



Current Affairs (CONSOLIDATION)

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Polity and Governance

Highlights

- Draft Indian Ports Bill, 2022
- Regulator for Uniform Board Exams
- Integration of ODOP with ONDC
- Aadhaar-Voter ID Linkage
- Arth Ganga Project
- The Competition (Amendment) Bill, 2022
- Smart India Hackathon
- PEN-PLUS Strategy Against Non-Communicable Disease
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- Constitution Bench of Supreme Court
- Civil Services Reforms
- Indian Telegraph Right of Way -Amendment Rules, 2022
- Special Marriage Act, 1954

Draft Indian Ports Bill, 2022

Why in News?

Recently, the government has prepared the **Draft Indian Ports Bill, 2022**.

- The draft Bill seeks to **repeal and replace the existing Indian Ports Act 1908**, which is more than 110 years old, becoming imperative that the **Act is revamped to reflect the present-day frameworks**.

What does the Bill Propose?

- It seeks to amend the **laws relating to ports**, for the prevention and containment of pollution at ports, to ensure **compliance with the country's obligation under the maritime treaties** and international instruments to which India is a party
- It seeks to **empower and establish State Maritime Boards for effective administration**, control and management of non-major ports in India
- It aims to provide adjudicatory mechanisms for redressal of port related disputes and **to establish a national council for fostering structured growth and development of the port sector**.

- It will ensure optimum utilisation of the coastline of India, as may be necessary, and to provide for matters ancillary and incidental thereto, or connected therewith.

What is the Significance of Ports for India?

- India has a **7,500 km long coastline**, 14,500 km of potentially navigable waterways and strategic location on key international maritime trade routes.
- About **95% of India's trade by volume** and **65% by value** is done through maritime transport facilitated by ports.

How is the Indian Port Ecosystem?

- **About:**
 - Ports sector in India is driven by high growth in external trade.
 - The Union Government has allowed **Foreign Direct Investment (FDI)** of up to **100% under the automatic route for port and harbour construction** and maintenance projects.
- **Legal Provisions:**
 - Major Ports are under the Union list of the Indian Constitution and are administered under the **Indian Ports Act 1908 and the Major Port Trust Act, 1963**.
- **Number of Major Ports:**

Note:



- There are 12 major ports and **200 non-major ports (minor ports) in the country.**
 - Major ports include Deendayal (erstwhile Kandla), Mumbai, JNPT, Marmugao, New Mangalore, Cochin, Chennai, Kamarajar (earlier Ennore), V O Chidambaranar, Visakhapatnam, Paradip and Kolkata (including Haldia).

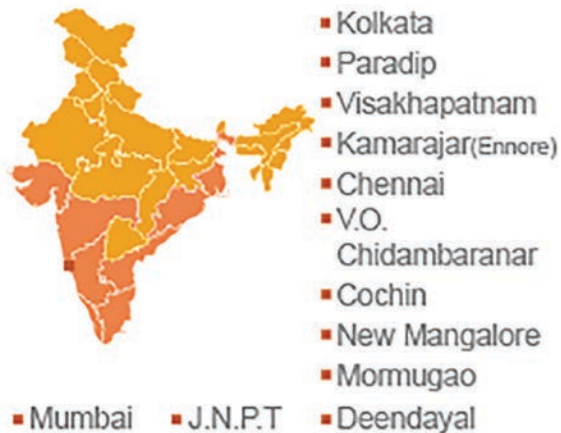
➤ Major Ports vs Minor Ports:

- Ports in India are classified as **Major and Minor Ports** according to the jurisdiction of the **Central and State government** as defined under the **Indian Ports Act, 1908.**
 - All the 12 Major Ports are governed under the Major Port Trusts act, 1963 and are owned and managed by the Central Government.
 - All the Minor Ports are governed under the Indian Port Act, 1908 and are owned and managed by the State Governments.

➤ Administration of Major Ports:

- Each major port is governed by a Board of Trustees appointed by the Government of India.
- The Trusts operate on the basis of policy directives and orders from the Government of India.

MAJOR PORTS



Regulator for Uniform Board Exams

Why in News?

Union government is planning to set up a national regulator **PAREKH (Performance Assessment, Review**

and Analysis of Knowledge for Holistic Development) for achieving a benchmark framework to assess students at the **secondary and higher secondary level.**

- PARAKH, is also part of the **National Education Policy (NEP) 2020.**

What is PAREKH?

➤ About:

- It's a proposed regulator, which will **act as a constituent unit of the NCERT**, and will also be tasked with holding periodic learning outcome tests like the **National Achievement Survey (NAS)** and State Achievement Surveys.
- Its team will **consist of leading assessment experts with a deep understanding of the education system in India and internationally.**
- It will eventually become the **national single-window source for all assessment-related information and expertise**, with a mandate to support learning assessment in all forms, both nationally and where applicable, internationally

➤ Objectives:

- **Uniform Norms & Guidelines:**
 - Setting norms, standards and guidelines for student assessment and evaluation for all recognized school boards of India.
- **Enhance Assessment Pattern:**
 - It will encourage and help school boards to shift their assessment patterns towards meeting the **skill requirements of the 21st century**
- **Reduce Disparity in Evaluation:**
 - It will **bring uniformity across the state and central boards which currently follow different standards of evaluation**, leading to wide disparities in scores.
- **Benchmark Assessment:**
 - The benchmark assessment framework will **seek to put an end to the emphasis on rote learning**, as envisaged by the **National Education Policy (NEP) 2020.**
- **Suggestions:**
 - **Hold Board Exams Twice:**
 - Various states have endorsed the NEP's **proposal to hold board exams twice a year, including one for helping students improve their scores.**

Note:



- **Two types of Exams for Math:**

- States are also on board regarding a proposal to offer **two types of papers on mathematics** — a **standard exam**, and another to test **higher-level competency**.

- **Significance:**

- **Reduce Fear:**
 - It will help reduce the fear of maths among students and encourage learning.
- **Removes Disparity in college Admission:**
 - It will help tackle the problem of students of some state boards being at a **disadvantage during college admissions as compared to their peers in CBSE schools**.
- **Innovative Evaluation:**
 - It will develop and implement the technical standards for the design, conduct, analysis and reporting of tests at all levels of school education.

Integration of ODOP with ONDC

Why in News?

Recently, Union Minister called for the **integration of One District One Product (ODOP) initiative with Open Network for Digital Commerce (ONDC)**.

- ONDC would help in further expanding the frontiers of ODOP by **bringing buyers and sellers together on a democratic platform**.

What is the ODOP Approach?

- **About:**

- ODOP is an approach adopted under the **Pradhan Mantri Formalisation of Micro food processing Enterprises (PMFME) Scheme**.
- It will **provide for the framework for value chain development and alignment of support infrastructure of the PMFME scheme**. There may be more than one cluster of ODOP products in one district.
 - There **may be a cluster of ODOP products consisting of more than one adjacent district in a State**.
- The States would **identify food products for districts** keeping in view the existing clusters and availability of raw material.

- The **ODOP could be a perishable produce** based or cereal based or a food item widely produced in an area. E.g., mango, potato, pickle, millet-based products, fisheries, poultry, etc.
- Certain other **traditional and innovative products** including waste to wealth products could be supported under the Scheme.
 - For example, **honey, minor forest products in tribal areas, traditional Indian herbal edible items like turmeric, amla, haldi**, etc.

- **Significance:**

- **Adopting a cluster approach** will help in the **development of specific agriproducts in districts having a comparative advantage**.
- It would lead to easing in providing **common facilities and other support services**.

What is the PMFME Scheme?

- **About:**

- Launched under **Atma Nirbhar Abhiyan**, Pradhan Mantri Formalisation of Micro food processing Enterprises (PMFME) Scheme aims to **enhance the competitiveness of existing individual micro-enterprises in the unorganised segment of the food processing industry** and to promote formalisation of the sector and provide **support to Farmer Producer Organisations, Self Help Groups, and Producers Cooperatives** along their entire value chain.
- The scheme adopts the One District One Product (ODOP) approach to reap the benefit of scale in terms of **procurement of inputs, availing common services and marketing of products**.
- It is being implemented over a **period of five years from 2020-21 to 2024-25**.

- **Funding:**

- It is a **centrally sponsored scheme** with an outlay of Rs. 10,000 crore.
- The expenditure under the scheme would be shared in **60:40 ratio between Central and State Governments**, in **90:10 ratio with North Eastern and Himalayan States**, **60:40 ratio with UTs with legislature** and **100% by Centre for other UTs**.

Note:



Aadhaar-Voter ID Linkage

Why in News?

Recently, the **Election Commission (EC)** started a campaign to promote the linkage of Voter ID and Aadhaar,

- Further, Government officials have asked individuals to link them **Aadhaar** with their Voter IDs and failure to link voter ID with Aadhaar could lead to the cancellation of their Voter ID card.

Why is the Government

Pushing to Link Voter ID with Aadhaar?

- **Update Database:**
 - The linking project would help the Election Commission, which **conducts regular exercises to maintain an updated and accurate record of the voter base.**
- **Remove Duplication:**
 - To **weed out duplication of voters, such as migrant workers who may have been registered more than once on the electoral rolls** in different constituencies or for persons registered multiple times within the same constituency.
- **Pan India voter ID:**
 - As per the government, linkage of Aadhaar with voter IDs will **assist in ensuring that only one Voter ID is issued per citizen of India.**

What are the Significances of this Linkage?

- **Universal coverage:**
 - At the end of 2021, **99.7% of the adult Indian population had an Aadhaar card.**
 - This coverage **exceeds that of any other officially valid document** such as driver's licence, ration cards, PAN cards etc that are mostly applied for specific purposes.
- **Reliable & Cost Effective:**
 - Since Aadhaar allows for biometric authentication, **Aadhaar-based authentication and verification are considered more reliable, quicker and cost-efficient when compared to other IDs.**

Is linking Aadhaar with One's Voter ID mandatory?

- **Legal status:**

- In December 2021, Parliament passed the **Election Laws (Amendment) Act, 2021** to amend the **Representation of the People, Act, 1950**, Section 23(4) was inserted in the Representation of the People Act, 1950.
- According to it the **electoral registration officer may for the purpose of establishing the identity of any person** or for the purposes of **authentication of entries in electoral roll of more than one constituency or more than once in the same constituency for citizens already enrolled**, require them to furnish their Aadhaar numbers.

Recent Changes:

- Recently, the government **notified changes to the Registration of Electors Rules, 1960.**
 - **Rule 26B** was added to provide that **every person whose name is listed in the roll may give his Aadhaar number to the registration officer.**
 - **Confusing Government Actions:**
 - There have been assurances given by both the government and the EC that linkage of the Aadhaar with Voter ID is optional, but this **does not seem to be reflected in Form 6B issued under the new Rule 26B.**
 - **Form 6B:**
 - It provides the format in which **Aadhaar information may be submitted to the electoral registration officer.**
 - Further, it provides the **voter to either submit their Aadhaar number or any other listed document.**
 - However, the option to submit other listed documents is exercisable **only if the voter is not able to furnish their Aadhaar number because they do not have an Aadhaar number.**

What are the Issues

Related to Linking Aadhaar with Voter ID?

- **Unclear Constitutional Status:**
 - In the **Puttaswamy case(Right to Privacy)**, one of the questions that the Supreme Court explored was **whether the mandatory linking of Aadhaar with bank accounts was constitutional or not.**
- **Different Purpose:**
 - The preference for Aadhaar for the purposes of

Note:



determining voters is puzzling as **Aadhaar is only proof of residence and not proof of citizenship.**

- Therefore, verifying voter identity against this will only **help in tackling duplication but will not remove voters who are not citizens of India from the electoral rolls.**

➤ **Biometric Errors:**

- The estimate of **error rates in biometric-based authentication differs widely.**
 - As per the **Unique Identification Authority of India in 2018, Aadhaar-based biometric authentication had a 12% error rate.**
 - This concern is also reflected in the previous experiences of using Aadhaar to clean electoral rolls.
 - A similar exercise undertaken in 2015 in Andhra and Telangana **led to the disenfranchisement of around 30 lakh voters** before the Supreme Court stalled the process of linkage.

➤ **Violation of Right to Privacy:**

- The linking of the **two databases of electoral rolls and Aadhaar could lead to the linkage of Aadhaar's "demographic" information with voter ID information** and lead to **violation of the right to privacy and surveillance measures by the state.**

Arth Ganga Project

Why in News?

Recently, Director General of the National Mission for Clean Ganga spoke about the **Arth Ganga model during World Water Week 2022.**

What are the Key

Features of the Arth Ganga Project?

➤ **About:**

- **'Arth Ganga' implies a sustainable development model with a focus on economic activities related to Ganga.**
- PM Modi first introduced the concept during the first National Ganga Council meeting in Kanpur in 2019, where he urged for a shift from **Namami Gange** to the model of **Arth Ganga.**

- Under **Arth Ganga**, the government is working on **six verticals:**

- The first is Zero Budget Natural Farming, which involves **chemical-free farming** on 10 km on either side of the river, and the **promotion of cow dung as fertilizer through the Gobardhan scheme.**
- The **Monetization and Reuse of Sludge & Wastewater** is the second, which seeks to reuse treated water for irrigation, industries and revenue generation for Urban Local Bodies (ULBs).
- Arth Ganga will also involve **Livelihood Generation Opportunities**, by creating haats where people can sell local products, medicinal plants and ayurveda.
- The fourth is to **increase public participation** by increasing synergies between the stakeholders involved with the river.
- The model also wants to **promote the cultural heritage and tourism of Ganga** and its surroundings, through boat tourism, adventure sports and by conducting yoga activities.
- Lastly, the model seeks to promote institutional building by **empowering local administration for improved water governance.**

What is World Water Week?

- **World Water Week** is an annual conference on global water issues which is held in the **last week of August every year.**
- It was started in 1991 and initially part of a public water festival in the Swedish capital, Stockholm.
- **Stockholm International Water Institute (SIWI)** is the organizer of World Water Week.
- World Water Week is an opportunity to explore **water aspects of challenges like the climate crisis, food security, energy, and many other topics.**
- The week is also taken as an opportunity to discuss and accelerate progress toward the **Sustainable Development Goal 6 (SDG6)**; which is about clean water and sanitation for all.
- **The theme** for World Water Week 2022 is **"Seeing the Unseen: The Value of Water."**
 - **The theme will look at three main areas:** the **value of water** among people and for development; the value of water with **respect to nature and climate change**; and the **economic and financial value of water.**

Note:



What is the Namami Gange Programme?

- Namami Gange Programme is an **Integrated Conservation Mission**, approved as a 'Flagship Programme' by the Union Government in June 2014 to accomplish the **twin objectives of effective abatement of pollution and conservation and rejuvenation of National River Ganga**.
- It is operated by the Department of Water Resources, River Development and Ganga Rejuvenation, **Ministry of Jal Shakti**.
- The program is being implemented by the **National Mission for Clean Ganga (NMCG)**, and its state counterpart organizations i.e State Program Management Groups (SPMGs).
- NMCG is the implementation wing of **National Ganga Council** (set in 2016; which replaced the National Ganga River Basin Authority - NGRBA).
- It has a Rs. 20,000-crore, **centrally-funded, non-lapsable corpus** and consists of nearly 288 projects.
- The **main pillars** of the programme are:
 - Sewage Treatment Infrastructure
 - River-Front Development
 - River-Surface Cleaning
 - Biodiversity
 - Afforestation
 - Public Awareness
 - Industrial Effluent Monitoring
 - Ganga Gram

The Competition (Amendment) Bill, 2022

Why in News?

Recently, the Bill to amend the **Competition Act, 2002**, was finally tabled in the **Lok Sabha**.

What was the Need to Bring these Amendments?

- **New Age Market:**
 - As the **dynamics of the market change rapidly due to technological advancements, artificial intelligence**, and the increasing importance of factors other than price, amendments became necessary to sustain and promote market competition.
- **Issue of Acquisition:**

- According to **section 5 of the act**, parties indulging in **mergers, acquisitions, or amalgamation need to notify the Competition Commission of India** of the combination only on the basis of asset or turnover.

Gun Jumping:

- It happens when the **two or more combining parties close a notified transaction before the approval** or have consummated a reportable transaction without bringing it to the Commission's knowledge.

Hub-and-Spoke Cartels:

- A **Hub-and-Spoke** arrangement is a **kind of cartelization in which vertically related players act as a hub and place horizontal restrictions on suppliers or retailers**.
 - At present, the prohibition on anti-competitive agreements **only covers entities with similar trades that engage in anti-competitive practices**.
 - This **ignores hub-and-spoke cartels operated at different levels** of the vertical chain by distributors and suppliers.

What are the Proposed Amendments?**Deal value Threshold:**

- The new Bill **proposes to add a deal value threshold**.
 - Further, it will be **mandatory to notify the Commission of any transaction with a deal value in excess of ₹2,000 crores** and if either of the parties has substantial business operations in India.

Substantial Business Operations:

- The Commission shall **frame regulations to prescribe the requirements for assessing whether an enterprise has substantial business operations in India**.
 - It will **strengthen the Commission's review mechanism**, particularly in the digital and infrastructure space, **a majority of which were not reported earlier**, as the asset or turnover values did not meet the jurisdictional thresholds.

Speed Up Clearance of Combination:

- For any business entities wanting to execute a combination, they must inform the Commission.
- Earlier it had 210 days to approve the combination, after which it is automatically approved.
 - The **new amendment accelerated the timeline from 210 working days to only 150 working**

Note:



days with a conservatory period of 30 days for extensions.

- It will **speed up the clearance of combinations** and increase the importance of pre-filing consultations with the Commission.

➤ **Gun Jumping:**

- Earlier the **penalty for gun-jumping was a total of 1% of the asset or turnover which is now proposed to be 1% of the deal value.**

➤ **Exemption of Open Market Purchases:**

- It proposes to **exempt open market purchases and stock market transactions from the requirement to notify the Commission in advance.**

Hub-and-Spoke Cartels:

- The amendment **broadens the scope of 'anti-competitive agreements' to catch entities that facilitate cartelisation even if they are not engaged in identical trade practices.**

➤ **Settlements and Commitments:**

- The new amendment **proposes a framework for settlements and commitments for cases relating to vertical agreements and abuse of dominance.**
 - As in the case of **vertical agreements and abuse of dominance**, the parties may **apply for a commitment before the Director General (DG) submits the report.**
 - As per the amendment, the Commission's decision regarding commitment or settlement will not be appealable after hearing all stakeholders in the case.

➤ **Other Major Amendments:**

- **Provision of Leniency Plus:**
 - It allows the commission to **give an additional waiver of penalties to an applicant who discloses the existence of another cartel in an unrelated market**, provided the information enables the Commission to form a prima facie opinion about the existence of the cartel.
- **Appointment of Director General:**
 - The appointment of a **Director General by the Commission rather than the Central government gives the Commission greater control.**
 - It gives the Commission greater control.
- **Guidelines Regarding Penalties:**

- The Commission will **develop guidelines regarding the number of penalties for various competition violations.**

- For an appeal to be heard by the **National Company Law Tribunal (NCLT)** against the Commission's order, the party will have to deposit 25% of the penalty amount.

Smart India Hackathon

Why in News?

The Prime Minister of India addressed the **Grand Finale of Smart India Hackathon 2022** via video conferencing.

What is the Smart India Hackathon?

➤ **About:**

- Smart India Hackathon (SIH) was **started in the year 2017.**
- Smart India Hackathon is a **nationwide initiative** to provide students with a **platform to solve some of the pressing problems** we face in our daily lives, and thus **inculcate a culture of product innovation and a mindset of problem-solving.**
 - SIH has been conducted every year since 2017 in two formats; **SIH Software and SIH Hardware Editions** for higher education students.
 - Smart India Hackathon is an initiative by the **Ministry of Education, All India Council for Technical Education (AICTE)**, Persistent Systems and Inter Institutional Inclusive Innovation Centre (i4C).

PEN-PLUS Strategy Against Non-Communicable Disease

Why in News?

Recently, Africa has adopted a new strategy called **PEN-PLUS Strategy** to boost access to the diagnosis, treatment and care of severe **Non-Communicable Diseases (NCD).**

What is Pen Plus Strategy?

- It's a **regional strategy to address severe Non-Communicable Diseases at First-Level Referral Health Facilities.**

Note:



- The strategy is aimed at **bridging the access gap in treatment and care of patients with chronic and severe NCDs**.
- It urges countries to put in place standardised programmes to tackle chronic and serious non-communicable diseases by ensuring that essential medicines, technologies and diagnostics are available and accessible in district hospitals.

What are Non-Communicable Diseases (NCD)?

➤ About:

- **Non-communicable diseases (NCDs) are medical conditions or diseases that are not caused by infectious agents.**
 - These are **chronic diseases of long duration, and generally slow progression and are the result of a combination of genetic, physiological, environmental and behaviours factors.**
- These diseases are those chronic conditions that **lead to high levels of disability and death among children, adolescents and young adults if left undiagnosed or untreated.**
- NCDs include heart diseases, cancers, diabetes, asthma among others.
- Globally, NCDs are the main cause of morbidity and mortality.
 - They **account for 71% of global mortality**, according to **World Health Organisation (WHO)**.
 - In the African Region, the proportion of mortality due to NCDs ranges from 27-88%.

What is the status of Non-Communicable Diseases (NCD) in India?

➤ About:

- In India, nearly **5.8 million people (WHO report, 2015) die from NCDs (heart and lung diseases, stroke, cancer and diabetes) every year** or in other words 1 in 4 Indians has a risk of dying from an NCD before they reach the age of 70.
 - Further, it is found that **there is an increase in the contribution of NCDs from 30% of the total disease burden- 'disability-adjusted life years' (DALYs) in 1990 to 55% in 2016** and also an increase in proportion of deaths due to NCDs (among all deaths) from 37% in 1990 to 61% in 2016.

- The four major NCDs are cardiovascular diseases (CVDs), cancers, chronic respiratory diseases (CRDs) and diabetes.

➤ Causes:

- **Physical inactivity, unhealthy diets (diets low in fruit, vegetables, and whole grains, but high in salt and fat), tobacco use (smoking, secondhand smoke, and smokeless tobacco), and the harmful use of alcohol** are the main behavioural risk factors for NCDs.
 - They contribute to raised blood pressure (hypertension),
 - Raised blood sugar (diabetes),
 - Raised and abnormal blood lipids (dyslipidaemia),
 - Further, **air pollution is also a leading risk factor for NCDs** in terms of both outdoor air pollution and household air pollution that mainly results from burning solid fuels in the home for cooking and heat.

➤ Initiatives:

- **National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular disease and Stroke (NPCDCS):**
 - With the objective to **increase awareness of risk factors, to set up infrastructure (like NCD clinics, cardiac care units)** and to carry out opportunistic screening at primary health care levels.
 - In response to the **WHO Global Action Plan for the Prevention and Control of NCDs 2013-2020**.
 - India is the **first country to adopt the National Action Plan with specific national targets and indicators** aimed at reducing the number of global **premature deaths from NCDs by 25% by 2025**.
- **Sub Components:**
 - **Integration of NPCDCS with the National Health Mission (NHM)** resulted into **augmented infrastructure and human resources** particularly in the form of **frontline workers- the ANM and the Accredited Social Health Activist (ASHA)**.
 - **Prevention and management of chronic obstructive pulmonary disease (COPD) and chronic kidney disease (CKD);** and better management of co-morbidities such as diabetes and tuberculosis are also considered under the programme.

Note:



- **Integration of Ayurveda, Yoga, Unani, Siddha and Homeopathy (AYUSH) NPCDCS** is a further step for promoting healthy lifestyle changes among the population.
 - Health promotion through social media is also being used to generate awareness about prevention and control of NCDs,
 - such as use of mobile technology in applications called **mDiabetes** for diabetes control, **mCessation** to help quit tobacco, and **no more tension** as a support for mental stress management.

Swachh Bharat Mission Grameen

Why in News?

Over 1 lakh villages declared themselves as **ODF (Open Defecation Free) Plus** under Swachh Bharat Mission Grameen (SBM-G).

- These villages are sustaining their **ODF status** and have systems in place for managing solid and/or liquid waste and they would continue on their sanitation journey as they work towards making their villages cleaner, greener and healthier.

What is Open Defecation Free Status?

- **ODF:** An area can be notified or declared as ODF if at any point of the day, not even a single person is found defecating in the open.
- **ODF+:** This status is given if at any point of the day, not a single person is found defecating and/or urinating in the open, and all community and public toilets are functional and well maintained.
- **ODF++:** This status is given if the area is already ODF+ and the faecal sludge/septage and sewage are safely managed and treated, with no discharging or dumping of untreated faecal sludge and sewage into the open drains, water bodies or areas.

What is Swachh Bharat Mission Grameen (SBM-G)?

- **About:**
 - It was launched in 2014 by the **Ministry of Jal Shakti** to accelerate the efforts to achieve universal sanitation coverage and to put focus on sanitation.

- The mission was implemented as **nation-wide campaign/Janandolan** which aimed at eliminating **open defecation in rural areas**.
- **Swachh Bharat Mission (G) Phase-I:**
 - The rural sanitation coverage in the country at the time of launch of **SBM (G) on 2nd October, 2014** was reported as 38.7%.
 - More than 10 crore individual toilets **have been constructed since the launch of the mission**; as a result, rural areas in all the States have declared themselves ODF as on 2nd October, 2019.
- **SBM(G) Phase-II:**
 - It emphasizes the sustainability of achievements under phase I and to provide adequate facilities for **Solid/Liquid & plastic Waste Management (SLWM) in rural India**.
 - It will be implemented from 2020-21 to 2024-25 in a mission **mode with a total outlay of Rs. 1,40,881 crores**.
 - The SLWM component of **ODF Plus will be monitored on the basis of output-outcome indicators for 4 key areas:**
 - Plastic waste management,
 - Biodegradable solid waste management (including animal waste management),
 - Greywater (Household Wastewater) management
 - Fecal sludge management.
 - **Top Performing States:**
 - The top five performing states are Telangana, Tamil Nadu, Odisha, Uttar Pradesh and Himachal Pradesh where maximum number of villages have been declared as ODF Plus.

What is the Significance of Swachh Bharat Mission?

- It will continue to **generate employment and provide impetus to the rural economy** through construction of household toilets and community toilets, as well as infrastructure for SLWM such as compost pits, soak pits, waste stabilisation ponds, material recovery facilities etc.
- It will also help **rural India effectively handle the challenge of solid and liquid waste management** and will help in substantial improvement in the health of the villagers in the country.

Note:



What are the Schemes as part of SBM?

- **GOBAR-DHAN (Galvanizing Organic Bio-Agro Resources) Scheme:** Launched by the Ministry of Jal Shakti in 2018 and aims to augment income of farmers by converting biodegradable waste into compressed biogas (CBG).
- **Individual Household Latrines (IHHL):** Individuals get around 15 thousand for the construction of toilets.
- **Swachh Vidyalaya Abhiyan:** The Ministry of Education launched the Swachh Vidyalaya Programme with an objective to provide separate toilets for boys and girls in all government schools within one year.

What is SBM-Urban?

- **About:**
 - It was launched on 2nd October 2014 by the **Ministry of Housing and Urban Affairs**.
- **Phase-I:**
 - **About:**
 - The programme includes **elimination of open defecation, conversion of unsanitary toilets to pour flush toilets**, eradication of manual scavenging, municipal solid waste management and bringing about a behavioural change in people regarding healthy sanitation practices.
 - Under the programme, **community toilets will be built in residential areas where it is difficult to construct individual household toilets**.
 - **Achievements:**
 - 4,324 urban local bodies have been declared Open Defecation Free, which has been made possible through the construction of more than 66 lakhs individual household toilets and over 6 lakhs community/public toilets, far exceeding the Mission's targets.
 - Digital enablements such as **Swachhata App**, the digital grievance redressal platform introduced by MoHUA in 2016, has reinvented the way in which citizen grievance redressal is managed.
- **Phase-II:**
 - **About:**
 - SBM-U 2.0, announced in **Budget 2021-22**, is the continuation of SBM-U first phase. The government is trying to **tap safe containment,**

transportation, disposal of faecal sludge, and septage from toilets.

- It will be implemented over five years from 2021 to 2026 with an outlay of Rs.1.41 lakh crore.
- **Objectives:**
 - It focuses on source segregation of garbage, reduction in single-use plastic and air pollution, by effectively managing waste from construction and demolition activities and **bioremediation of all legacy dump sites**.
 - Under this mission, all wastewater will be treated properly before it is discharged into water bodies, and the government is trying to make maximum reuse a priority.

Har Ghar Jal

Why in News?

Recently, **Goa** and **Dadra & Nagar Haveli and Daman & Diu (D&NH and D&D)** became the **first 'Har Ghar Jal' certified State and UT** in the country respectively.

- The people from all the villages have declared their village as **Har Ghar Jal** through a resolution passed by **Gram Sabha**, certifying that all households in the villages have **access to safe drinking water through taps**.
- **Village Water and Sanitation Committee (VWSC) or paani Samiti** has been constituted in all the 378 villages of Goa and 96 villages of D&NH and D&D.
 - It is responsible for the operation, maintenance, and repair of water supply infrastructure developed under 'Har Ghar Jal' programme.

What is Jal Jeevan Mission?

- **About:**
 - **Jal Jeevan Mission**, a **central government initiative under the Ministry of Jal Shakti**, aims to ensure **access of piped water for every household in India**.
 - Jal Jeevan Mission, is envisioned to provide safe and adequate drinking water through individual household tap connections by 2024 to all households in rural India.
 - The programme will also implement source sustainability measures as mandatory elements, such as

Note:



recharge and reuse through grey water management, water conservation, rain water harvesting.

- The Jal Jeevan Mission will be based on a **community approach to water**.
 - The mission will include information, education, and communication as key components.
 - The mission is meant to create a people's movement for water, making it everyone's priority.
 - Further, the **Har Ghar Nal Se Jal programme** was announced by Finance Minister in Budget 2019-20.
 - It forms a crucial part of the Jal Jeevan Mission.
 - The programme **aims to implement source sustainability measures as mandatory elements, such as recharge and reuse through grey water management, water conservation, and rainwater harvesting.**

➤ Mission:

- To assist, empower and facilitate:
 - States/ UTs in the **planning of participatory rural water supply strategy for ensuring potable drinking water security** on a long-term basis to every rural household and public institution.
 - States/ UTs for **creation of water supply infrastructure**, so that every rural household has a **Functional Tap Connection (FHTC)** by 2024 and water in adequate quantity of prescribed quality is made available on regular basis.
 - **Gram Panchayats (GPs)/ rural communities to plan, implement, manage, own, operate, and maintain their own in-village water supply systems.**
 - States/ UTs to develop robust institutions having a focus on service delivery and financial sustainability of the sector by promoting a utility approach
 - Further **enhancing capacity building of the stakeholders and creating awareness** in the community on the significance of water for improvement in quality of life.

➤ Objectives:

- To provide **Functional Tap Connection (FHTC)** to every rural household.
- To prioritize the provision of FHTCs in quality affected areas, villages in drought-prone and desert areas, **Sansad Adarsh Gram Yojana (SAGY)** villages, etc.

- To provide functional tap connection to Schools, Anganwadi centres, GP buildings, Health centres, wellness centres, and community buildings
- To monitor the functionality of tap connections.
- To promote and **ensure voluntary ownership among the local community by way of contribution in cash, kind and/ or labour**, and voluntary labour (shramdaan)
- To assist in **ensuring the sustainability of the water supply system, i.e., water source, water supply infrastructure.**

Note:

In the Budget 2021-22, **Jal Jeevan Mission (Urban)** has been announced under **the Housing and Urban Affairs Ministry** to provide universal coverage of water supply to all households through functional taps in all statutory towns in accordance with Sustainable Development Goal- 6.

Governing Council Meeting of NITI Aayog

Why in News?

Recently, the Prime Minister chaired the seventh meeting of the **Governing Council (GC) of NITI Aayog**.

What is NITI Aayog?

- The Planning Commission was replaced by a new institution – **NITI Aayog on 11st January, 2015** with emphasis on **'Bottom –Up'** approach to envisage **the vision of Maximum Governance, Minimum Government**, echoing the spirit of **'Cooperative Federalism'**.
- **It has two Hubs,**
 - Team India Hub acts as an interface between States and Centre.
 - Knowledge and Innovation Hub builds the think-tank acumen of NITI Aayog.

What are the Key Highlights?

➤ Key Agenda:

- **Crop diversification** and achieving **self-sufficiency** in pulses, oilseeds and other agri-commodities
- Implementation of **National Education Policy (NEP)** in school Education;

Note:



- Implementation of National Education Policy in higher education; and
- **Urban governance.**
- **PM's Address:**
 - Every State played a crucial role according to its strength and contributed to India's fight against Covid-19, leading India to emerge as an example for the developing nations to look up to as a global leader.
 - Each state should focus on promoting its 3Ts, Trade, Tourism, Technology, through every Indian Mission around the world.

What is NITI

Aayog's Governing Council?

- It is the premier body trusted with developing a shared vision of national priorities and strategies with the active involvement of States and Union Territories.
- It is a platform to discuss inter-sectoral, inter-departmental and federal issues.
- It comprises:
 - The Prime Minister of India.
 - Chief Ministers of all the states and union territories with the legislature.
 - Lt Governors of other UTs.
 - Ex-Officio Members; Vice Chairman, NITI Aayog; Full-Time Members, NITI Aayog.
 - Special Invitees.

What are the Initiatives of NITI Aayog?

- **SDG India Index**
- **Composite Water Management Index**
- **Atal Innovation Mission**
- **SATH Project**
- **Aspirational District Programme**
- **School Education Quality Index**
- **District Hospital Index**
- **Health Index**
- **Agriculture Marketing And Farmer Friendly reform Index**
- **India Innovation Index**
- **Women Transforming India Awards**
- **Good Governance Index**

Fundamental Duties

Why in News?

Recently, **Chief Justice of India** said **Fundamental Duties** in the Constitution are **not merely to serve a "pedantic or technical" purpose**, but they were incorporated as the key to social transformation.

How were the Fundamental Duties Incorporated?

- The idea of Fundamental Duties is **inspired from the Constitution of Russia (erstwhile Soviet Union).**
- These were incorporated in **Part IV-A of the Constitution by the 42nd Constitutional Amendment Act, 1976** on the recommendations of the **Swaran Singh Committee.**
- Originally 10 in number, one more duty was added through the **86th Constitutional Amendment Act, 2002.**
 - All the eleven duties are listed in **Article 51-A of the Constitution** (the sole Article in Part-IV-A).
- Like the **Directive Principles of State Policy**, Fundamental duties are also non-justiciable in nature.

What are the Listed Fundamental Duties?

- To abide by the Constitution and respect its **ideals and institutions, the National Flag and the National Anthem,**
- To cherish and follow the noble ideals **that inspired the national struggle for freedom,**
- To **uphold and protect the sovereignty,** unity and integrity of India,
- To **defend the country and render national service** when called upon to do so,
- To promote **harmony and the spirit of common brotherhood amongst all** the people of India transcending religious, linguistic and regional or sectional diversities and to renounce practices derogatory to the dignity of women,
- To **value and preserve the rich heritage** of the country's composite culture,
- To protect and **improve the natural environment** including forests, lakes, rivers and wildlife and to have compassion for living creatures,
- To develop scientific temper, humanism and the **spirit of inquiry and reform,**
- To safeguard **public property and to abjure violence,**

Note:



- To strive **towards excellence in all spheres** of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement, and
- To provide **opportunities for education to his child or ward between the age of six and fourteen years** (added by the 86th Constitutional Amendment Act, 2002).

