).

Do you know ?

– High seas are defined by international law as all parts of the ocean that aren't included in the exclusive economic zone, the territorial sea, or the internal waters of a country, or in the archipelagic waters of an archipelagic country.
– This essentially means that the high seas and associated resources are not directly owned or regulated by any country.

About the Treaty

- In June 2023, the United Nations agreement on biodiversity beyond national jurisdiction or BBNJ Agreement, also known as the High Seas Treaty, was formally adopted by governments.
- It offers an updated framework to The UN Convention on the Law of the Sea that came into force in 1994.
- It establishes a funding mechanism and sets up institutional arrangements, including a Conference of the Parties and various subsidiary bodies.
- Members : According to the Alliance, 90 countries have signed the treaty, including India's neighbours Nepal and Bangladesh.
- India has neither signed nor ratified the treaty.
- However, only seven countries — Belize, Chile, Mauritius, Federated States of Micronesia, Monaco, Palau and the Seychelles — have ratified the treaty.
- This treaty focuses on four main areas:
- Marine genetic resources, including the fair and equitable sharing of benefits;
- Measures such as area-based management tools, including marine protected areas;
- Environmental impact assessments; and
- Capacity-building and the transfer of marine technology.
- Implementation status : It is open for signature by all States and regional economic integration organisations from 20 September 2023 to 20 September 2025, and will enter into force 120 days after the date of deposit of the sixtieth instrument of ratification, approval, acceptance or accession.

Key Provisions:

- Area-Based Management Tools (ABMTs): Creation of marine protected areas (MPAs) and other area-based measures to conserve biodiversity hotspots and vulnerable ecosystems.
- Environmental Impact Assessments (EIAs): Mandatory EIAs for activities in the high seas to assess and mitigate potential environmental harm.
- Marine Genetic Resources (MGRs): Establishing rules for the access, sharing, and benefit-sharing of MGRs, including the potential for monetary and non-monetary benefits to be shared with developing countries.
- Capacity Building and Technology Transfer: Provisions to assist developing countries in building their capacity to participate in high seas conservation and to access relevant technologies.

Challenges and Concerns

- Implementation: Turning the treaty's provisions into effective action on the ground will be a major challenge. The treaty is the result of more than 20 years of protracted negotiations. The details of all the major contentious provisions, including environmental impact assessments, sharing of benefits from genetic resources, and mobilisation of funds for conservation activities, are still to be worked out.
- Compliance: Ensuring that all countries adhere to the treaty's rules and regulations will be crucial.
- Financing: Securing adequate financial resources for capacity building and technology transfer is a key concern for developing countries.

- Many issues remain unaddressed, including the mechanisms for policing the protected areas, the fate of the projects that are assessed to be heavily polluting, and the resolution of disputes.

Significance

- Global Governance: Fills a major gap in international ocean governance.
- Biodiversity Conservation: Protects marine life in vast areas that are critical for the planet's health.
- Sustainable Development: Promotes sustainable use of marine resources, balancing conservation with economic interests.
- Equity: Addresses concerns of developing countries regarding access and benefit-sharing of marine resources.

Why the High Seas Treaty is Important for India?

- Marine Biodiversity: India has a long coastline and relies on marine resources for food security and livelihoods. The treaty helps protect the biodiversity of the high seas, which is connected to India's own marine ecosystems.
- Blue Economy: The treaty can facilitate India's participation in the emerging blue economy, which includes activities like deep-sea mining and bioprospecting.
- Global Leadership: India can play a significant role in shaping the implementation of the treaty and promoting sustainable ocean governance.

Conclusion and Way Forward

- The treaty has the potential to contribute to the conservation and sustainable use of marine biodiversity by playing a coordinating role and strengthening, enhancing and promoting cooperation among existing legal instruments and frameworks and relevant global, regional, subregional and sectoral bodies.
- This will help maintain its potential to provide for current and future generations.
- Therefore All signing nations should be supported in the ratification process to bring this treaty into force, moving almost half of the planet's surface into better regulation through international law.
- the number of ratifying countries for the global agreement on unsustainable fisheries' practices and subsidies should increase, so that the world's fish stocks are not overexploited.

About UNCLOS(United Nations Convention for the Law of the Sea)

– UNCLOS, adopted in 1982 and effective since 1994, is a comprehensive international treaty that sets the legal framework for all activities in the oceans and seas. It replaced the older, less comprehensive quad-treaty from 1958. India became a party to UNCLOS in 1995.

Key Features:

– Marine Zones: UNCLOS divides marine areas into five main zones, each with varying degrees of national control and rights:
a. Internal Waters: Fully under national sovereignty, like land territory.
b. Territorial Sea: Extends 12 nautical miles from the baseline (coast). Coastal states have sovereignty but must allow "innocent passage" of foreign ships.
c. Contiguous Zone: Extends 24 nautical miles from the baseline. States have limited control to prevent or punish infringements of customs, fiscal, immigration, or sanitary laws.
d. Exclusive Economic Zone (EEZ): Extends 200 nautical miles from the baseline. Coastal states have sovereign rights over resources (fisheries, oil, gas, etc.) and certain economic activities.
e. Continental Shelf: Can extend beyond 200 nautical miles if the seabed is a natural prolongation of the land territory. Coastal states have rights over non-living resources (minerals, etc.) of the shelf.
f. High Seas (ABNJ): Areas beyond national jurisdiction. Open to all states, but subject to UNCLOS rules on freedom of navigation, overflight, fishing, etc.

Wild Boars

Syllabus: GS3/ Species in News

In News

- Kerala faces a growing wild boar menace, with the animals destroying crops, attacking farmers, and causing road accidents.

Problem caused by Wild Boars

- This poses a significant threat to the state's food security and agricultural sector.
- The man-animal conflict has claimed 990 lives and injured 7,500 people since 2016. The state government provides financial assistance.

About Wild Boars

- Scientific Name : S. scrofa
- It has by far the largest range of all pigs.
- It is sometimes called the European wild boar.
- The animals are swift, nocturnal, and omnivorous and are good swimmers.
- They possess sharp tusks, and, although they are normally unaggressive, they can be dangerous.
- Habitat and Distribution : It occupies a wide variety of temperate and tropical habitats, from semi-desert to tropical rainforests, temperate woodlands, grasslands and reed jungles; often venturing onto agricultural land to forage. It is found in a variety of habitats.
- It is the largest of the wild pigs and is native to forests ranging from western and northern Europe and North Africa to India, the Andaman Islands, and China.
- IUCN Status: Least Concern.

Way Ahead

- Exploring additional measures like building moats, erecting power fences, and ensuring fodder and water availability deep inside forests to prevent wildlife from venturing near human habitats. Kerala has also declared human-wildlife conflict a state-specific disaster.

Lack of Geo-conservation India

Syllabus: GS3/Biodiversity and Conservation

Context

- Despite international progress in the field of geo-conservation India has not formulated any mechanism for geo-conservation.
- The Geological Survey of India (GSI) has notified 34 geological monuments, it lacks the regulatory powers to implement the preservation measures.

What is Geo-conservation?

- Geo-conservation refers to the efforts and practices aimed at preserving and protecting geological features, processes, and sites of scientific, cultural, educational, or aesthetic value.
- It involves the conservation and management of geological diversity, similar to how biodiversity conservation aims to protect different species and ecosystems.

Need for Geo-conservation in India?

- Rich Geological Diversity: India is geologically diverse, with a wide range of geological formations, landscapes, and mineral resources.
- Protecting these resources ensures the preservation of unique geological features that contribute to scientific research, education, and understanding of Earth's history.
- Cultural and Historical Significance: Many geological sites in India hold cultural and historical significance.
- For example, the fossil beds in the Siwalik Hills have provided important insights into India's prehistoric past. Protecting such sites helps preserve cultural heritage and indigenous knowledge related to geology.
- Natural Hazards Management: Understanding geological processes and landscapes is crucial for managing natural hazards such as earthquakes, landslides, and floods.
- Tourism and Recreation: India's geological diversity attracts tourists interested in exploring unique landscapes, rock formations, caves, and mineralogical sites.
- Environmental Sustainability: Many geological resources, such as groundwater and minerals, are essential for sustainable development.
- Geo-conservation promotes responsible management of these resources to ensure their availability for future generations.

Geo-heritage Sites

- Geo-heritage sites are educational spaces where people acquire much needed geological literacy.
- The importance of the shared geological heritage of our planet was first recognised in 1991 at a UNESCO-sponsored event, 'First International Symposium on the Conservation of our Geological Heritage'.
- Geo-heritage sites in many countries such as Canada, China, Spain, the United States and the United Kingdom have been developed as national parks.
- Today, there are 169 Global Geoparks across 44 countries. Thailand and Vietnam have also implemented laws to conserve their geological and natural heritage.
- Though a signatory, India has no such legislation or policy for geo-heritage conservation.

Attempts by Government to Conserve Geo-heritage sites

- In 2009, there was a attempt to constitute a National Commission for Heritage Sites through a Bill introduced in the Rajya Sabha.
- Though it was eventually referred to the Standing Committee, the government backtracked on it for some unstated reasons and the Bill was withdrawn.
- The Bill was meant to constitute a national commission to implement the stipulations of the UNESCO World Heritage Convention 1972 and to create a national roster of heritage sites.
- More recently, in 2022, the Ministry of Mines has prepared a draft Bill for preservation and maintenance, but no further progress on this has been heard.

Way Ahead

- India needs the following at the earliest:
- create an inventory of all prospective geo-sites in the country (in addition to the 34 sites identified by the GSI);
- frame geo-conservation legislation for the country along the lines of the Biological Diversity Act 2002;
- and, have a 'National Geo-Conservation Authority' along the lines of the National Biodiversity Authority, with independent observers, ensuring that the establishment will not encroach on the autonomy of researchers.
- By conserving geological sites and resources, India can better manage its natural environment and contribute to global efforts towards environmental sustainability.

Premature Deaths Related to PM2.5 Exposure

Syllabus: GS3/Environmental Pollution

Context

- A new study (published in Journal Environment International) has found that the fine Particulate Matter (PM 2.5) led to 135 million premature deaths worldwide between 1980 and 2020.

Particulate Matters

- It is a term for a mixture of solid particles and liquid droplets found in the air that comes in many sizes and shapes and can be made up of hundreds of different chemicals.
- Some particles, known as primary particles, are emitted directly from a source, such as construction sites, unpaved roads, fields, smokestacks or fires.
- Others form in complicated reactions in the atmosphere of chemicals such as sulphur dioxides and nitrogen oxides that are emitted from power plants, industries and automobiles.

Size of Particulate Matters

- Particles that are 10 micrometres in diameter or smaller because those are the particles that generally pass through the throat and nose and enter the lungs.
- The size of particles is directly linked to their potential for causing health problems.
- PM10: inhalable particles, with diameters that are generally 10 micrometres and smaller.
- PM2.5: fine inhalable particles, with diameters that are generally 2.5 micrometres and smaller.

PM2.5 and Health Impacts

- When inhaled, Particulate Matters can cause a wide range of respiratory disorders. Continuous exposure to these can cause asthma, chronic obstructive pulmonary disease and any type of bronchitis.
- Particulate matter can penetrate deep inside the lungs and damage it.
- Any bacteria or virus can now attack the lungs and this could even lead to serious life-threatening infections.
- Particulate Matter can also cause chest tightening, watery eyes, sneezing, and running nose.

Breakdown of Premature Deaths

- From 1980 to 2020, a third of premature deaths were associated with stroke (33.3%), another third with ischemic heart disease (32.7%) and the remaining deaths were due to chronic obstructive pulmonary disease, lower respiratory infections and lung cancer.

> **Do You Know?**
>
> According to the WHO, almost 3.7 million premature deaths annually are attributed to outdoor air pollution. About 80% of those deaths are due to heart disease and stroke, while another 20% are from respiratory illnesses and cancers related to exposure to PM2.5.

Geographical Disparity in Air Pollution-Related Deaths

- Asia is the most affected region, withan estimated 98.1 million premature deaths attributed to PM2.5 pollution between 1980 and 2020.
- China and India led with 49 million and 26.1 million deaths, respectively.
- Other South Asian nations like Pakistan, Bangladesh, Indonesia and Japan also suffered significant losses due to PM2.5 exposure.

Indian Scenario

- India, with 18% of the world's population, has a disproportionately high 26% of the global premature deaths and disease burden due to air pollution.
- More than 23 lakh people died prematurely due to pollution in India in 2019.
- Of them, 73% of deaths occurred due to air pollution, the largest number of such deaths globally.
- In Delhi, the national capital, the number of deaths attributable to PM2.5 was 106 out of 1,00,000 people in 2019, above the global median 58 per 1,00,000 people.

Role of Climate Variability Phenomena

- The research highlighted the role of climate variability phenomena like El Nino-Southern Oscillation, Indian Ocean Dipole and North Atlantic Oscillation in exacerbating PM2.5 pollution levels, and collectively caused approximately 7,000 additional premature deaths annually.
- The Indian Ocean Dipole had the largest impact on the number of deaths, followed by the North Atlantic Oscillation and then El Nino.

Effects of Climate Change on Human Health

- Changes in climate patterns can make air pollution worse.
- The effects of climate change and the environment on human health are not lesser than those of genomics and lifestyle patterns and they have been increasing over the past decades.

Related Efforts By India

- National Clean Air Programme (NCAP): Launched in 2019 with targets to achieve 20% to 30% reduction in concentrations of PM10 and PM2.5 by the year 2024, keeping 2017 as the base year for comparison of concentration.
- Decarbonisation Efforts: A report suggests that decarbonising faster can save India 200,000 deaths from particulate matters.
- The report analysed health impacts stemming from exposure to particulate matter under various policy pathways to meet Paris Agreement 2015 targets.
- Green Infrastructure: Cities are reimagining cityscapes with verdant green corridors and tree-lined boulevards, weaving greenery seamlessly into the urban fabric.

- Planting certain species can create a natural air-purifying barrier, absorbing harmful substances such as hydrocarbons and aromatic compounds.
- Vehicle Scrappage Policy: It aims to replace old vehicles with modern and new vehicles on Indian roads, and is expected to reduce pollution, create job opportunities and boost demand for new vehicles.
- Faster Adoption and Manufacturing of (Hybrid) and Electric Vehicles (FAME) Scheme: It aims to reduce pollution caused by diesel and petrol-operated vehicles and to promote electric and hybrid vehicles in India.
- The FAME phase II scheme has been extended for two years to drive greater adoption of the scheme.

Gandhi Sagar Sanctuary

Syllabus :GS 3/Environment

In News

- The Madhya Pradesh government has completed preparations for its ambitious cheetah reintroduction project at Gandhi Sagar Wildlife Sanctuary, which is slated to be the second home for cheetahs in India after Kuno National Park

About Gandhi Sagar Sanctuary

- Gandhisagar sanctuary is located on western border of Malwa plateaus along the banks of the mighty Chambal river.
- Total area of Gandhi Sagar Sanctuary is 368.62 sq. km
- It spreads into two districts Mandsaur and Neemuch
- Its Northern boundary is the Interstate boundary of M.P. and Rajasthan.
- It is known for some rare wildlife species like Wild Dogs (Dholes), Chinkara, Leopard, Otter, Mugger crocodile.

Private FM Radio Channels in 234 New Cities

Syllabus: GS3/ Science and Technology

Context

- The Union Cabinet has approved the proposal for conduct of 3rd batch of ascending e-auctions for 730 channels in 234 new cities with estimated reserve price of Rs.784.87 crore under Private FM Radio Phase Ill Policy.

About

- The Cabinet also approved the proposal to charge Annual License Fee (ALF) of FM channels as 4% of Gross Revenue excluding Goods and Services Tax (GST). This will be applicable for 234 new cities / towns.
- It will lead to creation of new employment opportunities, boost to local dialect and culture and 'vocal for local' initiatives.
- Many of these cities and towns are located in aspirational districts and areas affected by Left-Wing Extremism.

FM Radio Phase-III Policy

- Phase III of the FM Radio Policy was introduced to expand private FM radio broadcasting to cover more cities, particularly those that remained uncovered in previous phases.
- The first two batches were auctioned in 2015 and 2016 respectively.
- Under phase III, the Foreign Direct Investment (FDI) and Foreign Institutional Investor (FII) limits in private FM radio companies were increased from 20% to 26%.

Solar Paraboloid Technology

Syllabus: GS3/Science and Technology

Context

- As the world grapples with the urgent need to transition to renewable energy, solar paraboloid technology is emerging as a potentially transformative solution.

Solar Paraboloid Technology

- Solar paraboloids operate using a Parabolic Trough Collector (PTC) system.
- These systems consist of long, parabolic mirrors that focus sunlight onto a receiver tube placed at the focal line of the mirror.
- The concentrated solar energy heats a fluid within the receiver, which can then be used to generate electricity or provide direct heat for industrial processes.
- This design offers several advantages over traditional PV panels, which convert sunlight directly into electricity using semiconductors.
- Benefits: One of the key benefits of solar paraboloid technology is its ability to operate at higher temperatures, up to 300°C, which significantly increases thermal efficiency.
- Solar paraboloids are highly efficient in concentrating solar energy, which means that more electricity can be generated from the same amount of sunlight.
- This efficiency could lead to lower costs per unit of electricity produced, making solar energy more competitive with traditional fossil fuels.
- Challenges: The technology requires precise construction, specialized materials, and complex tracking systems, all of which contribute to higher upfront costs.

Blue Origin

Syllabus: GS 3/ Science and Tech

Context

- Jeff Bezos' aerospace venture Blue Origin is set to launch its eighth tourist mission to suborbital space using the New Shepard rocket.

About

- The flight will carry six people for an 11-minute ride above the Karman line (the internationally recognised boundary of space), marking another key milestone for Blue Origin, which has already taken 37 people into space.
- Additionally, Blue Origin is also cooperating with NASA on the ESCAPADE (Escape and Plasma Acceleration and Dynamics Explorers) mission, which will investigate the interaction of solar wind and Mars' magnetosphere. This mission will launch on Blue Origin's reusable New Glenn rocket in October 2024.

Sonoluminescence

Syllabus: GS3/ S&T

In Context

- Pistol shrimp (family Alpheidae) possess a specialised claw that can snap shut with incredible speed causing Sonoluminescence.

About

- The human eye is highly sensitive to light, able to detect even the faintest glimmers, but light pollution often obstructs this ability. This fascination with light led to the discovery of sonoluminescence in 1934 by two German engineers studying sonar.
- They observed that a small bubble in liquid, when struck by powerful sound waves, emits a brief flash of light.
- This occurs as the bubble rapidly expands and collapses due to sound waves, creating extreme temperatures that ionize gases inside, producing light.
- The alternating high and low pressure of sound waves leads to rapid expansion and contraction of bubbles.

Tanager-1 Satellite

Syllabus: GS 3 / Science and Technology

Context

- NASA has recently launched the Tanager-1 satellite to track methane emissions.

How will the Tanager-1 satellite track emissions?

- The satellite will use imaging spectrometer technology to track methane and carbon dioxide emissions.
- It will do so by measuring hundreds of wavelengths of light that are reflected by Earth's surface.
- Different compounds in the planet's atmosphere — including methane and carbon dioxide — absorb different wavelengths of light, leaving spectral "fingerprints" that the imaging spectrometer can identify.
- These infrared fingerprints can enable researchers to pinpoint and quantify strong greenhouse gas emissions.

Why do researchers want to track methane emissions?

- Methane is an invisible but strong greenhouse gas, and the second largest contributor to global warming after carbon dioxide, responsible for 30 percent of global heating since the Industrial Revolution.
- According to the United Nations Environment Programme, over a period of 20 years, methane is 80 times more potent at warming than carbon dioxide.
- It also contributes to the formation of ground-level ozone that causes around one million premature deaths annually.

Terahertz

Syllabus: GS 3 / Science and Technology

In News

- TRAI recommended establishing a Terahertz Experimental Authorisation (THEA) for research and development in the 95 GHz – 3 THz frequency bands.

About

- Indian entities including academia, research labs, government bodies, telecom providers, and manufacturers can apply for THEA.
- THEA aims to foster innovation in next-generation wireless technologies, enhancing capacity and reliability for various applications

About Terahertz (THz)

- Terahertz (THz) waves are ranged between microwave and infrared regions in the electromagnetic spectrum.
- THz technology has demonstrated promising potential for biomedical applications.
- Application Exploration of biological effects of THz waves has emerged as a critical new area in life sciences. It is critical to uncover the effects of THz waves on complex biological systems in order to lay out the framework for THz technology development and future applications.
- Specifically, THz radiation has been shown to affect the nervous system, including the structure of nerve cell membranes, genes expressions, and cytokines level

$15-Bn Push for Phase 2 of Semiconductors Manufacturing Policy

Syllabus: GS3/science and Technology

Context

- India ramps up its semiconductor ambitions with a $15-billion incentive to emerge as a global chip hub, following in the footsteps of the US, Taiwan, and South Korea.

About

- The revised blueprint focuses on capital support for raw materials, gases, and chemicals essential for chip fabrication.
- However, the capex subsidy for assembly and testing plants, which had been raised to 50 percent, can be reduced under the new plan.
- In March 2024, the government approved proposals to set up three semiconductor units in Gujarat and Assam with an estimated investment of Rs 1.26 lakh crore.
- Now the government is looking at advanced fabrication technologies and micro-LED displays, signaling a shift towards more complex elements of the chip ecosystem.

What is a Semiconductor?

– Semiconductors also referred to as 'chips' are highly complex products to design and manufacture, providing the essential functionality for electronic devices to process, store and transmit data.
– The chip comprises interconnections of transistors, diodes, capacitors and resistors, layered on a wafer sheet of silicon.

Earlier policy

- In the first iteration of the incentive policy, which was released in 2021, the Union government had offered a 30 per cent capex subsidy for chip packaging and testing plants.
- However, in 2022, it had increased the subsidy for such plants to 50 per cent.

Global Scenario in Chip Manufacturing

- About 70% of the current global manufacturing capacity is confined to South Korea, Taiwan and China, with the US and Japan making up for much of the rest.
- Taiwan and South Korea make up about 80% of the global foundry base for chips.

- Only one company, the Netherlands-based ASML, produces EUV (extreme ultraviolet lithography) devices, without which it is not possible to make an advanced chip.

Challenges faced by India's semiconductor industry

- India's close allies, like the US and EU, also sense the semiconductor opportunity and have rolled out more lucrative incentive schemes than India.
- Talent pool: While India is the biggest back office for design engineers of all major chip companies, skilled talent that can work on factory floors of a fabrication plant is still hard to come by.
- Micron Technology's ATMP plant in Gujarat's Sanand is running 133 days behind schedule, due to the company's inability to hire sufficient construction headcount.
- Research and Development: India currently lacks original research in semiconductor design, where the future of the chip is decided.
- Power supply: An uninterrupted supply of power is central to the process, with just seconds of fluctuations or spikes causing millions in losses.
- Water intensive: Chip-making requires gallons of ultrapure water in a single day.

Significance of the project

- Job Creation: Semiconductor manufacturing facilities in India will create many direct and indirect employment opportunities.
- Reduced Dependence on Imports: India currently relies on imported semiconductor chips for various electronic devices.
- Establishing a domestic semiconductor industry will enhance the country's self-reliance and resilience in times of geopolitical tensions or disruptions in global supply chains.
- Export Opportunities: With a competitive semiconductor industry, India can export chips and related products to other countries, generating revenue and improving its trade balance.
- Strategic Importance: Semiconductor chips are critical components in various strategic sectors such as defense, aerospace, and telecommunications.
- Having a domestic semiconductor industry ensures greater control over the supply chain and reduces vulnerabilities to disruptions or external pressures.

Other Initiatives for Semiconductor Industry

- India Semiconductor Mission: It has been set up as an Independent Business Division within Digital India Corporation having administrative and financial autonomy to formulate and drive India's long-term strategies for developing semiconductors and display manufacturing facilities and semiconductor design ecosystem.
- Production Linked Incentive scheme: Incentives are being provided for semiconductor design and packaging.
- QUAD Semiconductor Supply Chain Initiatives: To assess the capacity, pinpoint vulnerabilities, and enhance supply chain security for semiconductor and its critical components.

Way Ahead

- By establishing the semiconductor industries, India can increase its influence in the global technology landscape.
- India can also attract foreign investment, foster innovation, and stimulate other sectors such as electronics, telecommunications, and information technology. A robust industry will significantly contribute to India's GDP growth.

Effective Drug Delivery with Nanotechnology

Syllabus: GS3/Science and Technology

Context

- A unique method of drug delivery has been developed with the use of polymeric nanoparticles.

About

- A team of scientists have used a chitin synthesis fungicide, Nikkomycin, to develop Nikkomycin loaded polymeric nanoparticles.

- Chitin is the chief component of fungal cell walls and is absent in the human body.
- The drug loaded nanoparticles were found effective against fungal infection known as Aspergillosis caused by fungi Aspergillus flavus and Aspergillus fumigatus.
- The nanoformulation developed was found to be free of cytotoxic and hemolytic effects.
- The method is useful to patients suffering from asthma, cystic fibrosis, or previous lung disease, human immunodeficiency virus (HIV), cancer, or those exposed to corticosteroid medications for an extended duration.

What is Nanotechnology?

- Nanotechnology refers to the branch of science and engineering devoted to designing, producing, and using structures, devices, and systems by manipulating atoms and molecules at nanoscale, i.e. having one or more dimensions of the order of 100 nanometres (100 millionth of a millimeter) or less.

Advantages of Nanotechnology in Medical field

- Targeted Drug Delivery: Nanoparticles are useful to deliver drugs directly to specific cells, minimizing damage to healthy tissues and reducing side effects.
- Imaging: Nanoparticles enhance the contrast in imaging techniques like MRI, CT scans, and ultrasounds, enabling more accurate diagnosis of diseases.
- Tissue Engineering: Nanotechnology is used to create scaffolds that support the growth and regeneration of tissues, which can be used in repairing damaged organs or tissues, such as in bone and cartilage repair.
- Vaccine manufacturing: Nanoparticles can be used as adjuvants in vaccines, enhancing the immune response and improving vaccine efficacy.
- Nanofibers in Wound Dressings: Nanotechnology is used to create advanced wound dressings that promote faster healing and reduce the risk of infection.

Concerns of Nanotechnology

- Health Risks: The long-term effects of exposure to nanomaterials remain poorly understood. Nanoparticles' ability to penetrate biological membranes raises concerns about potential toxicity and unforeseen health impacts, especially in food products.
- Ethical risks. There are ethical concerns surrounding the use of nanotechnology. In the healthcare industry, the introduction of nanotechnology could lead to harmful side effects and raises questions around data privacy as well.
- Lack of Standards: The rapid development of nanotechnology has outpaced the creation of regulatory frameworks. There is a concern that current regulations may not adequately address the unique risks posed by nanomaterials.

Way Ahead

- Researchers and companies should be transparent about their findings, especially regarding the potential risks of nanotechnology.
- Regulatory agencies should monitor the development and use of nanotechnology and ensure that companies comply with safety standards.
- Research and development should focus on creating sustainable and environmentally friendly nanomaterials. Open access to data and peer-reviewed publications can help build public trust.

Hayflick Limit

Syllabus: GS3/Science and Technology

Context

- Recently, Biomedical researcher Leonard Hayflick died at the age of 98, who discovered the Hayflick Limit.

About the Hayflick Limit

- It is a concept that fundamentally changed our understanding of ageing by showing that normal somatic cells can divide (and thus reproduce) only a certain number of times.
- It's named after Dr. Leonard Hayflick, a biomedical researcher who made a groundbreaking discovery in the early 1960s.

How does it work?

- There's an in-built cellular clock within our bodies (and in other organisms) that determines how long we can live.
- When these cells reach their division limit, they become senescent—essentially retiring from further replication.
- As these senescent cells accumulate, our bodies begin to age and decline.
- The ultimate Hayflick limit for humans is estimated to be around 125 years.
- Beyond Limits: No amount of diet, exercise, or genetic modification can extend life beyond this limit.
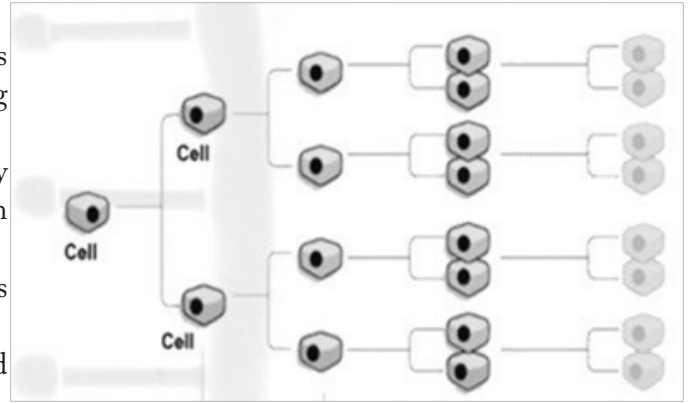
Telomeres: Aging Safeguard

- Hayflick's discovery gained even more weight when researchers in the 1970s stumbled upon telomeres.
- As cells divide, they create copies of DNA, but with each division, telomeres get slightly shorter. Eventually, they reach a critical point where cell division stops altogether.
- Scientists continue to explore whether telomere loss and the Hayflick limit are mere symptoms of aging or actual limits.