What is the Significance of Fundamental Duties?

- **Constant Reminder of Democratic Conduct:**
 - Fundamental Duties are intended to serve as a constant reminder to every citizen that while the Constitution specifically conferred on them certain **fundamental rights**, it also requires citizens to observe basic norms of democratic conduct and democratic behaviour.
- **Admonishes Against Anti-Social Activities:**
 - They serve as a **warning to the people against the anti-social activities** that disrespect the nation like burning the flag, destroying public property or disturbing public peace.
- **Sense of Discipline and Commitment:**
 - These help in the **promotion of a sense of discipline and commitment towards the nation**.
 - They help in **realising national goals** by the active participation of citizens rather than mere spectators.
- **Help Determine Constitutionality of Law:**
 - It helps the Court in determining the constitutionality of the law.
 - For instance, any law passed by the legislatures, when taken to Court for constitutional validity of the law, **if it is giving force to any Fundamental Duty, then such law would be taken as reasonable**.

What is the Supreme Court's Stand on Fundamental Duties?

- The Supreme Court's *Ranganath Mishra judgment 2003* held that fundamental duties should **not only be enforced by legal sanctions but also by social sanctions**.
- In *AIIMS Students Union v. AIIMS 2001*, it was held by the Supreme Court that **fundamental duties are equally important as fundamental rights**.
 - Though fundamental duties are not enforceable like fundamental rights **they cannot be overlooked as duties in Part IV A**.

- They are prefixed by the same word **fundamental which was prefixed by the founding fathers of the Constitution to 'right' in Part III**.

Dam Management in India

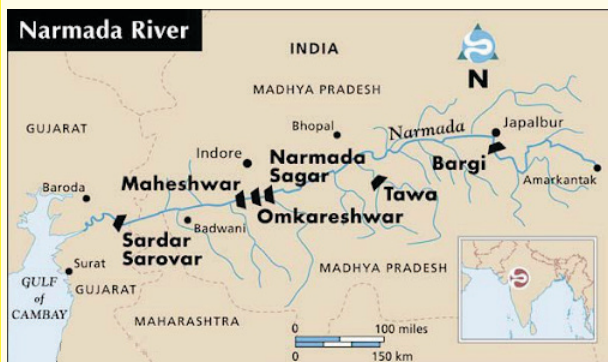
Why in News?

Recently, the outer part of the "Karam Dam", which is being built on the **Karam river**, a tributary of the **Narmada**, collapsed.

- The Dam Safety Act 2021 covers those dams having a height of over 15m and between 10m and 15m with certain stipulations.

What are the Key Points of Narmada River?

- **About:** Narmada is the **largest west flowing river of the peninsular region** flowing through a rift valley between the Vindhya Range on the north and the Satpura Range on the south.
- **Source:** It rises from Maikala range near Amarkantak in Madhya Pradesh.
- **Drainage:** It drains a large area in Madhya Pradesh besides some areas in the states of Maharashtra and Gujarat.
 - The river near Jabalpur (Madhya Pradesh) forms the Dhuandhar Falls.
 - There are several islands in the estuary of Narmada of which Aliabet is the largest.



- **Major Tributaries:** Hiran, Orsang, the Barna and the Kolar.
- **Major Hydro Power Projects in the basin:** Indira Sagar, Sardar Sarovar etc.
- **Narmada Bachao Andolan (NBA):**
 - It is an Indian social movement spearheaded by native tribes (adivasis), farmers, environmentalist

Note:



and human rights activists against a number of large dam projects across the Narmada River.

- Sardar Sarovar Dam in Gujarat is one of the biggest dams on the river and was one of the first focal points of the movement.

What is the Dam Safety Act 2021?

➤ About:

- **Dam Safety Act 2021** aims at **surveillance, inspection, operation and maintenance** of all specified dams across the country.
- The Act applies to **all specified dams in the country** i.e., those dams having a **height of over 15m and between 10m and 15m** with certain design and structural conditions.

➤ Provisions:

- **It constitutes two National Bodies:**
 - **National Committee on Dam Safety:**
 - Its functions include evolving policies and recommending regulations regarding dam safety.
 - **National Dam Safety Authority:**
 - Its functions include implementing policies of the National Committee, and resolving matters between State Dam Safety Organisations (SDSOs), or between a SDSO and any dam owner in that state.
- **It also constitutes two state bodies:**
 - **State Dam Safety Organizations (SDSOs):**
 - Its functions include keeping perpetual surveillance, inspecting, and monitoring dams.
 - **State Committee on Dam Safety:**
 - It will supervise state dam rehabilitation programs, review the work of the SDSO, and review the progress on measures recommended in relation to dam safety, among others.
- **Obligations of Dam Owners:**
 - As per the Dam Safety Act 2021, all the specified dams are **required to be inspected twice a year** during the pre-monsoon and post-monsoon periods.
 - Dam owners will be responsible for the safe construction, operation, maintenance and supervision of a dam.

- They must provide a dam safety unit in each dam.

● **This unit will inspect the dams:**

- Before and after monsoon season
- During and after every **earthquake, flood**, calamity, or any sign of distress.

● **Functions of dam owners include:**

- Preparing an emergency action plan
- Carrying out risk assessment studies at specified regular intervals
- Preparing a comprehensive dam safety evaluation through a panel of experts.

○ **Punishment:**

- Anyone obstructing a person in the discharge of his functions under the Act or refusing to comply with directions may be imprisoned for a year. In case of loss of life, the person may be imprisoned for two years.

○ **Issues with the Act:**

● **Jurisdiction of Parliament to frame a law on intra-state river dams:**

- The Act applies to all specified dams in the country. As per the **Constitution**, states can make laws on water including water storage and water power (Entry 17 of **State List**).
- However, **Parliament** may regulate and develop inter-state river valleys if it deems it necessary in public interest (Entry 56 of Union List).
- The question is whether Parliament has the jurisdiction to regulate dams on rivers flowing entirely within a state.

○ **Functions of authorities may be changed through notification:**

- The functions of the National Committee on Dam Safety, the National Dam Safety Authority, and the State Committee on Dam Safety are listed in Schedules to the Act.
- These Schedules can be amended by the government through a notification.
- The question is whether core functions of authorities should be amended through a notification or whether such amendments should be passed by Parliament.

Note:



Review of Guardianship and Adoption Laws

Why in News?

Recently, the Parliamentary Standing Committee on Personnel, Public Grievances and Law and Justice tabled a report **"Review of Guardianship and Adoption Laws"** in Parliament and recommended **district-level surveys to identify orphaned and abandoned children.**

- In India, there are only 2,430 children available for adoption while the **number of parents desiring to bring home a child is growing rapidly.**

What are the Key Findings of the Report?

- There were 27,939 prospective parents registered with the **Child Adoption Resource Authority (CARA)** as of December 2021, up from nearly 18,000 in 2017.
 - **CARA**, a statutory body of the Ministry of Women & Child Development, functions as the **nodal body for adoption of Indian children and is mandated to monitor and regulate** in-country and inter-country adoptions.
- There was a total of 6,996 orphaned, abandoned and surrendered children residing in childcare institutions considered adoptable, only **2,430 were declared "legally free" for adoption by Child Welfare Committees.**
 - There are only 2,430 children found to be legally free for adoption in India with an estimated 3.1 crore orphans because of the **failure to bring more children in need of care into the government's safety net.**
- The waiting time for adoption has increased to **three years from one year** in the past five years.
- The total number of children adopted in 2021-2022 was only 3,175.

What are the Recommendations?

- A monthly meeting chaired by the **District Magistrate should be held in every district** to "ensure that orphan and abandoned children found begging in streets are produced before the **Child Welfare Committee and are made available for adoption at the earliest.**"
- The point should not be to track more children and put them into adoption, but to not leave children out of the safety net. Such an exercise should not aim to

provide more children because so many adoptive parents are waiting, **but to identify those genuinely without a family otherwise poor people will have their children snatched away.**

- In order to link children to nurturing families there is a need for a **paradigm shift that looks beyond "custodial" needs such as food and shelter and focuses on their rights.**
- Many children are under parental care, but not optimal care. There are parents abusing their own children or neglecting them and then having an adequate safety net for these children so that they get the help they need. The failure to do so also leads to malpractice, which was **why adoptions were centralised in 2015.**

What are Adoption and Related Rules in India?

- **About:**
 - Adoption is the **formal process through which a child is permanently separated from his biological parents** to become the lawful child of his adoptive parents.
 - The adopted child enjoys all rights, privileges and responsibilities attached to a biological child.
 - The fundamental principles that **govern adoption state that the interests of the child are most important and preference is to be given to place the child in adoption with Indian citizens** with "due regard to the principle of placement of the child in his socio-cultural environment, as far as possible".
- **Legislations:**
 - The **Hindu Adoption and Maintenance Act, 1956 (HAMA):**
 - Under the Act, a Hindu parent or guardian can give a child in adoption to another Hindu parent.
 - The Act does not allow the adoption of an orphaned, abandoned or surrendered child who is in the care of any specialized adoption agency (SSA) or child care institution.
 - Inter-country adoptions don't come under the purview of this Act.
 - The **Juvenile Justice (Care and Protection of Children) Act, 2015.** This includes Juvenile Justice (Care and Protection of Children) Model Rules, 2016 and Adoption Regulations, 2017.
 - As per the government rules, **Hindus, Buddhists, Jains, and Sikhs are legalized to adopt kids.**

Note:



- An orphan, abandoned, or surrendered child who has been declared legally free for adoption by the **Child Welfare Committee (CWC)** can be adopted. This only happens under the provisions of the JJ Act 2015.
- Until the JJ Act, the Guardians and Ward Act (GWA), 1980 was the **only means for non-Hindu individuals to become guardians** of children from their community.
- However, since the GWA appoints individuals as legal guardians and not natural parents, guardianship is terminated once the ward turns 21 and the ward assumes individual identity.

What are the Challenges for Child Adoption?

- **Declining Statistics and Institutional Apathy:**
 - There is a **wide gap between adoptable children and prospective parents**, which may increase the length of the adoption process.
 - Data shows that while more than 29,000 prospective parents are willing to adopt, just 2,317 children are available for adoption.
- **Returning Children after Adoption:**
 - Between 2017-19, the Central Adoption Resource Authority (CARA) faced an unusual upsurge in adoptive parents returning children after adopting.
 - According to the data, **60% of all children returned were girls, 24% were children with special needs**, and many were older than six.
 - The primary reason these ‘disruptions’ occur is that disabled children and older children take much longer to adjust to their adoptive families.
- **Disability and Adoption:**
 - Only 40 children with disabilities were adopted between 2018 and 2019, accounting for approximately 1% of the total number of children adopted in the year.
 - Annual trends reveal that domestic adoptions of children with special needs are dwindling with each passing year.
- **Manufactured Orphans and Child Trafficking:**
 - In 2018, Ranchi’s Mother Teresa’s Missionaries of Charity came under fire for its **“baby-selling racket”** after a nun from the shelter confessed to selling four children.
 - Similar instances are **becoming increasingly common as the pool of children available for**

adoption shrinks and waitlisted parents grow restless.

- **LGBTQ+ Parenthood and Reproductive Autonomy:**
 - Despite the constant evolution of the definition of a family, the ‘ideal’ Indian family nucleus still constitutes a husband, a wife and daughter(s) and son(s).
 - The invalidity of LGBTQI+ marriages and relationships in the **eyes of the law obstructs LGBTQI+ persons from becoming parents because the minimum eligibility** for a couple to adopt a child is the proof of their marriage.
 - To negotiate these unfavorable legalities, illegal adoptions are becoming increasingly common among queer communities.

Himachal Pradesh Freedom of Religion (Amendment) Bill-2022

Why in News?

Recently, the Himachal Pradesh government has proposed the **Himachal Pradesh Freedom of Religion (Amendment) bill 2022**, seeking to **criminalise mass religious conversions**.

- The Bill amends Himachal Pradesh Freedom of Religion Act-2019, which was enacted **with a view to provide freedom of religion by prohibition of conversion from one religion to another**.

Why is the Proposed Amendment?

- Himachal Pradesh Freedom of Religion Act-2019 prohibits conversion from one religion to another by **misrepresentation, force, undue influence, coercion, inducement or any other fraudulent means** or by marriage and for matters connected therewith.
- However, there is **no provision to curb mass conversion**.

What are the Key Provisions of the Bill?

- It defines mass conversion as conversion of two or more persons at the same time.
- The maximum sentence has been proposed **to be extended to maximum 10 years and increase the amount of fine**, if a person contravenes the provisions of Section 3 in respect of mass conversion.

Note:



- **Section 3 of the Freedom Act** states that **no person shall convert or attempt to convert**, either directly or otherwise, any other person from one religion to another **by use of misrepresentation, force, undue influence, coercion, inducement or by any fraudulent means or by marriage.**
- Complaints received should be **investigated or inquired into by a police officer not below the rank of sub-inspector.**
- The offences punishable under the Act **would be triable by the sessions court.**
- If a person marries someone by concealing his religion in such a manner that other person believes that his religion is truly the one professed by him **shall be punished with minimum imprisonment of not less than three years** and maximum imprisonment of 10 years.

What is Religious Conversion?

- Religious conversion is the adoption of a set of beliefs identified with one particular religious denomination to the exclusion of others.
- Thus “religious conversion” would **describe the abandoning of adherence to one denomination and affiliating with another.**
 - **For example,** Christian Baptist to Methodist or Catholic, Muslim Shi’a to Sunni.
- In some cases, religious conversion **“marks a transformation of religious identity and is symbolized by special rituals”.**

What is the Need for Anti-Conversion Laws?

- **No Right to Proselytize:**
 - The Constitution confers on **each individual the fundamental right to profess, practice and propagate** his religion.
 - Proselytizing is the **act of trying to convert another individual from the converttee’s religion** to the converter’s religion.
 - The individual right to freedom of conscience and religion **cannot be extended to construe a collective right to proselytize.**
 - For the right to religious freedom belongs equally to the person converting and the individual sought to be converted.
- **Fraudulent Marriages:**

- In the recent past, several instances have come to the notice that **whereby people marry persons of other religion by either misrepresentation or concealment** of their own religion and after getting married they force such other person to convert to their own religion.

➤ **SC Observations:**

- Recently, the Supreme Court took judicial notice of instances of **people marrying by either misrepresentation or concealment** of their own religion.
- According to the court, such incidents not only infringe the freedom of religion of the persons so converted but also **militate against the secular fabric of our society.**

What is the Status of Anti-Conversion Laws in India?

➤ **Constitutional Provision:**

- The Indian Constitution **under Article 25 guarantees the freedom to profess, propagate, and practice religion**, and allows all religious sections to manage their own affairs in matters of religion; subject to public order, morality, and health.
- However, **no person shall force their religious beliefs and consequently, no person should be forced to practice any religion** against their wishes.

➤ **Existing Laws:**

- There has been **no central legislation restricting or regulating religious conversions.**
- However, since 1954, on multiple occasions, **Private Member Bills** have been introduced in (but never approved by) Parliament, to regulate religious conversions.
- Further, in 2015, the Union Law Ministry stated that **Parliament does not have the legislative competence to pass anti-conversion legislation.**
- Over the years, several states have **enacted ‘Freedom of Religion’ legislation to restrict religious conversions** carried out by force, fraud, or inducements.

What are the Issues Associated with Anti-Conversion Laws?

➤ **Uncertain and Vague Terminology:**

Note:



- The uncertain and vague terminology like **misrepresentation, force, fraud, allurements presents a serious avenue for misuse.**
- These terms **leave room for ambiguities or are too broad**, extending to subjects far beyond the protection of religious freedom.
- **Antithetical to Minorities:**
 - Another issue is that the **present anti-conversion laws focus more on the prohibition of conversion** to achieve religious freedom.
 - However, the **broad language used by the prohibitive legislation might be used by officials** to oppress and discriminate against minorities.
- **Antithetical to Secularism:**
 - These laws **may pose a threat to the secular fabric of India** and the international perception of our society's intrinsic values and legal system.

What are Supreme Court Judgements on Marriage and Conversion?

- **Hadiya Judgement 2017:**
 - Matters of dress and of food, of ideas and ideologies, of love and partnership are within the central aspects of identity.
 - Neither the State nor the law can dictate a choice of partners or limit the free ability of every person to decide on these matters.
 - The principle that the right to marry a person of one's choice is integral to **Article 21.**
- **K.S. Puttaswamy or 'privacy' Judgment 2017:**
 - The autonomy of the individual was the ability to make decisions in vital matters of concern to life.
- **Other Judgements:**
 - The SC in its various judgments, has held that faith, the state and the courts have no jurisdiction over an adult's absolute right to choose a life partner.
 - India is a **"free and democratic country"** and any interference by the State in an adult's right to love and marry has a "chilling effect" on freedoms.
 - Intimacies of marriage lie within a **core zone of privacy**, which is inviolable and the choice of a life partner, whether by marriage or outside it, is part of an individual's "personhood and identity".
 - The absolute right of an individual to choose a life partner is not in the least affected by matters of faith.

Ban on VLC Media Player

Why in News?

The website of **VideoLAN Client (VLC) Media Player** has been **banned** in India.

- VLC states that according to its statistics, **its website has been banned since February 2022 in India.**

What do we need to know about the VLC & Its Ban?

- **About VLC:**
 - VLC gained popularity in India in the late 90s when **advancements in information technology** led to the penetration of personal computers in Indian homes.
 - Apart from being free and open source, **VLC easily integrates with other platforms and streaming services** and supports all file formats without requiring additional codecs.
- **Ban on VLC:**
 - While the VLC website has been banned, **the VLC app continues to be available for download on Google and Apple stores.**
 - **Civil society organisations** have repeatedly filed **Right to Information (RTI)** applications with the **Ministry of Electronics and Information Technology (MeitY)** regarding the ban on VLC website.
 - However, these applications have been met with similar responses stating that **"no information is available"** with the Ministry.
 - When the website was accessed previously, the message **"The website has been blocked as per order of Ministry of Electronics and Information Technology under Information Technology Act, 2000"**, was displayed.
 - **Reasons for Ban:**
 - **China's Interference:**
 - Report from cybersecurity firm, Symantec, in April 2022 suggested that **Cicada, a hacker group allegedly backed by China**, has been **using the VLC Media Player to deploy a malicious malware loader.**
 - **Safe Server:**
 - VLC website has been banned; its app is available for download as the app stores'

Note:



servers where the **mobile apps are hosted are considered safer** than servers where the desktop versions are hosted.

When can the Government Ban Online Content to the Public?

- **There are two routes through which content can be blocked online:**
 - **Executive:**
 - **Section 69A of the Information Technology Act, 2000:**
 - **Section 69A** allows the government to direct an intermediary to “**block for access by the public**” any information generated, transmitted, received, stored or hosted in any computer resource if it is **necessary or expedient to do so**, in the interest of **sovereignty and integrity of India**, defence of India, security of the state, friendly relations with foreign states or public order or for preventing incitement to the commission of any cognisable offence”.
 - **Section 69A draws its power from Article 19(2)** of the **Constitution** which allows the government to place reasonable restrictions on the **fundamental right to freedom of speech and expression**.
 - **Judiciary:**
 - Courts in India have the power to **direct intermediaries to make content unavailable in India** to provide **effective remedy to the victim/plaintiff**.
 - For example, courts may order internet service providers to block websites which provide access to pirated content and violate the plaintiff’s copyright.

What is the Procedure of Blocking Content Online?

- **About:**
 - Detailed procedure for blocking content is provided by the **Information Technology (Procedure and Safeguards for Blocking for Access of Information by Public) Rules, 2009 (IT Rules, 2009)** that have been formulated under **Section 69A of the Information Technology Act, 2000**.

- Only the **Central government can exercise the power of directing intermediaries** to block access to online content directly, and not the State governments.

➤ **Process:**

- Central or State agencies appoint a “**Nodal Officer**” who will **forward the blocking order** to the “**Designated Officer**” of the Central government.
- The designated officer, as part of a committee, **examines the request of the nodal officer**.
 - The committee comprises representatives from the **Ministries of Law and Justice, Information and Broadcasting, Home Affairs, and the Cert-In**.
- The creator/host of the content in question is **given a notice to submit clarifications and replies**.
- The committee then makes a **recommendation on whether the request of the nodal officer should be accepted or not**.
 - If this recommendation is approved by the MeitY, **the designated officer can direct the intermediary to remove content**.

What are Government’s Initiatives for Cyber Security?

- **Cyber Surakshit Bharat Initiative**
- **Cyber Swachhta Kendra**
- **Online cybercrime reporting portal**
- **Indian Cyber Crime Coordination Centre (I4C)**
- **National Critical Information Infrastructure Protection Centre (NCIIPC)**
- **Information Technology Act, 2000**

5 Years of UDAN

Why in News?

Recently **UDAN (UdeDeshkaAamNagrik)**, a **Regional Connectivity Scheme** of the **Ministry of Civil Aviation** has completed 5 years of success since the launch of its first flight by the Prime Minister on 27th April 2017.

What do we need to know about the UDAN Scheme?

- **About:**

Note:



- **Ude Desh Ka Aam Naagrik (UDAN)** was launched as a **Regional Connectivity Scheme (RCS)** under the **Ministry of Civil Aviation** in 2016.
- It was formulated based on the review of **The National Civil Aviation Policy (NCAP)-2016** and it was planned to remain in force for a period of 10 years.
 - Under this Scheme, **Regional Connectivity Fund (RCF)** was created, which funds the **Viability Gap Funding (VGF)** requirements of the scheme through a levy on certain domestic flights.
 - VGF means a grant one-time or deferred, provided to support infrastructure projects that are economically justified but fall short of financial viability.
- **Objectives:**
 - To develop the **regional aviation market**.
 - To provide affordable, economically viable and profitable air travel on regional routes to the common man even in small towns.
- **Features:**
 - The scheme envisages **providing connectivity to unserved and underserved airports** of the country through the revival of existing air-strips and airports.
 - Under-served airports are those which **do not have more than one flight a day**, while **unserved airports are those where there are no operations**.
 - Financial incentives from the Centre, state governments and airport operators are extended to selected airlines to **encourage operations from unserved and under-served airports**, and keep airfares affordable.
- **Achievements So Far:**
 - There were **74 operational airports in 2014** which has **increased to 141 by now**.
 - **68 underserved/unserved destinations** which include 58 Airports, 8 Heliports & 2 Water Aerodromes have been connected under UDAN scheme.
 - With 425 new routes initiated, **UDAN has provided air connectivity to more than 29 States/ UTs** across the country.
 - **More than one crore passengers** have availed the benefits of this scheme as on 4th August 2022.
- **Targets:**

- **220 destinations** (airports/heliports/water aerodromes) under UDAN are targeted to be **completed by 2026** with 1000 routes to provide air connectivity to unconnected destinations in the country.
 - Under UDAN, **954 routes have already been awarded to connect 156 airports**.
- **Awards & Recognition:**
 - RCS-UDAN was awarded the **Prime Minister's Award for Excellence in Public Administration** under Innovation Category for the year 2020.
 - **Republic Day Tableau for 26th January 2022** on UDAN was adjudged as the **Best Tableau by the Ministry of Defence**.

How has the UDAN Scheme's Performance been?

- **UDAN 1.0**
 - Under this phase, **5 airlines companies were awarded 128 flight routes to 70 airports** (including 36 newly made operational airports).
- **UDAN 2.0**
 - In 2018, the Ministry of Civil Aviation announced **73 underserved and unserved airports**.
 - For the first time, **helipads were also connected under phase 2 of the UDAN scheme**.
- **UDAN 3.0**
 - **Inclusion of Tourism Routes** under UDAN 3 in coordination with the Ministry of Tourism.
 - Inclusion of **Seaplanes for connecting Water Aerodromes**.
 - Bringing in a number of routes in the **North-East Region under the ambit of UDAN**.
- **UDAN 4.0**
 - In 2020, **78 new routes were approved under the 4th round of RCS-UDAN** to further enhance the connectivity to remote & regional areas of the country.
 - **Kavaratti, Agatti, and Minicoy islands of Lakshadweep** will be connected by the new routes of UDAN 4.0.
- **UDAN 4.1**
 - The UDAN 4.1 focuses on **connecting smaller airports**, along with special helicopter and seaplane routes.
 - Some new routes have been proposed under the **Sagarmala Seaplane Services**.

Note:



- **Sagarmala Seaplane Services** is an ambitious project under the Ministry of Ports, Shipping and Waterways with potential airline operators.

➤ UDAN 5.0

- In 2021, the Ministry of Civil Aviation **flagged off 6 routes**, expanding the **aerial connectivity of North-East India**, under the UDAN Scheme.

➤ Lifeline UDAN:

- It was launched for **transportation of medical cargo during pandemic**.
- It commenced in March 2020 during **COVID-19 period** and it helped to operate 588 flights transporting almost 1000 Tonnes of voluminous cargo and essential medical services to various parts of the country.

➤ Krishi UDAN:

- It was launched for **value realization of agriculture products** especially in Northeastern Region (NER) and tribal districts

➤ International UDAN:

- Under International UDAN, the plan is to **connect India's smaller cities directly to some key foreign destinations in the neighbourhood**.

Grameen Udyami Project

Why in News?

Recently, **National Skill Development Corporation (NSDC)** in partnership with **Seva Bharti and Yuva Vikas Society**, launched the second phase of the **Grameen Udyami Project**.

- Under the initiative, the endeavor is to **multiskill India's youth and impart functional skills to them for enabling livelihoods**.

What is Grameen Udyami Project?

➤ About:

- It is a unique **multiskilling project**, funded by NSDC that aims to **train 450 tribal students in Madhya Pradesh and Jharkhand**.
 - The project is being **implemented in six states**— Maharashtra, Rajasthan, Chhattisgarh, Madhya Pradesh, Jharkhand, and Gujarat.

➤ Significance:

What is the National Skill Development Corporation?

- The **National Skill Development Corporation (NSDC)** is a **non-profit public limited company** established on July 31, 2008, under Section 25 of the Companies Act, 1956.

- The Ministry of Finance established NSDC as a Public Private Partnership (PPP) model.
- The Government of India, through the **Ministry of Skill Development and Entrepreneurship (MSDE)**, owns 49% of NSDC, while the **private sector owns the remaining 51%**.
- The organisation **provides funding to develop scalable and successful initiatives for vocational training**.

- There is a **dire need to increase ownership at the tribal level** so that there is awareness built around such schemes and initiatives.

- As there is so much **potential and ability in the tribal youth**, all we need to do is lay down the right avenues for them to use their talent in the right places.

- This initiative will provide economic **empowerment to our tribal population**.

➤ Objectives:

- Increase in Rural/Local Economy.
- Enhance employment opportunities.
- Reduce forced migration due to lack of local opportunities.
- Conservation of natural resources.

How will Grameen Udyami Project Work?

➤ Phase-1:

- Candidates **were mobilized from rural and tribal areas of Maharashtra, Rajasthan, Chhattisgarh, Madhya Pradesh, and Gujarat**.
 - The transportation, boarding & lodging were provided to candidates so that they do not miss out on the learning opportunity due to lack of resources.

➤ Phase-2:

- The phase-II of the pilot project launched in Ranchi, which is being implemented by Yuva Vikas Society, through Seva Bharti Kendra in Ranchi.
 - NSDC under the aegis of **the Ministry of Skill Development and Enterprises (MSDE)** has supported setting up of labs and classrooms

Note:



through **Sector Skill Councils (SSCs)** in Seva Bharti Kendra Skill Development Center.

- The training under the project will be conducted in the following Job roles which are relevant to the local economy.
 - Electrician & Solar PV Installation Technician.
 - Plumbing & Masonry.
 - Two-Wheeler Repair & Maintenance.
 - IT/ITES with e-Governance.
 - Farm Mechanization.

What are the Other Initiatives taken by the Government for Skill Development?

- **Pradhan Mantri Kaushal Vikas Yojana (PMKVY).**
- Rozgar Mela.
- Pradhan Mantri Kaushal Kendras (PMKK).
- Capacity Building Scheme.
- School Initiatives and Higher Education.
- India International Skill Centres (IISCs).
- Pre-Departure Orientation Training (PDOT).

Universal Postal Union

Why in News?

Recently, The Union Cabinet approved the ratification of amendments to the Constitution of the **Universal Postal Union (UPU)** as contained in the Eleventh Additional Protocol to the Constitution signed during the 27th Congress of the Universal Postal Union held at Abidjan 2021.

What is the Significance of the Approval?

- It would enable the **Department of Posts, Government of India to have the “Instrument of Ratification”** signed by the Hon’ble President of India and have the same deposited with the Director General of the International Bureau of the Universal Postal Union.
 - Further, it would **fulfill the obligations arising from Articles 25 and 30 of the UPU Constitution which provides for ratification of the amendments** to the Constitution adopted by a Congress as soon as possible by the member countries.
 - It would resolve many long-standing discrepancies in the text and accommodate provisions for ‘acceptance or approval of the Acts in consistency

with the **Vienna Conventions on Law of Treaties, 1969.**

- Vienna Convention on the Law of Treaties, an international agreement **governing treaties between states** that was drafted by the **International Law Commission of the United Nations** and adopted on May 23, 1969, and that entered into force on January 27, 1980.

What is Universal Postal Union?

- The UPU was established by the **Treaty of Bern of 1874.**
- It is a specialized agency of the United Nations (UN) that coordinates postal policies among member nations, in addition to the worldwide postal system.
- It is the **second oldest international organization worldwide.**
- UPU’s headquarters are located in **Bern, Switzerland.**
- The UPU contains four bodies consisting of
 - The Congress.
 - The Council of Administration (CA).
 - The Postal Operations Council (POC) and
 - The International Bureau (IB).
- It also oversees the Telematics and Express Mail Service (EMS) cooperatives.
- **Any member country of the United Nations** may become a member of the UPU.
- Any non-member country of the United Nations may become a UPU member provided that its request is approved by at least two-thirds of the member countries of the UPU.
- With its 192 member countries, the organization fulfills an advisory, mediating, and liaison role, and provides technical assistance where needed.
- The union sets the rules for international mail exchanges and makes recommendations to stimulate growth in mail, parcel, and financial services volumes and improve the quality of service for customers.
- **India joined the UPU in 1876.**

Women Scientists in India

Why in News?

Data compiled by the **Department of Science and Technology (DST)** shows that 28% of participants in

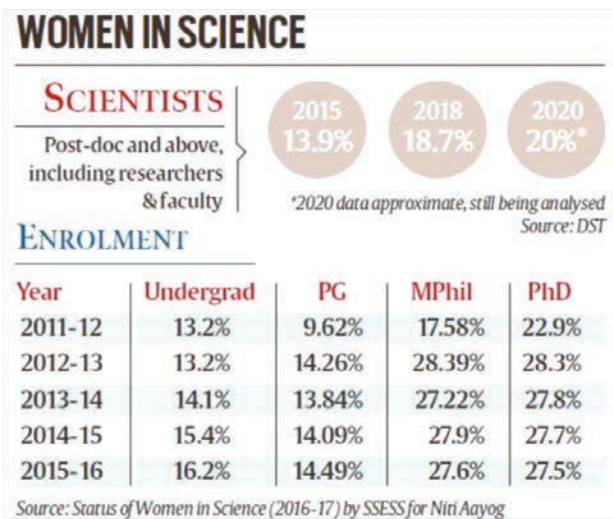
Note:



extramural Research & Development projects in 2018-19 were women, **up from 13% in 2000-01 due to various initiatives taken by successive governments.**

- The ministry aims to raise **women's participation in S&T to 30% by 2030.**
- The recent appointment of **Dr N Kalaiselvi** as the first woman director general of **Council of Scientific and Industrial Research (CSIR)** underlined a significant trend of participation of women in science research.

What are the Key Findings?



- **DST Findings:**
 - The number of women principal investigators in R&D had risen **more than four times** from 232 in 2000-01 to 941 in 2016-17.
 - The percentage of women among researchers **went from 13.9% in 2015 to 18.7% in 2018.**
 - While the overall data **show an upward trend**, women researchers in engineering and technology are **fewer than in natural sciences, health and agriculture.**
 - The percentage of women researchers in the social sciences and humanities is, however, much higher at 36.4%.
 - At the post-doctoral level, there are **fewer women researchers than the global average.**
 - Participation (of women) is **healthy till the postgraduate level.**
 - But there is a drop at the post-doctoral level, **where most of the research takes place.** Even though this too has increased, it is still far less than the 30% global average

- **All India Survey on Higher Education (AISHE) 2019:**
 - According to **AISHE**, 53% participation of women in science education at Bachelor's and 55% at Master's levels respectively.
 - But at doctoral level, women graduates at 44% lagged behind men at 56%.

What is the Overall State of Women Participation in the Science Sector?

- **National Figure:**
 - Number of science researchers in India has **doubled from 30,000 in 2014 to over 60,000 in 2022.**
 - Women's participation is the **highest in biotechnology at 40%** and **medicine at 35%.**
- **Department of Science and Technology:**
 - Out of the 97 scientists in the Department of Science and Technology (DST), **35 are women.**
 - The big achievement is that **11 out of 18 divisions in the DST are now headed by women**, that is 61%, probably the **largest percentage of women in leadership in any government department.**
- **Other Institutions:**
 - **Coalition for Disaster Resilient Infrastructure (CDRI)** has 18%, NIPER Hyderabad 21%, and the Defence Bio-Engineering and Electro-Medical Lab (DEBEL) in Bangalore has 33%.
 - Delhi University has 33% women's participation, while Tezpur University in Assam has 17%.

What Initiatives has the Government Taken for Women in Science?

- **Gender Advancement for Transforming Institutions (GATI):**
 - **The Gender Advancement for Transforming Institutions (GATI)** was launched by the Department of Science & Technology (DST).
 - It will develop a **comprehensive Charter and a framework for assessing Gender Equality in STEM** (Science, technology, engineering, and mathematics).
 - In the first phase of GATI, 30 educational and research institutes have been selected by DST, with a focus on women's participation in leadership roles, faculty, and the numbers of women students and researchers.
- **Vigyan Jyoti Scheme:**

Note:



- **Vigyan Jyoti Scheme** is launched by the Department of Science & Technology (DST).
- It is intended to create a **level-playing field for the meritorious girls in high school to pursue Science, Technology, Engineering, and Mathematics (STEM)** in their higher education.
- It also offers exposure for girl students from the rural background to **help to plan their journey from school to a job of their choice in the field of science.**
- **Indo-US Fellowship for Women in STEM (WISTEMM) program:**
 - Women scientists can work in research labs in the US.
- **Consolidation of University Research for Innovation and Excellence in Women Universities (CURIE) Programme:**
 - **Improving R&D infrastructure** and establishing state-of-the-art research facilities in order to create excellence in S&T in women universities.

Constitution Bench of Supreme Court

Why in News?

Justice Uday Umesh Lalit, **49th Chief Justice of India (CJI)**, assured there will be at least one **Constitution Bench** functioning throughout the year in the **Supreme Court**.

What is the Constitutional Bench of the Supreme Court?

- **About:**
 - A Constitution Bench is a bench of the Supreme Court **having five or more judges on it.**
 - These benches are not a routine phenomenon.
 - A vast majority of cases before the Supreme Court are heard and decided by a bench of two judges (called a Division Bench), and sometimes of three.
- **Circumstances for Constitutional Bench to Exist:**
 - **Article 145(3):**
 - Article 145(3) provides, "The minimum number of Judges who are to sit for the purpose of deciding any case involving a substantial question of law as to the interpretation of this Constitution or for the purpose of hearing any reference under Article 143 shall be five."

- **Article 143:**
 - When the **President seeks the Supreme Court's opinion** under law under **Article 143** of the Constitution.
 - As per the provision, the President of India **has the power to address questions to the Supreme Court**, which he deems important for public welfare.
 - The Supreme Court upon reference advises the President by answering the query. However, such referral advice by the apex court is **not binding on the President**, nor is it 'law declared by the Supreme Court'.
- **Conflicting Judgments:**
 - When two or more three-judge benches of the Supreme Court have **delivered conflicting judgments** on the same point of law, necessitating a definite understanding and interpretation of the law by a larger bench.
 - The Constitution benches are **set up on ad hoc basis** as and when the above-mentioned conditions exist.

Why does CJI seek a Permanent Constitutional Bench?

- Presently, Constitution Benches are set up on an **ad hoc basis (particular purpose)** as and when the need arises.
- It aims to help the judges **identify, hear and provide relief** in cases which need their urgent attention and also help **litigants and lawyers to avoid delay in getting their cases listed for hearing before judges** due to the long-winded processes of the Supreme Court Registry.
- It is also imperative because the Supreme Court's pendency has crossed **over 71,000 from a little over 55,000 in 2017.**
 - This is despite the fact that the sanctioned judicial strength of the court was increased to 34 judges in August 2019.

Civil Services Reforms

Why in News?

Recently, one of India's most respected police officers highlighted a case for the government to launch a

Note:



“Nitipath” scheme on the lines of **Agnipath** and the Short Service Commission for military officers.

What can be the Framework of the Scheme?

➤ **About:**

- Officers can be filtered out after 10, 25 and 30 years of service.
- This would rectify the top-heavy structure, and create a culture of public service and performance.
- The government can **recruit four times as many candidates at the entry level** without being constrained by the number of apex level positions and career paths.
- Instead of **600-1,000 candidates appointed to the AIS, we can have 4,000 officers entering service every year.**
 - Only 25% of them will be retained after a performance review after the fourth year.

➤ **Benefits:**

- This **will bring a lot of young and energetic officers at the junior levels**, give them strong incentives to perform, and give them work experience in government.
 - The average quality of the top 4,000 all-India rank holders will not be markedly different from that of the top 1,000. So, **a four-year review period will allow the government** to get a better pick than merely exam and interview scores.
- Those who leave government service after four years will have **good economic prospects**. It is quite likely many will voluntarily choose to leave and opt for higher studies or private employment. The addition of such youthful, trained and experienced managerial cadre will benefit the broader economy.
- Instituting **performance reviews and exit filters every five years will create a path towards a semi-structural reform** of India’s administrative machinery.
- A lateral entry scheme can accommodate the re-entry of people who might have been filtered out at junior levels but have distinguished themselves since.

What are the areas which require Reforms?

➤ **Conversion of ICS into IAS:**

- After the post-Independence conversion of ICS into IAS, it failed in bringing about a more indigenous element in it.

- This was because **no substantive attempts were made to link IAS with our very own and essentially Indian philosophy** of public administration.
- As a consequence, the transformation of ICS to IAS ended up being just in the abbreviations.
- The governance philosophy of the likes of great Indian administrators like Arya Chanakya, Rajendra Chola, Harihara and Bukka of Vijayanagara fame, Chhatrapati Shivaji Maharaj or Sayajirao Gaikwad continued to be largely ignored even after Independence.

➤ **Needless and Excessive Element of Security:**

- To start with, the thick and enduring firewall that protects civil services personnel needs a relook.
- After entering the prestigious club of civil servants, one virtually never looks back, never looks around, and more importantly, never looks within.
- This security **cover makes them insensitive to and unconcerned about people’s expectations**; the heady cocktail of superiority complex and arrogance afflicts their thinking; and more worryingly this security cover provides them a sense of permanency in power vis-a-vis their politician bosses.
- The behaviour of several civil services officers shows their total disregard for transparency and accountability.

➤ **Lack of Specialisation:**

- Administrative officials are **supposed to handle several issues that require specialised know-how.**
 - In what way can a secretary, steel and mines, today be expected to handle an assignment as secretary, culture, tomorrow?
- While generalists also have their importance, in today’s world it **would be practical to segregate IAS officers in at least four-five important groupings** like education-culture, finance, infra development with natural resources, and social ministries like social justice, labour, women and children, etc.
- This would bring greater domain knowledge to the table and empower officers for more enlightened and insightful decision-making.

➤ **Absence of Systematic Mechanism:**

- **An inbuilt mechanism to ensure periodical de-thick-skinning** through re-inculcation of sense of purpose and motivation is also needed. Excessive security breeds insensitivity and lack of concern.

Note:



- In a very short span of time, strugglers of yesterday filled with idealism become a part of the 'establishment' today.
- To avoid this, periodically holding experience-based and practical-knowledge centric innovative examinations may help.

What are the Related Initiatives?

- **Mission Karmayogi:**
 - This is a National Programme for Civil Services Capacity Building (NPCSCB). It is a comprehensive reform of the capacity building apparatus at individual, institutional and process levels for efficient public service delivery.
- **Lateral Entry Reform:**
 - **Lateral entry** means when personnel from the private sector are selected to an administrative post of the government despite them not being selected in or being part of a bureaucratic setup.
 - This is significant because contemporary times require highly skilled and motivated individuals at the helm of administrative affairs, without which public service delivery mechanisms do not work smoothly.
- **e-Samiksha:**
 - A **real time online system for monitoring and follow up action** on the decisions taken by the Government at the Apex level in respect of implementation of important Government programmes/projects.
- **Citizen Charters:**
 - Government has mandated **Citizen Charters** for all Ministries/Departments which are updated and reviewed on a regular basis.
- **National Conference on e-Governance:**
 - It provides a **platform for the government to engage with experts, intellectuals** from industry and academic institutions to exchange experiences relating to e-Governance initiatives.
- **Centralized Public Grievance Redress and Monitoring System (CPGRAMS):**
 - It is an **online web-enabled system** developed by National Informatics Centre (Ministry of Electronics & IT [MeitY]), in association with Directorate of Public Grievances (DPG) and Department of Administrative Reforms and Public Grievances (DARPG).

- The **CPGRAMS** provides the facility to lodge a grievance online from any geographical location. It enables the citizen to track online the grievance being followed up with Departments concerned and also enables DARPG to monitor the grievance.
- **National e-Governance Service Delivery Assessment:**
 - It aims at assessing the States, UTs and Central Ministries on the efficiency of e-Governance service delivery.

Indian Telegraph Right of Way -Amendment Rules, 2022

Why in News?

In a bid to expedite the rollout of **5G networks** in the country, the Ministry of Communications announced amendments to the **Right of Way (RoW)**.

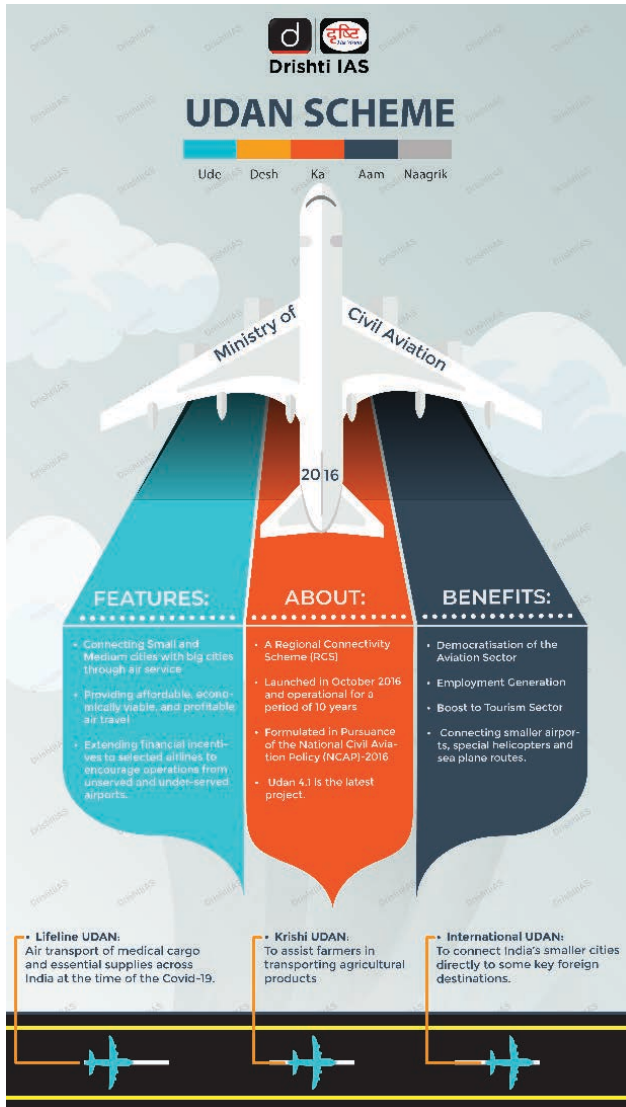
What are the Amendments?

- The amendments include **rationalisation of charges, introduction of a single window clearance system** and doing away with the need for consent from a government authority for installing infrastructure over private property.
- Telecom licensees **can enter into agreement with private property owners** and will **not require any permission from any government** authority for installing telecom infrastructure such as towers, poles or optical fibre.
- **No administrative fee shall be charged** by the Central government for the establishment of poles on land owned/controlled by it.
 - **For State/UTs, this fee will be limited to Rs 1,000 per pole.** The fee for laying overground optical fibre shall be limited to Rs 1,000/ Km.
- Telecom companies will need to submit **details of the building or structure, where the establishment of a mobile tower or pole is proposed**, and a copy of certification by a structural engineer, authorised by the appropriate authority, attesting to the structural safety of the building or structure, where the mobile tower or pole is proposed to be established.
- The amendments provide for a **single window clearance system for RoW applications.**
- **Gati Shakti Sanchar Portal** of the Ministry of Communications will be the single window portal for all telecom related RoW applications.

Note:



- The telecom licences will be able to use street infrastructure to deploy telecom equipment at a nominal cost of Rs 150 annually in rural areas and Rs 300 annually in urban areas.



Why are these Amendments Announced?

- The Amendments are announced to expedite **upgradation and expansion of telecom networks** and to **pave the way for the deployment of 5G small cells on existing street infrastructure**.
- The current infrastructure may be able to sustain the rollout of services. However, experts say **at least 70% of the telecom towers need to be fiberized from the current level of 33%** to roll out 5G in a way that utilises its full potential.
 - **Fiberization** is essential for 5G due to the increasing

data consumption and growth in India compared to the 2G and 3G wireless technologies, which work on a shared network and have a limited capacity to handle an increase in load.

- Access to the existing infrastructure, deployment of new infrastructure, and the high cost involved in it **were major challenges the telecom sector always came across** which will now be eased down.

What is the Significance of the Move?

- The telecom industry is giving equal importance to rural areas and urban areas, it is predicted that the **5G services will reach almost all parts of the country** in the next 2-3 years.
- The Amendment will ensure the **speedy roll-out of the technology** and make the dream of **5G enable India** to come true.
- The **digital divide** between rural-urban and rich-poor will be bridged, in line with the **Digital India mission and BharatNet project**.
- **E-governance** and financial inclusion will be strengthened.
- **Doing business** will be easy.
- **Information and communication** needs of citizens and enterprises will be fulfilled (including **5G**).
- The dream of India's transition to a **digitally empowered economy** and society will be translated into reality.

Special Marriage Act, 1954

Why in News?

Recently, the **Supreme Court (SC)** dismissed a writ petition challenging **provisions of the Special Marriage Act (SMA), 1954** requiring couples to give a notice declaring their intent to marry 30 days before their marriage.

- The SC Rejected the petition on the grounds that the petitioner was **no longer an aggrieved party** as she had **already solemnised her marriage under SMA**.

What does the Petition Seek?

- The petition challenged the **Constitutional validity of certain provisions of the SMA**, calling it **violative of the right to privacy guaranteed under Article 21** of the Constitution.

Note:



- It is because these provisions **require couples to give notice 30 days before the date of marriage inviting objections** from the public.
- These provisions contravene Article 14 on right to equality as well as Article 15 on prohibition of discrimination on grounds of religion, race, caste and sex as these requirements are absent in personal laws.

Which Provisions are Challenged and How do they Make Couples Vulnerable?

- Section 5 of the SMA requires **couples getting married under it to give a notice to the Marriage Officer 30 days before** the date of marriage.
- The Petition seeks striking down of provisions that follow in **Section 6 to Section 10**.
 - **Section 6** requires such a notice to be then entered into the Marriage Notice Book maintained by the Marriage Officer, which can be inspected by “any person desirous of inspecting the same.
 - **Section 7** provides the process for making an objection.
 - **Section 8** specifies the inquiry procedure to be followed after an objection has been submitted.
- The petition contends that these provisions **make the personal information** of the individuals **open to public scrutiny**.
- Hence, these provisions **seriously damage one’s right to have control over her/his personal information** and its accessibility.
- By making the personal details of the couple accessible to everyone, the very right of the couple to be the decision makers of their marriage is **being hampered by the state**.
- These public notices have been used by **anti-social elements to harass couples getting married**.
- There have been instances where **marriage officers have gone over and beyond the law and sent such notices to the parents** of the couple leading to the girl being confined to her house by her parents.

What is the Special Marriage Act (SMA), 1954?

- **About:**

- Marriages in India can be registered under the respective personal laws **Hindu Marriage Act, 1955, Muslim Marriage Act, 1954**, or under the **Special Marriage Act, 1954**.
- **It is the duty of the Judiciary to ensure that the rights** of both the husband and wife are protected.
- The **Special Marriage Act, 1954** is an Act of the Parliament of India with **provision for civil marriage for people of India** and all Indian nationals in foreign countries, **irrespective of religion or faith followed by either party**.
- When a person solemnises marriage under this law, then the marriage is **not governed by personal laws but by the Special Marriage Act**.
- **Features:**
 - Allows people from two different religious backgrounds **to come together in the bond of marriage**.
 - Lays down the **procedure for both solemnization and registration of marriage**, where either of the husband or wife or both are not Hindus, Buddhists, Jains, or Sikhs.
 - Being a secular Act, it plays a key role in **liberating individuals from traditional requirements of marriage**.
- **Provisions:**
 - **Prior notice:**
 - As per **Section 5 of the Act** Couples have to serve **a notice with the relevant documents to the Marriage Officer 30 days** before the intended date of marriage.
 - **Registration:**
 - Both parties are required to be present **after the submission of documents for issuance of public notice** inviting objections.
 - Registration is done 30 days after the date of notice after deciding any objection that may have been received during that period by the SDM.
 - Both parties along with **three witnesses are required** to be present on the date of registration.



Note:



Economic Scenario

Highlights

- *Electronic Production in India*
- *Registry to Check Bank Fraud*
- *Privatisation of Public Sector Banks*
- *Central Bank Digital Currency*
- *New Norms to Invest Overseas*
- *Online Marketplace Aqua Bazar*
- *Tilapia Aquaculture Project: Fisheries*
- *India Blockchain Platform*
- *The Developed Country Goal*
- *Expansion of Emergency Credit Line Guarantee Scheme*
- *Gross State Domestic Product*
- *Indian Energy Exchange Procurement*
- *Self Sufficiency in Urea*
- *Benami Transactions Act*
- *India's Battery Storage Potential: NITI Aayog*
- *MoU for Multi Modal Logistics Park*
- *CAROTAR, 2020*
- *OTT Platforms*
- *Eight Years of Pradhan Mantri Jan Dhan Yojna (PMJDY)*

Electronic Production in India

Why in News?

Recently, the Minister of State for Electronics & Information Technology launched a report titled 'Globalise to Localise: Exporting at Scale and Deepening the Ecosystem are Vital to Higher Domestic Value Addition'.

- Further, the government is focused on achieving the target of USD 300 billion in electronic production by 2026.

What are the Key Highlights of the Report?

- **About:**
 - The report was prepared by the **India Council for Research on International Economic Relations (ICRIER)**, in collaboration with the **India Cellular and Electronics Association (ICEA)** explores how **India can achieve an electronics production target of USD 300 billion and exports of USD 120 by 2025-26.**
 - It examines the **empirical relationship between exports and the share of domestic value addition in successful exporting nations.**
 - It emphasizes **strengthening the domestic manufacturing ecosystem** to make India more **resilient to supply chain disruptions and the aim is to emerge as a reliable and trusted partner in Global value chains.**

Present Status:

- India's electronics exports crossed USD 16 billion in Financial Year 2021-22.
 - Electronics as a sector has jumped to the **6th largest export from India in 2022.**
 - **Mobile phones constitute the single largest component of electronics exports from India.**
 - They are expected to contribute nearly 50% of the total electronics exports by next year.

Issue:

Shift in Global value Chain:

- Post **Covid-19** world is undergoing **deep tectonic irreversible changes in the value chains of electronics.**
 - As major manufacturing firms are venturing out of China due to uncertain Chinese government policies and US-China rivalry.

Opportunities:

- India should **grab the opportunity of shifting supply chains out of China and export aggressively to reach the scale in electronics manufacturing.**
 - Rising exports will **create a network effect of creating the supply chain interests**, and supply chain investments that in turn will increase the value added in the Indian electronics segment.

Recommendations:

- **Adopt Policies of Other Countries:**

Note:



- The study finds that **China and Vietnam have adopted the mantra of 'first globalize, then localize'**, which means in the initial years they were determined **to achieve global scale in exports, and then shifted their emphasis to greater use of local contents.**
- The report, therefore, recommends a sequential approach that can put **India's exports in the same trajectory as China and Vietnam.**
- **Indian Policy Measures:**
 - It suggests **several steps and policies needed for deepening the broader electronics ecosystem within India.**
 - Additionally, policies such as **Gati Shakti, and Production Linked Incentives(PLI)** will also help increase India's competitiveness.
- **Competitive Domestic Ecosystem:**
 - It points to an urgent **need for India to create a competitive domestic ecosystem of ancillary suppliers through technology upgradation programmes, holding sourcing fairs and introducing supporting industry development programmes.**

What are the Other Related Schemes for Manufacturing?

- **Related Initiatives:**
 - **Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECS).**
 - **Modified Electronics Manufacturing Clusters (EMC 2.0) Scheme.**
 - **Design Linked Incentive (DLI) Scheme.**

What is India Council for Research on International Economic Relations ICRIER?

- **About:**
 - It is an **autonomous economic policy think tank, in operation since 1981.**
- **Goal:**
 - To help Indian policymakers make **informed decisions, facilitated through rigorous analytical research, objective policy advice and extensive networking events.**

What is India Cellular and Electronics Association ICEA?

- **About:**

- It is the **apex industry body for the mobile and electronics industry** comprising manufacturers, brand owners, technology providers, VAS application & solution providers, distributors, and retail chains of mobile handsets and electronics.

➤ **Vision:**

- It is committed to carrying forward its vision of building Indian manufacturing and design in verticals other than mobile handsets while consolidating the gains made in the mobile handset and components industry.
- ICEA is entirely devoted to improving the competitiveness and growth of the industry by closely working with the Government's ministries to create a robust, legal, and ethical electronics industry, thereby creating an innovative market environment in the country.

Registry to Check Bank Fraud

Why in News?

Recently, the **Reserve Bank of India (RBI)** considering setting up a fraud registry to create a database of fraudulent websites, phones and various methods used by fraudsters.

What are the Key Highlights of the Fraud Registry?

- **About:**
 - The Registry's database will **help prevent fraudsters from repeating the fraud as the websites or phone numbers would be blacklisted.**
 - The Payment system participants will be **provided access to this registry for near-real-time fraud monitoring.**
- **Create Awareness:**
 - The aggregated fraud data will be published to educate customers on emerging risks.
- **Ombudsman Scheme:**
 - Under this scheme around **4.18 lakh complaints were received during 2021-22 as against 3.82 lakh in the previous year.**
 - **About 97.9% of cases were cleared in 2021 as compared to 96.5% in 2020.**
 - About **39% of the complaints received by the RBI during the last financial year were related to digital transactions.**

Note:



- **Other Related Initiatives:**
 - The integrated consumer grievance redressal mechanism for addressing service deficiencies in banking, **NBFCs** and **digital payment systems**.
- **One Nation One Ombudsman:**
 - Prime Minister launched the **One Nation One Ombudsman** to make the alternate dispute redressal mechanism simpler and more responsive to the customers of regulated entities.

What is Banking Ombudsman Scheme?

- **About:**
 - The scheme was **launched for resolving customer grievances in relation to services provided by entities regulated by RBI** in an expeditious and cost-effective manner.
 - It amalgamates **three ombudsman schemes of RBI - banking ombudsman scheme of 2006, ombudsman scheme for NBFCs of 2018 and ombudsman scheme of digital transactions of 2019.**
 - The unified ombudsman scheme will **provide redress of customer complaints involving deficiency** in services rendered by RBI regulated entities viz. banks, **NBFCs (Non banking Financial Companies)** and pre-paid instrument players if the grievance is not resolved to the satisfaction of the customers or not replied within a period of 30 days by the regulated entity.
 - It also includes **non-scheduled primary co-operative banks with a deposit size of Rs 50 crore and above.**
 - The integrated scheme makes it a **“One Nation One Ombudsman”** approach and jurisdiction neutral.

Who is an Ombudsman?

- A government official **who deals with complaints made by ordinary people** against public organizations. This concept of Ombudsman **arrived from Sweden.**
- It means **an officer appointed by the Legislature to handle complaints against a service or administrative authority.**
- In India an Ombudsman is appointed to resolve grievances in the following sectors.
 - Insurance Ombudsman
 - Income Tax Ombudsman
 - Banking Ombudsman

Privatisation of Public Sector Banks

Why in News?

In the **Union Budget 2021-22**, the government announced its decision to privatise two **Public Sector Banks**.

What is Privatisation?

- The transfer of ownership, property or business from the government to the private sector is termed privatisation. The government ceases to be the owner of the entity or business.
- Privatisation is considered to bring more efficiency and objectivity to the company, something that a government company is not concerned about.
 - India went for privatisation in the historic reforms budget of 1991, also known as ‘New Economic Policy or LPG policy’.

What are Public Sector and Private Sector Banks?

- **Public Sector:**
 - **Public Sector Banks (PSBs)** are those banks **where the government holds more than 50% ownership.**
 - Further, the government regulates the financial guidelines, because of government ownership, most depositors believe that their money is more secured in public sector banks.
 - As a result, most public sector banks have a large customer base.
 - For example, **The State bank of India (SBI) is the largest public sector bank in India.**
 - In this bank, the Indian government holds more than 63% share.
- **Private Sector Banks:**
 - **Private sector banks** are those banks where **private individuals or private companies own a major part of the bank’s equity.**
 - Even though these banks follow the nation’s central bank’s guidelines, they can formulate their independent financial strategy for the customers.

Why is there a Need to Privatised Public Sector Banks?

- **Issues with Public Sector Banks:**

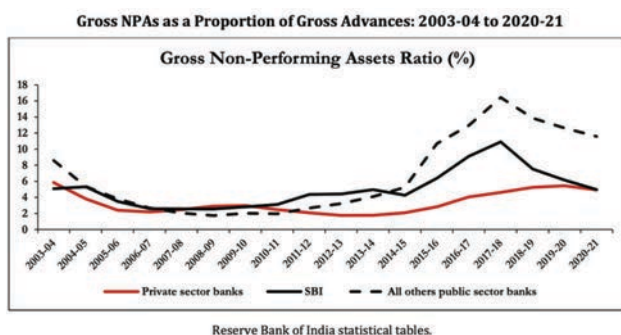
Note:



- **NPA's:**
 - **Non-Performing Assets (NPA)** are loans that the borrower fails to pay back to the bank, further high levels of NPAs erode a bank's profitability.
 - Most of PSBs are also unable to maintain a **capital adequacy ratio**.
 - In the case of many a PSBs, the RBI had to restrict the normal functioning of the banks — this is referred to as the banks being put under **Prompt Corrective Action (or PCA)** — and forced them to improve their financial performance metrics before being allowed to resume normal banking activities.
- **Losses in Rural Branches:**
 - Most of the rural branches are running at a loss because of high overheads and the prevalence of the barter system in most parts of rural India.
- **Bureaucratisation:**
 - The smooth functioning of banks has been hampered by red-tapism, long delays, lack of initiative, and failure to take quick decisions.
- **Financial Burden to Government:**
 - Rather than wasting taxpayers' money to **recapitalise PSBs**, the government should simply sell them off to the private sector.
 - This would reduce the **financial burden on the government while also ensuring that PSBs become more efficient and profit-making entities under private ownership**.
 - According to the **Union Budget 2021-22**, the government had announced its decision to start by privatising two PSBs.

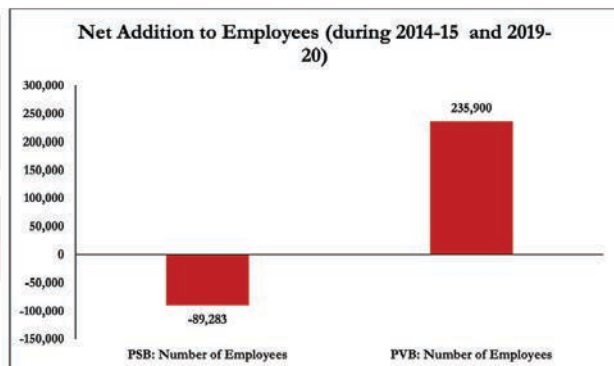
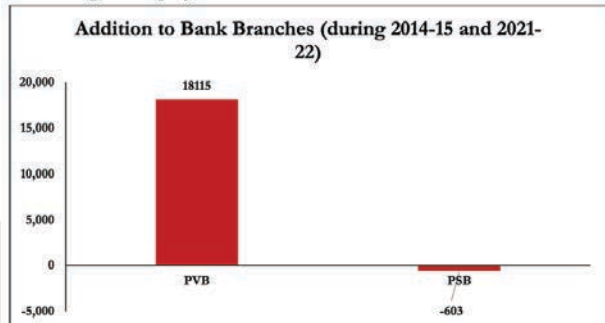
➤ **Efficient Performance of Private Sector Banks:**

- **Efficient:**
 - The Private sector Banks (PVBs) are far more efficient, far **more productive, and far less corrupt than the PSBs**.



- **Less Amount of NPA:**
 - Private sector banks have lower gross NPAs.
- **Enhanced Banking Facilities:**
 - They provide a more significant contribution towards extending loans and a higher percentage of contribution to getting deposits from savers.
- **More Branches and More Jobs:**
 - They created **more branches and new jobs** while the public sector banks saw declines on both counts.

The Change in Employment and Bank Branches in PSBs and Private Banks



RBI, Handbook of statistics on Indian Economy, Money and Banking, Bank Group wise distribution of Employees of Scheduled Commercial Banks.

- **Fetches More Market Value:**
 - When the Economic Survey reviewed bank nationalisation in 2020, it is found that every rupee of taxpayer money invested in **PSBs fetches a market value of just 71 paise**. This is called the market to book ratio.
 - In stark contrast, every rupee invested in **new private sector banks fetches a market value of Rs 3.70**. In other words, private banks give more than five times more value than PSBs.

Who is More Efficient?

- **Financial Inclusion:**

Note:



- **Pradhan Mantri Jan Dhan Yojana (PMJDY)**, envisages **universal access to banking facilities** with at least one basic banking account for every household.
- Public Sector Banks provide 36.2 crore beneficiaries while Private sector banks accounted for just Rs 1.3 crores of the total of almost Rs 46 crore beneficiaries.
- While the **private banks dominate the metropolitan areas**, it is the **public sector banks that operate branches in rural India**.
- PSBs provide more ATMs in rural India.
- **Efficiency:**
 - **PSBs are more efficient than PVB in Financial Inclusion**, while **when profit maximisation is the sole motive, efficiency of the PVBs has always surpassed that of their public sector counterparts**.
 - However, when the **objective function is changed to include financial inclusion**—like total branches, agricultural advances and PSL advances— **PSBs prove to be more efficient than PVBs** (middle and bottom panel).
- **Relevance in Economy:**
 - The relevance of banking lies in knowing whether banks lend when borrowers need the money the most.
 - Thus, **PSBs have a lion's share in infrastructure finance lendings** and their role has been especially crucial against the backdrop of the withering away of erstwhile development financial institutions.

Central Bank Digital Currency

Why in News?

According to recent reports, the **Reserve Bank of India's** (RBI) digital rupee — the **Central Bank Digital Currency (CBDC)** — may be introduced in phases beginning with wholesale businesses in the current financial year.

- RBI had proposed amendments to the **Reserve Bank of India Act, 1934**, which would enable it to **launch a CBDC**.

What is Central Bank Digital Currency (CBDC)?

- **About CBDC:**
 - CBDCs are a **digital form of a paper currency** and unlike **cryptocurrencies** that operate in a regulatory

vacuum, these are **legal tenders issued and backed by a central bank**.

- It is the **same as a fiat currency and is exchangeable one-to-one with the fiat currency**.
 - A fiat currency is a national currency that is not pegged to the price of a commodity such as gold or silver.
- The digital fiat currency or CBDC **can be transacted using wallets backed by blockchain**.
- Though the concept of CBDCs was directly inspired by **Bitcoin**, it is different from decentralised virtual currencies and crypto assets, **which are not issued by the state and lack the 'legal tender' status**.
- **Objectives:**
 - The main objective is to **mitigate the risks and trim costs in handling physical currency**, costs of **phasing out soiled notes, transportation, insurance and logistics**.
 - It will also **wean people away from cryptocurrencies** as a means for money transfer.
- **Global Trends:**
 - **Bahamas** has been the first economy to launch its nationwide CBDC — **Sand Dollar**.
 - **Nigeria** is another country to have rolled out **eNaira in 2020**.
 - **China** became the world's first major economy to pilot a digital currency **e-CNY in April 2020**.
 - **Korea, Sweden, Jamaica, and Ukraine** are some of the countries to have begun testing its digital currency and many more may soon follow.

What are the Benefits & Challenges of CBDC?

- **Benefits:**
 - **A Combination of Traditional and Innovative:**
 - CBDC can gradually bring a cultural shift towards **virtual currency by reducing currency handling costs**.
 - **CBDC is envisaged to bring in the best of both worlds:**
 - The convenience and security of digital forms like cryptocurrencies
 - The regulated, reserved-backed money circulation of the traditional banking system.
 - **Easier Cross-Border Payments:**

Note:



- CBDC can provide an **easy means to speed up a reliable sovereign backed domestic payment and settlement system** partly replacing paper currency.
- It could also be used for **cross-border payments**; it could eliminate the need for an expensive network of correspondent banks to settle cross-border payments.
- Financial Inclusion:
 - The increased use of CBDC could be explored for many other financial activities to push the **informal economy** into the formal zone to ensure **better tax and regulatory compliance**.
 - It can also pave the way for **furthering financial inclusion**.
- **Challenges:**
 - **Privacy Concerns:**
 - The first issue to tackle is the **heightened risk to the privacy of users**—given that the central bank could potentially end up handling an **enormous amount of data** regarding user transactions.
 - This has serious implications given that **digital currencies will not offer users the level of privacy and anonymity** offered by transacting in cash.
 - **Compromise of credentials** is another major issue.
 - **Disintermediation of Banks:**
 - If sufficiently large and broad-based, the shift to CBDC can **impinge upon the bank's ability to plough back funds** into credit intermediation.
 - If e-cash becomes popular and the Reserve Bank of India (RBI) places no limit on the amount that can be stored in mobile wallets, **weaker banks may struggle to retain low-cost deposits**.
 - **Other risks are:**
 - Faster **obsolescence of technology** could pose a threat to the CBDC ecosystem calling for **higher costs of upgradation**.
 - **Operational risks of intermediaries** as the staff will have to be retrained and groomed to work in the CBDC environment.
 - Elevated **cyber security risks, vulnerability testing and the costs of protecting the firewalls**.
 - Operational burden and costs for the central bank in managing CBDC.

New Norms to Invest Overseas

Why in News?

Recently, The **Ministry of Finance** noticed new norms making it easier for domestic corporates to invest abroad, while making it **tougher for loan defaulters and those facing a probe by investigative agencies to invest in overseas entities**.

What are the Key Highlights of the New Rules?

- **Administered by RBI:**
 - The **Overseas Investment Rules and Regulations**, notified under the **Foreign Exchange Management Act**, will be **administered by the Reserve Bank of India (RBI)**, and shall subsume all existing norms pertaining to overseas investments as well as the acquisition and transfer of immovable property outside India.
- **No Go Sectors:**
 - A **No-Objection Certificate (NOC)** will be mandatory for any person who has a bank account classified as a **Non-performing asset**, or is labelled a wilful defaulter by any bank, or is under investigation by a financial service regulator, the **Enforcement Directorate (ED)** or the **Central Board of Investigation (CBI)**.
 - Further, no Indian resident will be permitted to make investments in foreign entities that are engaged in real estate business, gambling in any form and dealing with financial products linked to the Indian rupee without the central bank's specific approval.
- **Sixty Day Timeline:**
 - However, **if the lenders or the relevant regulatory body or investigative agency fail to furnish the NOC within sixty days** of receiving an application, it may be **presumed that they have no objection to the proposed transaction**.
- **Significance:**
 - The revised regulatory framework for overseas investment provides for simplification of the existing framework for overseas investment and has been aligned with the current business and economic dynamics.

Note:



- Clarity on overseas direct investment and overseas portfolio investment has been brought in and “various overseas investment-related transactions that were earlier under **the approval route are now under automatic route, significantly enhancing ease of doing business.**

Online Marketplace Aqua Bazar

Why in News?

Recently, the Union Minister for Fisheries launched the **Online Market Place** feature, Aqua Bazar, in the **MatsyaSetu mobile app** during the ninth general body meeting of the **National Fisheries Development Board.**

What is Matsya Setu App?

➤ About:

- The app was developed by the **Indian Council of Agricultural Research ICAR-Central Institute of Freshwater Aquaculture (ICAR-CIFA)**, Bhubaneswar, with the funding support of the **National Fisheries Development Board (NFDB)**, Hyderabad through the **Pradhan Mantri Matsya Sampada Yojana (PMMSY).**

➤ Features:

- Through this platform, any registered vendor can list their input materials.
- The listed items will be displayed in the marketplace based on geographical proximity to the app user.
 - The listings are categorized into the following **major categories; fish seeds, input materials, services, jobs, and table fish.**
 - Every listing will contain **detailed information about the product, price, available quantity, supply area,** etc. along with the seller’s contact details.
- The needy farmers/stakeholders can contact the vendors and fulfill their procurements.
- It also allows the fish farmers to list their grown table-size fish/fish seeds for sale with an option to indicate the date of availability along with the price offer.
 - Interested fish buyers will contact the farmers and offer their prices.

➤ Significance:

- The online marketplace will **help the fish farmers and stakeholders to source the inputs such as fish seeds, feed, medicines, etc.,** and services required for fish culture as well as farmers can also list their table-size fish for sale.
 - The marketplace aims to connect all stakeholders in the aquaculture sector.
 - Reliable information about the timely availability of quality inputs in the right place is very crucial for the success and development of freshwater aquaculture in the country.
- It will certainly **help the farmers to receive more business inquiries from buyers or buyer agents who procure fish,** paving the way for increased awareness about the market situation and better price realization of farmers’ produce.

What was the Need to Launch this Initiative?