Future Research Directions

- Ongoing studies aim to explore the mechanisms behind the Hayflick limit and its implications for health and longevity. Researchers are investigating ways to mitigate the effects of cellular senescence and extend healthy lifespan.

Quantum Nonlocality

Syllabus: GS3/Science and Technology

Context

- New study demonstrated that a universal standard for measuring quantum nonlocality is impossible.

About

- Quantum nonlocality describes a strange connection between distant physical objects, one that doesn't allow for faster-than-light communication.
- It describes a situation where particles that are entangled can influence each other instantaneously, regardless of the distance separating them.
- This phenomenon appears to violate the classical idea that information or influence cannot travel faster than the speed of light.
- The new research broadens the potential applications of quantum non-local correlations, which are already used in secure communication, random number generation, and cryptographic key creation.
- This discovery adds a new layer to the understanding of quantum mechanics, highlighting the complexity and uniqueness of quantum nonlocality as a valuable and diverse resource.

Small Satellite Launch Vehicle (SSLV)

Syllabus: GS3/Science and Technology

Context

- The Indian Space Research Organisation (ISRO) successfully launched the third developmental flight of the Small Satellite Launch Vehicle (SSLV) from the Satish Dhawan Space Centre.

About

- The SSLV-D3 placed the Earth observation satellite EOS-08 precisely into orbit.
- It also marks the completion of ISRO/Department of Space's SSLV Development Project.
- NewSpace India Limited (NSIL), ISRO's commercial arm, and India's private space industry can now produce SSLVs for commercial missions.

What is an SSLV?

- It is a three-stage Launch Vehicle configured with three Solid Propulsion Stages.
- It also has a liquid propulsion-based Velocity Trimming Module (VTM) as a terminal stage, which can help adjust the velocity as it prepares to place the satellite.
- Significance: Essentially, the aim behind SSLVs is to produce low-cost launch vehicles with short turnaround times and minimal infrastructural requirements.
- The SSLV can launch satellites weighing up to 500kg and accommodate multiple satellites.
- Before SSLVs, smaller payloads had to be sent into Space using other launch vehicles carrying multiple, bigger satellites. They depended upon the launch schedules of those satellites.

Launch Vehicles

- Launchers or Launch Vehicles are used to carry spacecraft to space.
- India has three active operational launch vehicles: Polar Satellite Launch Vehicle (PSLV), Geosynchronous Satellite Launch Vehicle (GSLV), Geosynchronous Satellite Launch Vehicle Mk-III (LVM3).
- PSLV: PSLV has been a versatile launch vehicle deployed for launching all the three types of payloads viz. Earth Observation, Geo-stationary and Navigation. It has got highest success rate and considered as work horse of ISRO.
- GSLV with indigenous Cryogenic Upper Stage has enabled the launching up to 2 tonne class of communication satellites.
- The LVM3 is the next generation launch vehicle capable of launching 4 tonne class of communication satellites and 10 tonne class of payloads to LEOs.
- The vehicle was developed with completely indigenized technologies including the C25 cryo stage.
- The launch vehicle has a track record of all successful launches even from the first development flight.
- The Human rated LVM3 is identified as the launch vehicle for Gaganyaan mission, which is named as HRLV.

	SLV-3	ASLV	PSLV-XL	GSLV Mk II	GSLV Mk III
Height	22.7m	23.5m	44m	49m	43.43 m
Lift-off weight	17 t	39 t	320 t	414 t	640 t
Propulsion	All Solid	All Solid	Solid & Liquid	Solid, Liquid & Cryogenic	Solid, Liquid & Cryogenic
Payload mass	40 kg	150 kg	1860 kg	2200 kg	4000 kg
Orbit	Low Earth Orbit	Low Earth Orbit	475 km Sun Synchronous Polar Orbit (1300 kg in Geosynchronous Transfer Orbit)	Geosynchronous Transfer Orbit	Geosynchronous Transfer Orbit

Cyanide Sensor

Syllabus :GS 3/Science and Tech

In News

- A team led by Dr. Ravi Kumar Kanaparthi at Central University of Kerala has developed a highly sensitive and selective cyanide sensor.

About the sensor

- Cyanide is a potent toxin found in plants, fruits, and microorganisms, with strict WHO guidelines limiting its concentration in potable water to below 0.19 mg/L due to its lethal effects.
- The new sensor aims to enhance safety by detecting toxic cyanide at low concentrations in drinking water and food products.
- The new sensor material changes color from yellow to colorless upon detecting cyanide, providing a clear visual indication of its presence.
- The sensor specifically detects cyanide without interference from other ions, ensuring accuracy.
- Importance : The sensor's relevance is underscored by a recent cyanide poisoning incident in Idukki district, where 13 cows died from cyanide toxicity after consuming tapioca hulls.
- The sensor is expected to play a crucial role in preventing cyanide-related deaths and ensuring public safety globally.

Californium Element

Syllabus: GS3/ Science and Technology

Context

- The police in Bihar's Gopalganj seized 50 grams of the highly radioactive metal Californium.

About

- Californium is a silvery-white synthetic radioactive metal with the atomic number 98 on the periodic table.
- It was first synthesized in 1950 at Berkeley, California, from where it derives its name, by bombarding curium with alpha particles.
- Californium is a very strong neutron emitter and is used in portable metal detectors for identifying gold and silver ores, to help identify water and oil layers in oil wells, and detect metal fatigue and stress in airplanes.

Gene-editing Pesticides

Syllabus: GS3/Science and Technology

Context

- Research has found risks to genes of even humans, animals and plants due to gene-editing pesticides.

About

- Gene-editing technologies, like CRISPR, are being explored as a way to develop new types of pesticides.
- The idea is to use these technologies to either modify pests or crops in ways that reduce the need for traditional chemical pesticides.
- Significance: These applications could potentially make agriculture more sustainable by reducing reliance on traditional chemical pesticides and minimizing their environmental impact.
- Genetic pesticides are touted as more environmentally friendly than chemical ones.
- Concerns: Scientists have warned that they may be able to edit the genes of people, animals, and insects in the environment where pesticides will be sprayed.
- The most likely impact is on humans, who may experience significant biological consequences.
- This exposure could happen through contact, inhalation, or ingestion.

Physics of Pressure

Syllabus: GS3/ Science and Technology

Context

- There are billions of atoms and molecules around us in the air and they hit us continuously all the time, creating what we call air pressure.

Pressure

- Pressure is the force applied perpendicular to the surface of an object per unit area over which that force is distributed.

- Hence Pressure is the average force spread over any area.
- Pressure is a scalar quantity and the SI unit of pressure is Pascal (Pa).

Applications of Pressure in daily life

- Car Brakes: Hydraulic brakes use the pressure of a fluid to stop vehicles.
- Pressure Cookers: Utilize steam pressure to cook food faster and more efficiently.
- Blood Pressure Monitoring: Measuring blood pressure helps diagnose and monitor health conditions.
- Weather Prediction: Barometers measure atmospheric pressure to help forecast the weather.
- Vacuum Cleaners: Create a low-pressure area to suck up dirt and debris from floors and surfaces.

New Method to Predict Amplitude of Next Solar Cycle

Syllabus: GS3/Science and Technology

Context

- Astronomers from the Indian Institute of Astrophysics (IIA) have found a new method to predict the amplitude of the upcoming solar cycle.

About

- The astronomers have discovered a new correlation using 100 years of solar data from the IIA's Kodaikanal Solar Observatory.
- The intricacies of the solar cycle and forecasting space weather are important fields of current research, including in India.
- Their research can help in space weather forecasting.

Solar Cycle

- The solar cycle is the cycle that the Sun's magnetic field goes through approximately every 11 years.
- The Sun is a huge ball of electrically-charged hot gas. This charged gas moves, generating a powerful magnetic field.
- Every 11 years or so, the Sun's magnetic field completely flips. This means that the Sun's north and south poles switch places.
- Then it takes about another 11 years for the Sun's north and south poles to flip back again.
- The solar cycle affects activity on the surface of the Sun, such as sunspots which are caused by the Sun's magnetic fields.

- As the magnetic fields change, so does the amount of activity on the Sun's surface.
- Tracking of Solar Cycle: One way to track the solar cycle is by counting the number of sunspots.
- The beginning of a solar cycle is a solar minimum, or when the Sun has the least sunspots.
- Over time, solar activity—and the number of sunspots—increases.
- The middle of the solar cycle is the solar maximum, or when the Sun has the most sunspots.
- As the cycle ends, it fades back to the solar minimum and then a new cycle begins.
- Forecasting: Astronomers use many different ways to forecast the strength of the next solar cycle.
- This includes theoretical calculations based on dynamo models, extrapolations, precursor methods, etc.
- The precursor method uses the value of some measure of solar activity at a specified time to predict the strength of the following solar maximum.
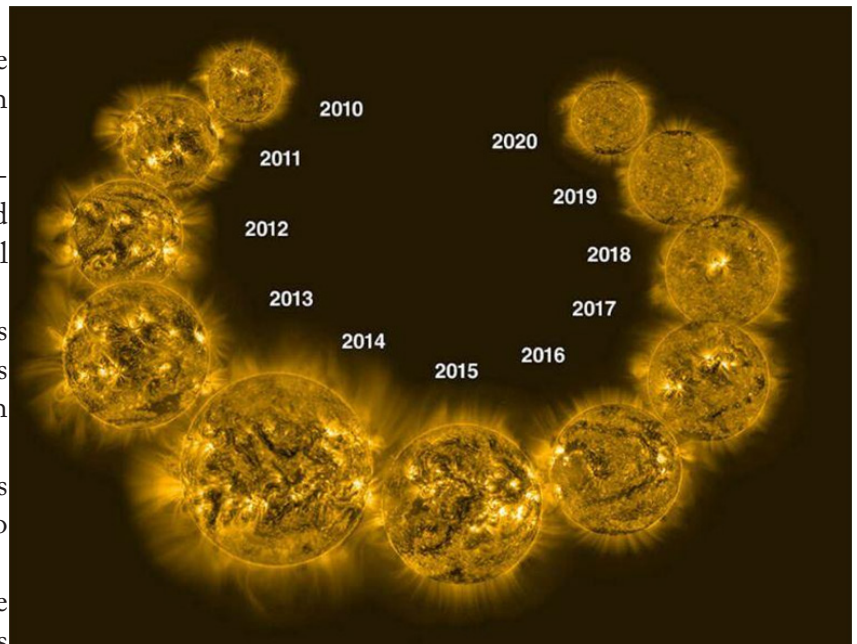
What is Space Weather?

- The main components of space weather are the solar wind, coronal mass ejections, and solar flares.
- Space weather is concerned with the varying conditions within the solar system and its heliosphere influenced by the sun and solar wind.
- Impact: They can compress the magnetosphere of the Earth and trigger geomagnetic storms, which can affect communication and power transmission, damage spacecraft electronics, and threaten the lives of astronauts.
- Thus, space weather has a profound influence on modern civilization.

UN Convention Against Cybercrime

Syllabus: GS3/Cybersecurity

Context

- The member states of the United Nations has finalized a new international convention against cybercrime.

About

- The draft convention is expected to be adopted by the General Assembly later this year, thus becoming the first global legally binding instrument on cybercrime.
- Background: The road to this convention began more than five years ago when the United Nations recognized the new challenges to international security and criminal law.
- The Ad Hoc Committee was established in 2019 and the draft convention was finally finalized in August 2024.

About the Convention

- Aim: To strengthen international cooperation in the fight against cybercrime, coordinate law enforcement efforts, and promote technical assistance and capacity building in member states.
- Tools: It provides states with a range of tools to effectively combat crimes such as terrorism, drug trafficking, human trafficking, arms smuggling, and other criminal activities facilitated by modern information technologies.
- It is supporting developing countries through technical assistance and capacity building.
- The key objective is to improve the capabilities of national authorities in the prevention, detection, investigation, and prosecution of cybercrime.
- Convention includes the definition of criminal offenses such as illegal access to information systems, illegal interception, data manipulation, and system interference.
- It deals with the criminal liability of legal persons, the seizure and confiscation of the proceeds of crime, and international cooperation in criminal prosecution and the preservation of evidence.

What is Cybercrime?

- Cybercrime refers to criminal activities that involve the use of computers, networks, and digital technologies.
- It encompasses a wide range of illicit activities conducted in the virtual space, often with the intent to compromise, damage, or gain unauthorized access to computer systems, networks, and data.
- Cybercriminals employ various techniques and tools to exploit vulnerabilities in networks, and they may target individuals, organizations, or even governments.

Common types of Cybercrime include:

- Hacking: Unauthorized access to computer systems or networks to steal, alter, or destroy data.
- Phishing: Deceptive attempts to acquire sensitive information, such as usernames, passwords, and financial details, by posing as a trustworthy entity.
- Malware: Malicious software designed to disrupt, damage, or gain unauthorized access to computer systems. This includes viruses, worms, trojans, ransomware, and spyware.
- Identity Theft: Stealing and using someone's personal information, such as social security numbers or credit card details, for fraudulent purposes.
- Cyber Espionage: Covert activities aimed at gaining unauthorized access to sensitive information for political, economic, or military purposes.

- Cyberbullying: Using digital platforms to harass, threaten, or intimidate individuals.
- Online Fraud: Engaging in fraudulent activities, such as online scams and financial fraud, to deceive and exploit victims for monetary gain.

Cybercrime in India

- Chief executive officer of Indian Cyber Crime Coordination Centre (I4C), mentioned that on average 5,000 cyber complaints are registered in the country every day and around 40-50% originate outside the country.
- Most cyber crimes were reported from Haryana, Telangana, Uttarakhand, Gujarat and Goa. Among Union Territories, most complaints came from Delhi, followed by Chandigarh and Puducherry.

Impact of Cyber Crimes

- National Security Threats: Cyber crimes pose a threat to national security when state-sponsored actors or criminal organizations target critical infrastructure, government institutions, or military systems.
- Financial Loss: This includes theft of personal information, online banking fraud, credit card fraud, and ransomware attacks.
- Data Breaches: Data breaches can lead to the exposure of personal information, trade secrets, intellectual property, and other confidential data, causing severe damage to the affected entities.
- Disruption of Services: Cyber attacks can disrupt essential services such as power grids, communication networks, and transportation systems.

Initiatives by Government of India to Prevent Cybercrimes

- Indian Computer Emergency Response Team (CERT-In): CERT-In is the national nodal agency for responding to cybersecurity incidents.
- It provides proactive and reactive cybersecurity support and plays a crucial role in ensuring the security and resilience of the country's cyber infrastructure.
- National Critical Information Infrastructure Protection Centre (NCIIPC): It is responsible for protecting critical information infrastructure from cyber threats.
- It identifies and designates critical sectors and advises organizations in these sectors on enhancing their cybersecurity measures.
- Cyber Crime Prevention against Women & Children (CCPWC) scheme: The Ministry of Home Affairs has provided financial assistance to all the States & UTs under the scheme to support their efforts for setting up of cyber forensic-cum-training laboratories, training, and hiring of junior cyber consultants.
- Indian Cyber Crime Coordination Centre (I4C): The Government has established I4C to provide a framework and ecosystem for Law Enforcement Agencies (LEAs) to deal with cyber crimes in a comprehensive and coordinated manner.
- National Cyber Crime Reporting Portal: The Government has launched the National Cyber Crime Reporting Portal to enable the public to report incidents pertaining to all types of cyber crimes.
- Cyber Swachhta Kendra (Botnet Cleaning and Malware Analysis Centre): This initiative is aimed at creating awareness about botnet and malware infections and providing tools for detection and cleaning.

International Conventions on Cyber Crimes

– Budapest Convention on Cybercrime (Council of Europe Convention on Cybercrime): Also known as the Budapest Convention, it is the first international treaty specifically addressing crimes committed via the internet and other computer networks.

1. It includes provisions on offenses such as illegal access, data interference, system interference, and content-related crimes.

– Internet Governance Forum: The United Nations Internet Governance Forum (IGF) serves to bring people together from various stakeholder groups, as equals, in discussions on digital public policy.

– African Union Convention on Cyber Security and Personal Data Protection (Malabo Convention): This convention focuses on cybersecurity and personal data protection on the African continent.

– Organization of American States (OAS) Cybercrime Convention: This convention, also known as the "OAS Model Law on Cybercrime," provides a model legal framework for member states to address cybercrime.

Conclusion

- The UN Convention against Cybercrime is more than just a legal instrument.
- It is a symbol of the need for global cooperation in a world in which digital technologies are becoming increasingly important and at the same time pose new risks and threats.
- The global community now faces the task of putting this Convention into practice and ensuring that it not only helps to combat cybercrime but also protects human rights and freedom in the digital age.

UNESCO Kalinga Prize for Popularisation of Science

Syllabus :GS 3/Science and Tech

In News

- The Ministry of Science and Technology (DST) has withdrawn its annual contribution to the UNESCO Kalinga Prize.
- Former Odisha Chief Minister Naveen Patnaik has protested the withdrawal and requested the restoration of support.

About the UNESCO Kalinga Prize for Popularisation of Science

- It was established in 1951 following a donation from Mr. Bijoyanand Patnaik, Founder and President of the Kalinga Foundation Trust.
- It is UNESCO's oldest prize.
- The prize winner is selected by UNESCO's Director-General on the recommendation of a five-member jury.
- The award is presented during the World Science Day celebrations in Budapest, alternating with India.
- Eligibility: Individuals, institutions, NGOs, or entities making significant contributions to science and technology communication.
- Donors: Kalinga Foundation Trust,Government of the State of Orissa,Government of India (Department of Science and Technology).
- Award: Cash prize of US$40,000 and a Kalinga Chair with an additional US$5,000,UNESCO-Albert Einstein silver medal.
- Objectives : It rewards contributions to the popularization of science and technology.
- It aims to bridge the gap between science and society.
- Includes various forms of media communication in science popularization.

INTERNATIONAL RELATION

Axis of Resistance

Syllabus: GS2/ International Relations

Context

- The Axis of Resistance was in the news after the assassination of Hamas political leader Ismail Haniyeh and Hezbollah commander Fuad Shukr.

Axis of Resistance

- It is a coalition of Iranian-backed groups describing themselves as the "Axis of Resistance" to Israel and U.S. influence in the Middle East.
- The Palestinian Islamic Jihad (PIJ), Hezbollah, Hamas, and the Houthis are some of the major groups in the alliance.

How was the coalition formed?

- The roots of the 'axis of resistance' go back to the Iranian Revolution of 1979, which paved the way for radical Shia Muslim clerics to come to power.
- To expand its political and military influence in a region where most powers (such as US-ally Saudi Arabia) are Sunni-majority nations, Iran's new regime began to support non-state actors.
- Another reason for this was to deter threats from Israel and the US as Iran has seen Israel's creation in 1948 as a means for the US (and the West) to influence the region for its strategic interests.

India and Russia Working Plan to Handle Emergencies

Syllabus: GS 2/IR

In News

- Second meeting of the Joint Russian-Indian Commission on Emergency Management held in Moscow.

Working plan of the Joint Russian-Indian Commission

- India and Russia signed the working plan of the Joint Russian-Indian Commission on the Cooperation in the Field of Emergency Management for 2025-2026 .
- The meeting is significant to draw a strategy for executing the previous agreements between India and Russia, such as, Inter-Governmental Agreement (IGA) for cooperation in the field of Emergency Management in December, 2010 and Regulation to establish the Indo-Russian Joint Commission for Cooperation (2013) in prevention and elimination of consequences of emergency situations.
- Both the countries agreed to exchange best practices in the field of Disaster Management.
- Discussion Points: Space monitoring technologies for risk forecasting and emergency response.
- Exchange of experiences in responding to large-scale disasters.
- Cooperation in training fire and rescue specialists.
- Objectives:Enhance early warning systems.
- Build mutual capacity in emergency preparedness and response.
- Align with the Sendai Framework and India's disaster risk reduction agenda
- Future Actions: Intensify joint efforts in emergency management.
- Exchange best practices in disaster management and training.
- Extend cooperation between educational and research institutions.
- Next meeting will be held in India in 2026.

Ukraine votes to join ICC

Syllabus: GS2/ International Relations

Context

- Ukraine's parliament voted to join the International Criminal Court, as it seeks to bring Russia on charges over war crimes.

The International Criminal Court (ICC)

- ICC investigates and, where warranted, tries individuals charged with the gravest crimes of concern to the international community: genocide, war crimes, crimes against humanity and the crime of aggression.
- As a court of last resort, it seeks to complement, not replace, national Courts.
- History: Impetus for the court came from the ad hoc international tribunals set up in the 1990s to address the atrocity crimes committed in the former Yugoslavia and Rwanda.
- The Rome Statute laid the foundation for the establishment of the International Criminal Court in 2002.
- Rome Statute: The Rome Statute was adopted in 1998 by the United Nations.
- It gives legal authority to investigate alleged crimes on the territory of its members or by their nationals, when domestic authorities are "unwilling or unable" to do so.
- Members: 124 countries are States Parties to the Rome Statute of the International Criminal Court.
- However many countries never signed the treaty, including China, Ethiopia, India, Indonesia, Iraq, North Korea, Saudi Arabia, and Turkey.
- The countries which signed the statute, but never ratified it are Egypt, Iran, Israel, Russia, Sudan, Syria, and the United States.
- In February 2024, Armenia became the latest country to join the ICC after ratifying the Rome Statute in 2023.

SCO Meet in Islamabad

Syllabus :GS 2/IR

In News

- Pakistan has invited Prime Minister Narendra Modi to the Shanghai Cooperation Organisation's (SCO) Council of Heads of Government meeting, scheduled for October 2024 in Islamabad.

Previous SCO Engagements:

- India hosted the SCO Summit virtually last year, with Pakistan's then Prime Minister Shehbaz Sharif participating via video link.
- In May 2023, Pakistan's Foreign Minister Bilawal Bhutto Zardari visited India to attend the in-person SCO Council of Foreign Ministers meeting in Goa, marking the first such visit in nearly 12 years.
- Pakistan currently holds the rotating chairmanship of the SCO Council of Heads of Government (CHG) and will host the two-day in-person meeting.

> **Do you know ?**
> – Relations between Pakistan and India remain strained, mainly due to the Kashmir issue and cross-border terrorism.
> – India has maintained that it desires normal relations with Pakistan, provided that Pakistan creates an environment free of terrorism and hostility.
> 1. Pakistan downgraded its ties with India following the abrogation of Article 370 by the Indian Parliament on August 5, 2019.

Shanghai Cooperation Organisation (SCO)

- It is a permanent intergovernmental international organization established on June 15, 2001 in Shanghai (PRC).
- Founding Members: Kazakhstan, China, Kyrgyzstan, Russia, Tajikistan, Uzbekistan.

Current Member States:

- Official Languages: Russian and Chinese
- Decision-Making Bodies: Council of Heads of States (CHS): Meets annually to decide major issues
- Council of Heads of Government (CHG): Meets annually to discuss multilateral cooperation, economic priorities, and approve the budget
- Goals: Strengthen mutual trust and good-neighborliness among member states
- Encourage cooperation in politics, trade, economy, science, culture, education, energy, transport, tourism, and environmental protection
- Ensure and maintain regional peace, security, and stability
- Promote a fair and rational international political and economic order.

Pacific Islands Forum (PIF)

Syllabus: GS2/International Groupings

Context

- The annual meeting of the Pacific Islands Forum (PIF) has begun in Nuku'alofa, the capital of Tonga.

About

- The event is being attended by more than 1,500 delegates from around 40 countries.
- In this year's annual meeting, climate change is high on the agenda — several PIF members are among the world's worst-affected countries, especially due to rising sea levels.

Pacific Islands Forum

- PIF is an intergovernmental organisation formed in 1971.
- It consists of 18 member states located in the Pacific region.
- Australia, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Kiribati, Nauru, New Caledonia, New Zealand, Niue, Palau, Papua New Guinea, Republic of Marshall Islands, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu.
- The PIF aims to push for economic growth, enhance political governance and security for the region, and strengthen regional cooperation.
- The annual Forum meetings are chaired by the Head of Government of the Host Country, who remains as the Forum Chair until the next meeting.
- The organisation discusses priority issues at its annual meeting, where decisions made by the member states are reached by consensus.
- The decisions are implemented by the Pacific Islands Forum Secretariat.

India-Brazil Strategic Partnership

Syllabus: GS2/ International Relations

Context

- India's External Affairs Minister S. Jaishankar co-chaired the 9th India-Brazil Joint Commission with his Brazilian counterpart Mauro Vieira in New Delhi.

About

- India's External Affairs Minister said that The India-Brazil strategic partnership has "deepened and diversified" over the years. It spans defense, space, security, technology, and people-to-people relations, strengthening ties across various domains.
- India reiterated its full support to the Brazilian G20 presidency as it is currently the chair of the bloc.
- The G20 presidency was relayed to Brazil by India last year.

Major Highlights of India and Brazil Relations

- Strategic Partnership: Relations were established in 1948, and the two countries have been Strategic Partners since 2006.
- Both sides also have several Joint Working Groups to take forward sectoral cooperation.

- Trade Relations: In 2022, the bilateral trade expanded by 32% to US$15.2 billion (India's exports US$8.8 billion & Imports – US$6.4 billion).
- India and Brazil have established Trade Monitoring Mechanism as an institutional mechanism to monitor and identify bottlenecks in bilateral trade and take appropriate measures to address them.
- Defence & Security Cooperation: India and Brazil signed an agreement in 2003 for cooperation in defense. Meetings of the Joint Defence Committee (JDC) are held as an institutionalized mechanism for defense cooperation.
- Security Cooperation: India and Brazil established a Strategic Dialogue mechanism in 2006 to cover regional and global issues of mutual concern.
- The two countries have an Extradition Treaty, Mutual Legal Assistance Treaty in Criminal Matters and an Agreement of Transfer of Sentenced Persons in place.
- Space Cooperation: India and Brazil signed a framework agreement for peaceful use of outer space in 2004 as well an Agreement for inter-institutional cooperation between the space agencies.
- Both countries have been collaborating in Data sharing and satellite tracking of Indian satellites.
- Multifora Relations: India and Brazil share a very close and multifaceted relationship both at bilateral level as well as in plurilateral fora such as BRICS, BASIC (a bloc consisting of Brazil, South Africa, India and China), G-20, G-4, IBSA, International Solar Alliance, as well as in the larger multilateral bodies such as the UN, WTO, UNESCO, and WIPO.

Challenges in the Relations

- Geopolitical Competition: Both India and Brazil are emerging powers with aspirations for greater global influence. This leads to competition, particularly in international forums like the United Nations, where both countries seek greater representation and influence.
- Trade Barriers: Trade between India and Brazil has not reached its full potential, partly due to various trade barriers and protectionist measures in both countries. These barriers hinder the growth of bilateral trade and investment.
- Infrastructure and Connectivity: Improving infrastructure and connectivity between the two countries remains a challenge.

Way Ahead

- Overcoming the challenges requires sustained diplomatic efforts, enhanced economic cooperation, and a commitment to finding common ground on global issues.
- Despite the obstacles, the potential benefits of a stronger India-Brazil partnership make overcoming these challenges a worthwhile endeavor.

Unrest in the Balochistan Region

Syllabus: GS 2 /IR

In News

- Recent large-scale protests in Balochistan underscore the issues of governance and deep-seated ethnic tensions in Pakistan.

About

- Balochistan is a region with a distinct cultural and historical identity that is now divided between three countries mainly Pakistan, Iran and Afghanistan.
- Recent large-scale protests in Balochistan were organized by the Baloch Yakjehti Committee (BYC) to address human rights violations, resource exploitation, and inadequate basic amenities.
- Women's Participation: Women, including Mahrang Baloch, have played a significant role in the protests, highlighting their deep discontent with government actions.

Reasons for Turmoil

- Balochistan's political history includes a failed bid for independence in 1947, coercive incorporation into Pakistan in 1948, and significant regional discontent due to the centralization of power.
- Economic Disparities: Despite being resource-rich, Balochistan remains economically underdeveloped.

- The exploitation of resources has not benefited the local population, contributing to regional grievances.
- Human Rights Issues: The region faces enforced disappearances and extrajudicial killings, deepening discontent and fueling further unrest.