- At times, fish farmers do **face problems in sourcing critical, quality inputs such as fish seeds, feed, feed ingredients, fertilizers, nutraceuticals, additives, medicines, etc.,** during the crop season.
 - **Any delay in obtaining these inputs would cause significant consequences in the productivity of their fish culture operation.**
- Sometimes, farmers also look for services such as farm construction, rental services, manpower for harvesting, etc.
 - Similarly, at certain times, fish farmers do **face difficulties in selling their produce in the market** or they only rely upon a limited number of buyers/agents to procure their fish produced.

What is the National Fisheries Development Board?

- The National Fisheries Development Board (NFDB) was established in 2006 as an autonomous organization under the administrative control of the Department of Fisheries, **Ministry of Fisheries, Animal Husbandry & Dairying,** Government of India to enhance fish production and productivity in the country and to coordinate fishery development in an integrated and holistic manner.
- **Headquarters: Telangana, Hyderabad.**

Note:



Tilapia Aquaculture Project: Fisheries

Why in News?

Inspired by **Pradhan Mantri Matsya Sampada Yojana (PMMSY)**, the Technology Development Board (TDB) has extended support to the **Tilapia Aquaculture Project** with Israeli Technology.

- Technology Development Board (TDB) is a statutory body under the Ministry of Science and Technology.

What is Pradhan Mantri Matsya Sampada Yojana?

- Pradhan Mantri Matsya Sampada Yojana (PMMSY) scheme was announced in September 2020 to **provide financial support for the acquisition of technologically advanced fishing vessels**, deep sea fishing vessels for traditional fishermen, and fishing boats and nets for traditional fishermen.
- It envisages enhancing fish **production to 220 lakh metric tons by 2024-25, at an average annual growth rate of about 9%**.
- The ambitious scheme also aims to double the export earnings to Rs.1,00,000 crore and generate about 55 lakhs direct and indirect employment opportunities in the fisheries sector over a period of the next five years.
- Despite various issues faced by the sector during Covid – 19 pandemic, India has achieved all-time high exports of marine products worth USD 7,165 million from April to February 2021-22.

What is Aquaculture?

- **About:**
 - The term aquaculture broadly refers to the **cultivation of aquatic organisms in controlled aquatic environments** for any commercial, recreational or public purpose.
 - The breeding, rearing and harvesting of plants and animals takes place **in all types of water environments** including ponds, rivers, lakes, the ocean and man-made “closed” systems on land.
- **Purposes:**
 - Food production for human consumption;
 - Rebuilding of populations of threatened and endangered species;

- Habitat restoration;
- Wild stock enhancement;
- Production of baitfish; and
- Fish culture for zoos and aquariums.

What is Tilapia?

- Tilapia, also dubbed aquatic chicken, has emerged to be **one of the most productive and internationally traded fish foods** in the world.
- The culture of tilapia has become **commercially popular in many parts of the world** and due to its quick growth and low maintenance cultivation, it was dubbed **aquatic chicken**.
- Tilapia is tolerant of a variety of aquaculture environments; it can be farmed in brackish or salt water and also in pond or cage systems.

What is the State of Fisheries in India?

- **About:**
 - Fishing is the **capture of aquatic organisms in marine, coastal and inland areas**.
 - Marine and inland fisheries, together with aquaculture, **provide food, nutrition and a source of income** to millions of people around the world, from harvesting, processing, marketing and distribution.
 - For many it also forms part of **their traditional cultural identity**.
 - One of the greatest threats to the sustainability of global fishery resources is illegal, unreported and unregulated fishing.
- **Significance:**
 - Fisheries is one of the **fastest growing sectors** amongst the primary producing sectors.
 - India is the **second largest fish producing country** in the world accounting for 7.56% of global production and contributing about 1.24% to the country's **Gross Value Added (GVA) and over 7.28% to the agricultural GVA**.
 - India is the **4th largest exporter** of fish in the world.
 - The sector plays a **vital role in economic and overall development** of the country, also referred as the **“Sunrise Sector”**, it is poised to **bring in immense potential through equitable and inclusive growth**.

Note:



- The sector is recognized as a **powerful engine for providing employment to 14.5 million people** and sustaining livelihood for the 28 million fishermen community of the country.
- The fisheries sector has witnessed three **major transformations in the last few years**:
 - The growth of inland aquaculture, specifically freshwater aquaculture.
 - The mechanization of capture fisheries.
 - The successful commencement of brackish water shrimp aquaculture.
- **Challenges:**
 - The **Food and Agriculture Organization (FAO)** points out that **nearly 90% of the global marine fish stocks** have either been fully **exploited or overfished** or depleted to the extent that recovery may not be biologically possible.
 - Discharge of harmful substances like plastics and other waste into water bodies that cause devastating consequences for aquatic life.
 - **Changing climate.**

What are the Government Initiatives for Fisheries?

- **Fisheries and Aquaculture Infrastructure Development Fund (FIDF)**
- **Blue Revolution**
- **Extension of Kisan Credit Card (KCC)**
- **Marine Products Export Development Authority.**
- **Seaweed Park**

India Blockchain Platform

Why in News?

Recently, India has made several efforts to become a **digital society** by building a large citizen-scale digital public infrastructure with a significant push from the government.

What is Public Digital Infrastructure?

- **About:**
 - It refers to **digital solutions that enable basic functions essential for public and private service delivery, i.e., collaboration, commerce, and governance.**
- **Indian Initiatives:**

- The Government of India and the **Reserve Bank of India (RBI)** have been **promoting simplification and transparency to increase the speed of interaction between individuals, markets, and the government.**
 - With the commencement of the **Digital India mission** in 2015, the **payments, provident fund, passports, driving licenses, crossing tolls, and checking land records** all have been transformed with modular applications built on **Aadhaar, Unified Payments Interface (UPI), and the India Stack.**
- **Limitations:**
 - **Not Interconnected:**
 - The existing different digital infrastructures are not interconnected as a design.
 - **Not Interoperable:**
 - There is need for a technical integration is required to make them conversant and interoperable.
 - **Inefficient:**
 - Today, information travels across multiple systems, and they mostly rely on limited private databases, which makes it more complex, as more network grows it increases the cost and creates inefficiency.

What are Other Efficient Digital Systems?

- **Web 3.0:**
 - **About:**
 - **Web 3.0** is a **decentralized internet** to be run on **blockchain technology**, which would be different from the versions in use, **Web 1.0 and Web 2.0.**
 - The internet in Web 1.0 was mostly static web pages where users would go to a website and then read and interact with the static information.
 - In Web 2.0 users **can create content** - primarily, a social media kind of interaction.
 - In Web 3.0, **users will have ownership stakes in platforms and applications** unlike now where tech giants control the platforms.
 - **Significance:**
 - The Web 3.0 architecture establishes a new version of **the Internet protocol incorporating token-based economics, transparency, and decentralization.**

Note:

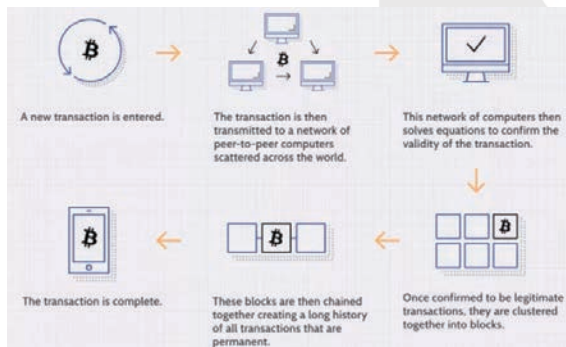


- It is not only the cryptocurrencies but also NFTs or **non-fungible tokens**, representing physical assets or digital twins.
 - A user can access all ecosystem benefits using a distributed token where they can show proof of ownership, tax history, and payment instruments.
 - The blockchain records could be visible, compiled, and audited by the regulators in real time.

➤ Blockchain:

○ About:

- A blockchain is a **distributed database or ledger that is shared among the nodes of a computer network**.
- As a database, a blockchain **stores information electronically in digital format**.
- Blockchains are best known for their crucial role in cryptocurrency systems, such as Bitcoin, for maintaining a secure and decentralized record of transactions.
- The innovation of a blockchain is that it **guarantees the fidelity and security of a record of data and generates trust without the need for a trusted third party**.



○ Global Adoption:

- **Estonia**, the world's **blockchain capital**, is using **blockchain infrastructure to verify and process all e-governance services offered to the general public**.
- **China**, launched **BSN (Blockchain-based Service Network)** to deploy blockchain applications in the cloud at a streamlined rate.
- In **Britain**, the Centre for Digital Built Britain is running the National Digital Twin program (NDTp) to foster collaboration between owners

and developers of digital twins in the built environment.

- The **Brazilian government** recently launched the Brazilian Blockchain Network to bring participating institutions in governance and the technological system that facilitates blockchain adoption in solutions for the public good.

○ Applications:

- They are well-established **decentralized finance (DeFi)** platforms that rely on blockchain infrastructure.
- These platforms have a multi-country presence and usage and do not come under any particular regulatory ambit.
- DeFi allows users to borrow and lend **cryptocurrencies on a short-term basis at algorithmically determined rates**.
- DeFi users are rewarded with tokens that confer governance rights, which are analogous to seats on the protocol's board.
- For example:
 - The blockchain provider **Solana** launched a **prototype smartphone with hardware and security that can support decentralized apps** for people interested in crypto wallets, Web3, and NFTs.

How can India Benefit from Blockchain?

➤ Create Interoperability:

- The Indian digital community, including fintech, academia, think tanks, and institutions, should focus on **supporting research in standards, interoperability, and efficient handling of current known issues with the distributed technologies**,
 - e.g., scalability and performance, consensus mechanisms, and auto-detection of vulnerabilities.

➤ Regulation:

- At the present time, blockchain models are partially permitted or are public like Ethereum which is unregulated and relies on intrinsic standards.

➤ Creating National Ecosystem on Blockchain:

- The ideal solution to solving most of the known issues of decentralized technologies lies in the **middle path**, i.e., a **national platform** operating at L1(layer-1) that **interconnects blockchains (both permissioned and public), application**

Note:



providers (decentralized applications — dApps — and existing), token service providers, and infrastructure managers.

- Together they can form a reliable and efficient network for the Indian digital economy.
 - The ecosystem can further deploy **relevant and purpose-specific applications at L2(Layer-2) for very little cost and effort.**
 - Further, **all chains on this public infrastructure will communicate with each other, thus replicating the communication** (and avoiding the need for complex integrations with each other) on the Internet for existing Indian digital infrastructures.

The Developed Country Goal

Why in News?

Recently, the **Prime Minister** in his Independence Day Speech laid out **Panch Pran (Five Vows)** to be completed by 2047 when India celebrates 100 years of Independence,

- The first vow is for India to become a **Developed Country in the next 25 years.**
- The remaining pledges for 2047 are - **removing any sign of servility, pride in heritage, unity and fulfilling our duties.**

What is a Developed Country?

- A **Developed Country** is industrialised, has a high quality of life, a **developed economy** and advanced technological infrastructure relative to less industrialised nations.
- Whereas developing countries are **those in the process of industrialisation or are pre-industrial and almost entirely agrarian.**
- The most common criteria for evaluating the degree of economic development are:
 - **GDP:**
 - The **Gross Domestic Product (GDP)**, or the monetary measure of all goods and services produced in a country in a year.
 - Countries with a high GDP and **per capita income** (the amount of money earned per person) are considered developed.

○ Dominate Tertiary and Quaternary Sector:

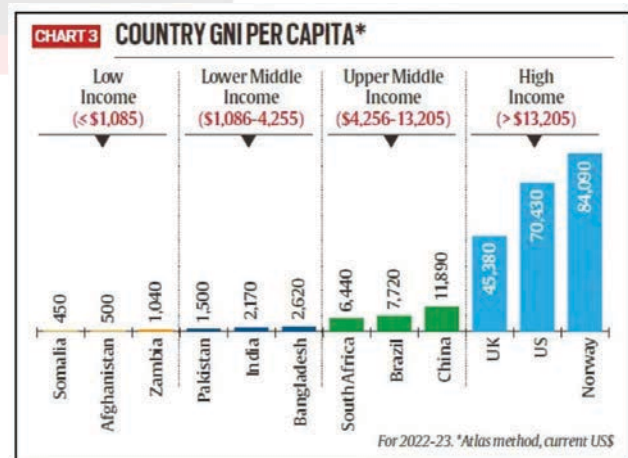
- The Countries in which the **tertiary** (companies that provide services such as entertainment, financial, and retailers) **and quaternary sectors of industry** (knowledge-based activities such as **information technology**, research, and development, as well as consulting services and education) dominate are described as developed.

○ Post-Industrial Economies:

- Also, the developed countries generally have **more advanced post-industrial economies, meaning the service sector provides more wealth than the industrial sector.**

○ Human Development Index:

- Other criteria are the scale of infrastructure, the general standard of living, and the **Human Development Index (HDI).**
 - As the HDI focuses on indices for life expectancy and education and **does not take into account factors** such as **the net wealth per capita or the relative quality of goods in a country.**
 - This is why even some of the most advanced countries, including the **G7 members** (Canada, France, Germany, Italy, Japan, the UK, the US, and the European Union) and others, do not do too well on HDI. That's why countries like Switzerland rank high on HDI.



What is the Definition of a Developed Country?

- There is no all-agreed definition of a developed country.
- Agencies such as the **United Nations**, the **World Bank**, the **World Trade Organization**, and the World Economic Forum use their indicators to club developed and developing countries.

Note:



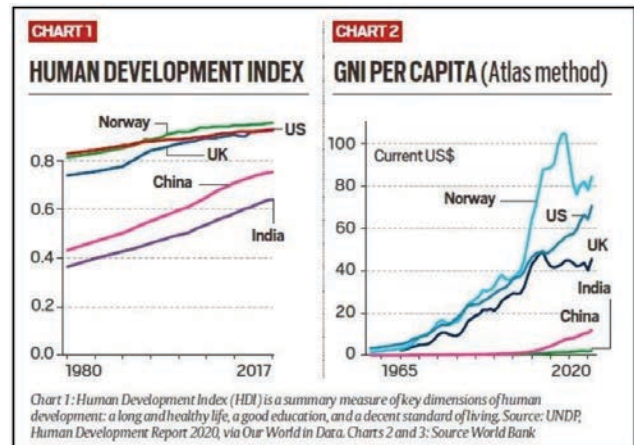
- For example, the UN classifies countries into low, lower-middle, upper-middle, and high-income countries.
 - This classification is based on an individual country's gross national income (GNI) per capita.
 - Low –Income Economy: GNI per capita of up to \$1,085
 - Lower Middle-income: GNI per capita up to \$4,255
 - Upper-Middle-income: GNI per capita \$13,205
 - High-Income economy: GNI per capita above \$13,205

Why is the United Nations Classification Contested?

- The UN classification is **not very accurate as it focuses on limited analytical value**. due to which only the **top three countries - the US, the UK & Norway are categorized as developed countries**.
- Whereas, **almost there are 31 developed countries, and the rest except 17** (economies in transition) are designated as **developing countries**.
- In the case of China, the country's capita income is closer to Norway's than Somalia's.
 - China's per capita income is 26 times that of Somalia's while Norway's is just about seven times that of **China's, but still, it got the tag of a developing country**.
- On the other hand, a country like **Ukraine, with a per capita GNI of \$4,120** (a third of China's) designated as **economies in transition rather than a developed nation**.

Where Does India Stand?

- India is currently far behind both the developed countries, as well as some developing countries.
 - **In terms of GDP, India is the sixth largest economy** but in the case of **per capita income, India is behind even Bangladesh**.
 - Further, **China's per capita income is 5.5 times that of India, and the UK's is almost 33 times**.
- To map this inequality and match the scores of India and other countries we look at Human Development Index (HDI),
 - India has performed fairly well.
 - The **life expectancy at birth in India has gone from around 40 years in 1947 to around 70 years now**.



- India has also taken giant strides in education enrolment at all three levels — primary, secondary, and tertiary.
- To be called a developed country there is a **need to grow the per capita income as the people as a unit matters more**.
- The disparities in per capita income often show up in the overall quality of life in different countries.

Where Does India Lag?

- According to a **2018 diagnostic report on India by the World Bank**, despite being the third largest economy in terms of purchasing power parity most Indians are still relatively poor compared to the people in other middle-income or rich countries.
 - **Almost 10% of Indians, at most, have consumption levels above the commonly used threshold of USD 10 (PPP) per day expenditures** for the global middle class.
 - Further, other metrics, such as the food share of consumption, suggest that even rich households in India would have to see a **substantial expansion of their total consumption** to reach the levels of poor households in rich countries.

How can India Achieve the Developed Country Goal by 2047?

- As per The World Bank's 2018 report, by 2047 — the **centenary of its independence — at least half its citizens could join the ranks of the global middle class**.
 - This will mean that households have **access to better education and health care, clean water, improved sanitation, reliable electricity, a safe environment, affordable housing, and enough discretionary income to spend on leisure pursuits**.

Note:



- Further, the report highlighted the precondition of income well above the extreme poverty line, as well as vastly improved public service delivery.

What are India's Achievements Since Independence?

- **GDP:**
 - India's GDP rose from Rs 2.79 lakh crore in 1950-51 to an estimated Rs 147.36 lakh crore in 2021-22.
 - India's economy, currently at USD 3.17 trillion, is expected to become the **fifth largest in the world in 2022.**
- **Forex:**
 - India's **foreign exchange reserves have risen from Rs 911 crore in 1950-51 to Rs 45,42,615 crore in 2022.**
 - Now, India has the **fifth-largest forex reserves in the world.**
- **Food Production:**
 - India's **foodgrain production has increased from 50.8 million tonnes in 1950-51 to 316.06 million tonnes now.**
- **Literacy rate:**
 - The literacy rate has also improved from 18.3% in 1951 to 78%. The female literacy rate has improved from 8.9% to over 70%.

Expansion of Emergency Credit Line Guarantee Scheme

Why in News?

Recently, the government approved an enhancement in the **Emergency Credit Line Guarantee Scheme (ECLGS) to enterprises in hospitality and related sectors** as the pandemic disrupted these sectors.

- The government has increased the amount by Rs 50,000 crore from Rs. 4.5 Lakh crore to Rs. 5 Lakh crore for these sectors which will valid till 31st March, 2023.

What is an Emergency Credit Line Guarantee Scheme?

- **About:**
 - ECLGS was **rolled out in 2020** as part of the Centre's **Aatmanirbhar package** in response to the **Covid-19** crisis.

- The objective was **to support small businesses struggling to meet their operational liabilities** due to the imposition of a nationwide lockdown.
- **A 100% guarantee is provided by the National Credit Guarantee Trustee Company (NCGTC)** to Member Lending Institutions (MLIs) - banks, financial institutions and **Non-Banking Financial Companies (NBFCs).**
- **The credit product for which guarantee would be provided under the Scheme shall be named as 'Guaranteed Emergency Credit Line (GECL)'**.

➤ ECLGS 1.0:

- To provide fully guaranteed and collateral free additional credit to **MSMEs, business enterprises, MUDRA borrowers** and individual loans for business purposes to the extent of **20% of their credit outstanding as on 29th February, 2020.**
- MSMEs with up to **Rs 25. crore outstanding and Rs. 100 crore turnovers were eligible.**
 - However, the turnover cap was removed post amendment to ECLGS 2.0 in November 2020.

➤ ECLGS 2.0:

- The amended version focused on entities in **26 stressed sectors** identified by the **Kamath Committee** along with the healthcare sector with credit outstanding of more than Rs. 50 crore and up to Rs. 500 crores as of 29th February, 2020.
- The scheme also mandated borrower accounts to be less than or equal to 30 days past due as of 29th February, 2020, that is, they should not have been classified as **SMA 1, SMA 2, or NPA** by any of the lenders as of 29th February 2020.
 - **SMAs are special mention accounts**, which show signs of incipient stress, that lead to the borrower defaulting in servicing the debt.
 - While **SMA-0 accounts** have payments partially or wholly overdue for **1-30 days**, **SMA-1 and SMA-2** accounts have payments overdue for **31-60 days and 61-90 days** respectively.
- The revised scheme also has a five-year repayment window up from four years in ECLGS 1.0.

➤ ECLGS 3.0:

- It involves extending credit of up to 40% of total credit outstanding across all lending institutions as of 29th February 2020.

Note:



- The tenor of loans granted under ECLGS 3.0 would be 6 years, including a moratorium period of 2 years.
- Covers business enterprises in **Hospitality, Travel & Tourism, Leisure & Sporting** sectors, which had, as on 29th february 2020,
 - Total credit outstanding not exceeding Rs. 500 crore and overdue, if any, were for 60 days or less.

➤ ECLGS 4.0:

- A 100% guarantee to cover **loans up to Rs 2 crore to hospitals, nursing homes, clinics, medical colleges** for setting up on-site oxygen generation plants with the interest rate capped at 7.5%.

What is National Credit Guarantee Trustee Company Ltd?

- NCGTC is a **private limited company incorporated under the Companies Act, 1956** in 2014, established by the Department of Financial Services, Ministry of Finance, as a wholly owned company of the **Government of India**, to act as a common trustee company for multiple credit guarantee funds.
 - Credit guarantee programmes are **designed to share the lending risk of the lenders and in turn, facilitate access to finance** for the prospective borrowers.

Gross State Domestic Product

Why in News?

Recently, the **Union Ministry of Statistics and Programme Implementation** has released figures for the **Gross State Domestic Products**.

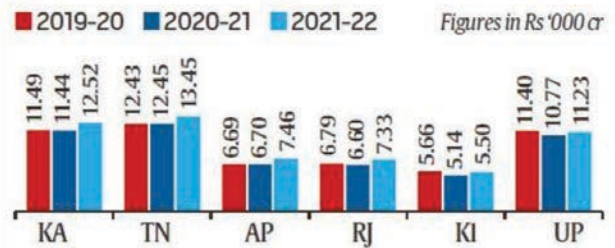
- The economies of **19 states and Union Territories** exceeded their **pre-Covid levels**, with 7 recording **double-digit growth rates during 2021-22**.
- The growth rates of 11 states including Gujarat and Maharashtra were not available for 2021-22.

What are the Key Findings?

- Size of the **Gross State Domestic Product (GSDP)** of the 19 states and UTs had **contracted or recorded a negligible growth during 2020-21** — the year when the government had imposed a **nationwide lockdown in view of the Covid-19 outbreak**.

HOW STATES FARED AFTER COVID

Gross State Domestic Product at constant (2011-12) prices



- **These 19 states and UTs are** Andhra Pradesh, Rajasthan, Bihar, Telangana, Delhi, Odisha, Madhya Pradesh, Haryana, Karnataka, Tripura, Sikkim, Himachal Pradesh, Meghalaya, Jharkhand, Tamil Nadu, Jammu and Kashmir, Punjab, Uttarakhand and Puducherry.
- Their economies (**GSDP**) bounced back in 2021-22 and exceeded their pre-Covid (2019-20) levels.
 - **Kerala and Uttar Pradesh are the only exceptions** in 2021-22 which recorded **GSDP below the pre-Covid levels**.
 - **Andhra recorded the highest growth** of 11.43%, **Puducherry recorded the lowest** at 3.31%.
 - Besides Andhra Pradesh, **five other states and one UT recorded double digit growth in 2021-22**:
 - **Rajasthan:** 11.04%
 - **Bihar:** 10.98%
 - **Telangana:** 10.88%
 - **Odisha:** 10.19%
 - **Madhya Pradesh:** 10.12%
 - **Delhi:** 10.23%
- Sharp jump in the GSDP of some states is due to the **base effect**; the general trend mirrors the **post-pandemic economic recovery**.
 - In 2021-22, India's GDP expanded at 8.7% against a 6.6% contraction in 2020-21.

What is Gross State Domestic Product?

➤ About:

- Gross State Domestic Product (GSDP) is a measure in monetary terms, **the sum total volume of all finished goods and services produced during a given period of time**, usually a year, **within the geographical boundaries of the State**, accounted without duplication.

Note:



- **Significance:**
 - Gross State Domestic Product (GSDP) or State Income is the most important indicator for measuring the economic growth of a State.
 - These estimates of the economy, over a period of time, reveal the extent and direction of the changes in the levels of economic development.
 - The State Domestic Product is classified under three broad sectors such as **Primary sector, Secondary sector and Tertiary sector** and is compiled economic activity wise as per the methodology prescribed by the **National Accounts Division, National Statistical Office**, Ministry of Statistics & Programme Implementation, Govt. of India.
 - In 2015, NSO introduced the new series of national accounts statistics **with base year 2011-12**, replacing the previous series with base year 2004-05.

Indian Energy Exchange Procurement

Why in News?

Recently, the managements of power utilities of Telangana (**Discoms**) were banned from participating in the **day ahead market** with the **Indian Energy Exchange (IEX)** for procuring energy.

- They were banned on the grounds of **non-payment of dues to Gencos despite making payments.**
- However, **the ban has now been lifted** following reconciliation of accounts pertaining to payments made.

Why do we need to know about the Ban?

- **The National Load Dispatch Centre (NLDC)** imposed a ban on bidding of Telangana (Discoms) in **energy procurement** without even reconciling the accounts with the Gencos concerned.
 - Telangana (Discoms) have cleared ₹1,360 crore out of ₹1,381 crore dues mentioned by the agency before the imposing of the ban.
- As per the Discoms, the agency was acting beyond its mandate as per the **Electricity Act, 2003**, which is in force now.
 - As per the 2003 Act, the agency **has to monitor and maintain only the grid discipline** and it is not supposed to be involved in any commercial activity such as its present unilateral decision.

- **The ban was lifted officially on 19th August 2022** allowing the Discoms to go for procuring energy.

What is the Indian Energy Exchange?

- **About:**
 - It is the **first and largest energy exchange in India** providing a nationwide, **automated trading platform** for **physical delivery of electricity, Renewable Energy Certificates and Energy Saving Certificates.**
 - The exchange platform enables **efficient price discovery** and increases the **accessibility and transparency of the power market** in India while also enhancing the speed and efficiency of trade execution.
 - It is a publicly listed company with **National Stock Exchange (NSE)** and **Bombay Stock Exchange (BSE).**
 - It is approved and regulated by **Central Electricity Regulatory Commission (CERC)** and has been operating since 2008.
- **Mission:**
 - To leverage **technology and innovation** to establish **transparent and efficient energy marketplaces** for delivering affordable, reliable energy to consumers.
- **Trading Platform for:**
 - **Electricity Market:**
 - **Day-Ahead Market (DAM):**
 - It is a **physical electricity trading market** for deliveries for any/some/all 15-minute time blocks in 24 hours of the next day starting from midnight.
 - **Term-Ahead Market (TAM):**
 - The contracts under TAM cover a **range for buying/selling electricity for duration up to 11 days.**
 - It enables participants to **purchase electricity for the same day** through intra-day contracts, for the next day through day-ahead contingency, on a daily basis for rolling seven days through daily contracts.
 - **Real Time Market:**
 - The market features a new auction session **every 30 minutes with power to be delivered after 4 time blocks or an hour** after gate closure of the auction.
 - The price and quantum of electricity trading is determined through a **double-sided closed auction bidding process.**

Note:



- **Cross Border Electricity Trade:**

- The Cross border in electricity is an **endeavour to expand the Indian power market towards building an integrated South Asian Power Market.**
- The grid connected south Asian countries such as Nepal, Bhutan and Bangladesh will be able to participate in Day ahead Market and Term ahead Market on the Exchange.

- **Green Market:**

- **Green Term Ahead Market:**

- **The Green-Term Ahead Market (G-TAM)** is a new market segment for trading in renewable energy following the CERC approval.
- **The new market segment features contracts such as:**
 - Green-Intraday
 - Green-Day-ahead Contingency (DAC)
 - Green-Daily and Green-Weekly.
- The matching mechanism is **continuous/spot trading for Green-Intraday, Green-DAC and Green-Daily contracts** whereas **double sided open auction process to be implemented for Green-Weekly.**

- **Green Day-Ahead Market:**

- The Green Day ahead Market allows **anonymous & double-sided closed collective auction in renewable energy on the day-ahead.**
- The Exchange invites bids for **conventional and renewable products** in an integrated way through separate bidding windows.
- **The clearing takes place in a sequential manner** – first in the renewable segment having the must-run status, considering the availability of the transmission corridor, followed by conventional segment.

- **Certificate Market:**

- **Renewable Energy Certificates (REC):**

- Under the REC mechanism, a **generator can generate electricity through renewable resources** in any part of the country.
- For the electricity part, the generator receives the cost equivalent to that from any conventional source while the environment attribute is sold through the exchanges at the market determined price.

- The **obligated entity from any part of the country** can purchase these RECs to meet its **RPO (Renewable Purchase Obligation)** compliance.

- Obligated entities may either purchase renewable energy or can purchase RECs to meet their RPO set under the RPO of their respective States.

- **Energy Saving Certificates (ESCerts):**

- These are the **tradable certificates under the Perform, Achieve, Trade (PAT) Scheme** of the **Bureau of Energy Efficiency (BEE).**
- It is a market-based mechanism to incentivise energy efficiency in large energy-intensive industries.

What is the Electricity Act 2003 & Central Electricity Regulatory Commission?

- **Electricity Act 2003:**

- **The Electricity Act, 2003** is the **central law regulating the electricity sector.**
- The Act provides for **Electricity Regulatory Commissions** at both the central and state levels (**CERC and SERCs**).
- **Functions of these Commissions include:**
 - Regulating and determining tariff
 - Issuing licenses for transmission
 - Distribution, and electricity trading
 - Adjudicating upon disputes, within their respective jurisdiction.

- **Central Electricity Regulatory Commission:**

- CERC is a **regulator of the power sector in India.**
- It intends to **promote competition, efficiency and economy in bulk power markets, improve the quality of supply, promote investments and advise the government on the removal of institutional barriers to bridge the demand supply gap.**
- It is a **statutory body functioning with quasi-judicial status under the Electricity Act 2003.**

Self Sufficiency in Urea

Why in News?

India is hoping to end its reliance on imported urea within the next four years, till 2025 by expanding output of a locally developed version known as **Liquid Nano Urea.**

Note:



What is Liquid Nano Urea?

- It is urea in the form of a nanoparticle. It is a nutrient (liquid) to provide nitrogen to plants as an alternative to the conventional urea.
 - Urea is a chemical nitrogen fertiliser, white in colour, which artificially provides nitrogen, a major nutrient required by plants.
- It is developed to replace conventional urea and it can curtail the requirement of the same by at least 50%.
 - It contains 40,000 mg/L of nitrogen in a 500 ml bottle which is equivalent to the impact of nitrogen nutrient provided by one bag of conventional urea.
- It is Indigenous Urea, introduced firstly by the Indian Farmers Fertiliser Cooperative Limited (IFFCO) for farmers across the world.
- The first Liquid Nano Urea (LNU) plant is inaugurated at Kalol, Gujarat.

What is the Need of becoming Self Sufficient in Urea?

- India has been importing urea for decades to meet the shortfall in the supply chain. India, being one of the largest importers of urea, its demand affects the international price of urea.
 - India is the world's largest buyer of Urea and Di-Ammonium Phosphate (DAP).
 - DAP is the second most commonly used fertilisers in India after urea.
 - Farmers normally apply this fertiliser just before or at the beginning of sowing, as it is high in phosphorus (P) that stimulates root development.
- Urea and DAP have been hit by a sharp rise in global fertiliser prices this year 2022 due to supply disruptions.
- Agriculture being the mainstay of nearly 70% of our population, any shortfall in supply or increase in the price of critical input like fertilisers is bound to have an adverse impact on the overall economic performance of our rural sector.
- It is likely that the demand for urea is not going to come down in the foreseeable future, so remaining dependent on the import of urea perpetually was a very bad idea from the onset.
- In this regard, the decision to set up several brownfield urea plants in the public sector in 2016 was a very good step.
- Self-sufficiency in urea will save the government nearly Rs 40,000 crore.

What is the Status of Fertilizers in India?

- **About:**
 - India consumed about 500 LMT of fertilizer per year in the last 10 years.
 - The Centre's fertiliser subsidy bill is set to soar by 62% over the budgeted amount to Rs 1.3 lakh crore in FY21.
 - Since non-urea (MoP, DAP, complex) varieties cost higher, many farmers prefer to use more urea than actually needed.
 - The government has taken a number of measures to reduce urea consumption. It introduced neem-coated urea to reduce illegal diversion of urea for non-agricultural uses. It also stepped up the promotion of organic and zero-budget farming.
 - Between 2018-19 and 2020-21, India's fertiliser imports increased almost 8% to 20.33 million tonnes from 18.84 million tonnes.
 - In FY21, more than a fourth of the urea requirement was imported.
- **Need of Large Quantities of Fertilisers:**
 - The agricultural output of India has increased every year, and the country's need for fertilisers has also increased.
 - Despite imports, gaps remain between requirements and availability after indigenous production targets haven't been met.

What are the Related Government Initiatives?

- **Nano Urea Production:**
 - Eight new nano urea plants, which are being centrally monitored, will start production by November 2025.
 - These are located in several states, including Karnataka, Uttar Pradesh and Assam.
- **Neem Coating of Urea:**
 - The Department of Fertilizers (DoF) has made it mandatory for all the domestic producers to produce 100% urea as Neem Coated Urea (NCU), to Improve soil health, Reduce usage of plant protection chemicals etc.
- **New Urea Policy (NUP) 2015:**
 - Objectives of the policy are,
 - To maximize indigenous urea production.
 - To promote energy efficiency in the urea units.

Note:



- To rationalize the subsidy burden on the Government of India.

➤ **New Investment Policy- 2012:**

- The Government announced New Investment Policy (NIP)-2012 in January, 2013 and made amendments in 2014 to facilitate fresh investment in the urea sector and to make India self-sufficient in the urea sector.

➤ **Policy on Promotion of City Compost:**

- The Government of India approved a policy on promotion of City Compost, notified by the DoF in 2016 granting Market Development Assistance of Rs. 1500/- for scaling up production and consumption of city compost.

➤ **Use of Space Technology in Fertilizer Sector:**

- DoF commissioned a three year Pilot Study on "Resource Mapping of Rock Phosphate using Reflectance Spectroscopy and Earth Observations Data" by National Remote Sensing Centre under ISRO, in collaboration with Geological Survey of India (GSI) and the Atomic Mineral Directorate (AMD).

➤ **The Nutrient Based Subsidy (NBS) Scheme:**

- It has been implemented from April 2010 by the Ministry of Chemicals and Fertilizers' Department of Fertilizers.
- Under NBS, a fixed amount of subsidy decided on an annual basis, is provided on each grade of subsidized Phosphatic & Potassic (P&K) fertilizers depending on its nutrient content.

Benami Transactions Act

Why in News?

Recently, **The Supreme Court of India** held that Section 3(2) of the **Benami Transactions (Prohibition) Act 1988** as unconstitutional on the grounds of being manifestly arbitrary.

- Section 3(2) prescribes the punishment for entering into benami transaction.
- The judges held that the Act which **was amended in 2016** can only be applied prospectively and **quashed all prosecutions or confiscation proceedings before the amended Act came into force.**

What did The Supreme Court Ruled?

➤ **Section 3(3) of 2016 Act:**

- It **extended the three-year imprisonment to seven years and fine of up to 25% of the fair market value of the property**, if a person enters into any benami transactions.
- **The Supreme Court ruled that "Concerned authorities cannot initiate or continue criminal prosecution or confiscation proceedings for transactions entered into prior to the coming into force of the 2016 Act (25th October 2016). As a consequence of the above declaration, all such prosecutions or confiscation proceedings shall stand quashed".**

➤ **Forfeiture of Benami Properties:**

- The Supreme Court also held the **provision in the 1988 Act** regarding forfeiture of benami properties as **unconstitutional**, and added that the provision in the **2016 amended Act on the same can only be applied prospectively.**
 - As it is not concerned with the constitutionality of independent forfeiture proceedings contemplated under the **2016 Amendment Act** on the other grounds, it was leaving open the question to be decided in appropriate cases.

➤ **Prevention of Money Laundering Act (PMLA), 2002:**

- A recent judgement of the Supreme Court upheld the provision of **PMLA** which allows authorities to **take possession of property before trial in exceptional cases.**
- **The Supreme Court has said that such provision leaves the scope for arbitrary application.**

What do we know about the Benami Transactions (Prohibition) Amendment Act 2016?

➤ **About:**

- The Act amended the Original Act (Benami Transaction (Prohibition) Act 1988) and renamed it as **Prohibition of Benami Property Transaction Act, 1988.**
- **The Act defines a benami transaction as a transaction where:**
 - a property is **held by or transferred to a person**, but has **been provided for or paid by another person.**
 - the transaction is made in a **fictitious name**

Note:



- the **owner is not aware of denies knowledge of the ownership** of the property,
 - the person providing the consideration for the property is **not traceable**.
- **Appellate Tribunal:**
- The Act provides for an **Appellate Tribunal to hear appeals against any orders passed by the Adjudicating Authority**.
 - Appeals against the orders of the Appellate Tribunal **will lie to the high court**.
 - The special court should **conclude the trial within six months** from the date of filing of the complaint.
- **Authorities:**
- The Act **established four authorities to conduct inquiries or investigations** regarding benami transactions:
 - Initiating Officer
 - Approving Authority
 - Administrator
 - Adjudicating Authority
 - If an Initiating Officer believes that a **person is a benamidar**, he may **issue a notice to that person**.
 - The Initiating Officer may hold the **property for 90 days** from the date of issue of the notice, subject to permission from the Approving Authority.
 - At the end of the notice period, the **Initiating Officer may pass an order to continue holding the property**.
 - If an order is passed to continue holding the property, **the Initiating Officer will refer the case to the Adjudicating Authority**.
 - The Adjudicating Authority will examine all documents and evidence relating to the matter and then **pass an order on whether or not to hold the property as benami**.
 - **Based on an order to confiscate the Benami property**, the Administrator will receive and manage the property in a manner and subject to conditions as prescribed.
 - The amended law empowers the specified authorities **to provisionally attach benami properties which can eventually be confiscated**.
- **Penalty:**
- If a person is found **guilty of the offence of the Benami transaction** by the competent court, he

shall be punishable with **rigorous imprisonment for a term not less than one year** but which may **extend to 7 years**.

- He shall also be liable to a fine which may **extend to 25% of the fair market value of the property**.

What are some Important Terms under the Act?

➤ **Property:**

- **Assets of any kind**, whether movable or immovable, tangible or intangible, corporeal or incorporeal and includes any right or interest or legal documents or instruments evidencing title to or interest in the property and where the property is capable of conversion into some other form, then the property in the converted form and also includes the proceeds from the property.

➤ **Benami Property:**

- Any property **which is the subject matter of a Benami Transaction** and also includes the **proceeds from such property**.

➤ **Benamidar:**

- A person or a fictitious person as the case may be, **in whose name the Benami Property is transferred or held and includes a person who lends his name**.

➤ **Beneficial Owner:**

- A person, whether his identity is known or not, **for whose benefit the Benami Property is held by a Benamidar**.

India's Battery Storage Potential: NITI Aayog

Why in News?

Recently, **NITI Aayog** has released a report titled **"Advanced Chemistry Cell Battery Reuse and Recycling Market in India"**, stating India's Battery demand will increase significantly by 2030.

What are the Findings of the Report?

➤ **Demand Projections:**

- The total cumulative potential for battery storage in **India will be 600 GWh by 2030**.
 - Between 2010 and 2020, the **global demand for batteries grew at a compound annual growth**

Note:



rate (CAGR) of 25 % to reach an annual demand of about 730 GWh.

- By 2030, the demand for batteries is expected to **grow four folds to reach an annual rate of 3,100 GWh.**

➤ **Current Deployment of Batteries:**

- The current deployment of **Lithium-Ion Batteries (LIBs)** in India is **dominated by consumer electronics, which comprises smartphones, laptops, notebooks, tablets** and is further expected to grow **with the digitalisation of platforms and the integration of technology** in day-to-day life with a cumulative market of 4.5 GWh.

➤ **Drivers:**

- **EVs (Electric Vehicles) and consumer electronics** will be the **major demand drivers** for the adoption of battery storage in India.
 - **EV sales accounted for around 10% of the LIB (0.92 GWh).**
- The **electrification of transportation and battery energy storage in electricity grids are expected to be the key drivers** in the growth of battery demand.

What are Lithium-ion Batteries?

➤ **About:**

- It uses an **intercalated (Intercalation is the reversible inclusion or insertion of a molecule into materials with layered structures)** lithium compound as one electrode material, compared to the metallic lithium used in a non-rechargeable lithium battery.
- The battery consists of **electrolyte, which allows for ionic movement**, and the two electrodes are the constituent components of a lithium-ion battery cell.
- Lithium ions move from the negative electrode to the positive electrode during discharge and back when charging.

➤ **Lithium-ion Battery Applications:**

- Electronic gadgets, Tele-communication, Aerospace, Industrial applications.
- Lithium-ion battery technology has made it the favourite power source for electric and hybrid electric vehicles.

➤ **Suggestions:**

- A coherent regulatory framework **incentivising all stakeholders to participate in the recycling**

process can help in the development of a battery recycling ecosystem in the country.

MoU for Multi Modal Logistics Park

Why in News?

Recently, the Government of India has signed the **tripartite agreement for swift development of modern Multi Modal Logistics Parks (MMLP)** under **Bharatmala Pariyojna** across the country.

- The objective is to **centralize freight consolidation and reduce logistics cost** from 14% to less than 10% of **Gross Domestic Product** at par with International Standards.

What do we need to know about the Agreement?

➤ **The tripartite agreement was signed by:**

- **National Highways Logistics Management Limited (NHLML):**
 - It is a **Special Purpose Vehicle (SPV)** of the **National Highway Authority (NHA)** of the Ministry of Road Transport & Highways
- **Inland Waterways Authority of India (IWAI):**
 - It is a statutory authority under the **Ministry of Ports, Shipping & Waterways.**
- **Rail Vikas Nigam Limited (RVNL)**
 - It is wholly owned **Public Sector Enterprise under the Ministry of Railways.**
- The agreement underlines the **cooperation & collaboration model** between the three bodies in order to achieve **efficiency in logistics movement within the country.**
- It will provide **seamless modal shift**, MMLPs will ensure that **cargo is swapped/shifted from and to Waterways, Dedicated Freight Corridors & Road Transport.**

What is a Multi Modal Logistics Park (MMLP)?

➤ **About:**

- Developed under a '**Hub & Spoke**' model, the MMLP will integrate multiple modes of freight transport through **highways, railways & inland waterways.**
- The Multi Modal Logistic Park project is poised to **develop state-of-the-art large scale warehousing**

Note:

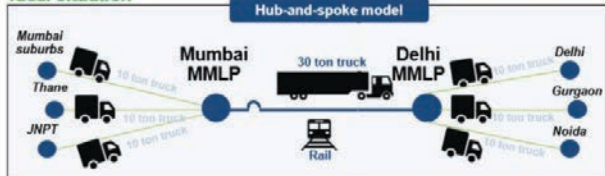


facilities for different types of commodities, to become a **one stop solution for all services** related to cargo movement like **warehousing, custom clearance, parking, maintenance of trucks etc.**

Current situation



Ideal situation



- It will have all the facilities like warehouses, railway siding, cold storage, custom clearance house, yard facility, workshops, petrol pumps, truck parking, administrative building, boarding lodging, eating joints, water treatment plant, etc.

Focus:

- The MMLPs will focus on a **technology driven implementation** for a state-of-the-art freight management system.
- Many value-added services like **packaging, repackaging and labelling** will be available in these projects.
- MMLP will be a **freight handling facility for mechanised material handling and value-added services** along with other associated facilities.

What is Bharatmala Pariyojna?

About:

- Bharatmala Pariyojana is an **umbrella program for the highways sector** envisaged by the **Ministry of Road Transport and Highways**.



Focus:

- It calls for **improvement in efficiency of existing corridors** through development of **Multimodal Logistics Parks** and **elimination of choke points**.
- It enhances focus on **improving connectivity in North East** and leveraging synergies with **Inland Waterways**.
 - North East Economic corridor enhancing connectivity to state capitals and key towns.
 - Multimodal freight movement via 7 Waterway terminals on River **Brahmaputra – Dhubri, Silghat, Biswanath Ghat, Neamati, Dibrugarh, Sengajan, Oriyamgh**.
- It emphasizes the use of **technology & scientific planning** for project preparation and asset monitoring.

It calls for seamless connectivity with neighboring countries:

- 24 Integrated check posts (ICPs) identified
- Transit through Bangladesh to improve North East connectivity
- Integrating **Bangladesh – Bhutan – Nepal and Myanmar – Thailand corridors** which will make NorthEast hub of East Asia
- **Satellite mapping** of corridors to identify upgradation requirements

Objectives:

- To **optimise the efficiency of freight and passenger movement** across the country by bridging critical infrastructure gaps through effective interventions.
- **The effective interventions include** the development of economic corridors, inter corridors and feeder routes, national corridor efficiency improvement, border and international connectivity roads, coastal and port connectivity roads and greenfield expressways.
 - **Economic Corridors:**
 - These are integrated networks of infrastructure within a geographical area designed to stimulate economic development.
 - **Greenfield Projects:**
 - They lack constraints imposed by prior work on the site. Typically, it entails development on a completely vacant site and architects start completely from scratch.

Note:



- **Brownfield Projects:**

- They carry constraints related to the current state of the site and might be contaminated or have existing structures that architects have to tear down or modify in some way before the project can move forward.
- To generate a large number of **direct and indirect employment opportunities** in the construction and infrastructure sector and also as part of the **enhanced economic activity** resulting from better road connectivity across the country.
- To connect **550 districts in the country through national highway linkages**.

CAROTAR, 2020

Why in News?

Recently, the **Central Board of Indirect Taxes and Customs (CBIC)** issued a circular, stating that custom officers should be sensitive in applying **CAROTAR (Customs Administration of Rules of Origin under Trade Agreements) Rules, 2020** and maintain consistency with the provisions of relevant trade agreements or its Rules of Origin.

- Exemptions specified in a **Free Trade Agreement (FTA)** with regard to country of origin will prevail in case of **conflict between revenue department and importer**.

What are the CAROTAR Rules?

- **About:**

- CAROTAR, 2020 set guidelines for enforcement of the 'rules of origin' for allowing preferential rate on imports under Free Trade Agreements.
- They supplement the existing operational certification procedures prescribed under different trade agreements.
- They were notified in August, 2020 by the Ministry of Finance.

- **Provisions:**

- An importer is required **to do due diligence before importing the goods** to ensure that they meet the prescribed originating criteria.
- An importer **will have to enter certain origin related information** in the Bill of Entry, as available in the Certificate of Origin.

- Importers will have to ensure that imported goods meet the prescribed '**rules of origin**' provisions for availing concessional rate of customs duty under **Free Trade Agreements (FTAs)**.

- Importers have to prove that imported products have undergone value addition of at least 35% in the countries of origin.
- Earlier, merely a **country of origin certificate**, issued by a notified agency in the country of export was sufficient to avail the benefits of FTAs.
- This was exploited in many cases, i.e., the FTA partner countries have been claiming to have produced the goods in question without having the necessary technological capacity for the required value addition.

- **Implications:**

- They will make the **importer to correctly ascertain the country of origin, properly claim the concessional duty** and assist customs authorities in smooth clearance of legitimate imports under FTAs.
- The domestic **industry will be protected** from misuse of FTAs.

What is a Free Trade Agreement?

- **About:**

- It is an **arrangement between two or more countries or trading blocs that primarily agree to reduce or eliminate customs tariff** and non tariff barriers on substantial trade between them.
- It covers **trade in goods** (such as agricultural or industrial products) or trade in services (such as banking, construction, trading etc.).
 - It also covers **other areas such as intellectual property rights (IPRs)**, investment, government procurement and competition policy etc.
- India has inked FTAs with several countries, including **UAE, Mauritius**, Japan, South Korea, Singapore, and ASEAN members.

- **Benefit:**

- By eliminating tariffs and some non-tariff barriers, **FTA partners get easier market access** into one another's countries.
- Exporters **prefer FTAs to multilateral trade liberalization** because they get preferential treatment over non-FTA member country competitors.

Note:



- Under these rules, a **country that has inked an FTA with India cannot dump goods from some third country** in the Indian market by just putting a label on it.

OTT Platforms

Why in News?

Recently, a report was released by SBI Research, which said that the OTT (Over-The-Top) market is set to become a **Rs 12,000-crore** industry by 2023, up from Rs 2,590 crore in 2018.

What are the Findings?

➤ Statistics:

- The OTT market is expected **to reach Rs 11,944 crore by 2023**, up from Rs 2,590 crore in 2018, logging in a compound annual growth of 36%.
- OTT has already chipped away **7-9% of the entertainment industry share and revenue**, and is consistently growing with over 40-odd players and offering original media content in all languages.
- There are over 45 crore OTT subscribers today in the country and this is expected to **reach 50 crores by end-2023**.
- The pay-per-view segment stood at 3.5 crore in 2018 and is on course to touch 8.9 crore this year and touch 11.7 crore in 2027.
 - Pay-per-view is a **pay television or webcast program that allows viewers to buy activities to watch** on a private telecast.
 - Video downloads were 4.2 crore and 7.7 crore, 8.6 crore, while video streaming at 1.9 crore, 6.8 crore, and 10.8 crore, respectively during this period.

➤ Growth Drivers:

- This strong growth is led by **affordable high-speed mobile Internet, doubling of Internet users, increased adoption of digital payments** and discounted price offered by global players.
- Covid-led lockdowns which completely shut cinemas.

➤ Implications:

- This may lead to a **repeat of the sudden death of the VCR/VCP/DVD industry** that boomed in the 1980s, with the exponential rise of multiplexes since **the early 2000s across metro/urban areas**.

- It can be noted that the 1980s saw the exponential rise in video cassette recorders/players (VCRs/VCPs) that for the first time challenged the established modes and models of viewing a movie.

- The rise of OTT is expected to **eat into cinemas' profits as over 50 % of the people use OTTs more than 5 hours a month**.
- It is expected that OTT platforms' expansion into education, health, and fitness will additionally cement its future.
- It has unlocked new routes for content creators, and the **audience has begun to understand it as more than just a medium of enjoyment**.

What are OTT platforms?

- OTT, or over-the-top platforms, are **audio and video hosting and streaming services** which started out as content hosting platforms, but soon branched out into the production and release of short movies, feature films, documentaries and web-series themselves.
- These platforms offer a **range of content and use artificial intelligence to suggest to users the content they are likely to view** based on their past viewership on the platform.
- Most OTT platforms generally **offer some content for free and charge a monthly subscription fee for premium content** which is generally unavailable elsewhere.
- Premium content is **usually produced and marketed by the OTT platform themselves**, in association with established production houses which historically have made feature films.
- **Examples: Netflix, Disney+, Hulu, Amazon Prime Video, Hulu, Peacock, CuriosityStream, Pluto TV, and so many more.**

What are the laws regulating OTT platforms?

- In February 2022, the government had notified the **Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules 2021** to regulate OTT platforms.
- The rules establish a **soft-touch self-regulatory architecture with a Code of Ethics and three-tier grievance redressal mechanism** for OTT platforms.
 - Every publisher should appoint a **Grievance Officer based in India** for receiving and redressing grievances in 15 days.

Note:



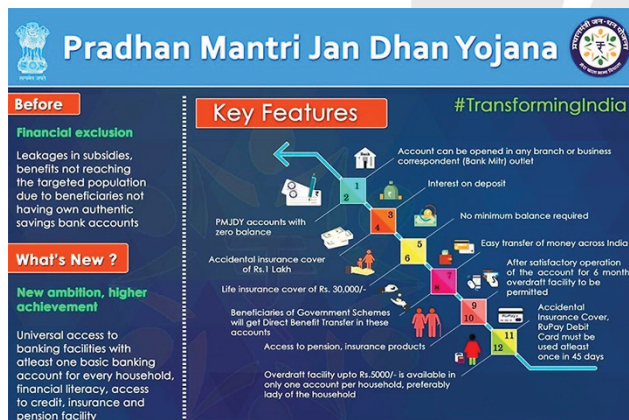
- Also, every publisher needs to become a member of a self-regulating body. Such a body will have to register with the **Ministry of Information and Broadcasting** and address grievances that have not been resolved by the publisher within 15 days.
- The **Ministry of Information Broadcasting** and the Inter-Departmental Committee constituted by the Ministry constitute the third-tier Oversight Mechanism
- They provide for self-classification of the content without any involvement of Central Board of Film Certification.

Eight Years of Pradhan Mantri Jan Dhan Yojna (PMJDY)

Why in News?

Recently, **Pradhan Mantri Jan Dhan Yojana (PMJDY)** - National Mission for **Financial Inclusion**, completed **eight years of successful implementation**.

More than 46.25 crore beneficiaries banked under PMJDY since inception, amounting to Rs. 1,73,954 crores.



What is Pradhan Mantri Jan Dhan Yojana (PMJDY)?

- **About:**
 - Pradhan Mantri Jan Dhan Yojana (PMJDY) is the National Mission for Financial Inclusion.
 - It ensures **access to financial services, namely, Banking/ Savings & Deposit Accounts, Remittance, Credit, Insurance, Pension in an affordable manner.**
 - PMJDY has been the foundation stone for **people-centric economic initiatives**. Whether it is **Direct Benefit Transfer (DBT), Covid-19 financial assistance,**

PM-KISAN, increased wages under **Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGA)**, life and health insurance cover, the first step of all these initiatives is to provide every adult with a bank account, which PMJDY has nearly completed.

Objectives:

- Ensure **access to financial products & services** at an affordable cost.
- **Use of technology to lower cost & widen reach.**
- **Basic tenets of the scheme:**
 - **Banking the unbanked:** Opening of **basic savings bank deposit (BSBD) account** with minimal paperwork, relaxed KYC, e-KYC, account opening in camp mode, zero balance & zero charges.
 - **Securing the unsecured:** Issuance of **Indigenous Debit cards for cash withdrawals & payments** at merchant locations, with **free accident insurance coverage of Rs. 2 lakhs.**
 - **Funding the unfunded:** Other financial products like **micro-insurance, overdraft for consumption, micro-pension & micro-credit.**

What is Financial Inclusion?

- **Financial inclusion** is defined as the process of **ensuring access to financial services and timely and adequate credit where needed by vulnerable groups** such as weaker sections and low-income groups at an affordable cost.
- In a diverse country like India, financial inclusion is a critical part of the development process. Since independence, the **combined efforts of successive governments, regulatory institutions, and civil society have helped in increasing the financial-inclusion net** in the country.
- Being able to have access to a transaction account is a **first step toward broader financial inclusion** since a transaction account allows people to store money, and send and receive payments.
 - A transaction account serves as a **gateway to other financial services.**

What are the Other Initiatives to Increase Financial Inclusion in India?

- **Digital Identity (Aadhaar)**
- **National Centre for Financial Education (NCFE)**
- **Centre for Financial Literacy (CFL) Project**

Note:



- **Expansion of financial services in Rural and Semi-Urban Areas**
- **Promotion of Digital Payments**

What are the Six Pillars of the Scheme?

- **Universal access to banking services:** Branch and Banking Correspondants.
- **Overdraft Facility:** Basic savings bank accounts with overdraft facility of Rs. 10,000/- to every eligible adult.
- **Financial Literacy Programme:** Promoting savings, use of ATMs, getting ready for credit, availing insurance and pensions, using **basic mobile phones for banking**.
- **Creation of Credit Guarantee Fund:** To provide banks some guarantee against defaults.
- **Insurance:** Accident cover up to Rs. 1,00,000 and life cover of Rs. 30,000 on account opened between 15 Aug 2014 to 31 January 2015.
- **Pension scheme** for Unorganized sector.

What are the Achievements of the Scheme?

- **Approach towards Digital Banking:**
 - Accounts opened are **online accounts in the core banking system** of banks.
 - Focus has shifted from 'Every Household' to **Every Unbanked Adult**'.
 - **Fixed-point Business Correspondents**.
 - **Simplified KYC / e-KYC** in place of cumbersome KYC formalities.
- **Extension of PMJDY with New Features:**
 - Focus shift from 'Every Household' to **Every Unbanked Adult**'.
 - **RuPay Card Insurance:**
 - Free accidental insurance cover on RuPay cards increased from Rs. 1 lakh to Rs. 2 lakh for PMJDY accounts opened after 28th August 2018.
 - **Enabling Interoperability:**
 - Through **RuPay debit card or Aadhaar enabled Payment System (AePS)**.
 - **Enhancement in overdraft facilities:**
 - Overdraft (OD) limit doubled from Rs 5,000/- to Rs 10,000; OD upto Rs 2,000 (without conditions).
 - Increase in upper age limit for **OD from 60 to 65 years**.

- **Jan Dhan Darshak App:** A mobile application, **Jan Dhan Darshak App** was launched to provide a citizen centric platform for locating banking touch points such as bank branches, ATMs, Bank Mitras, Post Offices, etc. in the country.

➤ Increased Financial Inclusion:

- Within 10 days of nationwide lockdown due to Covid-19, **more than about 20 crore women PMJDY accounts were credited with ex-gratia**.
- **PMJDY Accounts have grown three-fold** from 14.72 crore in Mar'15 to 46.25 crore as on 10th August 2022.
- In August'22, out of total 46.25 crore PMJDY accounts, **37.57 crore (81.2%) are operative**.
 - Only 8.2% of PMJDY accounts are zero balance accounts.
- **Deposits have increased about 7.60 times** with an increase in accounts 2.58 times (Aug'22 / Aug'15).

➤ Formalisation of Financial System:

- It provides an **avenue for the poor to bring their savings into the formal financial system**, an avenue to remit money to their families in villages besides taking them out of the clutches of the usurious money lenders.

➤ Prevention of Leakage:

- DBTs via PM Jan Dhan accounts have **ensured every rupee reaches its intended beneficiary** and prevents systemic leakage.

➤ Smooth DBT transactions:

- Close monitoring to avoid DBT failures in consultation with DBT Mission, **National Payments Corporation of India (NPCI)**, banks and various other Ministries ensures that the eligible beneficiaries receive their DBT in time.

➤ Digital transactions:

- The total number of **digital transactions have gone up** from 978 crore in FY 2016-17 to 7,195 crore in FY 2021-22.
 - The total number of **Unified Payments Interface (UPI) financial transactions** have increased from 1.79 crore in FY 2016-17 to 4,596 crore in FY 2021-22.
 - Similarly, total number of **RuPay card transactions at Point of Sales (PoS) and E-commerce** have increased from 28.28 crore in FY 2016-17 to 151.64 crore in FY 2021-22.



Note:



International Relations

Highlights

- Maritime Security
- Supply Chain Ministerial Forum
- India-Iran Pact on Seafarers
- Talks Between India & NATO
- India-Gabon Relations
- Airspace Violations Near LAC
- Chinese Vessel in Sri Lanka
- CPEC Authority
- One Year of Taliban 2.0
- Gold Jewellery Exports to UAE up 42%
- Chief of Royal Malaysian Navy Visits India
- India-Bangladesh River Water Sharing MoU
- Russia-China Cooperation in the Arctic

Maritime Security

Why in News?

Recently, Sri Lanka's envoy in India said India-Sri Lanka should build a framework to discuss maritime concerns like the Chinese satellite and missile tracking ship, the **Yuan Wang 5** in Hambantota Port.

What is Yuan Wang 5?

➤ Yuan Wang 5:

- It is a third-generation vessel of the **Yuan Wang series** that entered service in 2007.
- This series of ships include "space tracking ships involved in supporting the manned space programme".
- It has the ability to track satellites and intercontinental missiles.

➤ Hambantota Port:

- Hambantota International Port Group is a **Public Private Partnership** and a Strategic Development Project between the **Government of Sri Lanka and China Merchants Port Holdings (CMPort)**.
- This port was given to China by Sri Lanka on a 99-year lease after Sri Lanka failed to repay Chinese loans.
- It is seen as a case of Chinese "debt trap" Diplomacy.

What is the need for Maritime Security in India?

➤ About:

- Maritime security doesn't have a commonly agreed definition.

- It classifies issues in the maritime domain comprising **national security, marine environment, economic development, and human security**.
- Besides the world's oceans, it also deals with **regional seas, territorial waters, rivers and ports**.

➤ Significance:

- Maritime security is of **utmost significance to the world community** as there are maritime concerns ranging from **piracy at sea to illegal immigration and weapon smuggling**.
- It also deals with **threats of terrorist attacks and environmental catastrophes**.
- For India, maritime security is an important aspect of national security as it has a coastline of over 7,500 km.
- With advancement in technology, **physical threats in the maritime region** have now been overshadowed by technological threats.
- India's **exports and imports** have remained mostly across the shipping lanes of the Indian Ocean. Therefore, securing **Sea Lanes of Communication (SLOCs)** have been an important issue for India in the 21st century.

➤ Chinese presence:

- In 2019, the Chinese **research vessel** Shiyan 1, was seen near the Andaman and Nicobar Islands.
- In August 2020, in the middle of the ongoing **conflict in eastern Ladakh on the Sino-Indian border**, China sent its Yuan Wang class research vessel into the Indian Ocean.

Note:



What are India's Initiatives for Maritime Security?

- **Security and Growth for All (SAGAR) Policy:**
 - India's SAGAR policy is an integrated regional framework, unveiled by Indian Prime Minister during a visit to Mauritius in March 2015. The pillars of SAGAR are:
 - India's role as a **net security provider in the Indian Ocean region (IOR)**.
 - India would continue to **enhance the maritime security capacities and economic resilience** of friendly countries in IOR.
 - A more integrated and cooperative focus on the future of the IOR, which would enhance the prospects for the sustainable development of all countries in the region.
 - The primary responsibility for peace, stability and prosperity in the IOR would be on those "who live in this region".
- **Mission SAGAR:**
 - Launched in May 2020, 'Mission Sagar' was India's initiative to deliver **Covid-19** related assistance to the countries in the Indian Ocean Littoral states. The countries included were **Maldives, Mauritius, Madagascar, Comoros and Seychelles**.
 - Under 'Mission Sagar', the **Indian Navy has been deploying its ships to send medical and humanitarian aid** to the counties in the **Indian Ocean Region (IOR)** and beyond.
- **Abiding by the International Law:**
 - India accepted an **United Nations Convention for the Law of the Sea (UNCLOS)** tribunal award on the maritime boundary arbitration between India and Bangladesh.
 - It envisaged contributing a new impulse to effective international economic cooperation among the littoral states of the **Bay of Bengal (BIMSTEC)**.
- **Data Sharing:**
 - Sharing data on **threats to commercial shipping** is an important component of enhancing maritime security.
 - In this context, India established an **International Fusion Centre (IFC)** for the **Indian Ocean region in Gurugram in 2018**.
 - IFC is jointly administered by the **Indian Navy and Indian Coast Guard**.

- IFC serves the objective of generating Maritime Domain Awareness on safety and security issues.

Supply Chain Ministerial Forum

Why in News?

Recently, US State Department released a Joint Statement of the 2022 **Supply Chain Ministerial Forum**, focusing on the **global challenge** which includes - the COVID-19 pandemic, wars and conflicts and climate change.

What do we need to know about the Forum?

- **About:**
 - On July 2022, **United States** hosted the Supply Chain Ministerial Forum to advance work to reduce and end near-term supply chain disruptions and collaborate to build supply chain resiliency to avoid future disruptions.
- **Objective:**
 - **Resilient Supply Chain:**
 - Building collective **long-term resilient supply chains** based on international partnerships.
 - Partner countries aim to follow **various global supply chain principles** including **transparency, diversification, security and sustainability**.
 - **Transparency:**
 - Promote **transparency** in consultation with the private sector, civil society, different levels of government, and other relevant stakeholders, consistent with participants' domestic laws and international obligations, **in order to strengthen the resilience of supply chains**.
 - **Diversification & Global Capacity:**
 - Promote **diversification** and **increase global capacities** for multiple, reliable, and sustainable sources of materials and inputs, intermediate goods, and finished goods in priority sectors, along with logistics infrastructure capacities, **increasing the resilience of supply chains** to make our economies **less vulnerable to disruptions and shocks**.
 - **Sustainability:**
 - Encourage **global sustainability** and responsible business conduct across supply chains, as well as objectives set out in relevant multilateral

Note:



environmental agreements to which we are parties, including the **United Nations Framework Convention on Climate Change (UNFCCC)** and the **Paris Agreement**.

➤ **Partner Economies:**

- Australia, Brazil, Canada, the Democratic Republic of the Congo, the European Union, France, Germany, India, Indonesia, Italy, Japan, Mexico, the Netherlands, the Republic of Korea, Singapore, Spain, the United Kingdom, and the United States.

What is India's related Supply Resilience Initiative?

➤ **SCRI:**

- **Supply Chain Resilience Initiative** between India, Japan and Australia, launched in 2021.
 - It aims to create a virtuous cycle of enhancing supply chain resilience with a view to eventually attaining strong, sustainable, balanced and inclusive growth in the Indo-Pacific region.

India-Iran Pact on Seafarers

Why in News?

India and Iran signed a Memorandum of Understanding (MoU) to smoothen movement of seafarers from both the countries as per the provisions of **International Convention on Standards of Training, Certification and Watchkeeping (STCW) for Seafarers (1978)**.



What is the International Convention on STCW for Seafarers?

- It sets **qualification standards for masters, officers and watch personnel** on seagoing merchant ships.

- STCW was adopted in 1978 by a conference at the **International Maritime Organization (IMO)** in London and entered into force in 1984. The Convention was **significantly amended in 1995**.
- The 1978 STCW Convention was the first to establish basic requirements on training, certification and watchkeeping for seafarers on an international level.
- It prescribes **minimum standards relating to training, certification and watchkeeping** for seafarers which countries are obliged to meet or exceed.
- One especially important feature of the Convention is that it applies to ships of non-party States when visiting ports of States which are Parties to the Convention.

How have been the India-Iran Relations?

- **India and Iran** share close civilizational ties since the times of the Persian Empire and Indian kingdoms.
- Iran is an important **nation in India's neighborhood and in fact, the two countries shared a border until India's partition** and independence in 1947.
- The "Tehran Declaration" signed during former Prime Minister Atal Bihari Vajpayee's visit to Iran affirmed the **shared vision of the two countries for an "equitable, pluralistic and co-operative international order"**.
- It recognized the then Iranian President Mohammad Khatami's vision of a "dialogue among civilisations" as a paradigm of international relations based on principles of tolerance, pluralism and respect for diversity.

What is the Significance of India-Iran Relations?

➤ **Location and Connectivity:**

- Iran is located at a strategic and **crucial geographical location** between the **Persian Gulf** and the **Caspian Sea**.
- Iran is important to India as **it provides an alternate route of connectivity to Afghanistan and Central Asian** republics through **Chabahar Port** without passing the land route through Pakistan.

➤ **Cheaper Crude Oil:**

- Since, Iran is one of the **largest deposits of crude oil and natural gas** in the world.
- India may well consider restarting oil imports from Iran. If India changes course and resumes imports of Iranian oil, **it could potentially encourage some other countries to follow suit and open up additional oil** in the market, which could eventually bring prices of crude oil down.

Note:



- **Connectivity with Eurasia:**
 - The **International North-South Transport Corridor (INSTC)**, aims to connect India, Iran, Afghanistan, Russia, Central Asia, and **Europe through multi-modal transport, reducing the transit time of goods drastically.**
 - Although some part of it has been operationalized, again, due to sanctions on Iran, its full potential has not been realised. India and Iran could well play a major part in giving INSTC the required boost to reap the benefits of resultant trade.
- **Energy Security:**
 - The **Iran-Oman-India gas pipeline (IOI) too is an ambitious project** that has been stuck for a long time. Fortunately, Iran and Oman signed a deal to develop two gas pipelines and an **oil field along their maritime borders.**
 - If this comes through, there is potential for the pipeline being extended to India, which would help overcome the loss of the failed **Iran-Pakistan-India (IPI) pipeline and facilitate the supply of natural gas to India.**

Talks Between India & NATO

Why in News?

Recently, India held its first political dialogue with the **North Atlantic Treaty Organisation (NATO)** in Brussels on December 12, 2019.

What is NATO?

- **North Atlantic Treaty Organization (NATO)** is a **military alliance established by the North Atlantic Treaty (also called the Washington Treaty) of April 1949**, by the United States, Canada, and several Western European nations to provide collective security against the **Soviet Union.**
- There are currently **30 member states.**
 - **Original Members:**
 - Belgium, Canada, Denmark, France, Iceland, Italy, Luxembourg, the Netherlands, Norway, Portugal, the United Kingdom, and the United States.
 - **Other Countries:**
 - **Greece and Turkey (1952), West Germany (1955, from 1990 as Germany), Spain (1982),**

the **Czech Republic, Hungary, and Poland (1999), Bulgaria, Estonia, Latvia, Lithuania, Romania, Slovakia, and Slovenia (2004), Albania and Croatia (2009), Montenegro (2017), and North Macedonia (2020).**

- France withdrew from the integrated military command of NATO in 1966 but remained a member of the organization, it resumed its position in NATO's military command in 2009.
 - Recently, **Finland and Sweden** have shown interest to join NATO.

- **Headquarters:** Brussels, Belgium.

What is the NATO-India Political Dialogue?

➤ About:

- India held its first political dialogue with the North Atlantic Treaty Organisation (NATO) in Brussels on December 12, 2019.

➤ Significance:

- NATO has been engaging both China and Pakistan in bilateral dialogue.
- While Engaging NATO in a political dialogue would provide India an opportunity to bring about a **balance in NATO's perceptions** about the **situation in regions and issues of concern to India.**
 - There is convergence in the perspectives of both India and NATO on China, terrorism, and Afghanistan, including **Pakistan's** role in Afghanistan.

➤ Issues:

- According to NATO's perspective, the biggest threat it face was not China, but Russia whose aggressive actions are threatening European security.
 - Further, NATO had faced difficulties to convene meetings of the **NATO-Russia Council** due to Russian refusal to place issues such as Ukraine and Intermediate-Range Nuclear Forces Treaty,
 - Given the **divergence among NATO countries**, its view on China was seen as mixed; while it did deliberate on China's rise, it presented **both a challenge and an opportunity,**
 - Further, in **Afghanistan**, NATO saw the Taliban as a political entity.

➤ NATO'S View:

- Dialogue with India would further enhance the cooperation among NATO countries and India's geo-strategic location shares a unique perspective

Note:



and enhances international security in India's own region and beyond.

India-Gabon Relations

Why in News?

Recently, A delegation from Gabon visited India and interacted with the Indian business community, also India congratulated Gabon on its **Independence Day (17th August)**.

- Earlier, the Vice President of India visited Gabon, where he signed two **MoUs (Memorandum of Understanding)**.



What are the MoUs?

- **Establishment of a Joint Commission** between the Governments of India and Gabon.
- Diplomats' training institutes, Sushma Swaraj Institute of Foreign Services and Gabonese Ministry of Foreign Affairs.
 - India signed to work with **Gabon to strengthen cooperation in various spheres** at bilateral, regional, and multilateral levels.