China's role

- China has emerged as a major player in Balochistan and has invested in mining, energy, airports and expressway projects as part of the China-Pakistan Economic Corridor (CPEC). The CPEC begins in Kashgar, China, traverses through the length of Pakistan and ends in Gwadar
- China's investment in Balochistan through CPEC projects has led to concerns about militarization, displacement of local communities, and lack of tangible benefits for the Baloch people.
- Insurgency and Security Response: An armed insurgency against security forces and CPEC projects has intensified, leading to a harsher security response from the Pakistani government

Impact

- The protests led to clashes with security forces, resulting in fatalities, detentions, and increased prices of necessities due to blockades in major towns.
- The security forces' crackdown and blockade of major thoroughfares in many towns and cities, such as Gwadar, Hub, Mastung and Quetta, resulted in a sharp increase in the prices of necessities such as food, medicine, and petrol

Suggestions and Way Forward

- The situation in Balochistan reflects broader challenges in Pakistan's nation-building efforts, particularly in balancing ethnic and religious identities and providing provincial autonomy.
- There are calls for a more compassionate approach to address Balochistan's issues, emphasizing the need for local stakeholder involvement and addressing socio-economic disparities.

Philadelphi (Salaheddin) Corridor

Syllabus :GS 2/IR

In News

- A narrow stretch of land along the Gaza Strip's border with Egypt has emerged as the main stumbling block in negotiations.

About the Corridor

- It is a 14-km stretch along Gaza's border with Egypt, and is central to ceasefire negotiations between Israel and Hamas.
- It was built by the Israeli military when Gaza was under its direct occupation between 1967 and 2005.
- The U.S.-brokered 1979 agreement was the first peace treaty between Israel and an Arab country
- Israeli Prime Minister Netanyahu insists on permanent Israeli control of the corridor to prevent Hamas from rearming.
- Hamas demands a full Israeli withdrawal from Gaza, including the corridor.
- A 2005 agreement between Israel and Egypt established the corridor as a buffer zone to manage Gaza's movement and smuggling.
- After Israel's 2005 withdrawal, Egypt and the Palestinian Authority managed the area, but Hamas took control in 2007.
- The corridor has been used for smuggling, including arms and goods, through numerous tunnels.
- Egypt has destroyed many tunnels and views Israeli control as a violation of agreements.

Botswana discovered the world's second largest diamond

Syllabus :GS 2/IR

In News

- The world's second-largest 2,492-carat diamond has been discovered in Botswana at a mine owned by Lucara Diamond, a Canadian firm.

- The largest diamond – 3,106-carat – was found in South Africa in 1905, also known as the Cullinan Diamond.

Botswana

- It is situated in the Southern African region.
- It is a land-locked country dominated in geographical terms by the Kalahari Desert.
- It is bordered by Zambia and Zimbabwe to the northeast, Namibia to the north and west, and South Africa to the south and southeast.
- Capital City: Gaborone
- Botswana's climate is semi-arid though it is hot and dry for much of the year.
- Botswana's highest point is Tsodilo Hills
- Major Rivers : Significant rivers include the Limpopo, Okavango, and Shashe with the Molopo River creating a geographical border between South Africa and Botswana.
- It is home of the world's largest elephant population

Rail Force One: A Symbol of Iron Diplomacy

Syllabus :GS 2/IR

Context

- India's Prime Minister Narendra Modi boarded 'Train Force One' from Poland to travel to the Ukrainian capital Kyiv.

About

- Foreign dignitaries visiting Kyiv have been taking the train ever since Ukraine's airspace was closed following the Russian invasion in February 2022.

Rail Force One

- Train Characteristics: The train, operated by Ukrainian Railways (Ukrzaliznytsia), is painted blue and yellow and features luxury amenities such as wooden panels, cream and blue curtains, leather sofas, king-size beds, and wall-mounted flatscreen TVs.
- Journey Details: The train travels approximately 700 km from Przemyśl Główny station in Poland to Kyiv, taking around 10 hours.
- Historical Use: The train was initially used for wealthy tourists visiting Crimea before Russia's annexation in 2014.
- Symbol of Diplomacy: The train has become a symbol of "Iron Diplomacy," a term used by Ukraine's Strategic Industries Minister Alexander Kamyshin.
- Importance to Ukraine: The train network is crucial for Ukraine, aiding in war efforts and transporting both aid and evacuees. It has also served as a morale booster and public relations asset during the conflict.

Prime Minister's State Visit to Poland

Syllabus: GS2/IR

Context

- Prime Minister Narendra Modi paid a State visit to Poland, it is the first Indian prime minister visit to Poland in 45 years.

About

- The visit coincides with the 70th anniversary of diplomatic relations between Poland and India, marking a milestone in the long-standing relationship.

- The talks between the two nations are set to cover a wide array of sectors including agriculture, information technology, security, and eco-friendly technologies, with a particular focus on India's advancements in the space industry.
- The visit signifies a deepening of political and economic ties and holds international significance.

Overview of India-Poland Relations

- Diplomatic relations were established in 1954, the two countries shared common ideological perceptions, based on their opposition to colonialism, imperialism and racism.
- Historical Relations: The two countries share several chapters of history.
- During World War II, the Maharaja of Jamnagar provided refuge to several hundred Polish women and children trying to reach the West. A street and a junior high school in Warsaw have been named in his honour.
- In 1944, Poles and Indians joined forces to retake the hill and monastery of Monte Cassino, pushing out German forces and opening the Allies' path to Rome.
- Economic & commercial Relations: Poland continues to be India's largest trading & investment partner in Central & Eastern Europe.
- Over the period 2013-2023, the total bilateral trade with Poland has witnessed an increase of 192% i.e. from US$1.95 billion in 2013 to US$5.72 billion in 2023. The balance of trade continues to be largely in favour of India in 2023.
- Tourism and business are growing in both directions, with Indian companies investing in Poland, particularly in the IT, biotechnology, electronics, and packaging sectors.
- In 2023, these companies employed about 10,000 Polish workers and invested over US$ 3 billion.
- Significance of Relations: India is now the fifth and soon-to-be third-largest economy in the world, while Poland ranks sixth in the EU and 21st globally.
- India is becoming a key player in the Indo-Pacific region, where a systemic rivalry exists between two superpowers: China and the United States (US).
- Poland is positioned as the West's hub for operations in Ukraine, is the leading country on NATO's eastern flank, and plays a pivotal role in constructing a new architecture for European security against Russia.
- Recognising these shifts, both the countries are striving harder than ever to forge better political and economic ties.

Way Ahead

- The key areas of bilateral Poland-India cooperation focus areas can be research and development, particularly in electromobility.
- Direct air connections between New Delhi, Mumbai, and Warsaw facilitate business, scientific, and tourism ties that began in 2019.
- Poland's aspirations to create a new aviation hub in the heart of Europe could align well with India's expanding aviation infrastructure, where passenger traffic is growing by 15 percent annually.
- With the largest ship design office in Europe and shipyards capable of constructing modern cargo and passenger vessels powered by electric and LNG propulsion, Poland could be a key partner.
- Poland needs to adopt a new perspective on India as a flourishing global player, recognised by major world powers like the US and China.

Third Voice of Global South Summit

Syllabus: GS2/ International Relations

Context

- PM Modi addressed the inaugural session of the third Voice of the Global South Summit (VOGSS).

Background

- India hosted the inaugural Voice of Global South Summit (VOGSS) in January 2023, and the second edition in November 2023.
- Both the sessions were held virtually.

- The theme of the 3rd Voice of Global South Summit is "An Empowered Global South for a Sustainable Future".

What is Global South?

- The term "Global South" was coined by Carl Oglesby, an American political activist, in 1969.
- He used the term to describe countries suffering from political and economic exploitation by developed nations of the Global North.
- In the simplest sense, Global South refers to the countries of Asia, Africa, Latin America, and Oceania.
- Most of these countries, where 88 per cent of the world population lives, experienced colonial rule and historically lagged in achieving substantial levels of industrialisation.
- According to the United Nations Conference on Trade and Development, Global South countries typically exhibit lower levels of development, higher income inequality, rapid population growth, agrarian-dominant economies, lower quality of life, shorter life expectancy, and significant external dependence.
- According to a World Bank report, "the gross domestic product (GDP) of the South, which represented about 20 percent of world GDP between the early 1970s and the late 1990s, doubled to about 40 percent by 2012."

India as the voice of Global South

- India, with its history of a leading role in the Non-Aligned Movement and G77 through the Cold War, has taken a considerable lead in assuming a leadership role and representing the collective interests of the Global South countries.
- During the G20 Summit in Delhi in 2023, India succeeded in its efforts to induct the African Union as a permanent member of the major economic bloc.
- The expansion, the first since the formation of G20 in 1999, allows the African countries to voice their economic concerns directly to the world's most influential countries.
- During the COVID-19 pandemic, India distributed around 163 million doses across 96 countries under the 'Vaccine Maitri' humanitarian drive between January 2021 and February 2022.
- India's digital public assets like UPI, RuPay, and India stack, which are supporting such a large portion of the Indian population, can be a powerful instrument for the digital transformation of other developing and emerging countries.

Challenges

- India's own past experience with the Non-Aligned Movement and the Group-77 developing nations points to the real difficulty of uniting the Global South in pursuit of common goals.
- The twin crises produced by the Covid-19 pandemic and the Russian war in Ukraine have had a devastating and disproportionate impact on the Global South.
- Possible neglect of Africa: In the rise of Asia, the continued neglect of Africa has been questioned as well.
- Many developed nations in the Global North have objected to China and India's exclusion from the Global South, given their increasing industrialisation.

Conclusion

- The recent resurgence of the Global South reflects the evolving geopolitical landscape and the growing influence of developing nations in global affairs.
- It is a platform to give voice to the needs and aspirations of those who have been unheard till now at a time when global governance and financial institutions formed in the last century have been unable to fight the challenges of this century.
- The world should respond to the priorities of the Global South, recognise the principle of common but differentiated responsibilities for global challenges, respect sovereignty of all nations, rule of law and reform international institutions like the United Nations.

'2+2' Dialogue by India and Japan Focusing on Indo-Pacific

Syllabus: GS2/International Relation

Context

- In a significant diplomatic engagement, India and Japan recently conducted their third "2+2" dialogue, bringing together their foreign and defence ministers.

About the India-Japan 2+2 Dialogue (2024)

- It refers to a high-level meeting between the foreign affairs and defence ministers (or secretaries) of two countries.
- It's a format that allows for comprehensive discussions on a wide range of issues, including defence cooperation, regional security, and strategic alignment.
- It emphasised defence cooperation and the significance of a free and open Indo-Pacific. Both sides reaffirmed their commitment to a rules-based order in the region, especially in light of China's assertiveness.
- The strategic partnership between India and Japan is closely tied to the Indo-Pacific. For India, this aligns naturally with its Act East policy.
- Both countries recognize the importance of a free and open Indo-Pacific region, where maritime security, trade, and connectivity play crucial roles.

Strategic Context

- The dialogue took place against the backdrop of a free, open, and rules-based Indo-Pacific. Both nations recognise the importance of this region, especially given China's assertive military actions in the area.
- India and Japan share a "Special Strategic and Global Partnership." This relationship is built on common values such as democracy, freedom, and the rule of law. Defence cooperation has emerged as a crucial pillar within this partnership.

Mutual Cooperation

- The India-Japan relationship has transformed into a special strategic and global partnership over the last decade. This evolution stems from expanding interests and collaborative efforts.

Recent Instances of the "2+2" Dialogue

- India-U.S. 2+2 Ministerial Dialogue (2023): It was aimed to expand the global strategic partnership between India and the US, focusing on defence industrial ties, Indo-Pacific engagement, and cooperation in critical areas like high-technology and minerals.
- India-Australia 2+2 Ministerial Dialogue (2023): Discussions centred on enhancing defence cooperation and deepening the strategic relationship, particularly in critical sectors such as trade, investment, and access to critical minerals.

Significance of "2+2" Dialogue

- Comprehensive Engagement: The "2+2" format allows for a holistic discussion that combines diplomatic and defence perspectives. It ensures that both ministries align their strategies and policies.
- Strategic Alignment: In an increasingly complex geopolitical landscape, countries seek reliable partners who share common interests. The dialogue helps strengthen strategic alignment and mutual understanding.
- Indo-Pacific Focus: Many of these dialogues emphasise the Indo-Pacific region—a critical area for global security and economic stability. Participants discuss maritime security, freedom of navigation, and regional stability.

Economic and Technological Cooperation

– Infrastructure Development: Japan has been a significant partner in India's infrastructure projects, including the Delhi-Mumbai Industrial Corridor (DMIC) and the Mumbai-Ahmedabad High-Speed Rail (Bullet Train) project.

– Trade and Investment: Both nations actively promote trade and investment. Japan is a major investor in India, particularly in sectors like automobiles, electronics, and pharmaceuticals.

– Technological Collaboration: India and Japan collaborate in areas such as robotics, artificial intelligence, and clean energy. Initiatives like the India-Japan Digital Partnership aim to enhance digital connectivity and innovation.

Cultural and People-to-People Ties

– Cultural Exchanges: India and Japan celebrate their rich cultural heritage through various exchanges, including art exhibitions, film festivals, and academic programs.

– Tourism: Japan is an increasingly popular destination for Indian tourists, and vice versa. The exchange of ideas and experiences contributes to mutual understanding.

Conclusion and Way Forward

- India stressed that the "2+2" dialogue should focus on the road ahead. Since their last meeting in Tokyo two years ago, global developments and changes in capabilities necessitate recalibrating their relationship.
- It echoed the sentiment, emphasising that the India-Japan partnership rests on democratic values and adherence to the rule of law.
- India and Japan continue to strengthen their bilateral ties, particularly in the context of regional security challenges. The Indo-Pacific remains a critical theatre for cooperation, and both nations are committed to maintaining a stable and open environment in the face of geopolitical complexities

External Affairs Ministers Visit to Maldives

Syllabus: GS2/ International Relations

Context

- External Affairs Minister of India S. Jaishankar has commenced a three-day official visit to the Maldives.

Key highlights of the meeting

- Both the nations signed MoUs on capacity building and inaugurated six High Impact Community Development Projects (HICDPs).
- India's Line of Credit (LoC)-assisted project of water and sewerage network in 28 islands of Maldives was jointly inaugurated during the meeting of both the nations.
- MoUs on capacity building of additional 1,000 Maldivian civil servants in India and on the introduction of UPI in Maldives were exchanged.

Significance of Maldives for India

- Trade Route: Situated along crucial maritime trade routes between the Gulf of Aden and the Strait of Malacca, the Maldives acts as a "toll gate" for nearly half of India's external trade and 80% of its energy imports.
- Strategic Location: The Maldives is strategically located in the Indian Ocean, and its stability and security are of interest to India.
- Counterbalancing China: Maldives presents an opportunity for India to counterbalance China's growing influence in the Indian Ocean, fostering regional balance of power.
- Economic partnership: India is one of the biggest investors and tourism markets for the Maldives, with significant trade and infrastructure projects underway.
- Defense and Security Cooperation: Since 1988, defense and security has been a major area of cooperation between India and Maldives.
- A comprehensive Action Plan for Defence was also signed in 2016 to consolidate defense partnership.
- Estimates suggest that almost 70 percent of Maldives' defense training is done by India — either on the islands or in India's elite military academies.

Significance of India for Maldives

- Essential Commodities: India supplies Maldives with its everyday essentials: rice, spices, fruits, vegetables, poultry, medicines and life-saving drugs.
- Education: Every year, Maldivian students come to Indian higher educational institutions.
- Economic dependence: Of the Rs 50 crore total trade between India and Maldives in 2022, Rs 49 crore was India's exports to Maldives. India emerged as Maldives' second largest trade partner in 2022.
- Disaster Relief Assistance: When a tsunami struck the islands in 2004, India was the first to send in help.
- In 2014 Male had a drinking water crisis as the major desalination plant broke down, India overnight airlifted drinking water to the islands.
- During the Covid-19 pandemic, India sent essential medicines, masks, gloves, PPE kits and vaccines for the island country.

Challenges in Relations

- Domestic turmoil in the Maldives: Recent political upheavals and changes in government have created uncertainty and complicated long-term cooperation projects.
- Chinese Influence: China's growing economic presence in the Maldives, evidenced by investments in infrastructure projects and debt-trap diplomacy, is perceived as a challenge to India's strategic interests in the region.
- Military ambitions: Chinese naval expansion and potential military ambitions in the Indian Ocean with the active support from Maldives has raised concerns for India.
- Trade imbalance: The significant trade imbalance between India and the Maldives could lead to resentment and calls for diversifying trade partnerships.

Conclusion

- The visit highlights the importance of the Maldives, India's maritime neighbor, as a key partner in the 'Neighbourhood First' policy and India's Vision SAGAR (Security and Growth for All in the Region).
- Maldives remains an important partner of India in maintaining peace, stability and prosperity in the Indian Ocean region.

Bangladesh Crisis & India's Policy on Refugees

Syllabus: GS2/IR/GS3/Internal Security

Context

- Former Bangladesh Prime Minister Sheikh Hasina will likely remain in India for some time, as her plans to travel to the United Kingdom faced a technical roadblock.

About

- Former PM came to India after violent protests against her government forced her to flee Bangladesh.
- The ex-PM had planned to seek asylum in the UK, but according to the country's immigration rules, asylum requests can only be processed once a person is in the UK and she does not hold a visa for travelling there.
- On the other hand, India has decided to let her stay in the country despite the lack of an official policy on refugees.

Overview of Migration Terms

– Asylum seeker: A person who is seeking international protection. Prior to being granted legal status in the destination country, refugees are termed asylum seekers.

1. Not all asylum seekers will be granted refugee status.

– Internally displaced person: Someone who has been forced to flee from their home to avoid conflict, violence and disasters and has moved within an internationally recognized state border.

– Migrant: A migrant is an "umbrella term, not defined under international law, reflecting the common lay understanding of a person who moves away from his or her place of usual residence, whether within a country or across a border, temporarily or permanently, and for a variety of reasons".

– Refugee: According to the 1951 UN Convention, refugees are individuals living outside their countries of origin who are in need of international protection because of feared persecution, or a serious threat to their life, physical integrity or freedom in their country of origin.

1. Refugees have legal permission to remain in the host country and may have access to health care, education and welfare benefits.

Refugee Crisis in India

- Afghan Refugees: With the Taliban's resurgence in Afghanistan, there has been an influx of Afghan refugees into India seeking safety and asylum. Many of them are Sikhs and Hindus facing religious persecution.
- Rohingya Crisis: Rohingya Muslims from Myanmar have sought refuge in India due to ethnic violence and persecution in Myanmar's Rakhine State.
- India has been grappling with their status, with the government taking a firm stance on their deportation.
- Tibetan Refugees: Tibetans have been living in India since the 1959 Tibetan uprising against Chinese rule.
- They are granted refugee status and live primarily in settlements in states like Himachal Pradesh and Karnataka.
- Sri Lanka: In the case of Sri Lankan Tamil refugees, many of them are in camps in Tamil Nadu. The state government provides them an allowance and allows them to seek jobs, and their children to attend school.
- After the end of the Sri Lanka civil war in 2009, India has encouraged return through the method of voluntary repatriation, if the situation back home is safe.

India's Policy on Refugees

- India has welcomed refugees in the past, with nearly 300,000 people categorised as refugees.
- This includes the Tibetans, Chakmas from Bangladesh, and refugees from Afghanistan, Sri Lanka, etc.
- But India is not a signatory to the 1951 UN Refugee Convention or the 1967 Protocol relating to the Status of Refugee. Nor does India have a refugee policy or a refugee law.
- Reason: This has allowed India to keep its options open on the question of refugees.
- The government can declare any set of refugees as illegal immigrants — as has happened with Rohingya despite the UNHCR verification — and decide to deal with them as trespassers under the Foreigners Act or the Indian Passport Act.
- All foreign undocumented nationals are governed as per the provisions of The Foreigners Act, 1946, The Registration of Foreigners Act, 1939, The Passport (Entry into India) Act, 1920 and The Citizenship Act, 1955.
- As per the MHA foreign nationals who enter into the country without valid travel documents are treated as illegal immigrants.

Reasons for India's Policy on Refugees

- Resource Strain: Hosting refugees puts pressure on resources such as food, water, housing, and healthcare facilities, especially in areas where infrastructure is already stretched thin.
- Social Cohesion: Large numbers of refugees can strain social cohesion, potentially leading to tensions with host communities, especially when resources are perceived as scarce.
- Security Concerns: There are security concerns related to refugee influxes, including the potential infiltration of extremist elements or challenges in monitoring movements across porous borders.
- Diplomatic Relations: Hosting refugees can strain diplomatic relations with neighboring countries or countries of origin, particularly if there are geopolitical tensions or disputes involved.

- Economic Impact: Refugees compete for low-skilled jobs, affecting the local job market, while their potential contributions to the economy through entrepreneurship or labor may not be fully realized.

Way Ahead

- India can work towards a comprehensive approach to managing the refugee crisis, ensuring that refugees receive the protection and support they need while promoting stability and cooperation in the region.
- Refugee Status Determination: Establish clear procedures for determining refugee status and provide legal protections accordingly.
- Access to Rights: Ensure refugees have access to basic rights such as education, healthcare, and employment.
- Regional Collaboration: Work with neighboring countries and international organizations to manage refugee flows and share responsibilities.
- Bilateral Agreements: Strengthen diplomatic ties to facilitate the safe return or resettlement of refugees.
- Empowerment Initiatives: Support initiatives that empower refugees economically and socially, such as vocational training and language education.
- Conflict Resolution: Address the root causes of displacement through diplomatic efforts and support for peacebuilding initiatives.

India-Sri Lanka Fishermen Issue

Syllabus: GS2/ International Relations

Context

- 32 fishermen from Pamban in Ramanathapuram district of Tamil Nadu were arrested by the Sri Lankan Navy on charges of poaching.

Background

- The prolonged dispute over fishing rights around Kachchatheevu Island in Palk Bay has been a source of tension between India and Sri Lanka for many years.
- According to the 1974 Indo-Lanka Maritime Agreement, the Indian Government ceded Kachchatheevu Island to Sri Lanka, without consulting the Tamil Nadu government.
- The agreement allowed Indian fishermen "access to Katchatheevu for rest, for drying of nests and for the annual St Anthony's festival" but it did not ensure the traditional fishing rights.

What is the issue?

- The IMBL was born out of a bilateral agreement signed back in 1974 and 1976 under the United Nations Convention on Law of the Sea (UNCLOS).
- However, Indian fishermen have been crossing the International Maritime Boundary Line (IMBL) unintentionally and have sometimes been apprehended or faced unfortunate consequences from the Sri Lankan authorities.
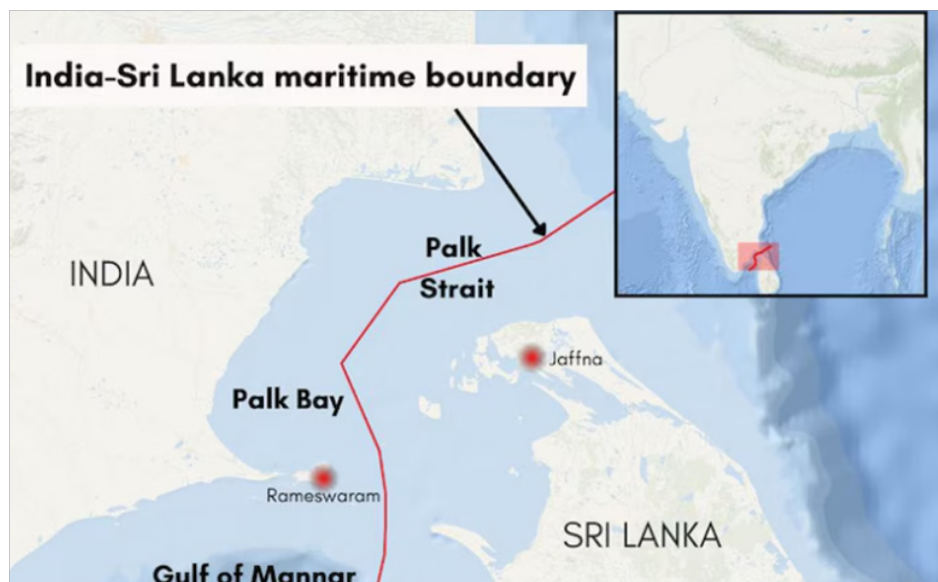
Why do Indian fishermen cross borders?

- Fishermen from Tamil Nadu claim that they and their ancestors have fished in waters beyond the IMBL for centuries and generations.
- Also the depletion of fish stocks on the Indian side of the IMBL is one of the prime motivations behind such incursions.

Concerns of Sri Lanka

- Sri Lanka asserts that the Indian encroachment is often well-coordinated. They categorize fishing by Indian fishers in their waters as "poaching" and maintain that the practice could jeopardize the national security of both nations.
- Proliferation of trawlers in Indian coast: Trawlers are mechanized boats with highly exploitative fishing nets unlike most of the poor fishermen on the Sri Lankan coast who use traditional fishing methods.

Way Ahead

- The ongoing fisheries dispute between India and Sri Lanka is a complex issue that has the potential to impact the bilateral relationship between the two nations.
- A comprehensive and holistic approach, taking into account the concerns of all stakeholders, including the human rights violations of Indian fishermen in Palk Strait, is necessary to resolve this issue.
- By leveraging advanced technologies such as satellite imagery and algorithms, fishing vessels can be accurately identified in real-time, even in remote areas.
- This will provide valuable insights for authorities to understand fishing patterns and take the necessary measures to maintain the region's security.

Reform in UN Security Council

Syllabus: GS2/International Organisation; India's Interests

Context

- Recently, the G4 Countries have said that without reforms the UN Security Council is ill equipped to address global challenges.

United Nations Security Council (UNSC)

– It is one of the UN's six main organs and is aimed at maintaining international peace and security.
Current Composition
– The UNSC currently consists of five permanent members (P5): China, France, Russia, the United Kingdom, and the United States.
1. These P5 members hold veto power, allowing them to block any substantive resolution.
– Additionally, there are ten non-permanent members elected for two-year terms.
– More than 50 United Nations Member States have never been Members of the Security Council.

UNSC Elections

– Each year the General Assembly elects five non-permanent members (out of 10 in total) for a two-year term.
– The 10 non-permanent seats are distributed on a regional basis as follows:
1. Five for African and Asian States.
2. One for the Eastern European States.
3. Two for the Latin American and Caribbean States;
4. Two for Western European and other States
G4 Nations
– These, comprising Brazil, Germany, India, and Japan, are four countries that support each other's bids for permanent seats on the United Nations Security Council.
– Unlike the G7, where the common denominator is the economy and long-term political motives, the G4's primary aim is the permanent member seats on the Security Council.
– Each of these four countries have figured among the elected non-permanent members of the council since the UN's establishment.

Need For Reform

- Representation Matters: The G4 nations stressed that the lack of adequate geographic representation in the Security Council is responsible for its failures.
- Specifically, they highlighted the non-representation of Africa, Latin America, and the Caribbean, as well as the under-representation of the Asia-Pacific region in the permanent category of the UNSC.
- Addressing this historical imbalance is crucial for the Council to effectively tackle current global challenges.
- Imbalances and Urgency: India's Charge d'Affaires and Deputy Permanent Representative to the UN pointed out that recent geopolitical events have revealed the UNSC's limitations in safeguarding international peace and security.
- The realities of 1945, when the Council was established, no longer align with today's geopolitical landscape.
- The G4 nations firmly believe that any reform of the Council must address the lack of representation, especially in the permanent category. Failing to do so would exacerbate existing imbalances.

India's Stance

- India has consistently advocated for UNSC reform. It believes that as a major global player, it deserves a permanent seat on the Council.
- It emphasises the need for equitable representation, especially for developing countries.
- India rightly emphasises that UNSC reform is a collective effort, stating it's not solely the responsibility of a single powerful nation; all UN members must actively participate.

Proposed Reforms

- The G4 proposed expanding the Council's membership to include more permanent and non-permanent members.
- Africa's role is particularly crucial in shaping a more representative and effective UNSC.
- Without meaningful reforms, the Council risks being ill-equipped to address the pressing challenges faced by the international community.

Challenges and Reluctance

- Reforming the UNSC is not an easy process. Various countries have differing views on how to proceed. Some nations use procedural tactics to delay progress, hindering meaningful reform.
- Coffee Club: It is an informal group comprising 40-odd member states, mostly middle-sized states who oppose bigger regional powers grabbing permanent seats, has been instrumental in holding back reforms to the United Nations Security Council over the past six years.
- India, however, remains committed to pushing for change.

Intergovernmental Negotiations (IGN)

- It serves as a platform for discussing UNSC reform. Unfortunately, progress has been slow.
- India has called out the use of IGN as a "smoke-screen" by a few countries, preventing substantial movement toward reform.

India's Preparedness

- As a current non-permanent member of the UNSC, India will complete its two-year tenure in December.
- India is ready to take on greater responsibilities but also seeks to address historical injustices faced by the Global South.

Tribal Education in India: Problems, Policies and Perspective

Syllabus: GS1/ Society, GS2/ Governance

Context

- The National Human Rights Commission (NHRC), India organized an open house discussion on 'Tribal Education in India: Problems, Policies and Perspective' in New Delhi.

Status of Tribal Education in India

- According to the 2011 census, tribes constitute 8.6% of the total population of the country.
- The literacy of the tribe was 8.53% in 1961 which has increased to 58.96% in the year 2011.

Challenges in tribal education in India

- Language Barriers: Tribal children usually speak their native languages at home, which are often not the medium of instruction in schools.
- This language gap makes it difficult for them to understand lessons, leading to poor academic performance and higher dropout rates.
- Early Dropouts: The high dropout rates among tribal students are a significant concern.
- Poverty: The financial instability in many tribal families forces children to contribute to household income through labor, leaving little room for educational pursuits.
- Teacher Absenteeism: In remote tribal areas, teacher absenteeism is a common problem, which significantly hampers the quality of education.
- Poor School Infrastructure: Many schools in tribal areas suffer from inadequate infrastructure, including a lack of basic facilities such as classrooms, toilets, and drinking water.
- Teacher-Student Ratios: Tribal schools often have an insufficient number of teachers, leading to overcrowded classrooms and inadequate attention to individual students' needs.

Government Policies

- Eklavya Model Residential School (EMRS): It is a central sector scheme introduced in the year 1997-98 to provide quality education to Scheduled Tribes (ST) students (Class 6th to 12th) in remote areas through residential schools.
- Scheme for the establishment of Ashram schools: The Scheme for the establishment of Ashram schools in tribal sub-plan areas is a centrally sponsored scheme for construction of all girls' Ashram Schools and boys' Ashram Schools in certain extremism-affected areas.
- States are responsible for the operation and maintenance of these schools.
- National Overseas Scholarship Scheme: Scheme provides financial assistance to 20 students selected for pursuing higher studies abroad for Ph.D. and postdoctoral studies.
- The applications are invited online on the National Overseas Portal.
- The Post-Matric Scholarship Scheme provides financial assistance to ST students pursuing post-matric courses in recognised institutions.

Way Ahead

- There is an urgent need for empirical data, necessitating tribal-centric research in universities to better understand and address specific educational challenges faced by these communities;
- Increasing community engagement and outreach is crucial for improving enrollment rates, while ensuring basic facilities such as drinking water, sanitation, and adequate hostel accommodations, particularly in remote areas, is essential;

- Capacity-building programs for teachers are necessary to sensitize them to tribal cultures and languages, facilitating better communication and understanding;
- Incorporating local languages at the primary level is important for easing comprehension and enhancing the overall learning experience for tribal students.
- Also need to improve tribal representation in higher educational institutions like IITs and IIMs.

Unified Pension Scheme

Syllabus: GS2/Government Policy and Intervention

Context

- Recently, the Union Cabinet, chaired by the Prime Minister, approved the Unified Pension Scheme (UPS) by replacing the National Pension System (NPS).

About

- It is based on the recommendations of T. V. Somanathan Committee (2023), will be effective from April 1, 2025.
- The UPS proposes to amalgamate advantages of both Old Pension Scheme (OPS) and New Pension Scheme (NPS).
- It represents a forward-looking approach to retirement planning in India, aiming to provide a secure and sustainable pension system for all eligible employees.
- It aims to provide long-term financial security to government employees while maintaining flexibility and choice.

Key Features of the Unified Pension Scheme (UPS)

- Guaranteed Pension: Under the UPS, eligible employees are assured a pension equal to 50% of their average basic pay drawn over the last 12 months prior to superannuation.
- For service periods between 10 and 25 years, the pension will be proportional.
- Minimum Qualifying Service: Employees with a minimum qualifying service of 25 years will receive the full assured pension.
- In case of an employee's demise, their family will receive an assured pension equal to 60% of the employee's pension before their demise.
- Assured Minimum Pension: Upon superannuation after a minimum of 10 years of service, employees will receive an assured minimum pension of Rs 10,000 per month. It ensures a safety net for retirees.
- The UPS promises central government employees who have completed at least 25 years of service a guaranteed pension.
- It is calculated as half of their average basic salary over the 12 months preceding superannuation.
- Inflation Indexation: The UPS applies inflation indexation to the assured pension, assured family pension, and assured minimum pension.
- In the form of Dearness Relief based on All India Consumer Price Index for Industrial Workers (AICPI-IW), similar to service employees.
- Lump Sum Payment: In addition to gratuity, 1/10th of monthly salary+ Dearness Allowance for every completed six months of service.
- Financial Contributions: Employees choosing the UPS will continue to contribute 10% of their salary.
- The government's contribution will increase from 14% to 18.5%.
- It ensures that employees do not face any additional financial burden.

Choice Between UPS and NPS

- Central government employees have the option to choose between the UPS and the National Pension Scheme (NPS).
- Unlike the UPS, the NPS is market-linked.

Similarities to the Old Pension Scheme (OPS)

– The UPS shares similarities with the old pension scheme in terms of benefits. However, it differs significantly in its funding mechanism.

– Unlike the OPS, which was a pay-as-you-go program, the UPS is fully funded each year from the budget and absorbed into it. This approach prevents future generations from bearing the burden of pension payments.

Choice for NPS Subscribers

– Employees currently under the National Pension System (NPS) have the option to shift to the UPS.

– NPS, introduced in 2004, is a defined contribution scheme where employees accumulate a retirement corpus based on their contributions.

– UPS provides an alternative for those seeking a more assured pension.

Indian Institute of Astrophysics to Study Sunspot's Magnetic Field

Syllabus: GS 3 / Space

In News

- Researchers investigated the magnetic field at different layers of the solar atmosphere using data from the Kodaikanal Tower Tunnel Telescope.

About the study

- The IIA's approach involves probing the solar magnetic field at various atmospheric heights, an essential endeavor for understanding fundamental solar processes.
- The solar atmosphere is composed of various layers connected through magnetic fields.
- These magnetic fields are responsible for transferring energy and mass from the inner layers to the outer layers.
- The magnetic field is the prime driver of the solar wind.
- Data Collection: Researchers use Hydrogen-alpha and Calcium II 8662 Å spectral lines to analyze the magnetic field at different solar atmosphere heights.
- Findings: The H line is less sensitive to local temperature fluctuations, making it effective for probing the chromospheric magnetic field, especially in active regions with sudden temperature changes.

Impact

- The findings from IIA's research have the potential to transform our understanding of solar physics.
- By addressing the complexities of solar magnetic fields, the institute contributes to broader efforts to solve long standing questions about solar energy transfer and solar wind dynamics.
- This research is crucial for tackling the coronal heating problem and understanding the mechanisms driving solar wind.

Future outlook

- The Indian Institute of Astrophysics continues to lead the way in solar research, with its innovative techniques and cutting-edge technology paving the way for groundbreaking discoveries in astrophysics.
- Future studies will likely build on these advancements, offering deeper insights into the sun's behavior and its effects on space weather.

Do you know ?

– The Kodaikanal Solar Observatory (KoSO) is known for the discovery of the Evershed Effect in 1909.

– It is operated by the Indian Institute of Astrophysics (IA), and it is located in Kodaikanal, Tamil Nadu.

– The Kodaikanal Tower Tunnel Telescope features a sophisticated 3-mirror Coelostat system.

– This setup includes a primary mirror (M1) that tracks the sun, a secondary mirror (M2) that redirects sunlight downward, and a tertiary mirror (M3) that aligns the beam horizontally.

National Geoscience Awards

GS: Miscellaneous

In News

- The President of India, Smt. Droupadi Murmu, conferred the prestigious National Geoscience Awards (NGA) for the year 2023.

About the National Geoscience Award (NGA)

- It is one of the oldest and most prestigious national awards in the field of geosciences, instituted by the Ministry of Mines, Govt. of India in the year 1966.
- Before the year 2009, these awards were called National Mineral Awards.
- The objective of these Awards is to honour individuals and teams for extraordinary achievements and outstanding contributions in various fields of geosciences i.e. mineral discovery & exploration, Mining Technology & Mineral Beneficiation, fundamental/ applied geosciences.
- Any citizen of India with significant contribution in any field of geosciences is eligible for the award.
- The Ministry of Mines confers National Geoscience Awards every year in three categories:
- National Geoscience Award for Lifetime Achievement
- National Geoscience Award
- National Young Geoscientist Award

Space-Driven Solutions for Agricultural Transformation in India

Syllabus: GS3/Agriculture

Context

- The Department of Agriculture & Farmers' Welfare organized a conference on the pivotal role of space technology in the growth and development of India's agricultural sector.
- The conference also marked the launch of the Krishi-Decision Support System.

Krishi-Decision Support System

- Krishi-DSS is a first-of-its-kind geospatial platform designed for Indian agriculture. It is part of the Digital Public Infrastructure for Agriculture announced in the recent Budget.
- The platform provides seamless access to comprehensive data including satellite images, weather information, reservoir storage, groundwater levels and soil health information, which can be easily accessed from anywhere at any time.

Space technology application in agriculture

- Weather Predictions: Satellites provide data for accurate weather forecasting, helping farmers plan their activities, such as sowing, irrigation, and harvesting, to avoid losses due to adverse weather conditions.
- Water Resource Management: Satellite data is used to monitor water bodies and manage water resources more effectively, ensuring that irrigation is optimized and water is conserved.
- Mobile Apps and Digital Platforms: Several government and private initiatives use satellite data to provide real-time advisory services to farmers through mobile apps.
- Example: Kisan Suvidha mobile application to facilitate dissemination of information to farmers on the critical parameters viz., Weather; Market Prices; Plant Protection; Agro-advisory; Extreme Weather Alerts etc.
- Crop Yield Forecasting: Satellite data is used to forecast crop yields, helping in market planning and pricing strategies.
- KISAN [C(K)rop Insurance using Space technology And geoiNformatcs] project launched in 2015 envisaged use of high-resolution remote sensing data for optimum crop cutting experiment planning and improving yield estimation.

Other initiatives

- FASAL (Forecasting Agricultural output using Space, Agro-meteorology, and Land-based observations): This project provides pre-harvest crop production forecasts using satellite data.

- Bhuvan: The platform provides satellite imagery and services to support agriculture, including crop insurance and land use planning.
- Pradhan Mantri Fasal Bima Yojana (PMFBY): This crop insurance scheme leverages satellite data to assess crop damage and process claims faster and more accurately.

Agriculture Sector in India

– India is one of the major players in the agriculture sector worldwide and it is the primary source of livelihood for ~55% of India's population.

– It is the second-largest producer of fruit, vegetables, tea, farmed fish, sugarcane, wheat, rice, cotton, and sugar.

– India occupies fifth place globally with a total area of 2.66 million hectares in organic farming.

Krishi-Decision Support System (Krishi-DSS)

Syllabus: GS 3/Agriculture

In News

- The Department of Agriculture & Farmers' Welfare launched Krishi-Decision Support System (Krishi-DSS)

Krishi-DSS

- It is a geospatial platform for agriculture.
- It provides access to satellite images, weather data, reservoir storage, groundwater levels, and soil health information.
- It Includes modules for crop mapping, drought monitoring, crop weather watch, field parcel segmentation, soil information, and ground truth data.
- Functional Capabilities: Analyzes cropping patterns and encourages sustainable agriculture.
- Offers real-time information on drought indicators.
- Tracks weather impacts on crops.
- Provides comprehensive soil data for crop suitability and conservation.
- Purpose: Aims to empower farmers, inform policies, and promote agricultural innovation and sustainability.
- Supports development of farmer-centric solutions and early disaster warnings.

Green Tug Transition Program (GTTP)

Syllabus: GS3/Infrastructure

Context

- The Union Minister of Port Shipping and Waterways, launched the Standard operating procedure (SOP) for Green Tug Transition Program (GTTP) in New Delhi.

Green Tug Transition Program (GTTP)

- The GTTP is designed to phase out conventional fuel-based harbor tugs operating in Indian Major Ports and replace them with green tugs powered by cleaner and more sustainable alternative fuels.
- Under Phase 1 of the GTTP four Major Ports—Jawaharlal Nehru Port Authority, Deendayal Port Authority, Paradip Port Authority, and V.O. Chidambaranar Port Authority—will procure or charter at least two green tugs each.
- The goal of the GTTP is to convert at least 50% of all tugs into Green Tugs by 2030 and to have Green Tugs operating at all major ports.

FloodWatch India 2.0

Syllabus: GS2/ Governance

Context

- Union Minister for Jal Shakti, launched the Version 2.0 of the 'FloodWatch India' mobile application developed by the Central Water Commission (CWC).
- The first version of the application was launched in 2023.

About

- 'FloodWatch India', aims to use mobile phones to disseminate information related to flood situations in the country and flood forecasts up to 7 days on a real-time basis to the public.
- The app utilizes advanced technologies such as satellite data analysis, mathematical modeling and real-time monitoring to deliver accurate and timely flood forecasts.
- Version 2.0 of the app provides information on flood forecasts at additional 392 flood monitoring stations, taking up the total number of stations to 592.
- The earlier version provided information at 200 level forecast stations.

Biofortified Crops

Syllabus: GS3/Agriculture

Context

- Recently, the Prime Minister of India released 109 high yielding, climate resilient and biofortified varieties of crops at India Agricultural Research Institute, New Delhi.

About the Biofortified Crops

- It is the process and an agricultural approach of enhancing the nutrient content of crops through conventional breeding or genetic modification.
- It aimed at developing and disseminating crops that are naturally rich in essential micronutrients, containing higher levels of vitamins, minerals, and other nutrients.
- These crops are important for Malnutrition Mitigation, Targeting Vulnerable Populations, and Climate Resilience etc

India's Biofortification Efforts

- India has been actively involved in biofortification initiatives. Under the Indian Council of Agricultural Research (ICAR), several biofortified crop varieties have been developed since 2014.
- Recently, the 109 varieties of 61 crops released by the Prime Minister included 34 field crops and 27 horticultural crops.
- Among the field crops, seeds of various cereals including millets, forage crops, oilseeds, pulses, sugarcane, cotton, fibre and other potential crops were released.
- Among the horticultural crops, different varieties of fruits, vegetable crops, plantation crops, tuber crops, spices, flowers and medicinal crops were released.

Do You Know?

– Field Crops: These include biofortified varieties of rice, wheat, maize, pearl millet, small millets, lentils, chickpeas, and more. These crops are essential staples for many Indians.

– Horticultural Crops: India has also focused on biofortified horticultural crops like sweet potatoes, amaranthus, yams, and potatoes. These provide a diverse range of nutrients and flavours.

World Lion Day

Syllabus :GS 3/Environment

In News

- Prime Minister Shri Narendra Modi, on the occasion of World Lion Day, complemented all those involved in Lion conservation & protection work.

World Lion Day:

- Initiated by Big Cat Rescue which is the world's largest accredited sanctuary dedicated to big cats.
- It is celebrated on August 10th and it aims to honour and raise awareness about lions and their conservation.

Scientific Name:	Panthera leo persica
Weight:	Male: 150-250 kg
	Female: 120-180 kg
Length (head and body):	Male: 1.7-2.5 m
	Female: 1.4-1.75 m
Birth Interval:	18-26 Months
Typical Diet:	Carnivorous
Lifespan:	16-18 Years

About Lion

- Asiatic lions are slightly smaller than African lions.
- Asiatic lions are found only in the Gir Forest, with population growth from 523 in 2015 to 674 in 2020.
- IUCN Red List Status : Endangered

Importance of Lions

- Ecological: Apex predators that maintain ecological balance.
- Control herbivore populations, promote forest and grassland health, and prevent disease spread within prey populations.
- Cultural Significance :The lion is a symbol of strength on India's national emblem and currency.

Threats

- Lions face threats from habitat loss, human-wildlife conflict, and poaching.

FUN FACTS
- Lions live in large groups called prides.
- Male lions can weigh over 500 pounds and grow up to eight feet in length.
- Known as the "King of the Jungle," lions live in grasslands and plains, not jungles.
- Female lions and their sisters live together for life, while males stay with the pride until they reach maturity.
- A lion's roar can be heard from up to five miles away.
- Lions spend about 20 hours a day resting or sleeping.
- Male lions patrol their territories regularly.
- Lions prefer to hunt at night, making it easier to catch prey.

Conservation Efforts

- Project Lion: Launched on August 15, 2020.
- Aims for the long-term conservation of Asiatic lions.
- Includes habitat improvement, monitoring with technology, and addressing human-wildlife conflicts.
- Gujarat Forest Department conducts population censuses and monitors lion health.
- Implements measures for fire management, flood preparedness, and continuous monitoring.
- International Big Cats Alliance (IBCA): Launched in April 2023.
- Promotes global cooperation among 97 range countries for big cat conservation.
- Facilitates knowledge sharing and resource allocation.
- GIS-Based Real-Time Monitoring provides real-time analysis and management.

Exercise Udara Shakti

Syllabus: GS3/ Defence

Context

- The Indian Air Force (IAF) contingent returned to India after successfully participating in the Exercise Udara Shakti 2024.

About

- The joint air exercise was conducted in collaboration with the Royal Malaysian Air Force (RMAF) at Kuantan, Malaysia.
- The primary focus of the exercise was to bolster operational efficiency and enhance the technical expertise of both air forces.

Projects completed under Namami Gange Mission 2.0

Syllabus :GS 3/Conservation

In News

- The Government of India has completed and operationalized four major projects under the Namami Gange Mission 2.0 in the first quarter of fiscal year 2024-25.

About Projects

- Locations : The projects are located in Bihar and Uttar Pradesh.
- Total cost of the projects is Rs. 920 crores.
- Munger (Bihar): Develops a 175 km sewerage network and a 30 MLD STP (Sewage Treatment Plant).
- Mirzapur (Uttar Pradesh):Intercepts nine drains and rehabilitates six existing structures. Increases sewage treatment capacity to 31 MLD.
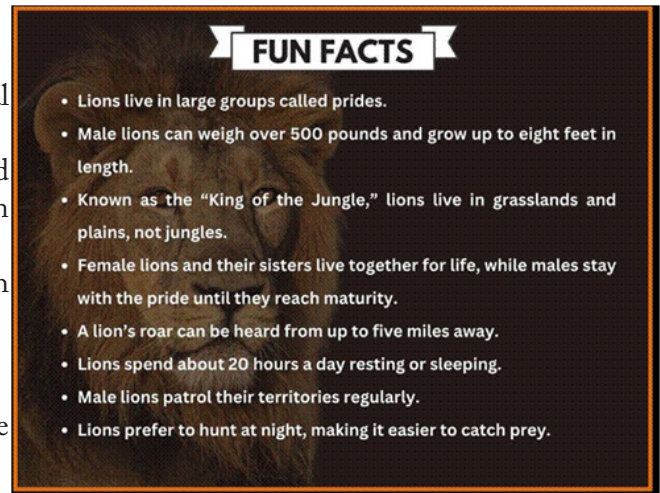
- Ghazipur (Uttar Pradesh): Includes a 1.3 km Interception and Diversion (I&D) network and a 21 MLD STP.
- Bareilly (Uttar Pradesh): Intercepts and diverts 15 drains.
- Constructs three STPs with a combined capacity of 63 MLD.
- Aims to improve water quality in the Ramganga River and subsequently the Ganga.
- These projects based on the Hybrid Annuity PPP (HAM) model have been designed on the basis of Advanced Sequencing Batch Reactor technology and meet the stringent standards prescribed by the National Green Tribunal NGT.

About the Namami Gange Mission

- It is an Integrated Conservation Mission, approved as 'Flagship Programme' by the Union Government in June 2014 with budget outlay of Rs.20,000 Crore to accomplish the twin objectives of effective abatement of pollution, conservation and rejuvenation of National River Ganga.
- With the success of the initial phase, the government has now embarked on Namami Gange Mission 2.0, a more ambitious and comprehensive effort to ensure the long-term health and sustainability of the river.

★ Main pillars of the Namami Gange Programme are:-

Sewerage Treatment Infrastructure	River-Front Development
River-Surface Cleaning	Bio-Diversity
Afforestation	Public Awareness
Industrial Effluent Monitoring	Ganga Gram

Objectives

- Pollution Abatement: It aims to intercept, divert, and treat wastewater from open drains through innovative technologies and sewage treatment plants (STPs).
- Over 200 sewerage infrastructure projects have been sanctioned, with many already completed and operational.
- Riverfront Development: Enhancing the aesthetic and functional aspects of the riverfronts, including the construction and modernization of ghats and crematoria, to promote tourism and cultural activities.
- Biodiversity Conservation: Efforts are being made to restore and conserve the river's biodiversity. This includes the development of aquatic species restoration plans and the establishment of rescue and rehabilitation centres for endangered species1.
- Public Awareness : Engaging local communities, urban local bodies, and Panchayati Raj Institutions in the mission to ensure sustainable results.
- Effluent Monitoring: Strict monitoring and regulation of industrial effluents to ensure that industries comply with environmental standards and do not pollute the river.

Challenges

- Funding Issues: Despite significant financial commitments, ensuring consistent and adequate funding for the various projects under the mission remains a challenge.
- Technological and Infrastructure Issues: the adoption and scaling up of advanced technologies for wastewater treatment and pollution control can be hindered by infrastructural limitations and the need for continuous maintenance.
- Community Engagement: Ensuring that local communities, urban local bodies, and Panchayati Raj Institutions remain actively engaged and take ownership of the initiatives is a persistent challenge.
- Industrial Pollution Control: Enforcing compliance with environmental standards among industries can be difficult, especially in regions with high industrial activity
- Environmental Concerns: Restoring and conserving the river's biodiversity requires a delicate balance.

Suggestions and Way Forward

- Namami Gange Mission 2.0 represents a holistic approach to river rejuvenation, integrating environmental, social, and economic dimensions.
- By addressing the challenges and building on the achievements, the mission aims to restore the Ganga to its pristine glory, ensuring it remains a lifeline for millions of Indians for generations to come.
- Still there is a need for a multifaceted approach, combining technological innovation, community engagement, strict regulatory measures, and effective coordination among all stakeholders. By tackling these issues head-on, the Namami Gange Mission 2.0 can achieve its goal of rejuvenating the Ganga River and ensuring its sustainability for future generations.

Quit India Movement

Syllabus: GS1/History of India

Context

- Recently, the Prime Minister of India has paid tributes to all those who took part in the Quit India Movement under Mahatma Gandhi's leadership.

About the Quit India Movement

- In 1942, with World War II raging, India found itself drawn into the conflict due to its status as a constituent component of the British Empire.
- The Congress Working Committee, in response to Britain's aggressive activities, passed a resolution condemning the war but asserting that India could not be part of it without consultation.
- The Viceroy's subsequent statement promised post-war modifications to the Government of India Act of 1935, but Mahatma Gandhi saw it as insufficient—a mere "stone" instead of the "bread" the Congress had asked for.

How the Quit India Movement unfolded?

- August Offer: In August 1942, the Viceroy issued an "August Offer" in an attempt to pacify Indians. However, both the Congress and the Muslim League rejected it. The dissatisfaction with British rule intensified.
- Gandhi's Call: At a Congress Working Committee meeting in Wardha, Gandhi revealed his plan for Individual Civil Disobedience.
- Satyagraha—the weapon of truth and nonviolent resistance—once again gained popularity as the means to challenge British authority.
- Do or Die: On August 8, 1942, at the Gwalior Tank Maidan in Mumbai, Gandhi issued his famous call to "Do or Die."
- The All-India Congress Committee demanded an "orderly British withdrawal" from India. The Quit India Movement was born.
- Mass Protest: Millions of Indians participated in strikes, demonstrations, and civil disobedience across the country. The movement aimed for complete independence from British rule.
- Repression and Sacrifice: The British responded with brutal repression. Many leaders were arrested, and protesters faced violence. Despite this, ordinary people stood firm, making immense sacrifices for freedom.

- Legacy: The Quit India Movement marked a turning point. It demonstrated the unwavering spirit of Indians and their determination to break free from colonial shackles.
- Although it faced suppression, it left an indelible mark on India's path to independence.

Exploration of Geothermal Energy

Syllabus: GS3/Environment/Energy Sector

Context

- Geological Survey of India (GSI) has carried out exploration of geothermal energy in various recognized geothermal fields which includes collection of data on temperature, discharge, and quality/chemistry of water in different geothermal fields.

Major Highlights

- GSI has studied 381 thermally anomalous areas across India and has published a report titled 'Geothermal Atlas of India, 2022'.
- Potential: A potential of about 10,600 MW of geothermal power has been estimated in the country.
- Projects:Singareni Collieries Company Limited (SCCL) has commissioned a 20 kW pilot geothermal power plant in Manuguru area of Bhadradri Kothagudem district in Telangana.
- The Ministry of New and Renewable Energy (MNRE) is implementing a "Renewable Energy Research and Technology Development Programme (RE-RTD)" to develop indigenous technologies and manufacturing for widespread applications of new and renewable energy in an efficient and cost-effective manner.
- MNRE provides up to 100% financial support to Government/non-profit research organizations and upto 70% to Industry, start-ups, private Institutes, entrepreneur, and manufacturing units under Renewable Energy Research and Technology Development Programme, including for geothermal energy R&D projects.
- Collaborations with international organisations/countries to advance geothermal energy efforts in India, include: –
- Under the aegis of the MoU signed in 2007 between India and Iceland, both the sides have identified Geothermal as an area of cooperation.
- India has signed an MoU with Kingdom of Saudi Arabia in 2019, wherein, Geothermal has been identified as an area of cooperation.
- Under the Renewable Energy Technology Action Platform (RETAP) launched in 2023 between India and USA, Geothermal has been identified as a focus area.

Geothermal Energy

- Geothermal energy is a type of renewable energy that comes from the heat stored within the Earth.
- This heat is produced by the natural decay of radioactive materials and by the heat that's left over from the planet's formation.

Ways to Harness Geothermal Energy:

- Geothermal Power Plants: These use steam from heated water reservoirs beneath the Earth's surface to drive turbines connected to electricity generators. There are three main types:
- Dry Steam Plants: Directly use steam from a geothermal reservoir to turn the turbines.
- Flash Steam Plants: Pull high-pressure hot water into lower-pressure tanks to create steam.
- Binary Cycle Plants: Transfer heat from geothermal hot water to another liquid with a lower boiling point, which vaporizes and drives the turbine.
- Geothermal Heat Pumps: These systems use the Earth's constant temperature to heat and cool buildings. In winter, they bring heat from the ground into buildings, and in summer, they transfer heat from buildings back into the ground.
- Direct Use Applications: Geothermal energy can also be used directly for heating buildings, growing plants in greenhouses, drying crops, and even in some industrial processes.
- Geothermal District Heating: In some areas, geothermal energy is used to provide heating for entire communities or districts through a network of pipes.

- Drawbacks: It can have some environmental impacts, such as land subsidence and the potential for induced seismicity (earthquakes triggered by human activity).
- Geothermal resources are often location-specific, which means they are most effective in regions with significant geothermal activity, such as Iceland, parts of the United States (like California and Nevada), and the Pacific Ring of Fire.

Significance:

- Renewable and Sustainable: Geothermal energy is a renewable resource because the heat from the Earth is continually replenished.
- Unlike fossil fuels, which are finite, geothermal energy can provide a consistent and reliable source of power and heating.
- Low Greenhouse Gas Emissions: Geothermal energy systems produce very low levels of greenhouse gases compared to fossil fuels.
- This makes it a cleaner alternative that helps mitigate climate change and reduce air pollution.
- Diverse Applications: Beyond electricity generation, geothermal energy can be used for direct heating applications, cooling, and in various industrial processes. This versatility enhances its value as a multipurpose energy source.
- Low Operating Costs: Once a geothermal power plant or heat pump system is installed, the operational and maintenance costs are relatively low compared to other energy sources. This can result in lower long-term energy costs.
- Reduced Water Usage: Geothermal power plants generally use less water than conventional power plants, which is particularly advantageous in water-scarce regions.

Boilers Bill, 2024

Syllabus: GS2/ Governance

Context

- The Boilers Bill, 2024 was introduced in Rajya Sabha. The Boilers Bill, 2024 repeals the Boilers Act, 1923.

About

- The Boilers Act, 1923, a pre-constitution Act, deals with the safety of life and property.
- It was amended in the year 2007 by the Indian Boilers (Amendment) Act, 2007 wherein inspection and certification by independent third party inspecting authorities was introduced.

The salient features of the Bill

- The similar provisions which are at different places in the Boilers Act,1923 have been grouped together in six chapters for better understanding of the Act.
- Out of the seven offenses, to ensure safety of boilers and personnel dealing with boilers, in four major offenses which may result in loss of life and property, criminal penalties are retained.
- For other offenses, provision is being made for fiscal penalties.
- Moreover, for all non-criminal offenses 'fine' has been converted into 'penalty' to be levied through executive mechanism instead of courts as existed earlier.
- The proposed bill will enhance safety as specific provisions have been made in the Bill to ensure the safety of persons working inside a boiler and that repair of boilers is undertaken by qualified and competent persons.

Vikram Sarabhai

Syllabus :GS 3/Science and Tech

In News

- The birth anniversary of Dr Vikram Sarabhai is celebrated every year on August 12.