How has been the India-Gabon Partnership?

- **Diplomatic:**

- India and Gabon have **enjoyed warm and friendly relations dating back to the pre-independence era** of Gabon.
- Former Vice President of India visited the African nation of Gabon in May 2022 making it the **first-ever high-level visit of India to Gabon**.
- Both India and Gabon are **currently serving as non-permanent members** of the **UNSC (United Nation Security Council)**.

➤ **Business and Trade:**

- The Bilateral trade between both nations reached USD 1.12 billion in 2021-22.
- India is the **2nd largest destination for Gabonese exports**.
- In the business sector, more than **50 Indian companies** are engaged in the **Gabon Special Economic Zone**.

➤ **Cooperation on International Forum:**

- Both India and Gabon are members of the **Non-Aligned Movement (NAM)**.
 - NAM focuses on **mainstream contemporary issues of relevance to the developing world**.
- Gabon **supports India's candidature at various international forums**.
 - India congratulated Gabon for getting elected as a non-permanent member of UN Security Council for the term 2022-23.
- India supported for the Common African Position enshrined in **the Ezulwini Consensus and Sirte Declaration**.
 - The **Ezulwini Consensus** is a position on international relations and reform of the United Nations, agreed by the African Union.
 - It calls for a more representative and democratic Security Council, in which Africa, like all other world regions, is represented.
 - The **Sirte Declaration (1999)** was the resolution adopted to establish the African Union.

➤ **International Solar Alliance:**

- Gabon was among the first countries to **sign and ratify the International Solar Alliance agreement**.
- India conveyed to **extend all possible assistance to Gabon to achieve its renewable energy targets**.
 - Gabon plans to have **100% clean energy by 2030**.

➤ **Education:**

Note:



- A number of Gabonese nationals pursue scholarship/training programs offered by India under the Indian Technical and Economic Cooperation (ITEC) and ICCR schemes.
- **Energy Cooperation:**
 - India imported about USD 670 million worth crude oil from Gabon in 2021-22, making it an **important partner for India's energy security** requirement.
- **Indian Diaspora:**
 - People from the Indian community are basically engaged in **infrastructure projects, trading, export of timber and metal scrap.**
 - The Indian diaspora have been making significant contributions in various fields in Gabon.
 - The Indian community in Gabon has kept Indian culture alive and major Indian festivals are celebrated by the entire community together.

Airspace Violations Near LAC

Why in News?

Recently, India and China held a special round of military talks on **Air space Violations** at the **Chushul-Moldo border meeting point in Eastern Ladakh.**

- The talks were held against the backdrop of the **"provocative behaviour"** by Chinese fighters flying close to the **Line of Actual Control (LAC)** often violating the 10-km no-fly zone Confidence Building Measure (CBM).

Why do Such Incidents Keep Happening?

- The LAC is **not fully demarcated** and there are **differences of perception on the alignment** due to which such incidents keep happening.
- To maintain peace and tranquillity along the LAC, the **two sides regularly hold talks at various levels on the ground.**
- Since the **stand-off began** in eastern Ladakh in May 2020, both sides have forward **deployed air assets along the LAC** and also augmented bases and air defences.

What is the Picture of India China Recent Conflicts?

- The **June 2020** clash in the Galwan Valley - fought with sticks and clubs, not guns - **was the first fatal confrontation between the two sides since 1975.**

- The most recent conflict was - in **January 2021** - left troops on both sides injured. It took place along the border in India's Sikkim state, which is **sandwiched between Bhutan and Nepal.**

- Lately, the Chinese have been **complaining about the IAF upgrading its capability to detect Chinese Air Force aircraft operating within the territory** controlled by them in the Tibet region.
- The two sides have been **able to resolve three friction points in eastern Ladakh** and are holding discussions to find solutions for the **Hot Springs** area also.

The two have conducted 16 rounds of Corps commander-level talks to de-escalate the situation and tensions which began after the Chinese tried to alter the status quo on the LAC in 2020.

What is Line of Actual Control?

- **About:** The Line of Actual Control (LAC) is **the demarcation that separates Indian-controlled territory from Chinese-controlled territory.**
 - LAC is different from the **Line of Control (LoC) with Pakistan:**
 - The LoC was designated so in 1972, following the **Shimla Agreement** between the two countries. **It is delineated on a map.**
 - The **LAC, in contrast, is only a concept – it is not agreed upon by the two countries,** neither delineated on a map or demarcated on the ground.
- **Length of the LAC:** India considers the LAC to be 3,488 km long, while the Chinese consider it to be only around 2,000 km.
- **Sectors Across the LAC:**
 - **It is divided into three sectors:** the eastern sector which spans Arunachal Pradesh and Sikkim (1346 km), the middle sector in Uttarakhand and Himachal Pradesh (545 km), and the western sector in Ladakh (1597 km).
 - The alignment of the LAC in the eastern sector is along the 1914 McMahon Line.
 - The McMahon line marked out previously unclaimed/undefined borders between Britain and Tibet.
 - The middle sector is the least disputed sector, while the western sector witnesses the highest transgressions between the two sides.

What are the Agreements Between India-China on Air Space?

- As per the existing agreements between India and China, **operation of fighter aircraft and armed helicopters is restricted to a distance from the LAC.**
- According to the '**Agreement on Maintenance of Peace and Tranquillity along the LAC in India-China Border Area**' of 1996, "combat aircraft (to include fighter, bomber, reconnaissance, military trainer, armed helicopter and other armed aircraft) **shall not fly within 10 km of the LAC.**"
- **Between 1993 and 2012**, a set of **Confidence Building Measures (CBMs)** were agreed upon by India and China **to maintain peace between the two countries.**

What is the Confidence Building Measures (CMB)?

- In a face-off situation **neither side shall use force or threaten to use force** against the other;
- Both sides **shall treat each other with courtesy** and refrain from any provocative actions;
- If the border personnel of the two sides come to a face-to-face situation due to differences on the alignment of the LAC, they shall exercise self-restraint and take all necessary steps to avoid an escalation of the situation.
- **No military aircraft of either side shall fly across the LAC**, except by prior permission.
- Neither side shall **open fire, cause biodegradation, use hazardous chemicals**, conduct blast operations or hunt with guns or explosives within two kilometres from the LAC

What was the Response after this Incident?

- The Indian side has strongly raised objections over the same.
- More recently, India and China have discussed the "**proposal for direct contact**" **between two air forces during** the special military talks.
- The direct contact mechanism could be through a **separate hotline or by using the existing hotline between the two armies.**
 - The **Indian and Chinese armies currently have six hotlines** - two each in eastern Ladakh, Arunachal Pradesh and Sikkim - between their ground commanders.

- The sixth one was set up between Kongra La in north Sikkim and Khamba Dzong in the **Tibetan Autonomous Region** in August 2021.

What do We know about Air Space and Related Laws?

- **About:**
 - Air space, in international law, is the **space above a particular national territory**, treated as belonging to the **government controlling** the territory.
 - It **does not include outer space**, which, under the **Outer Space Treaty of 1967** is declared to be free and not subject to national appropriation.
 - The treaty, however, **did not define the altitude at which outer space begins and air space ends.**
- **Air Sovereignty:**
 - It is the fundamental right of a sovereign state **to regulate the use of its air space and enforce its own aviation law.**
 - State controls the **entry of foreign aircraft into its territory** and that persons within its territory are subject to its laws.
 - The principle of air space sovereignty is **established through the Paris Convention on the Regulation of Aerial Navigation (1919)** and subsequently by other multilateral treaties.
 - Under the **1994 Chicago Convention**, contracting states **agree to permit aircraft registered in the other contracting states and engaged in commercial non-scheduled flights** to fly into their territory without prior **diplomatic permission** and, moreover, to pick up and discharge passengers, cargo, and mail.
 - This provisions, in practice, has become a dead letter.
- **Prohibited Air Space:**
 - It refers to an area of air space within which flight of aircraft is not allowed, usually due to security concerns. It is one of many types of special use airspace designations and is depicted on aeronautical charts with the letter "P" followed by a serial number.
- **Restricted Air Space:**
 - Different from prohibited air space, in this space, the entry is **typically forbidden for all aircrafts and is not subjected to clearance from ATC (Air Traffic Control)** or the air space's controlling body.

Note:



Chinese Vessel in Sri Lanka

Why in News?

Recently, China's satellite tracking vessel Yuan Wang 5 has arrived at Sri Lanka's southern Hambantota Port, despite India and the U.S. voicing concern with Colombo over the military ship's visit.



What do we know about Yuan Wang 5 & Hambantota Port?

- **Yuan Wang 5:**
 - It is a **third-generation vessel of the Yuan Wang series** that entered service in 2007.
 - This series of ships include “**space tracking ships involved in supporting the manned space programme**”.
 - It has the ability to **track satellites and inter-continental missiles**.
- **Hambantota Port:**
 - **Hambantota International Port Group** is a **Public Private Partnership** and a Strategic Development Project between the **Government of Sri Lanka** and **China Merchants Port Holdings (CMPort)**.
 - This port was **given to China by Sri Lanka on a 99-year lease** after Sri Lanka failed to repay Chinese loans.
 - It is seen as a case of Chinese “**debt trap**” Diplomacy.

Why is China's Presence in Sri Lanka a Concern for India?

- **Recently, China's presence in Sri Lanka has increased on a large scale.**
 - China is the **largest bilateral creditor to Sri Lanka**.

- Its loans to the Sri Lankan public sector amount to **15% of the central government's external debt**.
- Sri Lanka heavily **relies on Chinese credit** to address its **foreign debt burden**.
- China extended about **USD 2.8 billion to Sri Lanka** soon after the **pandemic** hit but has not stepped in much in 2022, even as the **island's economy collapsed** rapidly.
- China has invested about USD 12 billion in **Sri Lanka's infrastructure projects between 2006-19**.
- China enjoys **friendlier waters in South Asia** and the **Indian Ocean** than it does in Southeast Asia and the Pacific.
 - China faces opposition from Taiwan, territorial disputes in the South China Sea and East Asia, and myriad frictions with the US and Australia.

➤ India's Concern due to China's Presence:

- Sri Lanka has decided to establish a **Special Economic Zone** around the **Colombo port city** and a new economic commission, to be funded by China.
 - The Colombo port handles **60% of India's trans-shipment cargo**.
- Leasing of Hambantota and the Colombo Port City project makes it almost certain for the Chinese navy to **have a permanent presence in the Indian Ocean** which will be worrisome for India's national security.
 - This Chinese strategy to encircle India is referred to as the **Strings of Pearls Strategy**.
- Other South Asian nations like **Bangladesh, Nepal and the Maldives** have also been turning to China to **finance large-scale infrastructure projects**.

What should be India's Approach Moving Forward?

- **Preserving Strategic Interests:**
 - Nurturing the **Neighbourhood First policy** with Sri Lanka is important for India to preserve its strategic interests in the **Indian Ocean region**.
- **Taking Advantage of Regional Platforms:**
 - Platforms like the **BIMSTEC, SAARC, SAGAR** and the **IORA** could be leveraged to foster cooperation in fields like **technology-driven agriculture, marine sector development, IT & communication infrastructure etc.**
- **Restraining Chinese Expansion:**

Note:



- India will need to continue to work on the **Kankasanturai port in Jaffna** and the oil tank farm project in **Trincomalee** to ensure that **China does not make any further inroads in Sri Lanka**.
- Both countries can also **cooperate on enhancing private sector investments** to create economic resilience.
- **Leveraging India's Soft Power:**
 - In the technology sector, **India can create job opportunities in Sri Lanka** by expanding the presence of its IT companies.

These organizations **can create thousands of direct and indirect jobs** and boost the island nation's service economy.

CPEC Authority

Why in News?

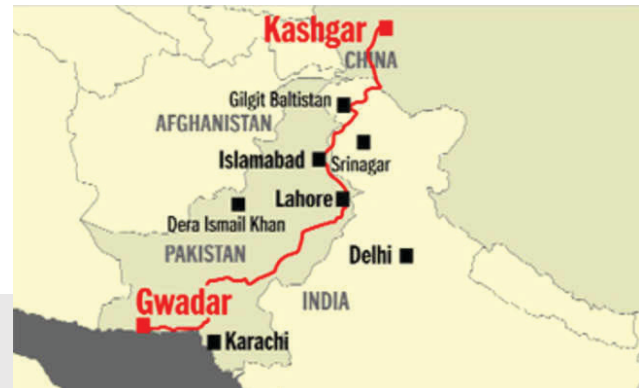
Recently, China gave nod to Pakistan's decision to scrap the **China-Pakistan Economic Corridor (CPEC Authority)** amid reports of **growing rift between the all-weather friends** over the slow pace of the USD 60 billion project.

What do we know about the CPEC Authority?

- **About:**
 - **The China-Pakistan Economic Corridor (CPEC) Authority** was established through an ordinance in 2019.
 - It was aimed at **accelerating the pace of CPEC-related activities**, finding **new drivers of growth**, unlocking the **potential of interlinked production networks** and **global value chains** through regional and global connectivity.
- **Reasons for Suspension:**
 - **Pakistan occupied Gilgit Baltistan** has been witnessing a spurt in the local protest against the Pakistan Army over land issues.
 - The local population is angry at the "**land grabbing**" spree of the army, all in the name of CPEC.
 - In April 2022, **three Chinese were killed in a suicide bombing in Karachi University by Baloch Liberation Army (BLA)**, which opposed China's investments in Balochistan.

- China is reportedly pressing Pakistan to **permit the Chinese agencies to provide security** for their personnel while **Islamabad is resisting** as it meant boots on the ground for Chinese armed forces.
- The **CPEC projects** were also **facing delays** because of the change in taxation policies by the last government in violation of commitments given to China.

What is the China Pakistan Economic Corridor?



➤ About:

- CPEC is a **3,000-km long route of infrastructure projects** connecting China's **northwest Xinjiang Uygur Autonomous Region** and the **Gwadar Port** in the western province of Balochistan in Pakistan.
- It is a **bilateral project between Pakistan and China**, intended to promote **connectivity across Pakistan** with a network of highways, railways, and pipelines accompanied by **energy, industrial, and other infrastructure development projects**.
- It will pave the way for China to **access the Middle East and Africa** from Gwadar Port, enabling China to **access the Indian Ocean** and in return China will support **development projects in Pakistan** to overcome the latter's **energy crises** and stabilising its faltering economy.
- CPEC is a part of the **Belt and Road Initiative**.
 - The BRI, launched in 2013, **aims to link Southeast Asia, Central Asia, the Gulf region, Africa and Europe** with a network of land and sea routes.
- **Concern for India:**
 - **India's Sovereignty:**
 - India has continuously opposed the project since it passes through the **Pakistan-occupied Kashmir territory of Gilgit-Baltistan** – a claim opposed by Pakistan.

Note:



- The corridor is also perceived to be an **alternative economic road link for the Kashmir Valley** lying on the Indian side of the border.
- **Chinese Control Over Trade Via Sea:**
 - Major US ports on the East Coast depend on the Panama Canal to trade with China.
 - Once CPEC becomes fully functional, China will be in a position to offer a '**shorter and more economical**' trade route (avoiding travel through the entire Western Hemisphere) to most **North and Latin American enterprises**.
 - This will give China the **power to dictate the terms** by which the international movement of goods will take place between the Atlantic and the Pacific oceans.
- **Chinese String of Pearls:**
 - China has been increasing its presence in the Indian Ocean with the '**String of Pearls**' ambition: A term coined by the Americans and often used by Indian defence analysts to refer to a **Chinese game-plan of encircling India through a network of airfields and ports**.
 - With an existing presence in **Chittagong port** (Bangladesh), **Hambantota port** (Sri Lanka), **Port Sudan** (Sudan), **Maldives, Somalia and Seychelles**, a control of **Gwadar port** establishes **complete dominance of the Indian ocean by the Communist nation**.
- **Stronger BRI and Chinese Dominance in Trade Leadership:**
 - **China's BRI project** that focuses on the **trade connectivity between China and the rest of Eurasia** through a network of ports, roads and railways has been often seen as **China's plan to dominate the region politically**.
 - CPEC is one giant step in the same direction.

What is One Belt One Road (OBOR)?

➤ About:

- **One Belt One Road** is a multi-billion-dollar initiative launched in 2013.
- It aims to link **Southeast Asia, Central Asia, the Gulf region, Africa and Europe with a network of land and sea routes**.
- It has been launched to **undertake big infrastructure projects** in the world which in turn would also enhance the global influence of China.

➤ Structure:

- It contain the following six economic corridors:
 - The New Eurasian Land Bridge
 - The China-Mongolia-Russia Corridor
 - The China-Central Asia-West Asia Corridor
 - The China-Indochina Peninsula Corridor
 - The China-Pakistan Corridor
 - The Bangladesh-China-India-Myanmar Corridor
- Additionally, **the maritime Silk Road connects coastal China to the Mediterranean via Singapore-Malaysia, the Indian Ocean, the Arabian Sea, and the Strait of Hormuz.**



One Year of Taliban 2.0

Why in News?

It has been a year since **American Troops withdrew** and **Taliban took over the regime** in Afghanistan in **August 2021**.

- Over the last two decades, **foreign powers including India** helped Afghanistan to rebuild roads, dams, government offices, hospitals, rural infrastructure, the economy, and education.

How did the Taliban Take Over the Regime in Afghanistan?

➤ About Taliban:

- **The Taliban**, or students in the Pashto language, emerged in the **early 1990s** in northern Pakistan following the **withdrawal of Soviet troops from Afghanistan**.

Note:





- It is an **Islamic fundamentalist political and military organisation** operating in Afghanistan. They have dominated Afghan polity for quite some time and feature regularly in international affairs.
- The Taliban have been fighting against the U.S.-backed government in Kabul for around 20 years. They seek to **reimpose their strict version of Islam in Afghanistan**.

➤ **Background:**

- **Terrorist Attack:**
 - On **11th September 2001**, terrorist attacks in America killed nearly 3,000 people.
 - A month after 9/11, the **US launched airstrikes against Afghanistan (Operation Enduring Freedom)**.
- **Transitional Government in Afghanistan:**
 - After the attacks, the **North Atlantic Treaty Organization (NATO)** coalition troops **declared war on Afghanistan**.
 - The US dislodged the Taliban regime and **established a transitional government in Afghanistan**.
 - The US had reached the conclusion long ago that the **war was unwinnable and approached for peace talks**.
- **Peace Talks:**
 - **Murree Talks:**
 - In 2015 the US had sent a representative to the first-ever meeting between the Taliban and the Afghan government that was hosted by Pakistan in Murree in 2015.
 - **Doha Talks:**
 - In 2020, before the Doha Talks started, the **Taliban had maintained that they would**

hold direct talks only with the US, and not with the Kabul government, which they did not recognise.

- In the agreement, the **US administration promised that it would withdraw all American troops from Afghanistan by 1st May, 2021**.
- The deadline has been pushed to **11th September 2021**.
- **US Exit:**
 - By July 2021, the US claimed that it had withdrawn 90% of the troops and Taliban claimed that it had controlled over 85% of the Afghan Territory.
- **Taliban Takeover:**
 - Taliban **took control of the regime in Afghanistan in August 2021**.
 - This was the first time since their ouster 20 years ago in the wake of the 9/11 strikes that Taliban fighters had entered the city — they first seized the Capital in 1996.

How is Current Situation in Afghanistan under Taliban's Rule?

➤ **Overview:**

- The Taliban took over a **readymade country**, but administering a nation of 32 million requires capacity and finances.
 - The Taliban are short on both.
- Many wealthy people, and those of the middle class with means and education, including civil servants, **have fled the country**, not wishing to be part of the Taliban regime.
- **The international community** has not yet recognised the regime formally, and **sanctions, including travel bans on many Taliban, remain in place**.
 - Their access to **international banking and finance** is limited.
- **Economy:**
 - In May 2022, the Taliban presented an **annual budget based entirely on domestic revenue**.
 - It projected an **expenditure of USD 2.6 billion**, and a **revenue of USD 2.1 billion**.
 - **No details were given about spending**, or how the gap with revenue would be bridged.
 - Most of Afghanistan's revenues are **now being raised through customs duties**.

Note:



- It is also **exporting coal to Pakistan**.
- **The United Nations** humanitarian response has helped Afghanistan keep its head above water.
 - Until the Taliban banned high school education for girls, **the UN was paying teachers' salaries**.
- **The International Committee of the Red Cross (ICRC)** is financing the Indira Gandhi Children's Hospital in Kabul.
- In the absence of international banking facilities, UN planes have flown in USD 1 billion in hard cash, including to fund money transfers to the needy through partner agencies.
- **Security:**
 - Taliban remains nervous about the **Daesh or ISKP (Islamic State Khorasan province)**, which has carried out attacks in Kabul with frightening regularity.
 - According to the UN, from mid-August 2021 to mid-June 2022, **2,106 people were killed or wounded — 700 were killed — in violence attributed to or claimed by ISKP**.
 - The **killing of al-Qaeda leader Ayman al-Zawahiri** in a Kabul neighbourhood by the US **has added to the Taliban's insecurity**.
- **Afghan Population & Taliban:**
 - Though there hasn't been much change in the Taliban's attitude towards civil society from the time they last ruled in Kabul, **but unlike 20 years ago, outright brutalities have not been reported yet**.
 - **A dress code has been prescribed** for both men and women, but it is not strictly implemented.
 - **The anti-people action** by the Taliban to **ban the education of girls beyond class 6 in school**, and to **make it difficult for women to work** met with **protest by women** demanding "Education, Employment and Bread".
 - It was **dispersed by guards who fired in the air**.
 - The UN has reported **160 extrajudicial killings, 178 arbitrary detentions, 23 instances of incommunicado detentions, and 56 instances of torture and ill-treatment** of former government and military officials.
 - Reports of **factionalism**, and the reported dissonance between the **Haqqanis and the Kandahar core** of the Taliban have fueled **speculation about the possibility of a breakdown and another cycle of civil war**.

How has India approached Afghanistan since the Taliban Regime?

- After the Taliban takeover, India is caught in the **middle of this dilemma divided between restoring Afghanistan** as a strategic priority in its policy and the **practical hurdles on the ground**.
- Currently, India is assessing **three broad ways of potential engagement with Afghanistan**:
 - Providing humanitarian assistance.
 - Exploring a joint **counterterrorism** effort with other partners.
 - Engaging in talks with the Taliban.
 - The end goal of all these is to **restore people-to-people links** and prevent **backsliding of the gains Delhi's developmental aid has made** in Afghanistan in the past two decades.
- India has undertaken **more than 400 key infrastructure projects** in all 34 Afghan provinces and has signed **strategic agreements to enhance trade and bilateral relations**.
 - From 2002 to 2021, **India spent \$4 bn in development assistance in Afghanistan**, building **high-visibility projects** such as highways, hospitals, the parliament building, rural schools, and electricity transmission lines.
 - These projects have created a **vast and deep pool of goodwill for India** of the kind that no other country can claim.
 - One of the projects that was **left incomplete was the Shahtoot Dam**, to provide drinking water to 2 million residents of Kabul.

What is the Significance of Afghanistan for India?

- **Economic and Strategic Interest:**
 - Afghanistan is a gateway to the **oil and mineral-rich Central Asian republics**.
 - Afghanistan's main advantage is its **geography**, as anyone who is in power in Afghanistan **controls the land routes connecting India with Central Asia** (via Afghanistan).
 - Located at the **heart of the historic Silk Road**, Afghanistan was long the **crossroads of commerce between Asian countries** connecting them to Europe, and enhancing **religious, cultural, and commercial contacts**.

Note:



- **Developmental Projects:**
 - The massive **reconstruction plans for the country** to offer a lot of opportunities for Indian companies.
 - Three major projects:
 - The **Afghan Parliament**, the **Zaranj-Delaram Highway**, and the **Afghanistan-India Friendship Dam (Salma Dam)**, along with India's assistance of **more than USD 3 billion in projects**, hundreds of small development projects (of schools, hospitals and water projects) **have cemented India's position in Afghanistan.**
- **Security Interest:**
 - India has been the **victim of state-sponsored terrorism** emanating from Pakistan supported terrorist group operating in the region (e.g., Haqqani network). **Thus, India has two priorities in Afghanistan:**
 - To prevent Pakistan from setting up a friendly government in Afghanistan, and
 - To avoid the return of jihadi groups, like al Qaeda, which could strike in India.

Gold Jewellery Exports to UAE up 42%

Why in News?

India's gold jewellery exports to the **United Arab Emirates (UAE)** rose by a sharp **42%** in two months of a **Free Trade Pact** coming into effect in May 2022.

- Overall exports to the UAE in May-June, 2022 touched USD 5.4 billion, a 17% growth from a year ago.

What benefited the Growth of Jewellery Export?

- Indian exporters were facing **tough competition in gold jewellery from countries like Turkey**, and Indian exports were showing a decline before the FTA.
- The free trade pact came into effect in May 2022 with its **offer of duty-free access on jewellery to the Gulf nation**. This removal of **duties has benefited exports**.
- India got zero duty access to the UAE market for jewellery exports, **which attracted 5% duty earlier**, potentially **facilitating entry of Indian products in the North Africa, West Asia and Central Asia** markets.
- India in turn **allowed 1% duty concession on gold imports from the UAE for up to 200 tonnes of**

shipments under the **Comprehensive Economic Partnership Agreement (CEPA).**

What will be the Benefits of India-UAE CEPA?

- **Trade-in Goods:**
 - India will benefit from preferential market access provided by the UAE, especially for all labour-intensive sectors.
 - Such as **Gems and Jewellery**, Textiles, leather, footwear, sports goods, plastics, furniture, agricultural and wood products, engineering products, medical devices, and Automobiles.
- **Trade-in Services:**
 - Both India and UAE have offered each other market access to the broad service sectors.
 - Such as 'business services', 'communication services', 'construction and related engineering services', 'distribution services', 'educational services', 'environmental services', 'financial services', 'health-related and social services', 'tourism and travel-related services', 'recreational cultural and sporting services' and 'transport services'.
- **Trade-in Pharmaceuticals:**
 - Both sides have also agreed to a separate Annex on Pharmaceuticals to facilitate access to Indian pharmaceuticals products, especially automatic registration and marketing authorisation in 90 days for products meeting specified criteria.

What is CEPA?

- It is a **kind of free trade pact that covers negotiation on the trade** in services and investment, and other areas of economic partnership.
- It may **even consider negotiation in areas such as trade facilitation** and customs cooperation, competition, and IPR.
- Partnership agreements or cooperation agreements are more comprehensive than Free Trade Agreements.
- CEPA also looks into the regulatory aspect of trade and encompasses an agreement covering the regulatory issues.
- India has signed **CEPAs with South Korea and Japan.**

What are other Types of Trade Agreements?

- **Free Trade Agreement (FTA):**
 - It is an agreement in which two or more countries agree to provide preferential trade terms, tariff concession etc. to the partner country.

Note:



- India has negotiated FTA with many countries e.g. Sri Lanka and various trading blocs as well e.g. **Association of Southeast Asian Nations (ASEAN)**.
 - **Regional Comprehensive Economic Partnership (RCEP)** is a Free Trade Agreement (FTA) between the ten member states of the ASEAN and the five countries (Australia, China, Japan, South Korea, and New Zealand) with which ASEAN has existing FTAs.

➤ **Preferential Trade Agreement (PTA):**

- In this type of agreement, two or more partners give preferential right of entry to certain products. This is done by reducing duties on an agreed number of tariff lines.
- Tariffs may even be reduced to zero for some products even in a PTA. India **signed a PTA with Afghanistan**.

➤ **Comprehensive Economic Cooperation Agreement (CECA):**

- CECA generally covers negotiation on trade tariff and TRQ (Tariff Rate Quotas) rates only. It is not as comprehensive as CEPA. **India has signed CECA with Malaysia**.

➤ **Bilateral Investment Treaty (BIT):**

- It is a bilateral agreement in which two countries sit together and decide the conditions for private investments by citizens and firms of the two countries.

➤ **Trade and Investment Framework Agreement (TIFA):**

- It is a trade pact between two or more countries which establishes a framework for expanding trade and resolving outstanding disputes between countries.

What are the Trade Agreements India had signed with other countries?

SN	Name of the Agreement
1	India-Sri Lanka Free Trade Agreement (FTA)
2	Agreement on South Asian Free Trade Area (SAFTA) (India, Pakistan, Nepal, Sri Lanka, Bangladesh, Bhutan, the Maldives and Afghanistan)
3	India-Nepal Treaty of Trade
4	India-Bhutan Agreement on Trade, Commerce and Transit
5	India-Thailand FTA - Early Harvest Scheme (EHS)

6	India-Singapore Comprehensive Economic Cooperation Agreement (CECA)
7	India-ASEAN CECA - Trade in Goods, Services and Investment Agreement (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam)
8	India-South Korea Comprehensive Economic Partnership Agreement (CEPA)
9	India-Japan CEPA
10	India-Malaysia CECA
11	India-Mauritius Comprehensive Economic Co-operation and Partnership Agreement (CECPA)
12	India-UAE CEPA
13	India-Australia Economic Cooperation and Trade Agreement (ECTA)

In addition, India has signed the following 6 limited coverage Preferential Trade Agreements (PTAs):

S.No.	Name of the Agreement
1	Asia Pacific Trade Agreement (APTA)
2	Global System of Trade Preferences (GSTP)
3	SAARC Preferential Trading Agreement (SAPTA)
4	India-Afghanistan PTA
5	India-MERCOSUR PTA
6	India-Chile PTA

Chief of Royal Malaysian Navy Visits India

Why in News?

Recently, the Chief of Royal Malaysian Navy visited India at the invitation of Chief of the Naval Staff, **Indian Navy**.

- Both Navies have recently concluded the **Bilateral Exercise Samudra Laksamana** in May 2022 and the **Navy-to-Navy Staff Talks** in June 2022.

How has India Malaysia Relations been?

- India established **diplomatic relations with Malaysia in 1957**.
- **Economic Relation:**
 - India and Malaysia have signed the **Comprehensive Economic Cooperation Agreement (CECA)**.

Note:





- CECA is a kind of **Free Trade Agreement (FTA)**.
- India has also signed the Free Trade Agreement (FTA) in services and investments with the 10-member **Association of Southeast Asian Nations (ASEAN)**.
 - Malaysia is the third largest trading partner in **ASEAN**.
- Bilateral trade between India and Malaysia is significantly biased in favour of Malaysia.
- **Defence & Security Cooperation:**
 - Joint military exercises “**Harimau Shakti**” are held annually between the two countries.
- **Traditional medicine:**
 - India and Malaysia signed a MoU on cooperation in the field of **Traditional Medicine** in October 2010.
 - The Government of Malaysia has been working to popularize **AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy)** systems in Malaysia.
 - AYUSH systems are practiced in Malaysia.
- **Recent Developments:**
 - In 2020, **India resumed purchases of Malaysian palm oil** after a gap of four-month following a **diplomatic row between the two countries**.
 - The former Prime Minister of Malaysia had criticised India’s **Citizenship Amendment Act (CAA)** which was considered as an interference in the internal matters of India.

What is the Significance of Malaysia for India?

- As a country where **7.2% of the population is of Indian origin**, Malaysia assumes an important place in **India’s foreign policy**.
- Surrounded by busy sea lines of communications such as the **Strait of Malacca** and the **South China**

Sea, Malaysia is also a **key pillar of India’s Act East policy** and critical to **India’s maritime connectivity strategies**.

India-Bangladesh River Water Sharing MoU

Why in News?

Recently, India and Bangladesh have finalised the text of the **Memorandum of Understanding (MoU) on interim water sharing of the Kushiyara river**.

What are the Key Highlights of the MoU?

- It was finalised during the **38th meeting of the ministerial-level Joint Rivers Commission (JRC)** of India and Bangladesh,
- It **welcomed the finalisation of the design and location of the water intake point on Feni River to meet the drinking water needs of Sabroom town in Tripura** as per the October 2019 India-Bangladesh MoU.
 - Further, the discussion was held on a number of ongoing bilateral issues of mutual interest, including **water-sharing of common rivers, sharing of flood data, addressing river pollution, conducting joint studies on sedimentation management, river bank protection works, etc.**

What is Joint Rivers Commission (JRC)?

- **About:**
 - The **Joint Rivers Commission** of India and Bangladesh was **constituted in the year 1972 as a bilateral mechanism to address issues of mutual interest on common / border / transboundary rivers**.
 - The JRC is headed by **Water Resources Ministers of both countries**.
- **Significance:**
 - It is **commencing after a long gap of twelve years**, although technical interactions under the framework of JRC have continued in the interim.
 - As **India and Bangladesh share 54 rivers**, of which seven have been identified earlier for developing the framework of water-sharing agreements on priority.
 - During the latest meeting, they **agreed to include eight more rivers for data exchange**.

Note:

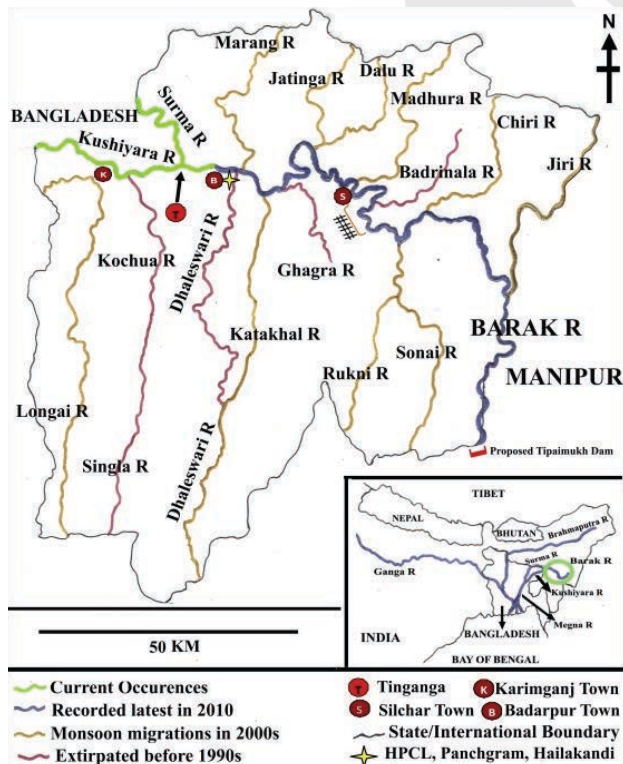


➤ Outcomes:

- It discussed the whole gamut of issues related to **common rivers between the two countries, especially the Ganges, Teesta, Manu, Muhuri, Khowai, Gumti, Dharla, Dudhkumar, and Kushiya.**
 - Apart from this, the exchange of **flood-related data and information, riverbank protection works, joint basin management,** and the Indian river interlinking project was discussed in detail.
- It agreed to undertake some more common rivers for the exchange of data and information towards preparing the draft framework of the interim water sharing agreement.

What are the Key Points of Kushiya River?

- The Kushiya River is a **distributary river in Bangladesh and Assam.**
 - It forms on the **India-Bangladesh border as a branch of the Barak River when the Barak separates into the Kushiya and Surma.**
- The waters of the Kushiya pick up **tributaries from Manipur, Mizoram, and Assam.**
- The Kushiya rejoins with the Surma at Markuli in Ajmiriganj upazila (Bangladesh) and flows south upto Bhairab Bazar (Bangladesh) receiving the name Kalni.



- The Kalni meets with the Dhanu (Bangladesh), a branch of the Surma and renamed as the Meghna.

What are the Key Facts About Feni River?