Background:

- Vikram Sarabhai was born on August 12, 1919 at Ahmedabad in an affluent family of progressive industrialists.

- Returned to India in 1947 after studying at Cambridge.
- Founded the Physical Research Laboratory (PRL) in Ahmedabad on November 11, 1947, at the age of 28.
- Contributions : Known as the Father of the Indian Space Program.
- Initiated the Indian Space Programme in 1960 with a vision of leveraging space technology for national development.
- Indian Space Research Organisation (ISRO) was formally established on August 15, 1969.
- Initiated the project for the fabrication and launch of an Indian satellite.
- The first Indian satellite, Aryabhata, was launched in 1975 from a Russian Cosmodrome.
- Worked with Dr. Homi Jehangir Bhabha, the father of India's nuclear science program, set up the first rocket launching station in India.
- Awards and Honours: Shanti Swarup Bhatnagar Award (1962).
- Padma Bhushan (1966).
- Padma Vibhushan (posthumous, 1972).
- The Vikram Sarabhai Space Centre (VSSC) in Thiruvananthapuram is named in his memory.
- The Dr. Sarabhai Crater on the Moon was named in his honour in 1974.
- Distinguished Positions : Chairman of the Atomic Energy Commission (1966).
- President of the Physics section at the Indian Science Congress (1962).
- President of the General Conference of the I.A.E.A. in Verína (1970).
- Vice-President of the Fourth U.N. Conference on 'Peaceful Uses of Atomic Energy' (1971).
- Death: Passed away on December 30, 1971, in Kovalam, Thiruvananthapuram, Kerala.
- Legacy: ISRO continues to adopt Dr. Sarabhai's vision, focusing on space programmes aimed at societal benefits.

India's Commitment towards Becoming a Global Leader in Semiconductor Production

Syllabus: GS3/Economy

Context

- The Prime Minister on the occasion of 78th Independence day, outlined commitment towards becoming a global leader in semiconductor production and achieving the target of Viksit Bharat by 2047.

About

- There was a time when India used to import mobile phones but now India has created a manufacturing ecosystem in the country and emerged as a big manufacturing hub.
- Many global companies are eager to invest in India, with the nation poised to become a global leader in semiconductor production.
- There is a need for state governments to compete in attracting these investments, which requires policies that ensure good governance and law and order.

Export/Import of semiconductor devices (in US$ billion)

Year	Export	Import
2017	0.21	4.65
2018	0.23	3.62
2019	0.33	3.15
2020	0.16	2.38
2021	0.22	5.36
2022	0.52	4.55
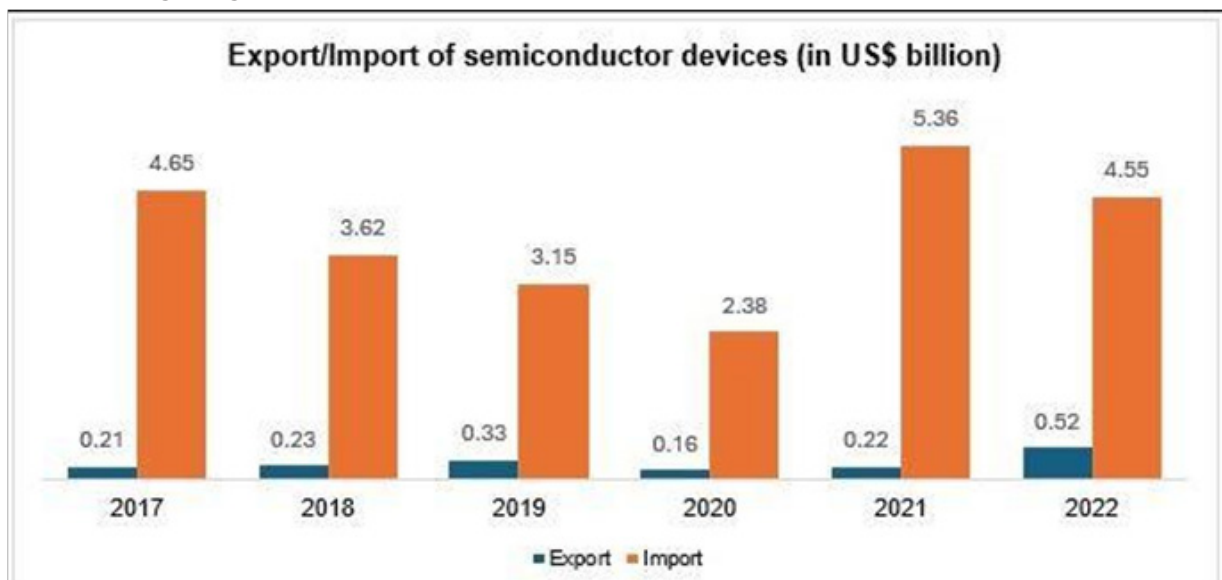
India's Semiconductor Industry

- In 2022, the Indian semiconductor market was valued at US$ 26.3 billion and is projected to expand at a CAGR of 26.3% to US$ 271.9 billion by 2032.
- Semiconductor devices include diodes, transistors and photovoltaic cells assembled or not assembled in modules or panels, light-emitting diodes (LEDs) and mounted piezo-electric crystals.

Factors favouring India

- Skilled Workforce: India leads the world with record number of Science, Technology, Engineering and Mathematics (STEM) graduates, offering the much-needed skilled workforce required in semiconductor manufacturing, design, research, and development.
- Cost Advantage: India offers a substantial cost advantage for semiconductor manufacturing due to the lower labour cost, supply chain efficiency and emerging ecosystem.
- Global Supply Chain Diversification: India has become a preferred destination for back-end assembly and testing operations amidst this industry relocation, with potential for future front-end manufacturing.
- Policy support: The Indian government has promptly seized the opportunity following the global semiconductor supply chain glut after the pandemic and showed great intent through policy support to present India as an alternative to China in the global semi supply chain.

Government Initiatives

- India Semiconductor Mission: It functions as a dedicated division within the Digital India Corporation.
- Its main goal is to nurture a strong semiconductor and display ecosystem to position India as a prominent global player in electronics manufacturing and design.
- Under ISM, there are several schemes in place:

Scheme	Details
Semiconductor Fab	• Offers fiscal support of up to 50% of the project cost to approved applicants. • Attract substantial investments for the establishment of semiconductor wafer fabrication facilities in India.
Display Fab	• Offers fiscal support of up to 50% of the project cost to approved applicants. • Focus on increasing display fabrication facilities in India.
Compound Semiconductors	• Fiscal support of 50% of the capex to facilities involved in compound semiconductor, silicon photonics, sensor and discrete semiconductor fabrication and semiconductor packaging. • Focus on establishing semiconductor wafer fabrication facilities in India
Design Linked Incentive (DLI)	• Offers product design-linked incentives of up to 50% of eligible expenditure and product deployment-linked incentives ranging from 6% to 4% on net sales over a five-year period.

The government offers incentives for manufacturing setup in India:

- Under the Semiconductor Fab Scheme, fiscal support of 50% of the project cost on an equal footing for all technology nodes.

- Under the Display Fab Scheme, fiscal support of 50% of the project cost on an equal footing basis.
- Under the Compound Semiconductor Scheme, fiscal support of 50% of the capital expenditure on an equal footing basis, including support for discrete semiconductor fabs.
- In February 2024, the government approved the establishment of three semiconductor plants, two in Gujarat and one in Assam.

Way Ahead

- India is poised to witness exponential growth in its semiconductor industry with the advent of well-thought initiatives as well as calculated partnerships.
- Through the European Commission and Japan, the Indian government's MoU indicates their commitment to take proactive steps towards strengthening global semiconductor ecosystems.
- With sustained efforts and a proactive stance, India is on course to solidify its position as a leading semiconductor manufacturing hub, contributing majorly to technological advancement and economic growth.

Bio-Economy Driven Industrial Revolution

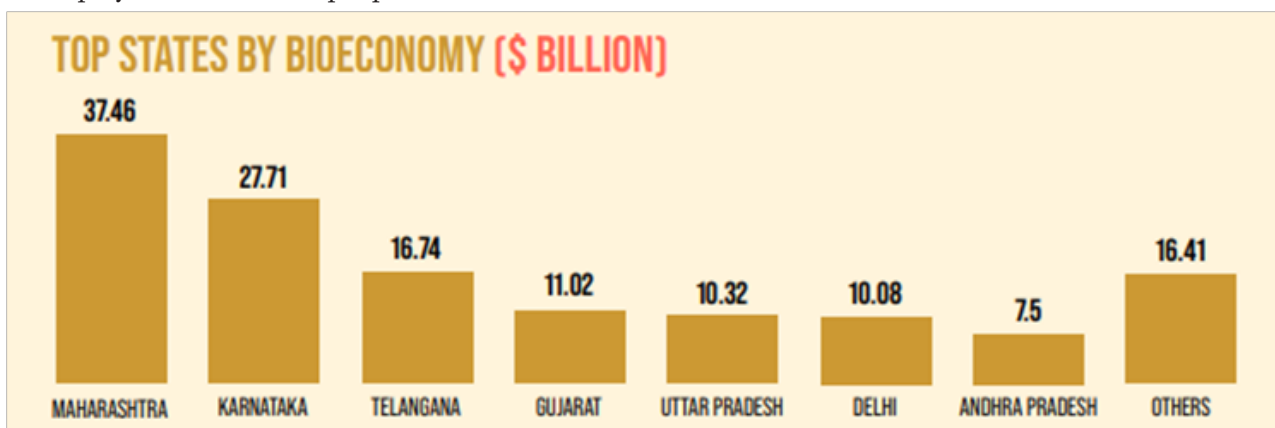### Syllabus: GS3/ Economy

Context

- The Union Minister Dr. Jitendra Singh at the ceremony of '4th edition of Global Bio India 2024' said that the Next Industrial Revolution will be BioEconomy driven.

What is BioEconomy ?

- The BioEconomy is the knowledge-based production and use of biological resources to provide products, processes and services in all economic sectors within the frame of a sustainable economic system.
- It encompasses sectors like agriculture, forestry, fisheries, food production, biotechnology, and bioenergy.
- Subsectors of the BioEconomy in India are;
- BioPharma or BioMedical: It includes the development and production of medical products and services, such as pharmaceuticals, medical devices, and lab-grown organoids.
- BioAgri: It includes the development and production of genetically modified crops and animals, precision agriculture technologies, and bio-based products. EX: Bt Cotton
- BioIndustrial: It includes the development and production of biobased chemicals and products using enzymes, biosynthetic routes, and recombinant DNA technology.

BioEconomy of India

- India's BioEconomy has grown 13-fold over the last decade, from $10 billion in 2014 to over $130 billion in 2024, with a projection to reach $300 billion by 2030.
- In the Global Innovation Index, India has climbed from 81st place in 2015 to 40th out of 132 economies.
- India ranks 3rd in the Asia-Pacific region and 12th globally in terms of biomanufacturing.
- Biotechnology, a sunrise sector, has achieved a valuation of Rs 75,000 crore over the past 10 years.
- In 2022, BioEconomy accounted for 4% of India's gross domestic product (GDP) of $3.47 trillion and employs over 2 million people.

TOP STATES BY BIOECONOMY ($ BILLION)

MAHARASHTRA	KARNATAKA	TELANGANA	GUJARAT	UTTAR PRADESH	DELHI	ANDHRA PRADESH	OTHERS
37.46	27.71	16.74	11.02	10.32	10.08	7.5	16.41

Government Initiatives

- Biotechnology Industry Research Assistance Council (BIRAC) established by the Department of Biotechnology (DBT) is aimed at strengthening and empowering emerging biotechnology enterprises to undertake strategic research and innovation.
- Policy initiatives of the Government of India (GoI) such as Startup India and Make in India programs are aimed to develop India as a world-class Biotechnology and Bio-manufacturing hub.
- Favorable Government Policies like Draft R&D Policy 2021, PLI Schemes and Clinical trial rules have propelled India to be the 'pharmacy of the world'.
- FDI Policy: 100% FDI is allowed under the automatic route for greenfield pharma. Also 100% FDI is allowed under the government route for brownfield pharma.
- Up to 74% FDI is under the automatic route and beyond 74% is under the government approval route.

Challenges for BioEconomy of India

- Global Competition: India's BioEconomy faces stiff competition from more established bio Economies in countries like the USA, EU, and China, which have more advanced infrastructure, funding, and R&D capabilities.
- Intellectual Property (IP) Protection: Protecting intellectual property in the biotech sector is challenging, leading to concerns over innovation theft and lack of incentives for research.
- Lack of Infrastructure: Insufficient infrastructure for research, development, and commercialization of biotechnology innovations.
- Brain Drain: Talented scientists and researchers leave India for better opportunities abroad, reducing the country's capacity for innovation.

Way Ahead

- Encourage increased public and private investment in biotech R&D through grants, tax incentives, and venture capital support.
- Engage in global research collaborations to leverage expertise, share resources, and accelerate the development of new technologies.
- Develop innovation clusters/ecosystems where academia, industry, and government entities can collaborate closely on BioEconomy initiatives.

Concluding remarks

- India needs a coordinated national strategy, with public-private partnerships as the bedrock for a thriving bioeconomic landscape.
- Seizing the demographic dividend and harnessing STEM (Science, technology, engineering, and mathematics) talent are crucial for economic growth and global leadership.

'Model Solar Village' under 'PM-Surya Ghar: Muft Bijli Yojana'

Syllabus: GS2/Government Policy and Intervention; GS3/Renewable Energy

Context

- Recently, the Scheme Guidelines for implementation of 'Model Solar Village' under PM-Surya Ghar: Muft Bijli Yojana have been notified by the Union Ministry of New and Renewable Energy.

About Model Solar Village

- A Model Solar Village, a scheme component, aims to be developed in each district of the country to act as a role model for adoption of rooftop solar in rural areas, with the goal of promoting solar energy adoption and enabling village communities to become self-reliant in meeting their energy needs.
- A total financial outlay of 800 crore has been allocated for this component, providing 1 crore per selected Model Solar Village.
- A Model Solar Village must be a revenue village with a population size above 5,000 (or 2,000 for special category states).
- In these model villages, households will install solar panels on their rooftops. These panels convert sunlight into electricity, which can be used for lighting, appliances, and other energy needs.

Benefits

- Energy Independence: By generating their own electricity, households reduce dependence on conventional power sources. This not only saves money but also contributes to national energy security.
- Environmental Impact: Solar energy is clean and green. By adopting it, villages reduce their carbon footprint and combat climate change.
- Economic Empowerment: Lower electricity bills mean more disposable income for families. Additionally, surplus energy sales can provide an additional revenue stream.
- It is estimated that the scheme will create around 17 lakh direct jobs in manufacturing, logistics, supply chain, sales, installation and other services.

About the PM Surya Ghar Muft Bijli Yojana

- It aims to light up 1 crore households by providing up to 300 units of free electricity every month, marking a significant step towards sustainable development and people's wellbeing.
- It aims to increase the share of solar rooftop capacity and empower residential households to generate their own electricity.
- The subsidy will cover up to 40% of the cost of the solar panels. The remaining costs have to be borne by the aspirant consumer.
- The Centre will fund 60% of the cost for installing 2 kW (kilowatt) systems and 40% of the cost for systems from 2-3 kW capacity.

National Institutional Ranking Framework (NIRF) 2024

Syllabus: GS2/ Education

Context

- The Ministry of Education Monday announced the National Institutional Ranking Framework (NIRF) 2024.

Key Highlights of India Rankings 2024

- Indian Institute of Technology, Madras retains its 1st position in Overall Category for the sixth consecutive year, and in Engineering for 9th consecutive year.
- Indian Institute of Science, Bengaluru tops the Universities Category for ninth consecutive year. It stood first in the Research Institutions Category for the fourth consecutive year.
- IIM Ahmedabad tops in Management subject retaining its first position for fifth consecutive year.
- All India Institute of Medical Sciences (AIIMS), New Delhi occupies the top slot in Medical for the seventh consecutive year.
- Hindu College secured the 1st position amongst Colleges for the first time replacing Miranda House which retained its 1st position for seven consecutive years.

National Institutional Ranking Framework (NIRF)

- NIRF was launched in 2015 by the Ministry of Education, to rank institutions of higher education in India.
- Five broad categories of parameters identified in the NIRF;
- Teaching, Learning & Resources
- Research and Professional Practice
- Graduation Outcome
- Outreach and Inclusivity
- Perception
- Each of these five parameters have 2 to 5 sub-parameters and a total number of 18 parameters are used for ranking of Higher Education Institutions (HEIs).
- The overall score is computed based on the weightage allotted to each parameter and sub-parameter.

Lymphatic Filariasis

Syllabus: GS2/Health

Context

- Government has launched the second phase of the Bi-annual Nationwide Mass Drug Administration (MDA) campaign for Lymphatic Filariasis elimination.

About

- The campaign targets 63 endemic districts across Bihar, Jharkhand, Karnataka, Odisha, Telangana, and Uttar Pradesh and will provide door-to-door administration of preventive medications.
- Alongside this, the 'Revised Guideline on Elimination of Lymphatic Filariasis' was unveiled to provide a clear roadmap for elimination efforts.

Lymphatic Filariasis

- It is commonly known as elephantiasis (Haatipaon), is a serious debilitating disease caused by parasitic worms known as filarial worms.
- It is transmitted through the bite of a Culex mosquito that breeds in dirty/polluted water.
- Infection is usually acquired in childhood causing hidden damage to the lymphatic system with visible manifestations (lymphoedema, elephantiasis, and scrotal swelling/hydrocele) which occur later in life and can lead to permanent disability.
- It is a priority disease that is targeted for elimination by 2027.
- In India, 90% of LF burden is contributed by 8 states – Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Uttar Pradesh, and West Bengal.
- Currently there is no vaccination available for it.

Consumer Price Inflation

Syllabus: GS3/Economy

Context

- In India, CPI recently made headlines as it eased to a nearly five-year low of 3.54% in July.

Understanding Consumer Price Inflation (CPI)

- It is a critical economic indicator that measures the rate at which prices of goods and services increase over time.
- It affects whether we're buying groceries, paying rent, or planning our budgets.
- When CPI rises, it erodes our purchasing power, making everyday essentials more expensive.

Consumer Price Indices (CPI)

– It measures changes over time in the general level of prices of goods and services that households acquire for the purpose of consumption.
– CPI is widely used as a macroeconomic indicator of inflation, as a tool by governments and central banks for inflation targeting and for monitoring price stability, and as deflators in the national accounts.
– CPI is used for indexing dearness allowance to employees for increase in prices.
– The Central Statistics Office (CSO), MoSPI has revised the Base Year of the CPI from 2010 to 2012 with effect from the release of indices for the month of January, 2015.

QCI Surajya Recognition & Ranking Framework

Syllabus: GS2/Governance

Context

- Quality Council of India has introduced QCI Surajya Recognition & Ranking Framework to Drive Excellence in Key Sectors.

About

- This framework is categorized under four pillars: Shiksha (Education), Swasthya (Health), Samriddhi (Prosperity), and Sushasan (Governance).

- The Surajya Recognition acknowledges the outstanding performance and commitment to quality by states and organisations in these vital areas.
- In the Shiksha Rankings, Uttar Pradesh leads with the highest number of accreditations, assessments, and ratings. Delhi, as a union territory, also ranks prominently.
- In the Swasthya category, Chhattisgarh, Karnataka, Kerala, Rajasthan, Mizoram and Manipur stand out with complete certification in the Ayushman Arogya Yojana (NABH).
- In the Samriddhi category, Gujarat, Karnataka, and Rajasthan lead with the highest number.
- The Quality Council of India (QCI): It is a key institution aimed at promoting and ensuring quality across various sectors in India.
- Established in 1997, it operates as a non-profit organization under the aegis of the Government of India.

ECONOMY

Central Financial Assistance (CFA) to the State Governments for Development of Hydro Electric Projects

Syllabus: GS3/Economy

Context

- The Union Cabinet has approved the Central Financial Assistance towards Equity Participation by the State Governments of the North Eastern Region for development of Hydro Electric Projects in the region.

About

- The Scheme formulated by the Ministry of Power provides for formation of a Joint Venture (JV) Company for all the projects of a Central PSU with the State Govt.
- A cumulative hydro capacity of about 15000 MW would be supported under the scheme.
- This scheme has an outlay of Rs. 4136 crore to be implemented from FY 2024-25 to FY 2031-32.
- The scheme would be funded through 10% Gross Budgetary Support (GBS) for North Eastern Region from the total outlay of the Ministry of Power.

Significance

- Participation of the State Governments in the hydro development shall be encouraged and risk and responsibilities shall be shared in a more equitable manner.
- The issues such as land acquisition, rehabilitation & resettlement and local law & order issues would be reduced with the State Governments becoming stakeholders.
- Development of hydroelectric projects shall also contribute towards realization of India's Nationally Determined Contribution (INDC) of establishing 500 GW renewable energy capacity by 2030 and would help integration of Renewable Energy sources in the grid thus enhancing flexibility, security and reliability of the national grid.

Other initiatives

- To promote the hydro power sector and to make it more viable, the Government of India in 2019, approved measures, such as;
- Declaring large hydro power projects as Renewable Energy sources,
- Hydro Power Purchase Obligations (HPOs),
- Tariff rationalization measures through escalating tariff,
- Budgetary support for flood moderation in storage HEP and
- Budgetary support for the cost of enabling infrastructure, i.e., construction of roads and bridges.

Payment Passkey Service

Syllabus: GS3/Economy

Context

- Recently, Mastercard chose India for the global launch of Payment Passkey Service, recognising its tech-savvy population and vibrant e-commerce landscape.

About the Passkeys

- These replace traditional passwords by leveraging biometric authentication methods—such as facial recognition, fingerprints, or swipe patterns—across all your devices.
- It combines the phone's biometrics (like fingerprint or face unlock) with robust encryption.
- In October 2023, Google declared passkeys as its default login method worldwide.

- The state of Michigan implemented passkeys on its website, resulting in 1,300 fewer calls related to password resets in just one month.

How Do Passkeys Work?

- Key Creation: When one signs into an account, its device generates a pair of keys—one shared with the website and one private on your device.
- This dynamic duo ensures secure access without the hassle of passwords.

Why Passkeys?

- Password Fatigue: Multiple passwords, each requiring a unique combination of uppercase letters, lowercase letters, numbers, and special characters.
- Data Breaches: In 2023 alone, 353 million Americans were impacted by breaches. In the first half of 2024, over a billion people had their data stolen.

UPI Block Mechanism Facility for Secondary Market Trading

Syllabus: GS3/Economy

Context

- Recently, Securities and Exchange Board of India (SEBI) proposed mandatory Unified Payments Interface (UPI) block mechanism facility for secondary market trading.

What's the UPI Block Mechanism?

- The UPI block mechanism is akin to the Application Supported by Blocked Amount (ASBA) facility that allows trading with blocked amounts.
- In the primary market, it ensures that an investor's money moves only when the allotment is completed.
- Now, SEBI wants to extend this concept to the secondary market.
- SEBI is also exploring an alternative: a "3-in-1 trading account facility". This could potentially replace the mandatory ASBA-like facility.
- It combines a savings bank account, a demat account (for holding securities), and a trading account.

Why the UPI Block Mechanism?

- By integrating UPI with the secondary markets, clients can block funds in their bank accounts specifically for trading in the secondary market.
- Instead of transferring these funds upfront to the trading member, they remain securely blocked until needed.
- It enhances the protection of cash collateral.

Who are these Qualified Stock Brokers (QSBs)?

- QSBs are trading members who meet certain criteria which include factors like the size and scale of their operations, the number of active clients, total assets held by clients, end-of-day margin, and trading volume.
- Being designated as a QSB comes with enhanced responsibilities and obligations.

About SEBI

– It was constituted as a non-statutory body through a resolution of the Government of India, and established as a statutory body in the year 1992 and the provisions of the Securities and Exchange Board of India Act, 1992. Functions

– To protect the interests of investors in securities and to promote the development of, and to regulate the securities market and for matters connected therewith or incidental thereto.

Unified Payments Interface (UPI)

– It is a system that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood.

– It was developed by National Payments Corporation of India (NPCI) in 2016.

– Participants in UPI: Payer Payment Service Provider (PSP), Payee PSP, Remitter Bank, Beneficiary Bank, NPCI, Bank Account holders, and Merchants.

Green Shoots

Syllabus: GS3/Economy

Context

- Auto markets will see green shoots by October as per the Maruti Suzuki.

About

- "Green Shoots" is a term generally applied to signs of recovery from an economic recession.
- The phrase derives from the green shoots seen in plants that signify health and growth.
- The term was first used by UK chancellor Norman Lamont to refer to economic growth during the economic downturn in the United Kingdom in 1991.

Rs 23,000 Crore Pull Out by FPIs in Financial Sector

Syllabus:GS3/Economy

Context

- According to National Securities Depository Ltd (NSDL) data, the financial services sector witnessed outflows of Rs 23,000 crore by foreign portfolio investors (FPIs) between July 16 and August 15.

About

- The selling by FPIs in the financial sector was mainly on concerns over slower deposit growth compared to loan growth, which can affect profitability of banks.
- Automobile and auto components, capital goods, construction materials, oil, gas and consumable fuels and services were the other sectors where FPIs pulled out money in the period.

Foreign portfolio investment (FPI)

- FPI consists of securities and other financial assets held by investors in another country.
- It does not provide the investor with direct ownership of a company's assets and is relatively liquid depending on the volatility of the market.
- FPI holdings can include stocks, American Depositary Receipts (ADRs), Global Depositary Receipts (GDRs), bonds, mutual funds, and Exchange-traded funds (ETFs).
- It is different from Foreign direct investment (FDI), which is an ownership stake in a foreign company or project made by an investor, company, or government from another country.

India's Import of LNG Increased

Syllabus: GS3/Economy

Context

- According to energy intelligence firm Vortexa, India's monthly liquefied natural gas (LNG) imports in May – July 2024 hit a four year record, averaging 2.57 million tonnes (MT).

About

- LNG stands for liquefied natural gas.
- It's natural gas that has been cooled down to about -260°F (-162°C) to turn it into a liquid form.
- LNG is primarily composed of methane (CH_4), but it can contain small amounts of other hydrocarbons.
- It is used just like conventional natural gas for heating, electricity generation, and as a fuel for vehicles.

Central Banker Report Cards 2024

Syllabus: GS3/Economy

Context

- Reserve Bank of India Governor Shaktikanta Das has been ranked among the top three central bankers globally for the second consecutive year by US-based Global Finance magazine.

About

- Global Finance magazine in its Central Banker Report Cards 2024, newly announced the names of central bank governors from 100 countries across the globe.
- They received top grades, based on an "A+" to "F" scale for success in areas such as inflation control, economic growth goals, currency stability, and interest rate management.
- An 'A' represents excellent performance, while an 'F' for outright failure.
- Denmark's Christian Kettel Thomsen, India's Shaktikanta Das and Switzerland's Thomas Jordan have been ranked under the 'A+' category of central bankers.

About Annual Central Banker Report Cards

- It honour those bank leaders whose strategies outperformed their peers through originality, creativity and tenacity.
- It has been published annually by Global Finance since 1994 and ranks central bank governors of nearly 100 countries.

Measures for Promoting Handloom Sector

Syllabus: GS3/Economy

Context

- The Union Textile Ministry recently stated that it has undertaken various measures for promoting the handloom sector.
- Handloom refers to the process of weaving cloth using a manually operated loom.

Schemes to Promote Handloom Sector

- National Handloom Development Programme (NHDP): NHDP has been formulated for its implementation during the financial year 2021-22 to 2025-26.
- The scheme follows a need-based approach for integrated and holistic development of handlooms and welfare of handloom weavers.
- The Yarn Supply Scheme (YSS): The Yarn Supply Scheme (YSS) with partial modification and renamed as Raw Material Supply Scheme (RMSS) has been approved for implementation during the period from 2021-22 to 2025-26.
- To make available quality yarn & their blends to the eligible Handloom weavers at subsidized rates.
- Handloom Weavers' Comprehensive Welfare Scheme: It is providing Life, accidental and disability insurance coverage to handloom weavers/workers under the components Pradhan Mantri Jivan Jyoti Bima Yojana(PMJJBY), Pradhan Mantri Suraksha Bima Yojana(PMSBY) and Converged Mahatma Gandhi Bunkar Bima Yojana(MGBBY).
- Weaver MUDRA Scheme: Under the Scheme, credit at concessional interest rate of 6% is provided to the handloom weavers.
- Urban Haat: These are set up in the big towns/metropolitan cities to provide adequate direct marketing facilities to the craft persons/weavers and eliminate middle agencies.
- Design & Technology upgradation (DTU): The Scheme aims to upgrade artisan's skills through development of innovative designs and prototyping products for overseas markets, revival of endangered crafts and preservation of heritage etc.

Vehicle Scrapping Policy to Phase Out Polluting Vehicles

Syllabus: GS3/ Economy

Context

- The Ministry of Road Transport and Highways has launched the Voluntary Vehicle Modernization Program or Vehicle Scrapping Policy to create an ecosystem for phasing out unfit polluting vehicles across the country.