- The Feni River, also known as Feni Nodi in Bengali, forms part of the India-Bangladesh border.
- It originates in the South Tripura district, passes through Sabroom town on the Indian side, and meets the Bay of Bengal after it flows into Bangladesh
- It has great agricultural importance for the people living in the towns near to this river.
- This river is also the **source of their livelihood** through which they obtain a number of benefits like watering their crops with its water and also using the water for their regular use.
- **Maitri Setu, a 1.9km Long Bridge Over Feni River** is constructed in Tripura to link India-Bangladesh.

Russia-China Cooperation in the Arctic

Why in News?

Recently, **North Atlantic Treaty Organization (NATO)** Warned Russia's Military built up and Chinese interest in Arctic Region.

- As per various reports, China has deepening **strategic partnership with Russia in the Arctic Region.**



Note:



What are the Concerns Regarding the Cooperation?

- **Russian Military Build-up:**
 - Russia has set up a **new Arctic Command and has opened hundreds of new and former Soviet-era Arctic military sites**, including airfields and deep-water ports.
 - Significant **Russian military build-up with new bases**, new weapons systems and also using the High North as a test bed for their most advanced weapons, including hypersonic missiles.
- **China's Claim:**
 - China has declared itself a near-Arctic state. Further, China plans to build the **world's largest icebreaker and is spending tens of billions of dollars on energy, infrastructure and research projects in the north.**
- **Climate Change:**
 - As **climate change** thaws more ice, it is predicted to **open up more waterways enabling deeper penetration in the area.**
 - Further, these channels can be **exploited by nations as they explore new shipping routes that could be a gamechanger in trade**, cutting down longer and costlier journeys around the globe.
- **Conflict with US's Interest:**
 - While China is not an Arctic nation, its **deepening strategic partnership with Russia and increased cooperation in the Arctic** has worried the US which thinks this pairing is against American values and interests.

Is there any cooperation among Nations in the Arctic?

- There are eight Arctic nations - **The US, Canada, Denmark, Finland, Iceland, Norway, Sweden, and Russia.**
 - These are part of the **Arctic Council, an inter-governmental forum that was formed to promote cooperation in the region.**
- On three occasions, the Arctic States have negotiated legally binding agreements. these are -

- Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic (signed 2011),
- Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic (signed 2013),
- Agreement on Enhancing International Arctic Scientific Cooperation (signed 2017).

What is the Relevance of Arctic Region for India?

➤ **About:**

- **India's interests in the Arctic region are scientific, environmental, commercial as well as strategic.**
- **India became the observer of Arctic Council in 2013 and its membership as an observer was renewed in 2018 for another five years.**
- **The National Centre for Polar and Ocean Research (NCPOR)**, Ministry of Earth Sciences, Government of India, is the nodal agency for India's Polar research programme, which includes Arctic studies.
- India's Ministry of External Affairs provides the external interface to the Arctic Council.

➤ **Research Station:**

- India's engagement with the Arctic dates back to 1920 with the signing of the **Svalbard Treaty in Paris.**
- Since July 2008, India has a **permanent research station in the Arctic called Himadri at NyAlesund, Svalbard Area in Norway.**
- It has also deployed a multi-sensor moored observatory called **IndARC** in the Kongsfjorden fjord since 2014.

➤ **Impacts on India:**

- The Arctic influences atmospheric, oceanographic and biogeochemical cycles of the earth's ecosystem.
 - Moreover, the Arctic is **vulnerable to climate change and global warming.**
 - The effects are manifested by the loss of sea ice, ice caps, and warming of the ocean and atmosphere.
- It will lead to **lowering of salinity levels, rising temperature differential between land and oceans in the tropical regions**, drying of subtropical areas and increase in precipitation at higher latitudes.



Note:



Science and Technology

Highlights

- *Cyber Threat to Mobile Banking*
- *National Forensic Science University*
- *New Gene to Prevent Fungal Infection*
- *Wind Projects in India*
- *Forever Chemicals*
- *National Mission on Interdisciplinary Cyber-Physical Systems*
- *MoU for Cooperation on Satellite- Based Naval Applications*
- *India's First Indigenously Developed HFC Bus*
- *Facial Recognition Technology*
- *India's First Commercial SSA Observatory*
- *Dust Formation in Novae Ejecta*
- *Geothermal Power in Ladakh*
- *Launch of Artemis I Mission*
- *Tomato Flu*
- *Paddy Dwarfing*

Cyber Threat to Mobile Banking

Why in News?

According to a recent study, more people are inclining toward **digital payments** and there is a rise in the number of people's interactions with their bank or bank accounts happen through their smartphones.

- Further, this acceleration brings along with it a vulnerability: an increased threat of **cyberattacks** on mobile devices.

What are Cyber Threats?

➤ About:

- A cyber or **cybersecurity threat** is a **malicious act that seeks to damage data, steal data, or disrupt digital life in general**. It includes **computer viruses, data breaches, Denial of Service (DoS) attacks, and other attack vectors**.

➤ Different Types:

- **Malware:** **Malware** short for malicious software refers to any kind of software that is designed to cause damage to a single computer, server, or computer network. **Ransomware, Spy ware, Worms, viruses, and Trojans are all varieties of malware.**
- **Phishing:** It is a method of trying to gather personal information using deceptive e-mails and websites.

- **Denial of Service attacks:** A Denial-of-Service (DoS) attack is an attack meant to shut down a machine or network, making it inaccessible to its intended users. DoS attacks accomplish this by flooding the target with traffic, or sending it information that triggers a crash.
- **Man-in-the-middle (MitM) attacks,** also known as eavesdropping attacks, occur when attackers insert themselves into a two-party transaction. Once the attackers interrupt the traffic, they can filter and steal data.
- **Social engineering** is an attack that relies on human interaction to trick users into breaking security procedures in order to gain sensitive information that is typically protected.

What are the Issues of Cyber Threats on Mobile Banking?

➤ Increasing Cyber Attacks:

- A study by cyber security firm Kaspersky warns of an **increase in cyberattacks on Android and iOS devices in the Asia Pacific (APAC)** as more people switch to mobile banking in the region.
- **Use of Trojans & Malware:**
 - As per Kaspersky, mobile banking **Trojans are dangerous malware that can steal money from mobile users' bank accounts by disguising the malicious application as a legitimate app** to lure unsuspecting people into installing the malware.

Note:



- For e.g, mobile banking trojan, called **Anubis**, has been targeting **Android users since 2017**.
 - Further, its **worldwide campaigns have hit users in Russia, Turkey, India, China, Colombia, France, Germany, the U.S., Denmark, and Vietnam**.
- **Methodology:**
 - The perpetrators **infect the device through legitimate-looking and high-ranking malicious apps on Google Play, smishing (phishing messages sent through SMS), and BianLian malware**, another mobile banking Trojan,
 - Roaming Mantis is another prolific malware targeting mobile banking users.
 - The group attacks Android devices and spreads malicious code by hijacking domain name systems (DNS) through smishing exploits.
- **Interoperability issue:**
 - As various payment platforms like **Google Pay, PaytM, PhonePe, Square, PayPal, and Alipay have benefited from changes in consumer behaviour by adopting mobile banking**.
 - As a result, they have also permanently changed the payments game to their advantage.
 - **Closed Loop Payment System:**
 - These platforms are operating in a **closed-loop payment world where a Google Pay user can send money to another bank account via only the search giant's payment platform**.
 - It is similar to how Visa and Mastercard operate as they let payment transactions happen only within their own networks, not between each other.
 - **Change in Business Model:**
 - It's driven partly by **regulators that prefer open, standardized platforms that lower barriers to entry**.
 - Some countries are already making payment platform providers change their business models.
 - China, for instance, has ordered its **internet companies to offer their rival firms link and payment services on their platforms**.
 - In India, a **new law demands all licensed mobile payment platforms be capable of providing interoperability between wallets**.

- The push from regulators to make payment platforms interoperable comes at a time when the demand for technical experts is a serious concern in the banking industry.

➤ **Shortage of Security Experts:**

- The **shortage of technology, engineering, data and security experts needed by banks to realise their digital aspirations tends to hide a much wider problem:** banks' appeal as first-choice employers of all kinds of talent have faded.

➤ **Lack of Adequate Cybersecurity Policy:**

- The lack of adequate cybersecurity and the dearth of talent in banking could potentially lead to a further rise in cyberattacks on user devices.
 - And until this mismatch is fixed, it helps to be careful and extremely cautious when using a mobile device to make payments.

National Forensic Science University

Why in the News?

Recently, the Union Home and Cooperation Minister addressed the First convocation of **National Forensic Science University (NFSU)**.

What do we need to know about National Forensic Science University (NFSU)?

➤ **About:**

- It was established by the Government of India in 2020 with the objective of **fulfilling the acute shortage against the increasing demand for forensic experts in the country and around the world**.
- The National Forensic Sciences University, with the status of an **Institution of National Importance**, is the **world's first and only University** dedicated to **Forensic, behavioral, cybersecurity, digital forensics, and allied Sciences**.
- Apart from Gujarat, its campuses have been opened in Bhopal, Goa, Tripura, Manipur and Guwahati

➤ **Vision:**

- To fulfill the **acute shortage of Forensic Experts** in the Country and the World.
- To make the **World a Better and Safer place** to live.

Note:



- To carry out **Research in the area of Forensic Science, Crime Investigation, Security, Behavioral Science and Criminology.**
- **Mission:**
 - Education through **Investigation.**
 - To impart **High-Quality Education** of International Standards.
- **New Centres of Excellence:**
 - A new campus and three Centres of Excellence have been added in the University:
 - The Centre of Excellence in **DNA.**
 - The Centre of Excellence in **Cyber Security.**
 - The Centre of Excellence in **Investigative and Forensic Psychology.**

What is Forensic Science?

- **About:**
 - Forensic science is the **use of scientific methods or expertise** to investigate **crimes or examine evidence** that might be presented in a court of law.
 - Forensic science comprises a **diverse array of disciplines**, from **fingerprint** and **DNA analysis** to **anthropology and wildlife forensics.**
 - Forensic science is a critical element of the **criminal justice system.**
 - Forensic scientists **examine and analyze evidence** from crime scenes and elsewhere to develop **objective findings that can assist in the investigation** and prosecution of perpetrators of crime or absolve an innocent person from suspicion.
- **Forensic Science in India:**
 - The first **Central Fingerprint Bureau of India** was established in Kolkata in India in the year 1897 which became functional in 1904.
 - An advanced **Centre for DNA Fingerprinting and Diagnostics (CDFD)** has been established in Hyderabad under the **Department of Biotechnology.**
 - The DNA Profiling in criminal cases such as **homicide, suicide, sexual assaults, terrorists' activities, wildlife forensics,** and other crime cases is now continuing in various Police departments, Forensic institutions, Wildlife departments for Human and Animal identification from the biological fluids and the tissue materials.

- India has **over 80 universities and colleges** including **National Forensic Science University** at Gandhinagar, Gujarat, and **Rashtriya Raksha University** at Lavad, Gandhinagar where the **School of Forensic Science & Risk Management** is also imparting teaching, research, and training to the students, Police and Paramilitary forces for security purposes.
- **Problems with Forensic Science in India:**
 - **Erroneous Convictions:**
 - The most alarming issues in Forensic Science are the **erroneous convictions based on faulty forensic evidence.**
 - Nearly 318 convicts were released from jail based upon DNA tests who were earlier wrongly convicted on the basis of faulty forensic evidence.
 - Lack of scientific certainty
 - Lack of research
 - Lack of well-defined code of ethics
 - Lack of certification of the experts
 - Non-available databases and non-availability of error rate statistics for all the techniques
- **Acts:**
 - **The Himachal Pradesh Police Act, 2007:**
 - The act authorizes the **Director Forensic Science** to suggest the **State Police board** and the **state government** for the **Forensic facilities to be created** in the state for scientific investigation.
 - It also states that the **state will provide necessary financial assistance for the same within 6 months**, in the event of inability the reasons have to be recorded in writing.
 - The act also made it mandatory for the investigatory agencies to **collect forensic evidence in crime cases** and to send the same for forensic examination.
 - The Director General of Police in consultation with Director Forensic Science **will create facilities for scientific interrogation, investigation, and the necessary equipment.**
 - **The National Forensic Science University and Rashtriya Raksha University Acts - 2020:**
 - In September 2020, Government of India, passed two Acts:
 - **The National Forensic Science University (NFSU) Act 2020**

Note:



- NFSU was created at Gandhinagar in Gujarat State.
- **Rashtriya Raksha University (RRU) Act 2020**
 - RRU has been created and established at Lavad, Dahegam, Gandhinagar, Gujarat State.
 - The mandate of Rashtriya Raksha University is to **promote and provide global standards of learning and research** in policing, law enforcement, security, cyber security, artificial intelligence, and risk management.

New Gene to Prevent Fungal Infection

Why in News?

According to a recent study, researchers have **identified gene called CSA6** which could **hold the key to prevent fungal infection Candidiasis** that often affects intensive-care unit (ICU) patients, cancer patients and patients receiving immunosuppressive therapy.

What is Candida Albicans?

- **Candida Albicans is a fungal species infamous** for causing high rates of morbidity and mortality **under certain immuno-compromised conditions** such as **Acquired Immune Deficiency Syndrome(AIDS)** or during cancer treatment.
- It resides in the mucosal linings of the gastrointestinal and urogenital tract of healthy individuals.
- Further, it **turns into a pathogen under immuno-compromised conditions** breaching the host defense causing superficial as well as life-threatening systemic infection.

What are the Key Highlights of the Study?

- **About:**
 - It's a **collaborative study between Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bangalore, India and Institut Pasteur, Paris, France.**
 - They carried out a **large-scale screen to identify regulators of chromosome stability** in *Candida albicans*, a clinically relevant fungal model system.
- **Findings:**

- Researchers **screened the effect of overexpression of more than a thousand genes of *C. albicans* on genome stability.**
- They were successful in identifying a **set of six chromosome stability (CSA) genes that are important for maintaining genome integrity.**
 - While five of the CSA genes identified in the study are known to be important for cell division in other species, **the sixth CSA gene, named CSA6 encoded for a protein that is essential for viability in *C. albicans*.**
 - They found that Csa6 was a **critical regulator of cell cycle progression** wherein both overexpression and deletion of CSA6 **lead to reduced growth of *C. albicans* cells.**

➤ **Outcomes:**

- It **identifies and elucidates the functions of a novel regulator of chromosome stability** that is exclusively present in a group of medically relevant human fungal pathogens.
- Besides, it also **provides a systematic scheme for identifying genes whose products may serve as potential therapeutic interventions for fungal infections** by posing lesser adverse effects on humans.
 - Hence, small molecule modulators that alter expression levels of the gene called **CSA6 offer potential avenues for treatment with no side effects in humans.**

Wind Projects in India

Why in News?

The **Global Wind Energy Council (GWEC)** and **MEC Intelligence (MEC+)**, a consulting firm that specialises in renewable energy has reported that **annual installation of new wind power projects** in India will peak by 2024 and likely decline thereafter.

- After 2024, fresh projects are likely to be **wind-solar hybrids.**

What do we need to know about Wind Projects in India?

- **About:**
 - **Wind energy** today typically comes in two different types:

Note:



- **Onshore wind farms** which are large installations of wind turbines located on land.
- **Offshore wind farms** which are installations located in bodies of water.

➤ Status:

- India currently has **13.4 GW of prospective projects in wind energy**, which are expected to **drive installations until 2024 in the market**.
- India is **expected to add 3.2 GW in 2022, 4.1 GW in 2023 peaking to 4.6 GW in 2024, thereafter declining to 4 GW and 3.5 GW in the next two years**.
- Wind industry installations have been **slowing down in India since 2017**.
 - Only 1.45 GW of wind projects were installed in 2021 with many delayed due to the **second wave of Covid-19** and **supply chain-related disruptions**.

➤ Challenges:

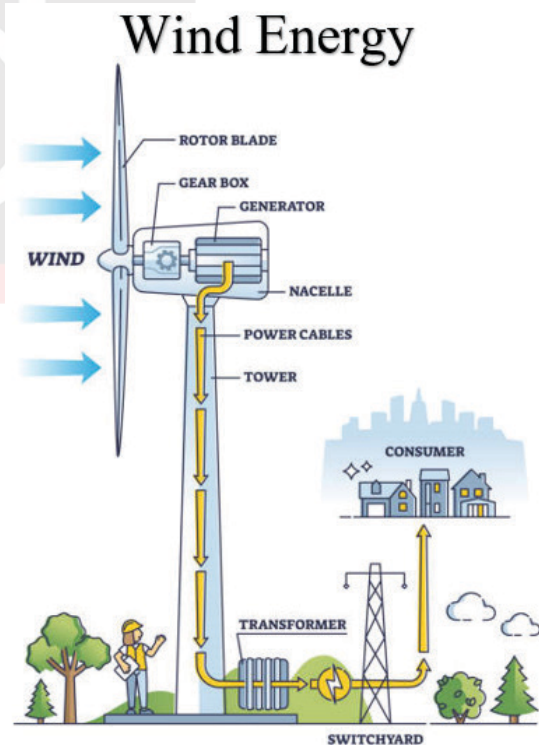
- The market has **concentrated wind projects around a few substations of Gujarat and Tamil Nadu**, which were home to the strongest resource potential and lowest cost of land.
 - This created **bottlenecks and slowed down project activity** and made it **costlier than solar power**.
- India's track record has indicated that the **wind installation market is a lumpy market**.
 - Considerable momentum has been built in the pipeline since 2017-2018, **but inordinate delays in project execution** have challenged the assumptions of developers.
- Due to the COVID-19 pandemic and supply chain constraints, **the overall dues of electricity distribution companies (DISCOM) have ballooned**.
 - The outstanding payments to RE generators increased by 73% to ₹19,400 crores in December 2021, as compared to ₹11,200 crores in December 2020.

➤ Energy Potential of India:

- India has potential of about 60 GW of wind.
 - It is quite likely that **it would go up substantially** because over time some of the **old wind power stations** that have very low capacity **could be replaced with wind turbines** which have higher capacity.

- There is another unexplored area, which is in the oceans.
 - Across the world, **exploration from this area is at a nascent stage**.
 - India has a bit of a problem because **on eastern side it has a lot of cyclones** which hit the coast.
 - Probably, it can explore wind energy on the western side.
 - India is a country having around **7,516.6 km long coastline** and in all of its **exclusive economic zones**, it has enough opportunity to harness wind energy.
 - It is found by the **National Institute for Wind Energy (based in Chennai)** that **western states** have larger potential in terms of a stable, steady and a speedy windflow starting from **Gujarat, Maharashtra, Karnataka to Tamil Nadu and Andhra Pradesh**.
 - Tamil Nadu is the largest producer of wind energy producing 9,075MW in 2019.

What do we know about Wind Energy?



➤ About:

- **Wind is used** to produce electricity using the **kinetic energy created by air** in motion. This is transformed into electrical energy using **wind turbines or wind energy conversion systems**.

Note:



- Wind first **hits a turbine's blades**, causing them to **rotate** and turn the **turbine** connected to them.
 - That changes the **kinetic energy to rotational energy**, by moving a shaft which is **connected to a generator**, and thereby **producing electrical energy through electromagnetism**.
 - The electricity is **sent through transmission and distribution lines** to homes, businesses, schools, and so on.
- The amount of power that **can be harvested from wind depends on the size of the turbine and the length of its blades**.
 - The output is proportional to the dimensions of the rotor and to the cube of the wind speed.
 - Theoretically, **when wind speed doubles, wind power potential increases by a factor of eight**.
- **History:**
- Wind turbines **first emerged more than a century ago**.
 - Following the **invention of the electric generator in the 1830s**, engineers started attempting to harness wind energy to produce electricity.
 - **Wind power generation** took place in the United Kingdom and the United States in 1887 and 1888, but modern wind power is considered to have been **first developed in Denmark**.

What are the Related Initiatives?

- **National Wind-Solar Hybrid Policy:**
- The main objective of the **National Wind-Solar Hybrid Policy**, 2018 is to provide a **framework for promotion of large grid connected wind-solar PV hybrid systems** for optimal and efficient utilization of wind and solar resources, transmission infrastructure and land.
- **National Offshore Wind Energy Policy:**
- **The National Offshore wind energy policy** was notified in October 2015 with an objective to develop the offshore wind energy in the Indian **Exclusive Economic Zone (EEZ)** along the Indian coastline of 7,516.6 km.

Forever Chemicals

Why in News?

According to a recent study, scientists have found

that rainwater from many places across the globe is contaminated with **Per- and Polyfluoroalkyl Substances (PFAs)**.

- Further, they are called **Forever chemicals** because of their **tendency to stick around in the atmosphere, rainwater, and soil for long periods of time**.
- PFAs are also listed in the **Stockholm Convention**.

What is Stockholm Convention?

- **About:**
- It is a global treaty to protect human health and the environment from **persistent organic pollutants (POPs)**. POPs are chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of living organisms and are toxic to humans and wildlife.
- **Objectives:**
- Support the transition to safer alternatives.
 - Target additional POPs for action.
 - Clean up old stockpiles and equipment containing POPs.
 - Work together for a POPs-free future.
- India **ratified the Stockholm Convention in 2006** as per Article 25(4), which enabled it to keep itself in a default "opt-out" position such that amendments in various Annexes of the convention cannot be enforced on it unless an instrument of ratification/ acceptance/ approval or accession is explicitly deposited with UN depositary.

What are Per- and Polyfluoroalkyl Substances (PFAs)?

- **About:**
- They are **man-made chemicals used to make nonstick cookware, water-repellent clothing, stain-resistant fabrics, cosmetics, firefighting forms**, and many other products that resist grease, water, and oil.
 - They can **migrate to the soil, water, and air** during their production and use.
 - Most PFAs do not break down, they remain in the environment for long periods of time.
 - Further, some of these PFAs can **build up in people and animals if they are repeatedly exposed to the chemicals**.

Note:



➤ Harmful Effects:

- They cause a variety of **health risks** that are attributed to PFA exposure, including **decreased fertility, developmental effects in children, interference with body hormones, increased cholesterol levels, and increased risk of some cancers.**
 - Recent research has also revealed that **long-term low-level exposure** to certain PFAs can make it **difficult for humans to build antibodies after being vaccinated against various diseases.**

What can be done to Remove these Chemicals?

➤ Incineration:

- The most common method of destroying PFAS is **incineration**, but most PFAS are remarkably resistant to being burned. That's why they're used in firefighting foams.
- PFAS has multiple fluorine atoms attached to a carbon atom, and the bond between carbon and fluorine is one of the strongest.
- Normally to burn something, you have to break the bond, but **fluorine resists breaking off from carbon.**
- Most **PFAS will break down completely at incineration temperatures around 1,500 degrees Celsius (2,730 degrees Fahrenheit)**, but it's energy intensive and suitable incinerators are scarce.

➤ Supercritical Water Oxidation:

- Scientists have developed **supercritical water oxidation** to destroy PFAS.
 - High temperatures and pressures change the state of water, accelerating chemistry in a way that can destroy hazardous substances.

➤ Plasma Reactors:

- Researchers are working with **plasma reactors**, which use water, electricity, and argon gas to break down PFAS.

➤ Filtration System:

- Filtration system can be used with activated carbon in the rain water harvesting system.
 - The activated carbon will need to be removed and replaced regularly. Also, the old contaminated material must be destroyed.
- There are several other experimental techniques that are promising but haven't been scaled up to treat large amounts of the chemicals.

National Mission on Interdisciplinary Cyber-Physical Systems

Why in News?

Recently, the Ministry of Science and Technology has organised a workshop to discuss joint research projects under **NM-ICPS (National Mission on Interdisciplinary Cyber-Physical Systems).**

- A total of 35 joint projects have been identified which will be implemented by **TIHs (Technology Innovation Hubs)** and research institutions from the USA.
- This endeavour will help achieve **collaborative research and development between the two countries in the area of CPS (Cyber-Physical Systems).**

What are Cyber-Physical Systems?

➤ About:

- Cyber-physical systems **integrate sensing, computation, control and networking into physical objects and infrastructure**, connecting them to the Internet and to each other.

➤ Applications:

- **Driverless cars** that communicate securely with each other on smart roads,
- **Sensors in the home to detect changing health conditions**
- Improving agricultural practices and **enabling scientists to address issues arising out of climate change**, etc.

➤ Significance:

- Advances in cyber-physical systems will enable capability, adaptability, scalability, resiliency, safety, security and usability that will far exceed the simple embedded systems of today.

What is National Mission- Interdisciplinary Cyber-Physical Systems?

➤ About:

- It was launched in 2018 by the Ministry of Science and Technology with an outlay of **Rs. 3,660.00 crore for a period of five years** to encourage innovation in new age technologies.
- It covers the entire India which includes Central

Note:



Ministries, State Governments, Industry and Academia.

➤ **Objectives:**

- The NM-ICPS is a **comprehensive Mission which would address technology development, application development**, human resource development & skill enhancement, entrepreneurship and start-up development in Cyber Physical System (CPS) and associated technologies.
- The Mission aims **at the establishment of 15 Technology Innovation Hubs (TIH)**, six Application Innovation Hubs (AIH) and four Technology Translation Research Parks (TTRP).
- These Hubs & TTRPs will connect to **Academics, Industry, Central Ministries and State Government in developing solutions** at reputed academic, R&D and other organizations across the country in a hub and spoke model.
- The Hubs & TTRPs have **four focused areas along which the Mission implementation** would proceed, namely:
 - Technology Development,
 - HRD & Skill Development,
 - Innovation, Entrepreneurship & Start-ups Ecosystem Development, and
 - International Collaborations.

➤ **Significance:**

- CPS technologies provide a **cutting edge to a Nation's scientific, engineering, and technologically innovative capabilities**; support other missions of the government, provide industrial and economic competitiveness and have truly become a Strategic Resource.
- The Mission can act as an **engine of growth that would benefit national initiatives in health, education, energy, environment, agriculture, strategic cum security, and industrial sectors, Industry 4.0, SMART Cities, Sustainable Development Goals (SDGs)** etc.
- CPS is an integrated system of upcoming technology, which in turn is being taken up on priority basis by countries in the race for development. **CPS will indeed bring a paradigm shift in entire skill sets requirements.**
- The job opportunities **will be enhanced through the Mission by imparting advanced skills and**

generating skilled manpower as per the requirement of the industry/ society.

MoU for Cooperation on Satellite-Based Naval Applications

Why in News?

Recently, Memorandum of understanding (MoU) has been signed between the **Space Applications Centre (ISRO)** and the **Indian Navy** on data sharing and cooperation on Satellite-based Naval Applications in **Oceanology** and **Meteorology**.

What are the Key Highlights of The MoU?

- It will **enhance collaboration** and would initiate a **common platform of mutual cooperation**.
- The scientific advancements by Space Applications Centre would be **synergized with the Indian Naval efforts to keep the nation's defence in step with rapid development in the field of Satellite Data retrieval and applications**.
- **Cooperation would include various dimensions:**
 - Sharing of non-confidential observational data.
 - Operational exploitation of Space Applications Centre (SAC)-generated **weather products and provisioning of Subject Matter Experts (SME) for the processing of satellite data towards the development of new tools**.
 - Providing Calibration and validation of ocean models.

What is Space Applications Centre?

➤ **About:**

- **Space Applications Centre** is a major **research and development centre of the Indian Space Research Organisation (ISRO)**.
 - It is **situated in Ahmedabad** and performs multi-disciplinary activities.
- The core competence of the Centre lies in the **development of space-borne and air-borne instruments/payloads** and their applications for national development and societal benefits.
 - These applications are in diverse areas and **primarily meet the communication, navigation, and remote sensing needs of the country**.

➤ **Achievements:**

Note:



- The Centre also contributed significantly to scientific and planetary missions of ISRO like **Chandrayaan-1, Mars Orbiter Mission**, etc.
- The communication transponders developed at this Centre for **Indian National Satellite (INSAT)** and **Geo Synchronous Satellite (GSAT)** series of satellites are used by the government and private sector for VSAT, DTH, Internet, broadcasting, telephones, etc.

India's First Indigenously Developed HFC Bus

Why in News?

Recently, the Union Minister of State of Science & Technology launched **India's first Hydrogen Fuel Cell (HFC) Bus**.

- **Bisphenol-A pilot plant** in **CSIR**- National Chemical Laboratory (NCL), an **important feedstock for the production of epoxy resins**, polycarbonate and other engineering plastics was also inaugurated.

What are Hydrogen Fuel Cells (HFC)?

- **About:**
 - A hydrogen fuel cell is an **electrochemical device** that converts hydrogen into electrical energy.
 - Fuel cells work in a similar manner to conventional batteries found in electric vehicles, but they do not run out of charge and don't need to be recharged with electricity.
 - They continue to produce electricity as long as there is a supply of hydrogen.
 - One of the most successful **fuel cells uses the reaction of hydrogen with oxygen to form water**.
- **Advantages of HFC Powered Vehicles:**
 - They produce **no tailpipe emissions** (emission of gaseous and particulate pollutants) and **only emit water vapour and warm air**.
 - They are **more efficient than internal combustion engine vehicles**.
 - Hydrogen FCEVs have an advantage over battery powered EVs in terms of refuelling time; **hydrogen can be refilled in a fuel cell vehicle in a matter of minutes**, nearly as fast as an internal combustion engine can be refilled with fossil fuels.

What are the Key Highlights of this Innovation?

- The HFC bus has been developed by the **Council of Scientific & Industrial Research (CSIR)** and KPIT, an Indian Multinational Corporation.
- The launch of this **India's first truly indigenously developed HFC Bus** is in tune with the **National Hydrogen Energy Mission**.
- The fuel cell utilizes Hydrogen and Air to generate electricity to power the bus and the **only effluent from the bus is water**. Thus, making it **possibly the most environmentally friendly mode of transportation**.
- The high efficiency of fuel cell vehicles ensures lower operational costs per kilometre than diesel powered vehicles and can **bring freight revolution in India**.

What is the National Hydrogen Energy Mission?

- The **Union Budget for 2021-22** announced a National Hydrogen Energy Mission (NHM) to draw up a **road map for using hydrogen as an energy source**.
 - It will **capitalise on one of the most abundant elements on earth (Hydrogen)** for a cleaner alternative fuel option.
 - The initiative has the potential of transforming transportation.
- It will:
 - Focus on generation of hydrogen from green power resources.
 - Link India's growing renewable capacity with the **hydrogen economy**.
- The usage of hydrogen will not only help India in achieving its emission goals under the **Paris Agreement**, but will also **reduce import dependency on fossil fuels**.

Why is this Innovation Significant?

- This innovation is a **part of Prime Minister's Hydrogen Vision** which will ensure **self-reliant means of affordable and accessible clean energy**, meeting **climate change goals**, and **creating new entrepreneurs and jobs**.
- **Green hydrogen** is an excellent clean energy vector that **enables deep decarbonization of difficult-to-abate emissions** from the heavy commercial transportation sector among others.
- A single diesel bus plying on long distance routes typically emits 100 tons of CO₂ annually and there

Note:



are over a million such buses in India. About 12-14% CO₂ emissions and particulate emissions come from diesel powered heavy commercial vehicles (which are decentralised emissions and hence difficult to capture).

- **Fuel Cell vehicles give zero green-house gas emissions.** Moreover, their **operational cost in rupees per kilometre is lower** than diesel powered vehicles.
- By the means of such innovations, India can **transition from being a net importer** of fossil energy to becoming a **net exporter of clean hydrogen energy.**
 - It will **provide India a global leadership in hydrogen space** by becoming a large green hydrogen producer and supplier of equipment for green hydrogen.

What is Green Hydrogen?

- **About:**
 - It is **produced by splitting water into hydrogen and oxygen** using an electrolyzer powered by renewable energy sources such as wind and solar.
 - The fuel is **considered a game-changer for the energy security of India**, which imports 85% of its oil and 53% of gas requirements.
 - In February 2022, the **Ministry of Power has notified Green Hydrogen/Green Ammonia Policy** for production of Green Hydrogen or Green Ammonia using renewable sources of energy.
- **Significance:**
 - Green hydrogen energy is vital for India to meet its **Nationally Determined Contribution (INDC) Targets** and ensure regional and national energy security, access and availability.
 - Green Hydrogen can **act as an energy storage option**, which would be essential to meet intermittencies (of renewable energy) in the future.
 - In terms of mobility, for long distance mobilisations for either urban freight movement within cities and states or for passengers, **Green Hydrogen can be used in railways, large ships, buses or trucks, etc.**
 - Hydrogen has the potential to be the **key renewable target in supporting infrastructure as well.**

In What Other Ways is the Government of India Promoting Clean Fuel Transition?

- **NTPC's project for hydrogen Fuel Cell Electric Vehicles (FCEV)**

- **FAME India Scheme**
 - **Faster Adoption and Manufacturing of Electric Vehicles (FAME II)** scheme.
- **Green Hydrogen Fuel Cell Electric Vehicle (FCEV) Toyota Mirai**
- **EV30@30 campaign**
- **Roadmap for Ethanol Blending in India by 2025**
- **Amendments to the National Policy on Biofuels, 2018**

Facial Recognition Technology

Why in News?

Right to Information (RTI) responses received by the **Internet Freedom Foundation**, a New-Delhi based **digital rights organisation**, reveals that the Delhi Police treats **matches of above 80% similarity** generated by its **facial recognition technology (FRT)** system as **positive results**.

What did the 2022

RTI Responses by Delhi Police Reveal?

- **Right to Information Responses:**
 - **Facial Recognition Threshold:**
 - The Delhi Police has revealed that **matches above 80% similarity** are treated as **positive results** while **matches below 80% similarity** are treated as **false positive results** which require additional **"corroborative evidence"**.
 - **Collection of Data:**
 - Delhi Police is **matching the photographs/videos against photographs collected under Section 3 and 4 of the Identification of Prisoners Act, 1920**, which has now been replaced by the **Criminal Procedure (Identification) Act, 2022.**
- **Concerns:**
 - **80% Threshold:**
 - It is unclear why 80% has been chosen as the threshold between positive and false positive.
 - The categorisation of below 80% results as false positive instead of negative shows that the **Delhi Police may still further investigate below 80% results.**
 - People who share familial facial features, such as in extended families or communities, **could end up being targeted.**

Note:



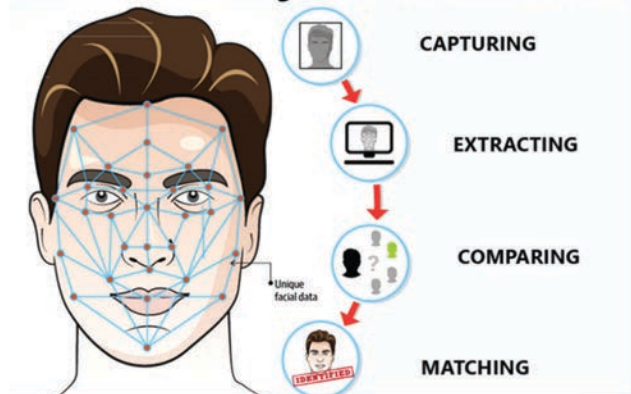
- This could result in targeting communities who have been historically overpoliced and have faced discrimination at the hands of law enforcement authorities.
- **Criminal Procedure (Identification) Act, 2022:**
 - It is feared that the **Criminal Procedure (Identification) Act, 2022 will lead to overbroad collection of personal data in violation of internationally recognised best practices** for the collection and processing of data.

What is Facial Recognition Technology?

➤ About:

- Facial recognition is an **algorithm-based technology** which creates a digital map of the face by identifying and mapping an individual's facial features, which it then matches against the database to which it has access.

Biometrics Face Recognition - How does it Work?