About

- The Program and Policy will be implemented through a network of Registered Vehicle Scrapping Facilities (RVSFs) and Automated Testing Stations (ATSs).

- Presently, there are sixty-plus RVSFs across 17 States / UTs and seventy-five ATSs across 12 States / UTs operational in the country.
- Recognising the importance of Fleet Modernization and Circular Economy, multiple Commercial and Passenger Vehicle Manufacturers have agreed to offer discounts for a limited period against a Certificate of Deposit (Scrappage Certificate).
- Commercial Vehicle and Passenger Vehicle manufacturers have shown a willingness to offer discounts for a limited period of two years and one year respectively.

Advantages of Vehicle Scrapping Policy

- Rise in demand for new cars: With old vehicles being scrapped, the demand for new vehicles will rise. More than 51 lakh light motor vehicles (private and commercial) are more than 20 years old.
- Employment growth: Establishing scrapping centers and the increase in vehicle sales will lead to job creation in various sectors including manufacturing, services, and recycling.
- Better air quality: Scrapping unfit vehicles will result in less air pollution and better air quality.
- Best price for scrap: Vehicle owners will get the best price for car scrappage for workable parts such as tyres. The recycling industry will also be more active leading to higher revenue.
- Better Fuel Efficiency: Newer vehicles are generally more fuel-efficient, leading to savings in fuel consumption and reducing the country's dependency on fossil fuels.

Challenges

- Financial Burden: Owners of older vehicles, particularly those from lower-income groups, find it financially burdensome to replace their vehicles, even with incentives.
- Waste Management Challenges: The scrapping of millions of vehicles lead to challenges in managing the waste generated, including hazardous materials like batteries, oil, and electronic components.
- Market Disruptions: The sudden influx of scrapped vehicles and the push for new ones could create disruptions in the automotive market, affecting prices and demand unpredictably.

Way Ahead

- To fully realize the potential of the scheme there is a need to ensure that scrapping centers are easily accessible to vehicle owners, especially in rural and semi-urban areas.
- Also establish a mechanism for regularly reviewing the policy's impact and make necessary adjustments based on technological advancements and changing environmental needs.
- Provide support for small businesses and workers in the unorganized sector who may be affected by the policy. This could include retraining programs, financial assistance, or opportunities to transition into the new automotive ecosystem.

Contribution of Space Sector to India's GDP

Syllabus: GS3/ Economy

Context

- India's space sector has directly contributed about $24 billion (20,000 crore) to India's Gross Domestic Product over the last decade.

Space Sector of India

- India's space sector has benefitted from decades of consistent investment, with $13 billion invested in the last decade.
- It is the 8th largest space economy (in terms of funding) in the world.
- In the recently announced Union Budget for 2024-25, India's space sector received a significant boost. The Central government allocated 13,042.75 crore to support space-related initiatives.

Contribution of Space Sector to India's GDP

- The Sector has supported 96,000 jobs in the public and private sector.
- For every dollar produced by the space sector, there was a multiplier effect of $2.54 to the Indian economy and India's space force was 2.5 times more productive than the country's broader industrial workforce.

- The Indian space sector was diversifying and now had 700 companies including 200 start-ups and had seen revenues grow to $6.3 billion in 2023, which was about 1.5% of the global space market.
- Satellite communications contributed 54% to the space economy, followed by navigation (26%) and launches (11%).
- The main industries supported by the space sector were telecom (25%), information technology (10%) and administrative services (7%).

FDI in space sector

- Under the amended FDI policy, 100% FDI is allowed in the space sector. The entry route for the various activities are as follows:
- Up to 74% under Automatic route: Satellites-Manufacturing & Operation, Satellite Data Products and Ground Segment & User Segment.
- Up to 49% under Automatic route: Launch Vehicles and associated systems or subsystems, Creation of Spaceports for launching and receiving Spacecraft.
- Up to 100% under Automatic route: Manufacturing of components and systems/ sub-systems for satellites, ground segment and user segment.

Potential of Space Sector

- Export Potential and Investment: Currently, India's export market share in space-related services stands at 2,400 crore (about $0.3 billion). The goal is to boost this to 88,000 crore ($11 billion).
- Rise of Space Tourism: In 2023, the space tourism market was valued at $848.28 million.
- It is expected to grow to $27,861.99 million by 2032.

Challenges in India's Space Sector

- Competition and Global Market Share: To achieve this ambitious goal of 8% of the global market share, Indian space companies must compete effectively on the international stage.
- Private Sector Participation: While the private sector has shown interest, there's a need for more substantial investment and commitment.
- Technology Development and Innovation: Developing cutting-edge technologies, such as reusable launch vehicles, miniaturized satellites, and advanced propulsion systems, requires substantial investment and research.
- Regulatory Framework and Licensing: Navigating licensing processes, export controls, and compliance can be complex.
- Infrastructure and Facilities: Developing and maintaining such infrastructure requires significant capital.

Major Reforms In Space Sector of India

- Indian Space Policy 2023: It laid down roles and responsibilities of organizations such as ISRO, New Space India Limited (NSIL) and private sector entities.
- It aims to enhance the participation of research, academia, startups and industry.
- Strategic Proposals by SIA: The Space Industry Association – India (SIA-India) in its Pre-Budget Memorandum for the FY 2024-25 has proposed a substantial increase in India's space budget.
- It aims to support India's expanding space program, foster private sector involvement, drive technological advancements, and position the nation as a key player in the dynamic global space ecosystem.

Way Ahead

- India aims to commission the Bharatiya Antariksha Station (BAS) by 2035 and land Indian astronauts on the Moon by 2040.
- Private entities are now actively involved in crucial aspects of research, manufacturing, and fabrication of rockets and satellites, fostering a vibrant ecosystem of innovation. It is expected to integrate Indian companies into global value chains.
- With this, companies will be able to set up their manufacturing facilities within the country duly encouraging 'Make In India (MII)' and 'Atmanirbhar Bharat' initiatives of the Government.

# Bangladesh Unrest Hits Engineering Shipments to India

Syllabus:GS2/IR GS3/Economy

Context

- According to the Engineering Export Promotion Council of India (EEPC), India's engineering goods exports to Bangladesh have faced a significant challenge due to the recent unrest in the neighbouring country.
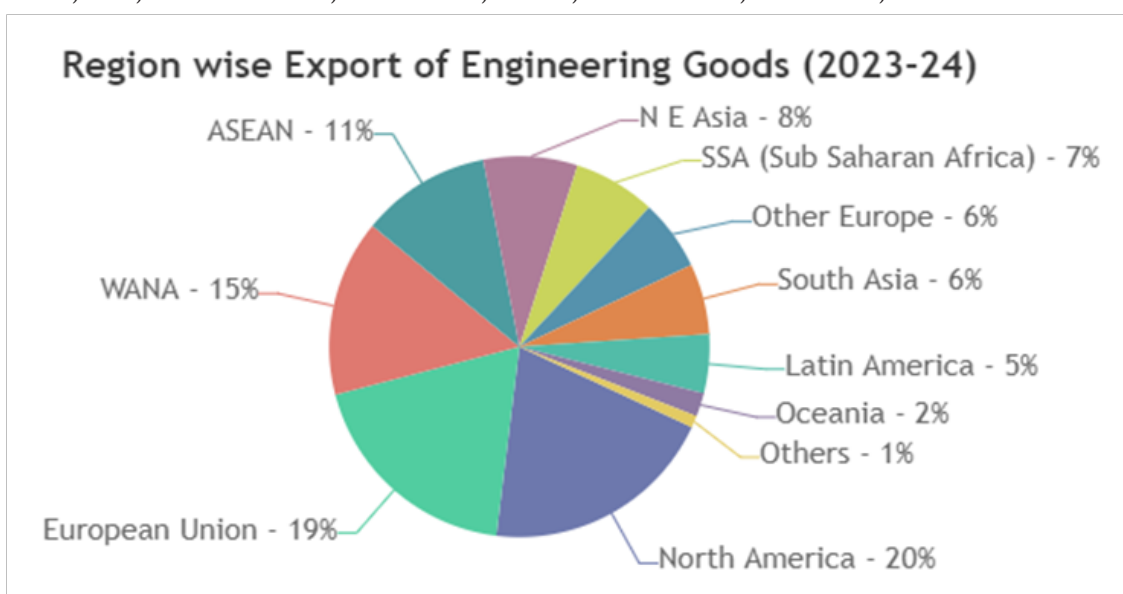
India's Engineering Export performance

- Accounting for 3% of the total GDP, the Indian engineering sector forms a crucial backbone of the Indian economy.
- The engineering sector is the largest contributor to India's overall exports with a share of 24% and also contributes approximately 40% of the total manufacturing export.
- Engineering exports in fiscal 2023-24 grew by 2.13% and reached at US $109.32 billion, which is contrary to the merchandise export trend which declined by 3.11%.
- It performed well given the weak global trade trends, dwindling demand, forex crisis and geopolitical conflicts.
- Today, out of total engineering exports, the proportion of consumer durables decreased from 34% in 1956-57 to 9% in 2023-24, while the proportion of capital goods increased considerably from 12% in 1956-57 to 60% in 2023-24.
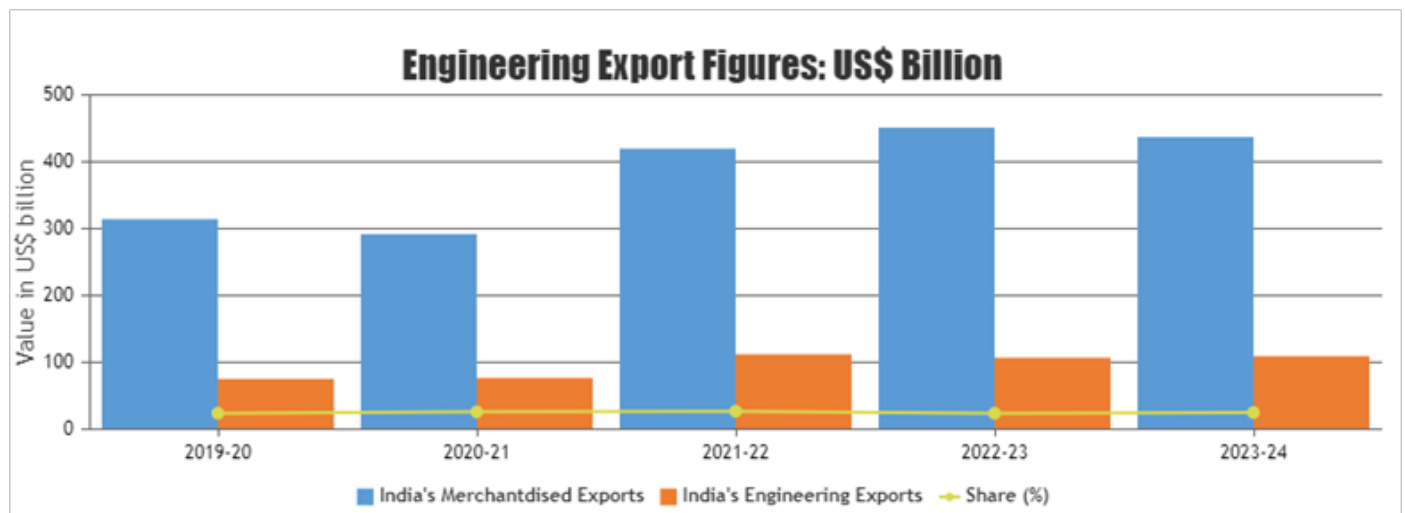
Export Destinations

- India exports engineering products to the following regions: ASEAN, North-East Asia, Africa, EU, North America, CIS, Latin America, South Asia, Africa, Middle East, West Asia, etc.

- India's engineering exports continued their year-on-year growth for the second consecutive month into January 2024 with a 4.20% increase that was attributed to increased shipments of Iron & Steel, Aircrafts, spacecraft and parts, Copper and copper products, and Electric machinery.
- Additionally, heightened demand from South Asia, the European Union, and North America contributed to this growth.

Concerns after recent turmoil in Bangladesh

- Export Decline: In the first four months of the year, India's engineering goods exports to Bangladesh declined by 9%.
- It has raised concerns for an industry that constitutes a quarter of India's merchandise exports.
- Supply Chain Disruptions: The ongoing unrest in Bangladesh disrupted supply chains, affecting the smooth flow of goods between the two countries.
- As a result, Indian exporters faced difficulties in shipping engineering products to their Bangladeshi counterparts.
- Revenue Losses and Uncertainty: The situation has raised the spectre of revenue losses for Indian exporters. With engineering goods being a crucial part of India's export portfolio, any disruption can have far-reaching consequences.
- Specific Export Categories: While overall engineering goods exports from India had risen by 4.2% between April and July, there was a sharp 31.6% dip in exports of iron and steel.
- Additionally, several of the sector's top export markets—including Italy, Korea, Nepal, and Bangladesh—showed reduced appetite for Indian goods during this period.
- Offsetting Factors: Despite the decline in exports to Bangladesh, there were positive trends elsewhere. Exports to the United Arab Emirates (UAE) saw an almost 44% spike, and shipments to Saudi Arabia increased by 33%.
- These two countries together imported $4.4 billion worth of Indian engineering goods, second only to the $6.1 billion exported to the United States.
- Global Impact: The unrest in Bangladesh has not only affected Indian exporters but also caused substantial losses for exporters worldwide.
- The violence and protests disrupted imports, creating challenges for businesses across borders.

Government Initiatives

- In 2019, the government announced an investment of Rs. 100 lakh crore (US$ 1.5 trillion) in infrastructure development over the next five years.
- In the Interim Union Budget 2024-25, the government greatly pushed the infrastructure sector by allocating Rs. 11,11,111 crore (US$ 133 billion) to enhance the transport infrastructure.
- The government of India has implemented various export promotion schemes, such as the Zero Duty Export Promotion Capital Goods (EPCG) scheme, Towns of Export Excellence (TEE), Market Access Initiative (MAI), etc aiming at encouraging the exporter and to help increase the revenue from international markets.
- Schemes such as duty exemption, advance authorization, duty-free import, rebate on service tax, etc. have been implemented to ease raw material imports.
- India has taken several initiatives to support and enhance the competitiveness of the domestic engineering goods manufacturing firms such as the 'Make in India' initiative, PLI scheme for Automobile, and Auto components, PLI scheme for National Programme on Advanced chemistry cell (ACC) Battery Storage, FAME INDIA II scheme, Capital Goods Scheme, Industry 4.0.

Conclusion

- The recent turmoil in Bangladesh has had tangible effects on India's engineering exports, emphasising the importance of stable trade relations between the two nations. As the situation evolves, exporters will need to adapt and find ways to mitigate disruptions in supply chains.

> **Do you know?**
> – India became a permanent Washington Accord member in June 2014, and now part of an exclusive group of 17 countries that are permanent signatories of the Washington Accord, an elite international agreement on engineering studies and the mobility of engineers.

Framework for Recognition of Self-Regulatory Organisations in Financial Markets

Syllabus: GS 3/ Economy

In News
- The Reserve Bank of India issued a framework for recognition of self-regulatory organisations in the financial markets space to help strengthen compliance culture and provide a consultative platform for policy making.

Key Regulations Mentioned in the RBI's Framework:
- The RBI framework provides guidelines for recognizing SROs to oversee financial market segments like fintech firms and non-banking financial corporations (NBFCs).
- Application Process: Applications can be submitted via email or to the RBI's Financial Markets Regulation Department in Mumbai
- Eligibility Criteria: Not-for-Profit: Must be a not-for-profit entity registered under Section 8 of the Companies Act, 2013, with a minimum net worth of 10 crore and adequate infrastructure.
- Voluntary Membership: Membership should be voluntary.
- Representation: Must represent a diverse mix of sector entities. If current representation is insufficient, a two-year roadmap must be provided to achieve adequate representation.
- Directors: Must have competent, fair, and reputable directors without past convictions for offences, including economic crimes.
- The RBI may impose additional conditions to ensure the SRO's functioning is in the public interest.

About Self-Regulatory Organisations
- Self-Regulatory Organisations are entities that are created by industries themselves to regulate and oversee the conduct of their members. Unlike government regulatory bodies, which are established by legislative or executive actions,
- SROs are formed by industry stakeholders and often operate under a framework of rules and guidelines developed by the industry.

Primary Objectives:
- SROs develop and enforce standards and practices that members must adhere to, ensuring consistency and quality within the industry.
- They help in setting ethical guidelines and codes of conduct to prevent malpractices and unethical behavior among members.
- SROs often provide mechanisms for resolving disputes between members or between members and their clients, thus promoting fairness and transparency.
- They offer training and resources to help members stay informed about industry developments, regulatory changes, and best practices.

Challenges
- While SROs contribute significantly to industry self-regulation, they face several challenges:
- Maintaining consistent compliance among members can be challenging, especially in rapidly evolving industries.
- SROs must balance the interests of different stakeholders, including large corporations and small businesses, which can sometimes lead to conflicts.
- The effectiveness of SROs can be impacted by the extent of regulatory oversight they are subject to. Striking the right balance between self-regulation and external regulation is crucial.

Conclusion and Way Forward

- SROs in India are likely to focus on enhancing their regulatory frameworks, adopting new technologies for better compliance, and improving transparency and accountability. By addressing these challenges, SROs can continue to play a vital role in fostering ethical practices and maintaining high standards across various industries.
- As industries evolve, SROs will need to adapt and innovate to effectively manage the challenges of modern self-regulation.

E-Commerce in India: A Matter of Concern?

Syllabus: GS3/Economy

Context

- Recently, the Union Trade Minister stirred up debate on India's e-commerce sector, instead of celebrating its exponential growth, he expressed concern.

About Status of the E-commerce Market in India

- India, with its rapidly growing digital economy and expanding internet user base, is on the brink of a massive transformation in its retail sector.
- At present, the e-commerce market in India is valued at $70 billion, which accounts for around 7% of the nation's overall retail market.It is predicted to grow to a staggering $325 billion, and the country's digital economy is expected to reach $800 billion.
- The number of online shoppers in India is projected to increase with a compound annual growth rate (CAGR) of 22% to 88 million in rural India and 15% to 263 million across urban India between 2019 and 2026.
- It is expected to lead to India surpassing the US as the second largest online shopper base in one to two years.

Factors Driving Rise of the E-commerce

- India currently boasts the second-largest internet user base in the world, with over 900 million users.
- By 2030, it is expected to rise to the third position in the online retail industry.
- This growth is driven by increasing internet penetration, with around 87% of Indian households expected to have internet connections by 2025.
- The duration of internet access through mobiles has seen a 21% rise compared to 2019.
- Indian consumers with annual incomes ranging from INR 2.5 lakh to INR 10 lakh will be responsible for driving nearly half of the growth in India's $300 billion e-commerce market by 2030.
- The growth of e-commerce in India has been done by the advancement of efficient logistics and supply chain networks. Government initiatives, like the National Logistics Policy, have streamlined last-mile deliveries, significantly improving logistical efficiency and cost-effectiveness.
- E-commerce offers consumers the ease of shopping from their homes or on the go, saving both time and effort. For example, food delivery platforms like Zomato and Swiggy have become incredibly popular due to this convenience.
- Invest India predicted a significant increase in the number of households engaging in e-commerce transactions, from 60-70 million in 2022 to 120-130 million by 2030.

Challenges Associated with E-commerce Market in India

- Platform Neutrality and Fairness: There are concerns about lack of platform neutrality, unfair platform-to-business contract terms, exclusive contracts between online marketplace platforms and sellers/service providers, platform price parity restrictions, and deep discounts.
- Taxation: The provisions on carry-forward of losses need to be more accommodative of business restructuring, and withholding tax norms need more clarity.
- Inclusion of Small and Medium Enterprises (SMEs): SMEs often find it challenging to participate in the e-commerce ecosystem due to the need for separate infrastructures for different platforms, distinct terms and conditions of each platform, and the costs associated with these.

- Digital Infrastructure and Internet Penetration: The robustness of digital infrastructure is crucial for smooth and seamless online transactions.
- Any disruption in the digital infrastructure can lead to transaction failures, affecting the trust and confidence of consumers in e-commerce.
- While internet penetration is increasing in India, there is still a significant portion of the population, particularly in rural areas, that does not have access to the internet.
- Regulatory Challenges: E-commerce businesses in India also face regulatory challenges including issues related to data protection, consumer protection, taxation, and other legal and regulatory compliances.

Related Initiatives to Overcome Challenges

- Policy Support: 100% FDI is allowed in B2B e-commerce.
- 100% FDI under the automatic route is permitted in the marketplace model of E-commerce.
- Government e-Marketplace (GeM): It has facilitated government procurement, crossing an impressive INR 4 Lakh Cr in GMV.
- Open Network for Digital Commerce (ONDC): It aims to provide equal opportunities to MSMEs to thrive in digital commerce and democratise e-commerce.
- Other major initiatives include Digital India (to transform India into a digitally empowered society and knowledge economy), Skill India (to train people in different skills), Startup India (to build a strong ecosystem for nurturing innovation and startups in the country), Make in India (to encourage companies to manufacture their products in India), Innovation Fund (aimed at encouraging entrepreneurship and innovation in the country), and BharatNet (to grow rural broadband penetration) etc.

Way Forward (Policy Shift: Striking a Balance)

- Stricter Regulations: The government is contemplating stricter regulations for e-commerce players. While growth is fantastic, it shouldn't come at the cost of the well-being of others. There is a need to balance growth with consumer safety.
- Fair Play and Transparency: The Union Trade Minister wants foreign direct investment (FDI) and technology to thrive but insists on honesty and transparency. Both online and offline businesses should play by the same rules.
- It's about finding that sweet spot where progress doesn't compromise our health and social fabric.

Conclusion

- The rapid growth of India's digital economy, coupled with the increasing internet penetration and the rise of the mass consumer segment, is set to propel India to become the world's third-largest ecommerce market by 2030.
- It presents a tremendous opportunity for businesses and investors alike, making India one of the most attractive markets for ecommerce in the world.

India need to create close to 8 million new jobs

Syllabus: GS 3/Economy

In News

- In the recently released Economic Survey, the Chief Economic Advisor estimated that India needed to create close to 8 million new jobs each year for the coming decade.

Status

- India has been one of the brightest spots when it comes to GDP growth rates.
- India is doing extremely well in terms of its growth numbers.
- At 7% growth for this fiscal year makes India the fastest growing major economy in the world, and that contributes about 17% to global growth

Main Challenges

- Inflation: Inflation is stabilizing but still needs careful management to avoid adverse economic effects.
- Geopolitical Tensions: Conflicts, particularly in the Middle East, could affect commodity prices, such as oil.

- Political Uncertainty: Numerous elections globally this year may bring policy uncertainty affecting growth.
- Medium-Term Growth: Projected global growth rates are weak compared to historical averages, necessitating structural reforms.
- The dollar's dominance is due to the strength of U.S. institutions, open capital markets, and network effects.

Impact of Artificial Intelligence (AI) on Employment

- About 25% of Indian workers are exposed to AI, with mixed effects on different sectors.
- AI can help address skill shortages, improve public finance, and enhance educational methods.
- But certain sectors, like call centres, may see reduced demand for human labour due to AI.

Related steps

- Flexible inflation targeting has generally been successful globally by anchoring inflation expectations and improving credibility.
- India's Experience : Since adopting inflation targeting in 2015, India has seen more stable inflation, although challenges remain.\
- India is experiencing robust GDP growth, contributing significantly to global growth.

Suggestions and Way Forward

- Encouraging corporate investment and flexible labour markets can aid broad-based growth and job creation.
- Improving ease of doing business and reducing trade restrictions are vital.
- Focus on education, skilling, and raising productivity in agriculture is essential for long-term growth.
- Improving macroeconomic and financial stability, and currency convertibility, benefits countries regardless of whether their currency becomes dominant.
- With continued reforms, India could sustain and possibly enhance its growth, but job creation is crucial.
- India needs to create 60 to 148 million new jobs by 2030, requiring broad-based growth across sectors.

Global Employment Trends for Youth 2024

Syllabus: GS3/Economy

Context

- The International Labour Organization (ILO) has released its report titled "Global Employment Trends for Youth 2024 (GET for Youth).

About

- This report represents the 20th anniversary publication of the ILO's GET for Youth.
- This GET for Youth looks back on what has been achieved since the dawn of the twenty-first century while also looking ahead to what may lay in store for youth employment in an era characterized by crises and uncertainties.
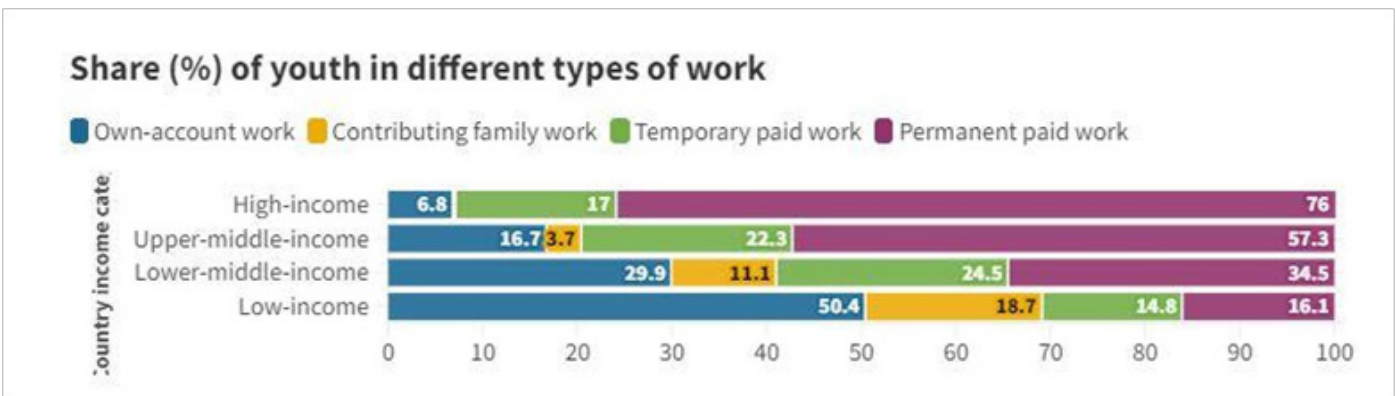

About International Labour Organization

– It is an United Nations Agency established in 1919 as part of the Treaty of Versailles that ended World War I, and it became the first specialized agency of the UN in 1946.
– It has 187 Member states.
– It sets labour standards, develops policies and devises programmes promoting decent work for all women and men.
– It is the only tripartite U.N. agency that brings together governments, employers and workers.
– It is headquartered in Geneva, Switzerland.
– Major Reports: World Employment and Social Outlook (WESO), Global Wage Report, World Social Protection Report, World Employment and Social Outlook for Youth, World of Work Report.

Major Highlights

- Resilient economic growth post Covid 19, has improved the global labour market outlook for young people belonging to the 15-24 age group.
- The 2023 youth unemployment rate at 13 percent, represents a 15-year low and a fall from the pre-pandemic rate of 13.8 per cent in 2019.

- It is expected to fall further to 12.8 per cent this year and the next year.
- Higher Unemployment Rates: In the Arab countries, East Asia, Southeast Asia, and the Pacific, youth unemployment rates were higher in 2023 than in 2019.
- NEET Youth: The report also cautions that the number of young people who are not in employment, education or training (NEET) is 'concerning', as it stood at 20.4 percent with two in three young NEETs globally being women.
- Concerns of Employed Youth: Lack of progress in gaining decent jobs, more than half of young workers are in informal employment globally.
- The share of young adults working in a secure paid job is significantly higher in high-income countries (at 76% in 2023) but the the incidence of temporary work has risen in those countries too.
- The supply of high-skill jobs to match the supply of educated youth, especially in middle-income countries, has not been enough.
- In low-income countries, only one in five young adults aged 25 to 29 manage to find a secure paid job.

Share (%) of youth in different types of work

■ Own-account work ■ Contributing family work ■ Temporary paid work ■ Permanent paid work

Country income cate.	Own-account work	Contributing family work	Temporary paid work	Permanent paid work
High-income	6.8		17	76
Upper-middle-income	16.7	3.7	22.3	57.3
Lower-middle-income	29.9	11.1	24.5	34.5
Low-income	50.4	18.7	14.8	16.1

- Services Sector: From 2008, services took over as the largest employer of young people worldwide. The share of youth employment by services rose to 45.9 percent.
- Within services, three aggregated subsectors have been responsible for two thirds of the increase in the sector's share: wholesale and retail trade; accommodation and food services; and other business services.
- Agriculture Sector: The share of youth employment accounted for by agriculture declined to 30.5 percent by 2021.
- Industry Sector: Within the industry sector, manufacturing accounted for a diminishing share of youth jobs between 2001 and 2021, while construction has come to play a more dominant role, for young men in particular.
- In Asia and the Pacific region, youth unemployment rate was at 13.9% in 2023 and it reflected a full recovery from the crisis years and fell below the rate of the pre-crisis years.
- By 2025, the youth unemployment rate in the region is expected to continue its decline to 13.7%.
- The gender gap in youth not in employment, education or training rates in South Asia was higher than in any other subregion of the world
- The region's youth NEET rate is expected to grow very slightly to 20.5% (from 20.4% in 2023).
- The share of young adults in Asia and the Pacific working in temporary jobs has increased from one in five to one in four since the start of the millennium.
- By 2021, only the subregion of South Asia still had the agricultural sector as the largest employer of young people (at 35%).

Conclusion

- The report reminds us that opportunities for young people are highly unequal; with many young women, young people with limited financial means or from any minority background still struggling.
- Without equal opportunities for education and decent jobs, millions of young people are missing out on their chances for a better future.

Diamond Sectors in India

Syllabus: GS3/Economy

Context

- Diamond industry in India is facing mass scale job losses, pay reduction and uncertainty about work, which employs around seven lakh workers in thousands of factories in cutting and polishing rough diamonds and exporting them in multiple countries.

Geographical Distribution of Diamond Fields

- Diamonds are precious gems, formed deep within the Earth's crust over millions of years, hold both cultural and economic significance.
- India's diamond occurrences date back to prehistoric times, and the country is home to several diamond-bearing regions.
- South Indian Tract (Andhra Pradesh): This region comprises parts of Anantapur, Kadapa, Guntur, Krishna, Mahabubnagar, and Kurnool districts. Andhra Pradesh hosts significant diamond reserves and extraction activities.
- Central Indian Tract (Madhya Pradesh – Panna Belt): Madhya Pradesh, particularly the Panna belt, is renowned for its diamond deposits.
- Panna has a long history of diamond mining and continues to contribute to India's gem industry.
- Gujarat: The diamond sector in Gujarat shines brightly.
- Surat, often called the 'Diamond City' processes around eight lakh (800,000) rough diamonds, making it a global hub for diamond polishing. Recently, the Surat Diamond Bourse has further boosted the industry.
- With an estimated annual turnover of 2 lakh crore (approximately $27 billion), this bourse is set to provide employment to an additional 1.5 lakh people.

India's Dominance in Cut and Polished Diamonds

- Exports: Indian exports of finished diamonds amount to a staggering $23 billion annually.
- Employment: The diamond sector directly employs around 1 million people in India.
- Additionally, it indirectly supports approximately 5 million jobs across various related industries.
- Global Leadership: India processes over 90% of the diamonds used in jewellery worldwide. Indian artisans skillfully transform rough stones into exquisite gems that adorn fingers, necks, and ears across the globe.

Key Concerns

- Lowering Exports: India's cut and polished diamond exports in 2023-24 plunged 27.5% from a year ago to a $15.97 billion due to sluggish demand from the United States, China and the United Arab Emirates
- The fall in exports forced the world's biggest diamond polisher to reduce imports of rough diamonds by 18% from a year ago to $14.27 billion in the financial year 2023-24.
- Mass Job Losses and Pay Reductions: Approximately seven lakh workers find employment in Surat's diamond factories, but uncertainty now looms large.
- Global Factors at Play: Since 95% of polished diamonds from Surat are exported, global factors significantly impact the industry.
- Geopolitical tensions, such as the Russia-Ukraine conflict and Israel-Palestine issues, have disrupted demand for diamonds worldwide. These conflicts ripple through the supply chain, affecting Surat's factories.
- Inventory Woes and Supply Chain Disruptions: Surat's factories are left with substantial inventories. It is because Russia, a major supplier of rough diamonds, has faced sanctions and geopolitical challenges.
- The delicate balance between supply and demand has been upset.
- Recession's Toll: In 2022, Surat's diamond industry boasted a turnover of nearly 2,25,000 crore. Alas, that figure has dwindled to around 1,50,000 crore today.
- The recession has been relentless, casting a shadow over the city that once sparkled with diamond brilliance.

Other Factors

- Market Dynamics: Fluctuations in global demand and rough diamond prices impact revenue.
- Technological Shifts: The rise of lab-grown diamonds and changing consumer preferences necessitate adaptation.
- Sustainability: Balancing growth with environmental and ethical considerations remains crucial.

Coal Sector in India and Concerns

Syllabus: GS3/Economy

Context

- India's coal import rose by 5.7 percent to 75.26 million tonnes (MT) in the first quarter of the current fiscal compared to in the same period of the previous fiscal.
- There was an increase in coal import volumes due to the continued softness in seaborne prices and expectation of a demand uptick during the summer season.

Coal Sector in India

- Coal Reserves: India has significant coal reserves, and it is one of the world's largest coal producers.
- The major coal fields in India are located in the eastern states of Jharkhand, Odisha, and West Bengal, as well as in central states like Chhattisgarh and Madhya Pradesh.
- Coal Production: India is the second largest coal producing country globally.
- The Coal India Limited (CIL) is the state-owned coal mining company and the largest government-owned-coal-producer in the world.
- Coal Consumption: The surge in coal production during May 2024, reaching 83.91 million tonnes, represents a notable 10.15% increase from the previous year.
- This surge highlights the sector's capacity to meet escalating demands from energy and manufacturing industries.
- Import and Export: Despite being a significant coal producer, India has also been importing coal to meet the growing demand.
- This is due to issues such as transportation challenges and the need for specific types of coal for certain industries.

Challenges

- Environmental Impact: The coal sector faces significant environmental challenges, including air pollution, greenhouse gas emissions, and the impact of coal mining on local ecosystems and communities.
- Infrastructure: The sector struggles with inadequate infrastructure for coal transportation, including railways and ports, leading to inefficiencies and supply chain issues.
- Regulatory and Policy Issues: The sector is subject to complex regulations and policies that affect its operation and growth.
- There are ongoing efforts to reform and modernize the sector, including auctioning of coal blocks to private companies and efforts to improve transparency.

Transition to Renewable Energy Sources

- India is the world's third largest producer of renewable energy, with 40% of its installed electricity capacity coming from non-fossil fuel sources. Coal still provide 55% of India's power supply.
- Aim: India has announced its aim to meet 50% of its electricity demands from renewable energy sources by 2030.

Challenges:

- Dependency on Natural Factors: Energy sources like solar and wind are variable as they rely on natural factors like sunlight, wind and water availability.
- To ensure a steady supply, India has to heavily invest in battery storage.
- Concerns in Hydropower Projects: Numerous hydropower projects are under construction or in the planning stages in the Himalayan region.
- But they have come under fire as the projects have caused ecological damage and raised concerns about the potential conflicts over water resources in the area.
- Nuclear Energy: The country's plans to generate energy with the help of nuclear power plants have not really taken off.
- During 2022-23, the plants produced about 2.8% of the total electricity generated in India.
- Infrastructure Development: The transition to renewable energy requires significant infrastructure development.

- The speed and scale of this infrastructure development can be a challenge for a country as large and diverse as India.
- Grid Integration: Integrating renewable energy into the existing power grid is a complex task.
- The grid must be flexible and capable of handling fluctuations in supply.

Steps Taken by Government for Transition to Renewable Energy Sources

- National Solar Mission (NSM): It was launched in 2010, it has set ambitious targets for solar capacity installation, including grid-connected and off-grid solar power projects.
- Green Energy Corridors: The Green Energy Corridor project focuses on enhancing the transmission infrastructure to facilitate the integration of renewable energy into the national grid.
- Renewable Purchase Obligation (RPO): This requires power distribution companies and large electricity consumers to procure a certain percentage of their power from renewable sources, encouraging the demand for renewable energy.
- Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM): It includes the installation of solar pumps, solarization of existing grid-connected agricultural pumps, and the establishment of solar power plants on barren or fallow land.
- International Solar Alliance (ISA): India played a key role in establishing the International Solar Alliance, a coalition of solar-resource-rich countries to address their energy needs through the promotion of solar energy.

Banking Laws (Amendment) Bill, 2024

Syllabus: GS3/Economy

Context

- Recently, the Banking Laws (Amendment) Bill, 2024 was introduced in Lok Sabha seeking to increase the option for nominees per bank account to four, from existing one, among others.

Rationale of Introducing Bill

- The introduction of Banking Laws (Amendment) Bill, 2024 follows the announcement during the 2023-24 Budget speech, emphasising the need for reforms in the banking sector to strengthen governance and safeguard investor interests.
- The proposed amendments align with the government's larger vision of facilitating banking sector reforms, including the privatisation of public sector banks.
- The Banking Laws (Amendment) Bill, 2024, seeks to amend several laws, including the Reserve Bank of India Act, 1934, the Banking Regulation Act, 1949, the State Bank of India Act, 1955, and the Banking Companies (Acquisition and Transfer of Undertakings) Acts of 1970 and 1980.
- Its primary goal is to enhance governance, strengthen investor protection, and improve overall banking practices.

Proposed Amendments

- Nominees per Bank Account: Currently, each bank account can have only one nominee. However, the proposed amendment aims to increase this limit to four nominees per account.
- It offers greater flexibility and choice to account holders.
- Redefining 'Substantial Interest': The bill seeks to redefine the concept of 'substantial interest' for bank directorships. The existing threshold of Rs 5 lakh will be raised significantly to Rs 2 crore.
- It reflects a long-overdue adjustment to a limit that has been in place for nearly six decades.
- Flexibility in Statutory Auditor Pay (Autonomy for Banks): The bill intends to give banks greater flexibility in determining the pay for statutory auditors.
- It recognises the importance of robust auditing practices in maintaining financial stability and transparency within the banking sector.
- Tenure of directors of co-operative banks: The Banking Regulation Act, 1949 prohibits the director of a bank (except its chairman or whole-time director) to hold office for more than eight years consecutively.
- The Bill of 2024 seeks to increase this period to 10 years for co-operative banks.

- Reporting Dates: The bill proposes a shift in reporting dates for regulatory compliance. Instead of the current schedule (second and fourth Fridays of each month), the new reporting dates would be the 15th and last day of every month.
- Broader Reforms: These changes are part of a broader effort to improve bank governance and investor protection.
- The amendments also impact the Banking Companies (Acquisition and Transfer of Undertakings) Acts of 1970 and 1980.

Conclusion

- The Banking Laws (Amendment) Bill, 2024 represents a significant step toward modernising India's banking framework.
- By increasing nominee options, redefining substantial interest, and granting more autonomy to banks, the bill aims to create a more robust and investor-friendly banking ecosystem.

Clean Plant Programme

Syllabus: GS3/Economy, Agriculture

Context

- The Union Cabinet has approved the Clean Plant Programme (CPP).
- It aims to enhance the quality and productivity of fruit crops across the country.

About Clean Plant Programme (CPP)

- CPP is designed to address critical issues in horticulture by providing access to high-quality, virus-free planting material.
- The programme is poised to deliver numerous benefits across various stakeholders, from farmers to consumers, and bolster India's position in the global fruit market.
- Clean Plant Centers (CPCs): Nine advanced CPCs will be established across India, each focusing on specific fruit types.
- These centers will be equipped with modern diagnostic and therapeutic facilities, including tissue culture labs.
- Regulatory Measures: A robust certification system will be implemented under the Seeds Act of 1966, ensuring accountability and traceability in the production and sale of planting material.
- Enhanced Infrastructure: Large-scale nurseries will receive support for developing infrastructure to facilitate the efficient multiplication of clean planting material.
- Integration with Mission for Integrated Development of Horticulture: The CPP complements the ongoing Mission for Integrated Development of Horticulture (MIDH).
- It is a Centrally Sponsored Scheme initiated in 2014-15 aimed at the holistic growth of the horticulture sector.
- MIDH covers a wide range of crops including fruits, vegetables, root and tuber crops, mushrooms, spices, flowers, aromatic plants, coconut, cashew, bamboo, and cocoa.
- Implementation: The programme will be implemented by the National Horticulture Board in collaboration with the Indian Council of Agricultural Research (ICAR).

Key Benefits

- Increased Crop Yields: By providing virus-free, superior planting material, the CPP aims to boost crop yields.
- Enhanced Income Opportunities: Higher quality produce will lead to better market prices and income for farmers.
- Propagation: Streamlined certification processes and infrastructure support will help nurseries in efficiently producing clean planting material.
- Sustainability: Improved facilities will foster growth and sustainability in the nursery sector.
- Superior Produce: The initiative ensures that consumers receive fruits that are not only virus–free but also enhanced in taste, appearance, and nutritional value.
- Global Market Strengthening: With higher-quality, disease-free fruits, India will enhance its position as a leading global exporter, thereby expanding market opportunities and increasing its share in the international fruit trade.

Horticulture Sector in India

- Horticulture is the science and art of cultivating fruits, vegetables, flowers, and ornamental plants.
- The Indian horticulture sector contributes about 33% to the agriculture Gross Value Added (GVA) making a very significant contribution to the Indian economy.
- India is currently producing about 320.48 million tons of horticulture produce which has surpassed the food grain production, that too from much less area.
- Productivity of horticulture crops is much higher compared to productivity of food grains.
- At present, India is the second largest producer of vegetables and fruits in the world.
- India ranks first in the production of a number of crops like Banana, Lime & Lemon, Papaya, Okra.
- India's advantage lies in being a low-cost producer of fruits and vegetables because of a combination of factors such as favourable agro-climatic conditions, availability of labour, and low input costs.
- As a result, fruits and vegetables account for almost 90% of the total horticulture production in the country.

Challenges Faced by the Sector

- Lack of Infrastructure: Insufficient infrastructure for post-harvest handling, storage, and transportation leads to significant losses of perishable horticultural produce.
- Water Management: Horticulture is water-intensive, and water scarcity or inefficient water management practices affect crop yields and quality.
- Pest and Disease Management: Pests and diseases cause significant damage to horticultural crops, and the misuse of pesticides lead to environmental pollution and health hazards.
- Market Linkages: Limited market linkages and price fluctuations affect farmers' income and discourage investment in horticultural production.
- Climate Change: Erratic weather patterns, including unpredictable rainfall and temperature fluctuations, pose challenges to horticultural production and require adaptation strategies.
- Quality Standards and Certification: Meeting quality standards and obtaining certification for export markets is challenging for small-scale horticultural producers.

Horticulture schemes and initiatives

- National Horticulture Mission (NHM): Launched in 2005, the NHM is a centrally sponsored scheme aimed at promoting holistic growth of the horticulture sector.
- It focuses on enhancing horticulture production, improving nutritional security, and providing income support to farmers.
- Enhanced Support for Horticulture Under PMFBY: Under the PMFBY guidelines, the premium contribution for farmers is capped at 2% for Kharif crops, 1.5% for Rabi crops, and 5% for commercial and horticultural crops.
- Horticulture Cluster Development Programme (HCDP): The HCDP is designed to leverage geographical specialization and promote integrated and market-led development of horticulture clusters.
- The program targets an increase in exports of the focus crops and seeks to improve the competitiveness of Indian horticulture products in the global market.
- Post-harvest Infrastructure Development Scheme: This scheme addresses the critical issue of post-harvest losses in the horticulture sector.
- It provides support for establishing modern post-harvest facilities such as pack houses, ripening chambers, cold storage units, and processing facilities.
- Horticulture Mission for North East and Himalayan States (HMNEH): It takes into account the unique agro-climatic conditions of these areas and promotes crops that are particularly suited to these regions, aiming to improve farmers' livelihoods and promote sustainable horticulture practices.

Conclusion

- Clean Plant Programme (CPP) stands as a transformative initiative poised to significantly elevate India's horticulture sector.
- By improving the quality and sustainability of fruit production and enhancing the country's export capabilities, the CPP is set to reinforce India's position as a global leader in the fruit trade.
- Furthermore, its inclusive approach, which ensures equitable access to resources and actively involves women farmers, highlights the programme's dedication to fostering broad-based growth and development within the sector.

RBI Enhances UPI Transaction Limit for Tax Payments

Syllabus: GS3/Economy

Context

- Recently, the Reserve Bank of India (RBI) has taken a significant step to facilitate digital payments by increasing the transaction limit for tax payments through the Unified Payments Interface (UPI).

Key Points

- Increased Limit: The UPI transaction limit for tax payments has been raised from Rs 1 lakh to Rs 5 lakh per transaction. This move aims to make it easier for taxpayers to settle their dues using UPI.
- Delegated Payments Feature: In addition to the increased limit, the RBI has proposed a new feature called "Delegated Payments" for UPI users.
- It allows a primary user (say, an account holder) to authorise another individual (a secondary user) to make UPI transactions from the primary user's bank account, up to a specified limit.
- Essentially, this means that parents can grant their children limited access to their accounts for daily expenses, even if the children don't have their own bank accounts or smartphones.
- Previous Changes: It's worth noting that in December of last year, the RBI had already increased the UPI transaction limit to Rs 5 lakh (from Rs 1 lakh) specifically for payments related to hospitals and educational institutions.

> **Unified Payments Interface (UPI)**
>
> – It is a system that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood.
> – It was developed by National Payments Corporation of India (NPCI) in 2016.
> – Participants in UPI: Payer Payment Service Provider (PSP), Payee PSP, Remitter Bank, Beneficiary Bank, NPCI, Bank Account holders, and Merchants.

Antitrust Complaint Against Google

Syllabus: GS2/Governance/GS3/Economy

Context

- An Indian start-up lobby group has filed a complaint with the Competition Commission of India (CCI) against Google's alleged anti-competitive practices in the online advertising market.

About

- The Alliance of Digital India Foundation (ADIF), said that Google's dominance over major online platforms and its reliance on advertising for the majority of its revenue hinders competition and negatively impacts Indian businesses.
- The development comes as India is currently discussing an exhaustive digital competition law, which could see increased preemptive compliance on the part of large tech companies.

Background

- In March this year, the Committee on Digital Competition Law (CDCL) published its report outlining the challenges associated with anti-competitive practices of digital enterprises such as anti-steering, self-preferencing, tying, and bundling in the digital markets in India.
- The committee had proposed a Digital Competition Bill in the report, providing for ex-ante regulations to curb these anti-competitive practices.

Key Highlights

- Predictive Regulation: It proposes a forward-looking, preventive, and presumptive law (an ex ante framework) that foresees the potential harms that can arise out of antitrust issues and prescribes pre-determined no-go areas.
- Currently, India follows an ex post antitrust framework under the Competition Act, 2002.
- One of the biggest criticisms of the law has been that regulating after the incidence of market abuse involves delays — by the time the offending company has been penalised, market dynamics change to rule out smaller competitors.

- Significant entities: The Bill proposes that for certain "core digital services" like search engines, and social media sites, the Competition Commission of India (CCI) should designate companies as "Systematically Significant Digital Enterprise (SSDE)" depending on various quantitative and qualitative parameters such as turnover, user base, market influence etc.
- Entities that don't fall under these parameters can still be designated as SSDEs if the CCI believes that they have a significant presence in any given core digital service.
- Entities which are designated as SSDEs, have been prohibited from engaging in practices such as self-preferencing, anti-steering, and restricting third party applications.
- If they violate these requirements, they can be fined up to 10% of their global turnover.
- Associate Digital Enterprises: Understanding the role that data collected by one company of a major technology group can play in benefitting other group companies, the Bill proposes to designate associate digital enterprises (ADEs).
- If an entity of a group is determined to be an associate entity, they would have the same obligations as SSDEs depending on the level of their involvement with the core digital service offered by the main company.
- Enforcement of provisions: The draft Bill empowers the Director General, appointed under the 2002 Act, to investigate any contraventions when directed by the CCI.

Need for the Bill

- The big tech companies have shown a history of engaging in anti-competitive practices, and a presumptive framework would work better to address this.
- Last year, Google was fined Rs 1.337 crore by the CCI for its anti-competitive conduct in the Android ecosystem.
- There is also concern that in the last decade or so, a majority of the innovation has been confined to within the stables of a handful of big tech companies, mostly from the US.
- Officials believe that a big reason for this are the high market barriers for new entrants in the sector — in the online market.

Criticism of the Draft Bill

- Compliance Burden: For big tech companies, an ex ante framework with its strict prescriptive norms could lead to significant compliance burden, and shift focus from innovation and research.
- As a result, the tech giants are calling for the current competition law to be strengthened rather than moving towards an ex ante framework.
- Broad Definition of Entities: Companies are also understood to be concerned about the broad definition — both quantitative and qualitative — of who a significant platform could be.
- Unlike EU's DMA which specifically names the 'gatekeeper' entities, that decision in India's draft law has been left to the discretion of the CCI.
- Companies believe that could lead to arbitrary decision making, which could potentially also impact start-ups.

Conclusion

- Ex-ante regimes tell businesses precisely how to behave, or what to do.
- Under the current ex-post regime of the Competition Act, companies are only required to ensure that their conduct in the market is not anti-competitive.
- An overlapping ex-ante regime proposed under the digital competition Bill will force tech companies to comply with parallel legislation and undertake measures for additional compliance.

Debate over GST on Health Insurance

Syllabus: GS3/Economy

Context

- Opposition parties in India are demanding the withdrawal of Goods and Services Tax (GST) on life insurance and health insurance premiums.

Background

- GST replaced all indirect taxes like service tax and cess from 2017.
- Since GST encapsulates service tax, which applies to the insurance industry, its introduction has resulted in an increase in premium amounts.
- GST on health and life insurance policies is fixed at 18%.
- Prior to GST, life insurance premiums were subject to 15% service taxes, comprising Basic Service Tax, Swachh Bharat cess, and Krishi Kalyan cess.
- The increase from 15% to 18% impacted the end consumer (policyholders) by raising their premiums amounts.

Argument in favor of imposing the tax

- GST is applicable to all insurance policies since insurance is a service, and policyholders pay tax on their insurance premium.
- Insurance policies allow certain deductions while computing income tax. The tax-saving deductions, particularly on life insurance premiums, are Sections 80C and 80D of the Income Tax Act, 1961.
- Under Section 80C, a customer can avail deductions of up to Rs 1.5 lakh on the overall insurance premium, including the GST applicable on them.

Argument for withdrawing the GST on the Premium

- The GST on insurance in India is the highest in the world and that the situation needs to be addressed in order to attain the goal of "Insurance for All by 2047", which was endorsed by the Standing Committee on Finance in its 66th report.
- This report had recommended rationalization of the GST rate on insurance products, especially health and term insurance.
- The high rate of GST results in a high premium burden, which acts as a deterrent to getting insurance policies.
- The Committee, with a view to make insurance more affordable, recommend that GST rates applicable to health insurance products, particularly retail policies for senior citizens and microinsurance policies (up to limits prescribed under PMJAY, presently Rs 5 lakh), and term policies may be reduced.

Goods and Services Tax (GST)

– GST is a unified tax system that replaced multiple indirect taxes levied by both the Central and State Governments.

– The GST system follows a dual structure, comprising Central GST (CGST) and State GST (SGST), levied concurrently by the Central and State governments, respectively.

– Additionally, an Integrated GST (IGST) is levied on interstate supplies and imports, which is collected by the Central Government but apportioned to the destination state.

Goods and Services Tax (GST) Council

– The Goods and Services Tax (GST) Council is a constitutional body established under Article 279A of the Indian Constitution through the 101st Amendment Act of 2016.

– The Union Finance Minister is the Chairperson of the GST Council.

– The GST Council makes recommendations to the Union and the States on key GST-related issues, including:

1. Taxes, cesses, and surcharges to be subsumed under GST

2. Goods and services to be subject to or exempt from GST

3. Model GST laws, principles of levy, and apportionment of IGST

4. Tax rates, thresholds, special provisions, and any other matter relating to GST

– Dispute resolution: The Council also serves as a platform to resolve disputes between the Centre and the States or among the States themselves on GST-related matters.

– The Centre has one-third of the total voting power, while the States collectively have two-thirds.

Yen Carry Trade

Syllabus: GS 3/Economy

In News

- Low rates incentivized global investors to borrow yen cheaply and invest in other countries for better returns.

About Yen Carry Trade

- Investors borrow money in a country with low interest rates and invest it in countries with higher interest rates.
- Example: Borrowing yen (from Japan) with low rates and investing in countries like Brazil, Mexico, or India where rates are higher.
- Bank of Japan's Policy: Between 2011 and 2016, Japan's interest rates were at zero, and since 2016, they have been even lower (-0.10%) to stimulate economic activity in Japan.
- From mid-March to July, the Bank of Japan raised rates from -0.10% to 0.25%.
- The increase in Japanese interest rates led to a stronger yen.
- Impact: Investors who had borrowed yen and invested in other currencies started selling their international assets.
- The yen strengthened against other currencies like the US dollar, Brazilian real, Indian rupee, and Mexican peso.

Bio-Economy Driven Industrial Revolution
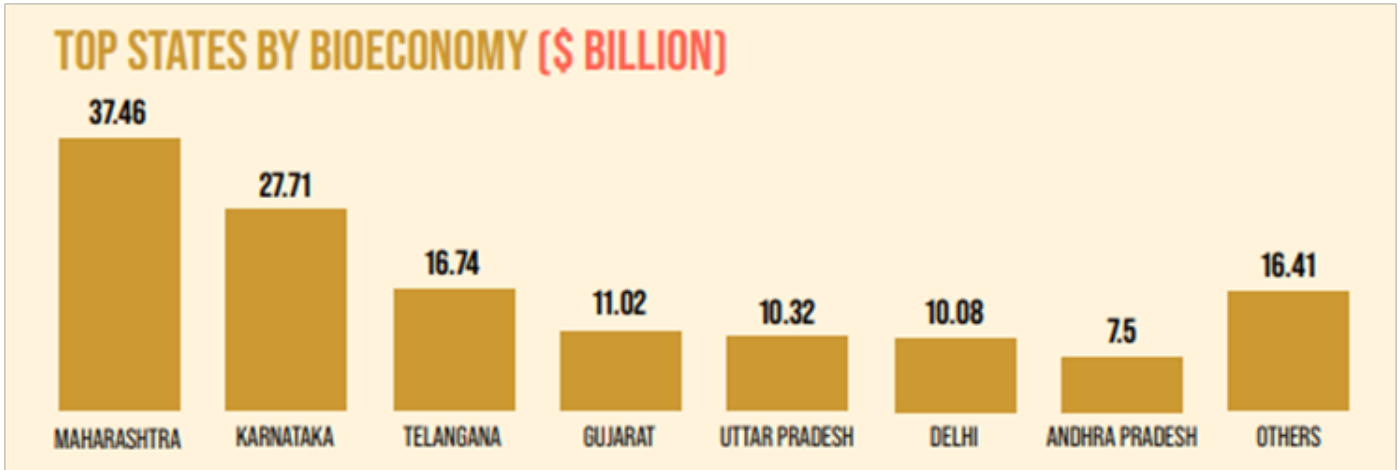
Syllabus: GS3/ Economy

Context

- The Union Minister Dr. Jitendra Singh at the ceremony of '4th edition of Global Bio India 2024' said that the Next Industrial Revolution will be BioEconomy driven.

What is BioEconomy ?

- The BioEconomy is the knowledge-based production and use of biological resources to provide products, processes and services in all economic sectors within the frame of a sustainable economic system.
- It encompasses sectors like agriculture, forestry, fisheries, food production, biotechnology, and bioenergy.
- Subsectors of the BioEconomy in India are;
- BioPharma or BioMedical: It includes the development and production of medical products and services, such as pharmaceuticals, medical devices, and lab-grown organoids.
- BioAgri: It includes the development and production of genetically modified crops and animals, precision agriculture technologies, and bio-based products. EX: Bt Cotton
- BioIndustrial: It includes the development and production of biobased chemicals and products using enzymes, biosynthetic routes, and recombinant DNA technology.

BioEconomy of India

- India's BioEconomy has grown 13-fold over the last decade, from $10 billion in 2014 to over $130 billion in 2024, with a projection to reach $300 billion by 2030.
- In the Global Innovation Index, India has climbed from 81st place in 2015 to 40th out of 132 economies.
- India ranks 3rd in the Asia-Pacific region and 12th globally in terms of biomanufacturing.
- Biotechnology, a sunrise sector, has achieved a valuation of Rs 75,000 crore over the past 10 years.
- In 2022, BioEconomy accounted for 4% of India's gross domestic product (GDP) of $3.47 trillion and employs over 2 million people.

TOP STATES BY BIOECONOMY ($ BILLION)

State	$ Billion
MAHARASHTRA	37.46
KARNATAKA	27.71
TELANGANA	16.74
GUJARAT	11.02
UTTAR PRADESH	10.32
DELHI	10.08
ANDHRA PRADESH	7.5
OTHERS	16.41

Government Initiatives

- Biotechnology Industry Research Assistance Council (BIRAC) established by the Department of Biotechnology (DBT) is aimed at strengthening and empowering emerging biotechnology enterprises to undertake strategic research and innovation.
- Policy initiatives of the Government of India (GoI) such as Startup India and Make in India programs are aimed to develop India as a world-class Biotechnology and Bio-manufacturing hub.
- Favorable Government Policies like Draft R&D Policy 2021, PLI Schemes and Clinical trial rules have propelled India to be the 'pharmacy of the world'.
- FDI Policy: 100% FDI is allowed under the automatic route for greenfield pharma. Also 100% FDI is allowed under the government route for brownfield pharma.
- Up to 74% FDI is under the automatic route and beyond 74% is under the government approval route.

Challenges for BioEconomy of India

- Global Competition: India's BioEconomy faces stiff competition from more established bio Economies in countries like the USA, EU, and China, which have more advanced infrastructure, funding, and R&D capabilities.
- Intellectual Property (IP) Protection: Protecting intellectual property in the biotech sector is challenging, leading to concerns over innovation theft and lack of incentives for research.
- Lack of Infrastructure: Insufficient infrastructure for research, development, and commercialization of biotechnology innovations.
- Brain Drain: Talented scientists and researchers leave India for better opportunities abroad, reducing the country's capacity for innovation.

Way Ahead

- Encourage increased public and private investment in biotech R&D through grants, tax incentives, and venture capital support.
- Engage in global research collaborations to leverage expertise, share resources, and accelerate the development of new technologies.
- Develop innovation clusters/ecosystems where academia, industry, and government entities can collaborate closely on BioEconomy initiatives.

Concluding remarks

- India needs a coordinated national strategy, with public-private partnerships as the bedrock for a thriving bioeconomic landscape.
- Seizing the demographic dividend and harnessing STEM (Science, technology, engineering, and mathematics) talent are crucial for economic growth and global leadership.

Latest Revelation by Hindenburg on the SEBI chief

Syllabus :GS 3/Economy

In News
- Hindenburg Research has accused the SEBI Chairman, Madhabi Puri Buch, of a conflict of interest and alleged bias in the ongoing investigation into the Adani Group.

Allegations
- Allegations claim the SEBI Chairman and her husband Dhaval Buch a had hidden stakes in offshore funds in Bermuda and Mauritius, tax havens.
- In 2013, Ms. Buch founded a consulting firm, Agora Partners, in India and Singapore.
- It is alleged that she did not transfer her 100% stake in the Singapore unit of Agora Partners until March 16, 2022, just after her appointment as SEBI Chairperson, violating SEBI's Code which prohibits holding other profitable positions or activities.
- Despite lacking experience in real estate or fund management, Dhaval Buch was appointed senior advisor at Blackstone in 2019.

Developments
- The Supreme Court has instructed SEBI to complete investigations into certain allegations and issue a show cause notice to Hindenburg.
- SEBI has completed one of two investigations and is near completion on the second, while rejecting the need for an external probe like an SIT or CBI.
- SEBI has criticised Hindenburg's attempts to undermine its credibility instead of responding to the show cause notice, and has outlined its ongoing and planned actions regarding the investigations.

Ethics Codes in the United States
– Standards of Ethical Conduct prohibit participation in matters where the employee or their close relations have a financial interest.
– Supplemental Standards prohibits trading in securities of companies under investigation, short selling, and other specific transactions.
– Personal Trading Compliance System (PTCS) requires pre-approval for securities transactions and annual reporting of holdings.Employees must report all securities holdings and obtain pre-approval for transactions.
Ethics Codes in the United Kingdom:
– Disclosure Requirements: Employees must regularly update and formally attest to their conflict of interest disclosures.
– Reporting: Employees must disclose holdings in listed companies, securities, and other financial relationships that could be considered conflicts of interest.

SEBI's 'Code on Conflict of Interests for Members of Board'
- Definition of Conflict of Interest: Refers to any personal interest or association that could influence a board member's decisions, as perceived by an independent third party.
- Holdings Disclosure: Members must disclose their and their family's holdings within 15 days of assuming office and annually update this disclosure.
- Substantial Transactions: Transactions over 5,000 shares or worth more than Rs 1 lakh must be disclosed within 15 days.
- Unpublished Price Sensitive Information: Members cannot trade based on non-public, price-sensitive information.
- Members cannot hold other profitable positions or engage in activities that bring financial gain or professional fees.
- Members cannot accept gifts from regulated entities exceeding Rs 1,000; such gifts must be handed over to SEBI's General Services Department.
- Members must disclose any past or current posts, employment, fiduciary positions, significant relationships with regulated entities, and honorary positions.

Ways to Managing Conflicts of Interest:

- As a general principle, SEBI board members are to "take all steps necessary to ensure that any conflict of interest does not affect any decision of the Board" and not to "exploit to his personal advantage, any personal or professional relationship with regulated entities or any employee of such entities".
- This is to be done by a system of disclosures and recusals.
- disclosures must be made at the earliest opportunity.
- Members with conflicts must recuse themselves from dealing with the matter.
- If uncertain, they should seek a determination from the Chairman or, if the Chairman is conflicted, from the Board.
- If a conflict is confirmed, the member must refrain from participating in related matters.
- Disclosure information is confidential. However, the public can submit evidence of conflicts to the board secretary, who must then present it to the Board.

Consumer Price Inflation

Syllabus: GS3/Economy

Context

- In India, CPI recently made headlines as it eased to a nearly five-year low of 3.54% in July.

Understanding Consumer Price Inflation (CPI)

- It is a critical economic indicator that measures the rate at which prices of goods and services increase over time.
- It affects whether we're buying groceries, paying rent, or planning our budgets.
- When CPI rises, it erodes our purchasing power, making everyday essentials more expensive.

Consumer Price Indices (CPI)

– It measures changes over time in the general level of prices of goods and services that households acquire for the purpose of consumption.

– CPI is widely used as a macroeconomic indicator of inflation, as a tool by governments and central banks for inflation targeting and for monitoring price stability, and as deflators in the national accounts.

– CPI is used for indexing dearness allowance to employees for increase in prices.

– The Central Statistics Office (CSO), MoSPI has revised the Base Year of the CPI from 2010 to 2012 with effect from the release of indices for the month of January, 2015.

'Clean Plant Programme' to Boost Horticulture Sector

Syllabus: GS 3/Economy

In News

- The Cabinet approved the Clean Plant Programme (CPP) with a budget of Rs 1,766 crore.

About 'Clean Plant Programme'

- It is part of the Mission for Integrated Development of Horticulture (MIDH).
- It was announced in the Budget Speech by the Finance Minister in February 2023.
- It seeks to set new standards for excellence and sustainability in horticulture.
- It will be executed by the National Horticulture Board in collaboration with the Indian Council of Agricultural Research.

Components

- Clean Plant Centres (CPCs): For developing and providing clean planting materials.
- Nine state-of-the-art CPCs will be established across India for advanced diagnostics and virus-free planting material
- Certification and Legal Framework: To ensure quality and compliance.
- Implementation of a robust certification system under the Seeds Act 1966 for accountability and traceability.
- Enhanced Infrastructure: To support the program's implementation.

- Support for large-scale nurseries to develop infrastructure for efficient multiplication of clean planting material.
- Benefits: It aims to enhance the quality and productivity of fruit crops in India.
- Provides access to virus-free and high-quality planting materials.
- Expected to improve crop yields and farmer incomes.
- Strengthens India's position as a global exporter, expanding market opportunities and increasing international trade share.
- Supports Mission LiFE and One Health initiatives.

Overview of Horticulture Sector in India

- It has emerged as a vital component of the agricultural economy, contributing significantly to the nation's GDP and providing employment to millions.
- With diverse agro-climatic conditions, India is well-suited for the cultivation of a wide variety of horticultural crops, including fruits, vegetables, flowers, spices, and medicinal plants.
- The horticulture production in the country in 2023-24 (Second Advance Estimates) is estimated to be about 352.23 Million Tonnes, a decrease of about 32.51 Lakh Tonnes (0.91%) over 2022-23 (Final Estimates).
- Increase in production of Fruits, Honey, Flowers, Plantation Crops, Spices and Aromatics & Medicinal Plants is seen over 2023-24 (Final Estimates) whereas decrease in Vegetables.
- Global Leadership: India is a world leader in the production of several fruits including mango, banana, guava, papaya, sapota, pomegranate, lime, and aonla.
- India is the second-largest producer of fruits and vegetables globally.
- Dominates in the production of spices, coconut, and cashew nut.

Importance

- It provides raw materials for various industries, including food processing, pharmaceuticals, and cosmetics, thereby generating substantial employment opportunities
- It plays a significant role in the Indian economy by ensuring nutritional security, providing rural employment, diversifying farm activities, and enhancing farmers' income.
- The horticulture sector contributes about 28% to the agricultural GDP of India

Challenges

- Infrastructure: Inadequate cold storage and transportation facilities lead to significant post-harvest losses.
- Market Access: Farmers often face difficulties in accessing markets and getting fair prices for their produce.
- Climate Change: Erratic weather patterns and climate change pose a threat to horticultural production.

Government Initiatives

- Mission for Integrated Development of Horticulture (MIDH):It aims for the holistic development of horticulture by increasing area, production, and post-harvest infrastructure.
- MIDH is a Centrally Sponsored Scheme implemented in States/UTs since 2014-15.
- Rashtriya Krishi Vikas Yojana (RKVY): State governments' horticulture development projects are also supported under RKVY.
- The launch of the National Horticulture Mission has significantly boosted production and productivity.
- Focuses on the development of horticulture through technology promotion, extension, and post-harvest management
- Horticulture Cluster Development Programme: Launched to promote integrated and market-led development of horticulture clusters to enhance global competitiveness

Conclusion and Way Forward

- The horticulture sector in India holds immense potential for driving economic growth and improving livelihoods.
- With supportive government policies, technological innovations, and a focus on sustainable practices, the sector is poised for significant advancements in the coming years.
- There is a need for adoption of modern technologies such as precision farming, protected cultivation, and drip irrigation can enhance productivity and sustainability.

Chapter 1- Cellular Jail- The Saga Of Resistance

History of Cellular Jail

- Cellular Jail, often referred to as "Kala Pani" (Black Water), is situated in the Andaman and Nicobar Islands, India.
- The construction of this infamous prison began in 1896 and was completed in 1906 under British colonial rule.
- The jail was built primarily to exile and punish political prisoners and revolutionaries who actively opposed British authority.
- The establishment of Cellular Jail was a direct consequence of the 1857 Sepoy Mutiny, a significant uprising against British rule, which prompted the British to adopt more stringent measures in dealing with dissent.

Important Key Facts About Cellular Jail

- Location: Cellular Jail is located in Port Blair, the capital of the Andaman and Nicobar Islands, an archipelago in the Bay of Bengal, which was strategically chosen for its remoteness, making escape nearly impossible.
- Architecture: The jail's design features seven wings radiating from a central watchtower, resembling a spider's web. This unique architectural layout was intended to ensure that no two prisoners could communicate with each other, thus preventing any form of rebellion or solidarity among them.
- Construction Timeline: The jail was officially inaugurated in 1906 and operated until India gained independence in 1947. During its operational years, it became a symbol of the inhumanity of colonial rule.
- Closure: Following India's independence in 1947, the jail was closed, and in 1969 it was declared a national memorial, preserving its history and significance. The site has been developed to educate visitors about the atrocities committed during the colonial era and the heroism of those who suffered within its walls.
- Architecture: It was designed by British architect J. A. H. W. Macpherson based on the 'Pennsylvania System or Separate System' theory, which required separate confinement of each inmate for complete isolation from other inmates, with no communication possible between prisoners in the same or different wings.

- Each cell was designed for solitary confinement, measuring approximately 4.5 meters by 2.7 meters.
- They were equipped with thick walls and small windows, limiting light and air, creating a suffocating environment for inmates.
- The design aimed to prevent any form of communication or solidarity among prisoners.
- The central watchtower, which rises above the prison wings, was strategically placed to allow guards to monitor the movements of all prisoners. This architectural feature emphasized the oppressive nature of the jail, instilling fear among inmates.

Freedom Fighters Associated With Cellular Jail

- Vinayak Damodar Savarkar: Vinayak Damodar Savarkar, a prominent revolutionary, poet, and politician, was a key figure in the Indian independence movement. Known as 'Veer' for his bravery, he was sentenced in 1911 to two life terms (50 years) in the Cellular Jail of the Andamans for his involvement in anti-colonial activities, including opposition to the Morley-Minto Reforms (Indian Councils Act 1909). Savarkar is also credited with popularizing the concept of "Hindutva." He was eventually released in 1924, having played a crucial role in mobilizing support for India's independence.
- Batukeshwar Dutt: He was also known as B.K. Dutt, was a revolutionary freedom fighter who, alongside Bhagat Singh, participated in the Central Legislative Assembly bombing in 1929. He was sentenced to life imprisonment and exiled to the Cellular Jail in Port Blair. Dutt passed away on July 20, 1965, at the age of 54.
- Fazl-E-Haq Khairabadi: He was arrested on January 30, 1859, for inciting violence following the Indian Rebellion of 1857. He was found guilty of encouraging murder and leading a 'jihad' and was sentenced to life imprisonment in the Cellular Jail on the Andaman Islands. His property was also confiscated by the British authorities.
- Barindra Kumar Ghose: He was involved in the Alipore Bomb Case following an attempted assassination of Kingsford by revolutionaries Khudiram and Prafulla on April 30, 1908, was arrested alongside his brother Aurobindo Ghosh. Initially sentenced to death, Barin's sentence was reduced to life imprisonment, and he was deported to the Cellular Jail in Andaman in 1909.
- Sushil Dasgupta: He was a member of the revolutionary Yugantar Dal of Bengal, was involved in the Putiya Mail Robbery case of 1929. After escaping from Medinipur prison, he was eventually captured and sent to the Cellular Jail. His comrades, Sachin Kar Gupta and Dinesh Majumdar, also faced imprisonment, with Dinesh being executed.
- On December 29, 1943, political control of the Andaman Islands was transferred to Subhas Chandra Bose's Azad Hind government. Bose visited Port Blair and raised the tricolor flag of the Indian National Army.

Chapter 2- Jambu Dweepa Proclamation

- The Jambudweep Proclamation refers to the declaration made by the Maruthu brothers in 1801 during the South Indian Rebellion against British colonial rule.
- The proclamation was a call to arms against the British, criticizing their oppressive policies and urging Indian rulers and people to unite against colonial domination.
- Jambu Dweepa is an ancient term with significant cultural and historical connotations in Indian tradition. It is often mentioned in Hindu, Buddhist, and Jain cosmology as a large continent or island, sometimes referring to the entire known world or, more specifically, the Indian subcontinent. The name "Jambu Dweepa" is derived from the Jambu tree, a mythical tree said to grow on this landmass.

Colonial Resistance:

- The Proclamation of Jambu Dweepa in 1801, led by the Maruthu brothers (Periya Marudhu and Chinna Marudhu) were de facto rulers of Sivagangai, Tamil Nadu.
- They marked one of the earliest organized efforts to resist British colonial rule in India. They are credited with issuing the first proclamation against British atrocities, even before the more well-known uprisings such as the Vellore Mutiny of 1806 and the Sepoy Mutiny of 1857.

Background And The Rise Of The Maruthu Brothers

- The British initially came to India under the guise of trade but soon used their superior weaponry and divisive tactics to establish control over large parts of the country.

- The Nawab of Arcot, Mohammed Ali, exacerbated British dominance by handing over tax collection and ruling rights to them, leading to widespread impoverishment and subjugation of the local population.
- The Maruthu brothers, Periya Maruthu (the elder) and Chinna Maruthu (the younger), were born to Mokka Palanisamy Thevar and his wife Ponatha, who served the second king of Sivagangai, Muthuvadaganatha Thevar.
- Trained in warfare and artillery, the brothers became close aides to the king. However, their lives took a dramatic turn when the British, after failed negotiations, killed the king and queen in a nighttime attack.
- The Maruthu brothers fled with the first queen, Vedanachiyar, to the neighboring kingdom of Virupakshi, ruled by Gopal Nayak. After seven years, they returned to Sivagangai, where Periya Maruthu took charge as the commander of the army and Chinna Maruthu as the chief minister.

Maruthu brothers

The Proclamation Of 1801

- The Maruthu brothers, having garnered support from other Southern Indian kings who were ideologically opposed to British rule, initiated a rebellion against the British in 1801
- They issued a proclamation that became a rallying cry for resistance across the region. The proclamation condemned the British for their deceitful takeover of Indian kingdoms and their brutal treatment of Indians, whom they regarded as inferior.
- The proclamation also criticized the lack of unity among Indian castes, which had allowed the British to dominate the country.
- This proclamation was inspired by an "all-Indian concept," was one of the first to call for national resistance against the British.
- The Maruthu brothers displayed the proclamation publicly, including on the walls of the Sri Rangam Temple and the Rock Fort in Tamil Nadu, despite the risks to their lives and their kingdom.

The British Response And The Execution Of The Maruthu Brothers

- Angered by the defiance of the Maruthu brothers, the British launched a full-scale military campaign against them.
- On October 24, 1801, the Maruthu brothers, along with about 500 of their supporters, were captured and executed.
- The British carried out these executions without proper legal procedures, in what Rajayyan described as "anomalous and irregular" actions. The British also sought to eliminate any future threats by executing the male members of the Maruthu family, sparing only one son of Periya Maruthu, Doraisamy, who was banished to Malaysia.

Legacy Of The South Indian Rebellion

- The South Indian Rebellion of 1801, led by the Maruthu brothers, holds a unique place in India's history as one of the earliest and most organized challenges to British rule.
- The rebellion highlighted the potential for collective resistance and the importance of unity among Indians in the face of colonial oppression.
- Although the rebellion was ultimately crushed, the Maruthu brothers' courage and sacrifice served as a precursor to later, more widespread movements for independence.

Chapter 3- Untold Stories Of Freedom Struggle From Northeast India

- Bhogeswari Phukanani (1885-1942): A courageous freedom fighter from Assam, she actively participated in the Quit India Movement despite being a mother of eight. She played a key role in liberating the Congress office in Berhampur, Assam, from British control.
- She was shot by British police and succumbed to her injuries after 20 days, making the ultimate sacrifice for India's freedom.
- U. Tirot Singh: A leader of the Khasi tribe, Tirot Singh led his people in a guerrilla war against the British when they attempted to build a road through Khasi Hills without fulfilling their promises. Despite being outmatched in terms of weaponry, he fought bravely for four years before being captured and imprisoned in Dhaka, where he died.
- Shoorvir Pasaltha Khuangchera: A legendary figure in Mizoram, Pasaltha Khuangchera was the first Mizo leader to resist British invasion in 1890. He fought valiantly against the British forces in the Lushai Hills and died in battle. His bravery remains an inspiration, though he is less recognized nationally.
- Rani Gaidinliu: A prominent female leader from the Naga community, she initiated a movement against British rule at the age of 16. Captured and sentenced to life imprisonment, she was later released after India's independence. Rani Gaidinliu continued to work for the upliftment of her people and was awarded the Padma Bhushan for her contributions.
- Kanaklata Baruah (1924-1942): A 17-year-old freedom fighter from Assam, Kanaklata was shot dead by British police while attempting to hoist the national flag at a police station during the Quit India Movement.
- Moje Riba: A freedom fighter from Arunachal Pradesh, Riba was the first person to hoist the Indian tricolor in Dipa village on August 15, 1947. He was arrested for his involvement in the Quit India Movement and for distributing pamphlets advocating independence.
- Gomdhar Konwar: He was a prominent figure in the struggle for independence from Assam. Born in 1915, he became actively involved in the freedom movement during the 1940s. He was a member of the Indian National Congress and played a significant role in mobilizing the youth against British rule. Konwar is best remembered for his bravery during the Quit India Movement of 1942, where he led protests and faced severe repression. The Government of India posthumously honored him by naming various institutions after him, recognizing his contributions to the freedom struggle.
- Moongri: The First Woman Martyr: She is recognized as one of the first female martyrs in the Indian freedom movement. Her activism began in the early 20th century, where she participated in various protests against British oppression. Moongri's ultimate sacrifice came during a protest against oppressive policies, where she lost her life. The Government of India has acknowledged her contributions through various memorials and educational institutions named in her honor.

- Dhekiajuli Massacre: The Dhekiajuli Massacre in 1942 marked a tragic chapter in Assam's history, where British forces opened fire on unarmed protesters. Among the martyrs was a young boy, who became known as India's youngest martyr. His name remains etched in history, symbolizing the innocence lost during the struggle for freedom. Commemorative events and memorials have been established to honor the victims, reflecting the government's recognition of their sacrifice.
- Bom Singpho of Arunachal Pradesh: He was a key figure in the freedom movement from Arunachal Pradesh. He was instrumental in organizing local tribes against British rule and played a significant role in the anti-colonial agitation. His efforts to unite various tribes for a common cause laid the foundation for future movements in the region. The Indian government has recognized his contributions through various initiatives aimed at preserving the history of tribal freedom fighters.
- Thangal General of Manipur: He is also known as Thangal Sardar, was a prominent leader in the Manipuri resistance against British rule during the First Anglo-Manipur War (1891). He led guerrilla warfare tactics against colonial forces and became a symbol of resistance for the Manipuri people. His legacy is celebrated in Manipur, with several institutions and events commemorating his contributions to the freedom struggle.
- Ka Phan Nonglait of Meghalaya: She was a significant figure in Meghalaya's freedom movement. She led protests against British policies and was known for her fearless spirit. Her contributions to the struggle for independence have been recognized by the state government, with memorials and educational programs dedicated to her legacy.
- Ropuiliani from Mizoram: He was a notable freedom fighter from Mizoram, participating actively in the anti-colonial struggle. He was involved in organizing local communities against British rule and played a crucial role in raising awareness about the freedom movement. The government has honored him through various commemorations and educational initiatives, highlighting his contributions to the nation's history.
- Sachindra Lal Singh from Tripura: He was an influential leader from Tripura who actively participated in the freedom struggle. He played a vital role in mobilizing the masses against British rule and was involved in various movements aimed at securing independence. The government of India has acknowledged his contributions through memorials and educational institutions, ensuring that his legacy is preserved.

Chapter 4- Contribution Of Indian Languages To The Freedom Movement

- Literature has long served as a powerful medium for communication and expression, and during India's struggle for independence from British colonial rule, it became a vital tool for awakening national consciousness.
- Nationalist literature, articulated by stalwarts like Bankim Chandra Chattopadhyay, Bharatendu Harishchandra, and Rabindranath Tagore, not only reflected the anguish of the people but also inspired a collective yearning for freedom.

Historical Context

- The British East India Company's imperialistic expansion began with decisive battles such as Plassey (1757) and Buxar (1764), establishing colonial rule across vast territories.
- The First War of Independence in 1857 marked a significant turning point, igniting a series of revolts that fueled the desire for liberation.
- The introduction of the printing press in India, first established in Goa in 1576, played a crucial role in disseminating nationalist ideas.
- The first Indian newspaper, The Bengal Gazette, emerged in 1780, paving the way for educated youth to voice their patriotic sentiments.
- Noteworthy figures like Bal Gangadhar Tilak utilized newspapers such as Kesari to critique British policies, facing imprisonment for their bold expressions.

The Power Of Language

- Nationalist literature transcended linguistic barriers, utilizing local languages to resonate with the masses.
- The British recognized the threat posed by vernacular literature, leading to the Vernacular Press Act of 1878, which aimed to suppress dissent. However, this act was repealed in 1881, allowing for a resurgence of nationalist sentiment through literature.
- Raja Ram Mohan Roy, a key figure in the establishment of the national press, published Sambad Kaumudi in Bengali, fostering a sense of unity among Indians.

Influential Literary Figures

- Bankim Chandra Chattopadhyay: His novel Anandamath (1882), set against the backdrop of the Sannyasi rebellion, features the iconic song "Vande Mataram," which became a rallying cry for the independence movement. His work Devi Chaudharani (1884) inspired women to actively participate in the struggle.
- Bharatendu Harishchandra: Known as the father of modern Hindi literature, he sowed the seeds of Hindi nationalism through his plays and poems. His works highlighted social issues while advocating for freedom.
- Rabindranath Tagore: A Nobel laureate, Tagore's literary contributions included novels like Gora (1909) and Ghare Baire (1916), which explored themes of nationalism and inner conflict during the freedom struggle. He also composed India's national anthem, "Jana Gana Mana."
- Bal Gangadhar Tilak: Through his newspapers, Mahratta and Kesari, Tilak became a voice of the freedom movement, articulating the aspirations of the Indian populace.

Revolutionary Literature

- The revolutionary spirit of the time found expression in various literary forms. Organizations like Anushilan published newspapers that galvanized public sentiment against colonial rule.
- Vinayak Damodar Savarkar's The Indian War of Independence (1909) redefined the 1857 revolt as the first war for independence, bringing national attention to the struggle.
- The Indian diaspora also played a significant role in the freedom movement, with publications like Hindustan Ghadar and Circular-i-Azadi voicing anti-colonial sentiments from abroad.

Social Commentary Through Literature

- Literature also addressed social evils, calling for reform alongside political freedom.
- Works like Mulk Raj Anand's Untouchable (1935) and Sarat Chandra Chattopadhyay's Pathar Dabi (1926) highlighted the need for social justice and equality.
- M.K. Gandhi's writings, including Hind Swaraj (1938), emphasized the importance of self-rule and moral integrity in the fight for independence.

Conclusion:

- The language and literature of the independence era was instrumental in keeping the spirit of freedom alive. It not only inspired individuals to join the struggle but also fostered a collective identity among diverse groups. The legacy of these literary contributions continues to resonate in contemporary India, reminding us of the power of words in shaping a nation's destiny. Through their evocative narratives and poignant themes, these writers ignited a flame of hope and resilience that ultimately led to India's liberation.

Chapter 5- Youth Consciousness For Indian Freedom In Bengal

- The period between 1905 and the 1930s witnessed a surge of revolutionary thought and fervor within the Indian National Movement.
- Among those who played a pivotal role were the youth-educated, passionate, and committed to the cause of freedom.

National Awakening:

- The Young Bengal movement emerged as a catalyst for India's national awakening and desire for independence.
- By disseminating ideas of liberty, self-rule, and cultural pride, these young revolutionaries created a consciousness of freedom among Indians.
- Their influence extended beyond Bengal, resonating across the country

The Partition of Bengal (1905):

- In 1905, Lord Curzon, the Viceroy of India, partitioned Bengal along religious and communal lines.
- This decision was met with widespread discontent and chaos, particularly among the youth.
- The partition was seen as an attempt to suppress the indigenous cultural identity of the Bengali community.

Role of Youth:

- The youth, often referred to as the "Derozians," played a monumental role.

- They embraced Western enlightenment practices and ideas, which fueled their radical attitude during the national freedom movement.
- The Swadeshi Movement of 1905, triggered by the partition, became a turning point in India's struggle for freedom.
- For the first time, widespread public protests erupted against British rule, with the youth at the forefront.

The Swadeshi Movement:

- The Swadeshi Movement aimed to counter the divisive effects of the Bengal partition.
- It encouraged Indians to boycott British goods and promote indigenous products.
- The movement galvanized the masses, emphasizing self-reliance and economic independence.
- The youth actively participated in protests, demonstrations, and the promotion of Swadeshi goods.

Key Leaders Of The Movement In Bengal:

Raja Ram Mohan Roy:

- Often regarded as the "Father of the Indian Renaissance," Raja Ram Mohan Roy was a prominent figure during the Young Bengal Movement.
- He championed social reforms, advocated for women's rights, and worked tirelessly to eradicate regressive practices.
- His emphasis on education, rationalism, and the abolition of Sati (the practice of widow immolation) left an indelible mark on Indian society.

Ishwar Chandra Vidyasagar:

- Vidyasagar was a polymath- a scholar, reformer, and educator.
- He ardently supported women's education and fought against child marriage.
- His contributions to Bengali literature, especially his efforts to simplify and modernize the Bengali script, were significant.

Bankim Chandra Chatterjee:

- Bankim Chandra, a prolific writer and poet, infused nationalist fervor into his literary works.
- His novel "Anandamath" gave us the iconic song "Vande Mataram," which became a rallying cry for freedom fighters.
- Bankim Chandra's writings inspired generations, urging them to rise against colonial oppression.

Netaji Subhas Chandra Bose:

- Netaji's fiery patriotism and unwavering commitment to India's freedom struggle are legendary.
- He led the Indian National Army (INA) and sought support from Axis powers during World War II.
- His slogan "Give me blood, and I shall give you freedom" resonated deeply with the youth.

Rabindranath Tagore:

- Tagore, a poet, philosopher, and Nobel laureate, used his literary genius to evoke nationalistic sentiments.
- His composition of "Jana Gana Mana," which later became India's national anthem, is a testament to his love for the country.

Aurobindo Ghosh:

- Aurobindo Ghosh was not only a revolutionary but also a spiritual thinker.
- His writings emphasized the need for inner transformation alongside political struggle.
- His philosophical contributions left an indelible mark on the nation's consciousness.

Conclusion

The youth of Bengal, driven by a fervent desire for freedom, played an indispensable role in shaping the Indian National Movement. Their consciousness, commitment, and unwavering spirit contributed significantly to the eventual attainment of independence.