- In the **Automated Facial Recognition System (AFRS)**, the large database (containing photos and videos of peoples' faces) is used to match and identify the person.
- Image of an unidentified person, taken from CCTV footage, is compared to the existing database using **Artificial Intelligence technology**, for pattern-finding and matching.
- **Working:**
 - The facial recognition system works primarily by **capturing the face & its features through the camera** and then using various kinds of software to **reconstruct those features**.
 - The captured face along with its features is **stored into a database**, which can be integrated with **any kind of software** that may be used for security purposes, banking services, etc.

➤ Uses:

- **1:1 verification:**
 - The facial map is obtained for the purpose of matching it against the person's photograph on a database to authenticate their identity.
 - For example, 1:1 verification is used to unlock phones.
- **1: n identification:**
 - The facial map is obtained from a photograph or video and then matched against the entire database to identify the person in the photograph or video.
 - Law enforcement agencies such as the Delhi Police usually procure FRT for 1: n identification.

➤ Need:

- **Authentication:**
 - It is used for **identification and authentication purposes** with a success rate of almost 75%.
- **Force Multiplier:**
 - In India, where there are just 144 constables per 1 lakh citizens, **this can act as a force multiplier**.
 - It neither requires too much manpower nor regular upgradation.
 - Hence, this technology coupled with the present manpower in place can act as a **game-changer**.

Why is the Delhi Police using Facial Recognition Technology?

- The Delhi Police first obtained FRT for the purpose of **tracing and identifying missing children**.
 - The procurement was authorised as per the 2018 direction of the **Delhi High Court** in **Sadhan Haldar vs NCT of Delhi**.
- In 2020, the Delhi Police stated that "though they obtained FRT as per the **Sadhan Haldar direction** which related specifically to finding missing children, they were using FRT for police investigations".
 - The widening of the purpose for FRT use clearly demonstrates an instance of '**function creep**' wherein a **technology or system gradually widens its scope from its original purpose to encompass and fulfil wider functions**.
- Delhi Police has consequently used FRT for investigation purposes and also specifically during the **2020 northeast Delhi riots, the 2021 Red Fort violence, and the 2022 Jahangirpuri riots**.

Note:



Why is the Use of Facial Recognition Technology Harmful?

- **Inaccuracy & Misuse:**
 - Issues related to “**Misidentification**” due to inaccuracy of the technology.
 - Issues related to “**Mass Surveillance**” due to misuse of the technology.
- **Race & Gender:**
 - It has also been reported that its **accuracy rates fall starkly based on race and gender.**
 - This can result in a **false positive**, where a person is misidentified as someone else, or a **false negative** where a person is not verified as themselves.
 - Cases of a false positive result can lead to **bias against the individual who has been misidentified.**
- **Exclusion:**
 - Cases of false negative results can also lead to **exclusion of the individual from accessing essential schemes** which may use FRT as a means of providing access.
 - For example, failure of the biometric based authentication under **Aadhaar** which has led to many people being **excluded from receiving essential government services** which in turn has led to **starvation deaths.**
- **Violation to Privacy:**
 - Government although plans to address the question of **privacy** through the legal framework like **data privacy regime**, but keeping in mind the objectives it aims to achieve with the use of such technology, it comes into conflict with one another.
- **Reliability & Authenticity:**
 - As the data collected may be used in the court of law during the course of a criminal trial, the reliability and the admissibility of the data along with the standards and procedure followed would be taken into consideration.
- **Absence of Data Protection Law:**
 - FRT systems in the absence of **data protection laws** that would mandate necessary safeguards in the collection and storage of user data is also a point of concern.

India's First Commercial SSA Observatory

Why in News?

India's first commercial **Space Situational Awareness (SSA) Observatory** will be set up in the Garhwal region of Uttarakhand.

- The observatory will be set up by **Digantara**, a Bengaluru-based space sector start-up.

What are the Key Points about the Observatory?

- The observatory will be the **first-of-its-kind in the region**, set up to augment the start-up's SSA capabilities.
- It will be **strategically positioned to serve global space traffic management operations.**
- It will **assist in tracking any activity in space** including that of **space debris** and **military satellites** hovering over the region.
 - At present, the **US is a dominant player in monitoring space debris.**
- The observatory will bring value to the nation by **servicing as an essential data source for advancing knowledge** of the realm of space.
- It will be able to supplement its **space-based sensors** in their mission to monitor satellites and debris in orbits ranging from Low Earth Orbit (LEO) to **Geosynchronous Earth Orbit (GEO).**

What is Space Debris?

- Space debris consists of **spent rocket stages, dead satellites, fragments of space objects** resulting from **Anti-satellite (ASAT) System (ASAT).**
- Hurling at an average speed of 27,000 kmph in **Low Earth Orbit (LEO)**, these objects **pose a very real threat** as collisions involving even centimetre-sized fragments can be **lethal to satellites.**
- This free floating space debris is a **potential hazard for operational satellites** and colliding with them can leave the satellites dysfunctional.
- If there is too much space junk in orbit, it could result in a chain reaction where more and more objects will collide and create new space junk in the process, to the point where **Earth's orbit becomes unusable – a Domino Effect.**

Note:



What about India's

Current Scenario regarding SSA?

- **About SSA:**
 - **Space Situational Awareness (SSA)** refers to **keeping track of objects in orbit** and predicting where they will be at any given time.
 - It involves monitoring the movement of all objects — **natural (meteors) and man-made (satellites)** — and **tracking space weather**.
 - SSA is generally understood as covering three main areas:
 - Space Surveillance and Tracking (SST) of man-made objects.
 - Space Weather (SWE) monitoring and forecast.
 - Near-Earth Objects (NEO) monitoring (only natural space objects).
- **India's SSA Capability:**
 - At present, India uses a **Multi Object Tracking Radar at Sriharikota range** (Andhra Pradesh), but it has a limited range.
 - Further, for SSA, **India depends on data from NORAD (North American Aerospace Defence Command)** and others available in the public domain.
 - However, these platforms don't provide accurate or comprehensive information.
- **Nodal Agency:**
 - **ISRO's** efforts towards SSA is coordinated by the **SSA Control Centre in Bengaluru** and managed by the **Directorate of Space Situational Awareness and Management** at the ISRO headquarters.
- **Related Initiatives:**
 - **Project NETRA: 'Project NETRA'** will be an early warning system in space to detect space debris and other hazards to Indian satellites.
 - Once operational, **it will give India its own capability in Space Situational Awareness (SSA)** like the other space powers.
 - Under this project, a space debris tracking radar with a range of 1,500 km and an optical telescope will be inducted
 - **Clearspace-1:** At global level, this initiative of the **European Space Agency**, scheduled to launch in 2025, will be the **first space mission to eliminate debris** from orbit.

What is the Significance of the Upcoming SSA Observatory?

- **Reduce Collision Rates:**
 - The observatory is designed with a **capability to track objects as small as 10cm (in size)**. It would be able to **reduce the potential for collisions between satellites** and other spacecraft by making **more accurate predictions of their location, speed, and trajectory**
- **Tracking and Identifying Pre-Existing RSOs:**
 - It would improve the effectiveness of tracking and identifying **pre-existing Resident Space Objects (RSO)**.
- **Enhancing Indigenous Capabilities:**
 - Promoting development of such critical technology and infrastructure is necessary towards **building indigenous resilient capabilities and compete on a global stage**.
 - It will result in the **creation of a hybrid data pool** that will **serve both the commercial and the defence sectors** of the space industry.
- **Supplement Global Networks:**
 - A data gap has been witnessed due to the **lack of dedicated SSA sensors** between Australia and southern Africa
 - The observatory will play a vital role in **monitoring space activities above the Indian subcontinent**, relaying real-time data essential to safeguard the Indian assets.
 - Global networks of SSA sensors will be supplemented by this observatory to **offer constant tracking of objects over this part of the globe**.

Dust Formation in Novae Ejecta

Why in News?

Scientists from SN Bose Centre for Basic Science (SNBCBS) observed the **imploding novae called Nova V1280 Scorpii** and found that a thick dust formed around it after a month and lasted for about 250 days.

What is Novae?

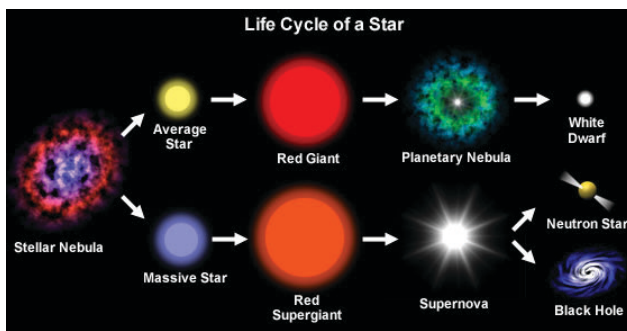
- A nova is an **astronomical event in which a strong explosion occurs temporarily** on the stellar (Pertaining

Note:



to Stars) surface, increasing the brightness by hundreds to millions of times, then slowly darkening over weeks or months.

- It occurs in a **binary system** consisting of a **white dwarf and a main sequence** star.
 - A binary star system occurs when two stars both orbit around a common center of mass.
 - The brighter star is officially classified as the primary star, while the dimmer of the two is the secondary.
 - **White dwarfs** are stars that have burned up all of the hydrogen they once used as nuclear fuel.
 - Such stars have very high density. A typical white dwarf is half the size of our Sun and has a surface gravity 1,00,000 times that of Earth.



What is Cosmic Dust?

- Cosmic dust consists of **tiny particles of solid material floating around in the space between the stars.**
- Cosmic dust or extra-terrestrial dust formation in the hostile environment of novae ejection has been an open question for many years. Hundreds of kilograms of such dust fall on the Earth every day.

What are the Findings?

- Scientists constructed simple models to estimate parameters of dust like **hydrogen density, temperature, luminosity and elemental abundances** during pre- and post-dust phase.
- High abundance of certain elements like **carbon, nitrogen and oxygen** was found along with a **mixture of small amorphous carbon dust grains** and large astrophysical silicate dust grains.
- Dust formation in **novae ejecta is not a common phenomenon.**
- It has been observed only in a few novae within 30 to 100 days after an outburst, as compared to interstellar

dust, which typically takes a few thousand years to form and hence provided opportunity to study the dust formation process in novae.

- High abundance of isotopes of certain elements like carbon, nitrogen and oxygen was found in the pre-dust phase.
- A **mixture of small amorphous carbon dust grains and large astrophysical silicate dust grains present in the ejecta was found** in the post dust phase.
- Some complex organic compounds like amorphous organic solids with a mixed aromatic-aliphatic structure was found which play an important role in formation of molecular clouds in stars and planets.

What is the Significance of the Study?

- Such Space-dust collisions may have propelled organisms over enormous distances between planets to start life on a planet.
- Their study of **novae dust could help in understanding the nature and characteristics of the dust** and associated processes.
- The team has suggested that as the expanding dust shell of V1280 Scorpii Nova continues to expand these dust grains will eventually mix with interstellar matter. But that will take thousands of years - a small time in the cosmic time scale.

Geothermal Power in Ladakh

Why in News?

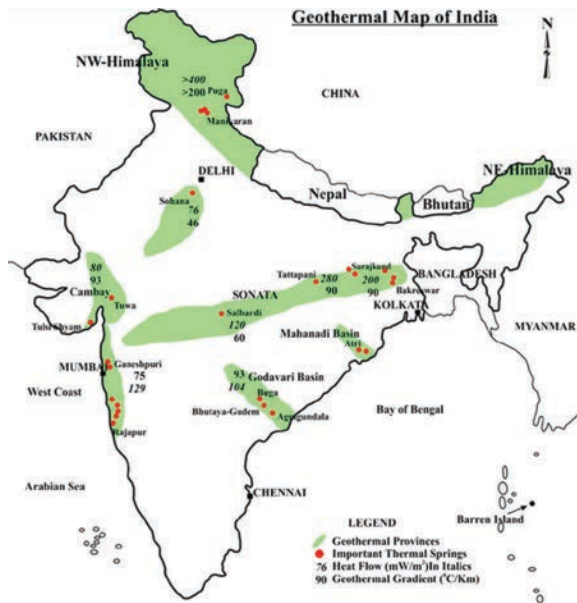
State-run explorer **Oil and Natural Gas Corporation (ONGC)** will be participating to generate electricity through **Geothermal Energy** at Puga, a remote valley located in Ladakh, off the road to Chumar on the de-facto border with China.

What do we need to know about the Puga Project?

- **About Puga Valley:**
 - Puga Valley is situated in the **Changthang Valley** in the south-eastern part of Ladakh, about 22 km away from the **Salt Lake Valley.**
 - It is a region of great significance known for its **natural beauty and geothermal activities.**
 - Puga is also visited for its **hot sulphur spring.**

Note:





➤ About Geothermal Project:

- It will be India's **first geothermal energy project** and also the **world's highest at 14,000ft.**
- **ONGC** has started drilling its first well for the project and encountered **high-pressure steam at 100 degrees Celsius** with a discharge rate of 100 tonne geothermal energy per hour, **considered as a good sign for the project.**

➤ Phases:

- In the first phase, the company will drill 1,000-metre-deep wells to run a **one-megawatt power plant as a pilot.**
- The second phase envisages a **deeper exploration of the geothermal reservoir** and a higher capacity demonstration plant.
- The third phase would involve commercial development of the geothermal plant.

➤ Benefits:

- It will **boost Ladakh's potential to emerge as one of the country's clean energy bowl** by expanding the area's horizon beyond **solar** or **wind power.**
- The pilot plant provides **power and heating needs** of the nearby settlements of Tibetan pastoralist refugee settlements at Sumdo and nearby areas.
- A bigger plant will provide **24×7 supply for the far-flung settlements** and the **large defence establishment in the eastern sector**, reducing their dependence on **diesel for running generators.**

- The plant can also play a vital role as a **stabiliser for the 15-gigawatt solar/wind project** being planned in the nearby Morey plains in the southwest.

➤ Status of Geothermal Energy:

○ National:

- Geological Survey of India has identified about 340 geothermal hot springs in the country. Most of them are in the low surface temperature range from 370C to 900C, which is suitable for direct heat applications.

- The potential for power generation at these sites is about 10,000 MW.

- The hot springs in the country are grouped into seven geothermal provinces:

- Himalayan, Sahara Valley, Cambay Basin, San-Narmada –Topi lineament belt, West Coast, Godavari Basin and Mahanadi Basin.

- Some of the prominent places where a power plant can be established based on geothermal energy are:

- Manikaran in Himachal Pradesh
- Jalgaon in Maharashtra
- Tapovan in Uttarakhand
- Bakreshwar in West Bengal
- Tuwa in Gujarat

○ Global:

- Gigawatt-Size Geothermal Capacities:

■ The US:

- The US leads the world in the amount of geothermal electricity generation.

■ Indonesia:

- Indonesia was the second-largest geothermal electricity producer.

■ Philippines

■ Turkey

■ New Zealand

- Mexico and Italy have 900 megawatt-plus capacity, while Kenya has over 800 mw, followed by Iceland, Japan and others.

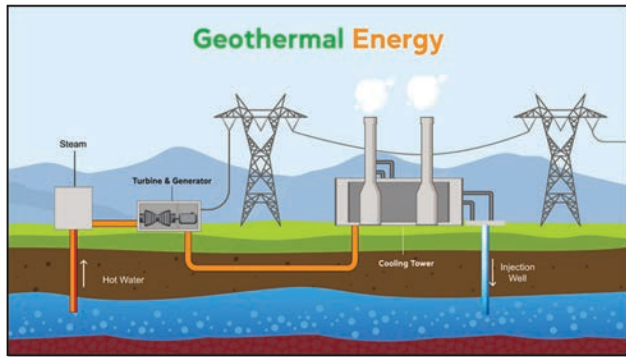
What is Geothermal Energy?

➤ About:

- Geothermal energy is the **heat from the earth.** This heat is used for bathing, to heat buildings, and to generate electricity.

Note:





- The word geothermal comes from the Greek words **geo (earth)** and **therme (heat)**, and geothermal energy is a **renewable energy source** because heat is continuously produced inside the earth.
- **Sources:**
 - **Hot water or steam reservoirs** deep in the earth are accessed by **drilling**.
 - Geothermal **reservoirs located near the earth's surface**, mostly located in the western U.S., Alaska, and Hawaii.
 - The **shallow ground near the Earth's surface that maintains a relatively constant temperature** of 50-60°F.
- **Uses:**
 - Hot water and steam from reservoirs can be used to **drive generators and produce electricity for consumers**.
 - Other applications apply the **heat produced from geothermal directly to various uses** in buildings, roads, agriculture, and industrial plants.
 - The heat can also be used directly from the ground to provide **heating and cooling in homes and other buildings**.
- **Benefits:**
 - **Renewable Source:**
 - Through **proper reservoir management**, the rate of energy extraction can be balanced with a reservoir's natural heat recharge rate.
 - **Continuous Supply:**
 - Geothermal power plants **produce electricity consistently, running 24 hours per day / 7 days per week**, regardless of weather conditions.
 - **Reduced Import Dependency:**
 - Geothermal resources **can be harnessed for power production** without importing fuel.

- **Small Footprint:**
 - Geothermal power plants are **compact and use less land per GWh** (404 m²) than coal (3642 m²) wind (1335 m²) or solar PV with center station (3237 m²).
- **Clean Energy:**
 - Modern **closed-loop geothermal power plants** emit **no greenhouse gases**; life cycle GHG emissions (50 g CO₂ eq/kWhe) are four times less than solar PV, and six to 20 times lower than natural gas.
 - Geothermal power plants **consume less water** on average over the lifetime energy output than the most conventional generation technologies.
- **Disadvantage:**
 - If harnessed incorrectly, it can sometimes produce pollutants.
 - Improper drilling into the earth can release hazardous minerals and gases deep inside the earth.

What is ONGC?

- ONGC is a **public sector petroleum company**.
- **Under the leadership of Pandit Jawaharlal Nehru**, the foundation stone of ONGC was laid in 1955 as the Oil and Gas Division under the **Geological Survey of India**.
- It may be noted that on 14th August 1956, it was renamed as the Oil and Natural Gas Commission and in 1994 the Oil and Natural Gas Commission was converted into a corporation.
- In the year 1997 it was accepted as one of the Navaratnas by the Government of India, while in the year 2010 it was given the status of **Maharatna**.

Launch of Artemis I Mission

Why in News?

National Aeronautics and Space Administration (NASA) is about to launch its **Artemis Program**.

What is Artemis I Mission?

- **Artemis I** is an **uncrewed mission of NASA**.
- It will test the agency's **Space Launch System (SLS) rocket and Orion crew capsule**.
- Artemis I will be the **first in a series of increasingly complex missions to build a long-term human presence at the Moon for decades to come**.

Note:



- The primary goals for Artemis I are to demonstrate Orion's systems in a spaceflight environment and ensure a safe re-entry, descent, splashdown, and recovery prior to the first flight with crew on Artemis II.

What will be the Key Events During the Mission?

➤ Artemis I launch

- The SLS rocket and Orion spacecraft have completed their journey from their assembly building to Launch Complex 39B at the Kennedy Space Centre in Florida.
- At launch, the rocket will produce a maximum of more than 3.9 million kilograms of thrust from its four RS-25 engines and five-segment boosters.
- Shortly after launch, the boosters, service module and launch abort systems will be offloaded.
- Then, the core stage engines will be shut down and the core stage will separate from the spacecraft.

➤ Artemis I: Trajectory to the moon

- After launch, the spacecraft will orbit the Earth and deploy its solar arrays.
- Next, the Interim Cryogenic Propulsion Stage (ICPS) will give Orion a "push" to help it leave Earth's orbit and travel toward the planet's only natural satellite.
- Then, within about two hours from launch time, when the spacecraft is on a trajectory to the Moon, it will separate from ICPS.
- When it separates from the spacecraft, ICPS will deploy small satellites, known as CubeSats to send them on their journey to deep space.
 - This includes BioSentinel, which will carry yeast into deep space to study the effects of deep space radiation on living matter.
 - The other CubeSats will also perform many science and technology demonstrations.

➤ Artemis I: Moon orbit

- On its path to the Moon, Orion will be propelled by a service module built by the European Space Agency.
 - Apart from supplying the spacecraft's propulsion system and power, the service module is also



designed to house air and water for future crewed missions.

- Once it enters the Moon's orbit, the spacecraft will collect data.
- Afterwards, Orion will use a precisely timed engine firing of the service module in combination with the Moon's gravity to accelerate back towards our planet.

➤ Artemis I: Reentry into Earth's atmosphere

- After a total mission time of around 6 weeks, Orion will enter Earth's atmosphere.
- And if all goes as planned, it will land in the sea, within eyesight of a recovery ship stationed off the coast of Baja in California.

What is the History of Moon Exploration?

- In 1959, the Soviet Union's uncrewed Luna 1 and 2 became the first rover to visit the Moon.
- The US began trying to put people in space as early as 1961.
- Eight years later, on 20th July, 1969, Neil Armstrong along with Edwin "Buzz" Aldrin became the first human to step on the Moon as part of the Apollo 11 mission.
 - Before the USA sent the Apollo 11 mission to the Moon, it sent three classes of robotic missions between 1961 and 1968.
- After July 1969, 12 American astronauts walked on the surface of the Moon until 1972.
- In the 1990s, the USA resumed lunar exploration with robotic missions Clementine and Lunar Prospector.
- In 2009, it began a new series of robotic lunar missions with the launch of the Lunar Reconnaissance Orbiter (LRO) and the Lunar Crater Observation and Sensing Satellite (LCROSS).

Note:



- In 2011, NASA began the ARTEMIS.
- In 2012, the **Gravity Recovery and Interior Laboratory (GRAIL)** spacecraft studied the Moon's gravity.
- Apart from the USA, the European Space Agency, Japan, China, and India have sent missions to explore the Moon.
- China landed two rovers on the surface, which includes the **first-ever landing on the Moon's far side in 2019**.

What are ISRO's Moon Exploration Efforts?

- **Chandrayaan 1:**
 - The **Chandrayaan project** began in 2007 with an agreement between **India's space agency ISRO and Russia's ROSCOSMOS for mutual cooperation**.
 - However, the mission was postponed in January 2013 and rescheduled to 2016 as Russia was unable to develop the lander on time.
 - **Findings:** Confirmed presence of lunar water.
 - Evidence of lunar caves formed by an ancient lunar lava flow.
 - Past tectonic activity was found on the lunar surface.
 - The faults and fractures discovered could be features of past interior **tectonic activity** coupled with **meteorite** impacts.
- **Chandrayaan-2** is India's second mission to the moon and comprises a **fully indigenous Orbiter, Lander (Vikram) and Rover (Pragyan)**.
 - The Rover Pragyan is housed inside **Vikram lander**.
- The **Indian Space Research Organisation (ISRO)** recently announced India's third lunar mission **Chandrayaan-3**, which will comprise a lander and a rover.

Tomato Flu

Why in News?

Recently, some parts of Kerala reported **Tomato Flu** among children under five years of age.

What is Tomato Flu?

- **About:**
 - The infection has been named '**tomato flu**' because of the **red, painful blisters that appear**

on a patient's body and gradually enlarge to the size of a tomato.

- The 'tomato flu' is **caused by Coxsackievirus A 16**.
- It belongs to the **Enterovirus family**.
 - The enteroviruses are an ancient and important group of **RNA viruses**.
 - Humans are the only hosts for the enteroviruses (NPEVs).
- The infectious disease is **caused by intestinal viruses and is rare in adults as they usually have immune systems** strong enough to defend them from the virus.
- **Transmission:**
 - Tomato flu is **very contagious** and children are at increased risk of exposure to tomato flu as viral infections are common in this age group and spread is likely to be through close contact.
 - If the outbreak of tomato flu in children is not controlled and prevented, **transmission might lead to serious consequences** by spreading in adults as well.
- **Symptoms:**
 - The primary symptoms observed in children with tomato flu are like those of **chikungunya**, which include **high fever, rashes, and intense pain in joints**.
 - As with other viral infections, further symptoms include fatigue, nausea, vomiting, diarrhoea, dehydration, swelling of joints, body aches, and common **influenza**-like symptoms, which are similar to those manifested in dengue.
- **Treatment:**
 - This flu is a **self-limiting one and there is no specific drug** for this.
 - The treatment for tomato flu is similar to the treatment of chikungunya, dengue and hand, foot, and mouth disease.
 - Patients are advised to isolate, rest, plenty of fluids, and hot water sponge for the relief of irritation and rashes.

Paddy Dwarfing

Why in News?

Recently, a **mysterious disease hit the paddy crop** causing "**dwarfing**" of the plants in Punjab and Haryana.

Note:



- Scientists have decoded the mystery blaming it on '**Southern Rice Black-Streaked Dwarf Virus**' (SRBSDV), named after **Southern China** where it was first reported in 2001.

What is Paddy Dwarfing?

- The characteristic symptoms of rice dwarf disease are **stunting of the plant** and **appearance of white chlorotic specks on foliage**.
- The height of the stunted plants showed a reduction from 1/2 to 1/3rd of the normal plants.
- These plants had shallow roots and could be easily uprooted.
- Such plants were observed in almost all the cultivated varieties in the farmers' fields.
- Dwarfing of plants was reported at 10% to 25% in general and in some cases, it exceeded 40%.
- The incidence of stunting was more pronounced in early sown paddy crops, irrespective of the variety.

What is SRBSDV?

- **Southern rice black-streaked dwarf virus (SRBSDV)** is a non-enveloped **icosahedral virus** with a genome of **10 double-stranded Ribonucleic Acid RNA segments**, and is a novel species in the **genus Fijivirus (family Reoviridae)**.

- An Icosahedral Virus is a virus consisting of identical subunits that make up equilateral triangles that are in turn arranged in a symmetrical fashion.

- The SRBSDV is transmitted by **white-backed plant hopper (WBPH)** in a persistent circulative and propagative manner.
- In addition to rice, SRBSDV also infects different weed species as nymphs of **WBPH** can transmit the virus more efficiently as compared to adults.
 - Long-distance transmission of this virus may occur through WBPH migrating with typhoons and strong convection winds.

What Could be Done for Prevention?

- **Since there is no corrective measure for the viral disease**, farmers should regularly **monitor the crop** for the presence of WBPH and a few **plants should be slightly tilted** and tapped 2-3 times at the base at weekly intervals.
- If WBPH nymphs/adults are seen floating on water, **then insecticides** can be sprayed towards the base of the plants.
- The farmers are advised to follow the **transplanting dates advised by Punjab Agricultural University PAU** since stunting was observed to be more in the early transplanted crops. It will not only help in managing viral disease but also save water.



Note:



Environment and Ecology

Highlights

- Forests and Jurisdictions
- Greening Initiatives of India's Coal Sector
- Bhitarkanika National Park
- Snailfish to Survive Sub-Zero Temperatures
- Conserving India's Coastal Ecosystems
- New Addition to the Ramsar Sites List
- New Elephant Reserve in Tamil Nadu
- Air Quality and Health in Cities
- Arctic Amplification
- Drought Tolerant Crop
- UN to Sign treaty on Ocean Biological Diversity
- African Rhinoceros
- Net-Zero Emissions Target
- Battery Waste Management Rules, 2022
- Vishnugad Pipalkoti Hydro Electric Project
- Tiger Reserve

Forests and Jurisdictions

Why in News?

Recently, the **Ministry of Environment, Forest and Climate Change** has objected to Chhattisgarh for its transfer of land without following due process from its Forest to the Revenue Department.

What is the Background?

- In March 2022, Chhattisgarh Chief Minister announced in his Budget speech that the state government has transferred over 300 sq km — an area larger than Raipur — in the Bastar region from the Forest department to the Revenue department to ensure easy availability of land for setting up industries and building infrastructure.
- In August 2022, the Union Environment Ministry's Integrated Regional Office asked the state to stop the transfer of land, saying it was in violation of the **Forest Conservation Act, 1980** and multiple Supreme Court orders, and return the land already transferred.
- The move has now run into a hurdle, even as paperwork is underway for transferring more land to other parts of the state.

What is a Forest?

- **About:**
 - At present, in India, there is **no clear nationally-accepted definition of 'forest'**.

- States are **responsible for determining** their definition of forests.

- The prerogative of the states to define forests stems from a 1996 Supreme Court order called the **T.N. Godavarman Thirumulkpad vs the Union of India judgment**.

- In the judgement, the Supreme Court **interpreted that the word "forest"** must be understood according to its "dictionary meaning".
- This description **covers all statutorily recognised forests**, whether designated as reserved, protected or otherwise.

➤ Jurisdiction:

- Forests are included in the **Concurrent List in the (Seventh Schedule)** of the Constitution of India.
- Through the **42nd Amendment Act, 1976** Forests and Protection of Wild Animals and Birds were transferred from **State to Concurrent List**.
- State Forest Departments have jurisdiction over two types of forests notified under the **Indian Forest (IF) Act, 1927: Reserve Forests (RF)**, where no rights are allowed unless specified; and **Protected Forests (PF)**, where no rights are barred unless specified. Certain forests, such as villages or nagarpalika forests, are managed by state **Revenue Departments**.

➤ Legislations:

- **Article 51 A (g)** of the Constitution states that it shall be the **fundamental duty** of every citizen to protect and improve the natural environment including forests and Wildlife.

Note:



- **Article 48 A** in the **Directive Principles of State policy**, mandates that the State shall endeavor to protect and improve the environment and to safeguard the forests and wildlife of the country.

What is Forest Clearance?

- The **Forest Conservation Act, 1980**, applies to all kinds of forests, whether under the control of the Forest or the Revenue Department, and **it requires statutory clearance before forests can be used for any non-forest purpose** such as industry, mining, or construction.
- Another type of Clearance is Environment Clearance, which is a long-drawn process that is **mandatory for projects beyond a certain size and often involves an environment impact assessment** of a potential project and sometimes public hearings involving the local populace who might be affected by the project.

What is Undemarcated Protected Forest?

- **Undemarcated Protected Forests** are also called the Orange areas, I E are the result of an **administrative logjam that remained a bone of contention** between the Revenue and the Forest departments since the abolition of the zamindari system in 1951.
- Undemarcated protected forests cannot be used for **non-forest purposes without clearance** under the Forest Conservation (FC) Act, 1980.

What are the Policies Governing India's Forests?

- **Indian Forest Policy, 1952**
- **Forest Conservation Act, 1980**
- **National Forest Policy, 1988**
- **National Afforestation Programme**
- **Wildlife Protection Act of 1972**
- **Environment Protection Act of 1986**
- **Biodiversity Diversity Act of 2002**
- **Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006**

Greening Initiatives of India's Coal Sector

Why in News?

Ministry of Coal seeks to bring more than **2400**

hectare of area in and around **coalfields** under green cover.

- It has been aimed to plant more than **50 lakh saplings for the year 2022-23**.

Why are the Key Highlights of the Greening Initiatives?

- **Identified Areas:**
 - The identified areas include reclaimed **mined out areas of coal companies and areas outside of leasehold** - amenable for plantation and made available by State Government agencies.
- **Achievement:**
 - As of now, greening drive is in full swing in coal mining areas and **about 1000 hectares of land has already been covered** through block plantation, avenue plantation, grassland creation, bamboo plantation and high-tech cultivation by 15th August, 2022.
 - Example: **paddy field and coconut plantation in Mine -I reclamation area of NLCIL in Tamil Nadu and Bio-reclamation at Nigahi Area of NCL in Singrauli, Madhya Pradesh.**
- **Significance:**
 - **Afforestation is a proven way of restoration of lands damaged** by anthropogenic activities and must for **achieving satisfactory rehabilitation** of a mined landscape.
 - The greening initiatives of the coal sector **support India's Nationally Determined Contribution (NDC) commitment to create additional carbon sink of 2.5 to 3 billion tonnes of CO₂ equivalent** through additional forest and tree cover by 2030.
 - India has recently **revised its NDCs**.
 - Greening initiatives help in **minimizing the footprints of coal mining, prevents soil erosion, stabilises the climate**, preserves wild life and enhances quality of air & watersheds.
 - On a global scale, these **mitigate climate change through carbon sequestration** and also results in economic growth of the region.
 - Through **greening initiatives**, the Indian coal industry seeks to **secure availability of coal to meet the demand of various sectors of the economy while minimising the impact of mining on the environment** and to improve the quality of life for local residents.

Note:



What is India's Revised NDCs?

- **About:**
 - **Emission Intensity:**
 - India is now committing itself to at least **45% reduction in emissions intensity of GDP (emissions per unit of GDP)** from 2005 levels.
 - The existing target was a **33% - 35% reduction**.
 - **Electricity Generation:**
 - India is also promising to ensure that at least **50% of installed electricity generation capacity** in 2030 would be based on **non-fossil fuel-based sources**.
 - This is an increase from the **existing 40% target**.
- **Other NDCs:**
 - Increase **non-fossil energy capacity** to 500 GW (gigawatts) by 2030.
 - Reduce the **total projected carbon emissions** by 1 billion tonnes (BT) by 2030.
 - Achieve **net zero carbon** by 2070.

INDIA'S CLIMATE TARGETS: EXISTING AND NEW

Target (for 2030)	Existing: First NDC (2015)	New: Updated NDC (2022)	Progress
Emission intensity reduction	33-35 per cent from 2005 levels	45 per cent from 2005 levels	24 per cent reduction achieved in 2016 itself. Estimated to have reached 30 per cent
Share of non-fossil fuels in installed electricity capacity	40 per cent	50 per cent	41.5 per cent achieved by the end of June this year
Carbon sink	Creation of 2.5 to 3 billion tonnes of additional sink through afforestation	Same as earlier	Not clear.

What are India's Initiatives towards Climate Change?

- **Reforms in Transport Sector:**
 - India is accelerating its **e-mobility transition** with the Faster Adoption and Manufacturing of (**Hybrid &) Electric Vehicles Scheme**.
 - A voluntary **vehicle scrapping policy** to phase out old and unfit vehicles complements the existing schemes.
- **India's Support to EVs:**
 - India is among a handful of countries that support the **global EV30@30 campaign**, which aims for at least 30% new vehicle sales to be electric by 2030.
 - India's advocacy of five elements for climate change "**Panchamrit**", at the **United Nations Climate**

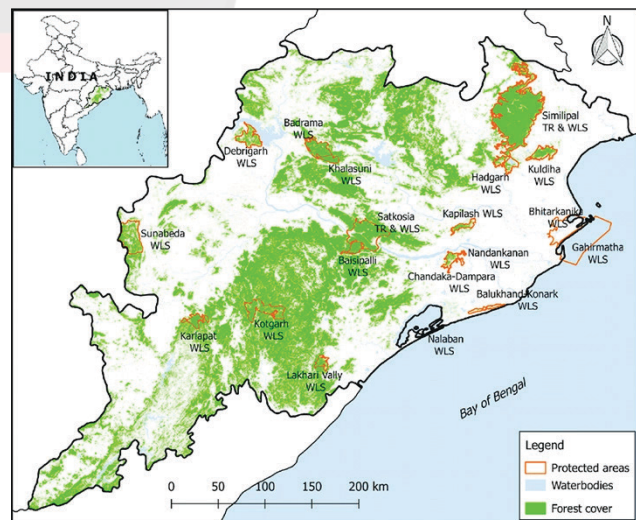
Change Framework Convention (UNFCCC) COP26 in Glasgow is a commitment to the same.

- **Role of Government Schemes:**
 - **The Pradhan Mantri Ujjwala Yojana** has helped 88 million households to **shift from coal-based cooking fuels to LPG connections**.
- **Role of Industries in Low-Carbon Transition:**
 - **The public and private sectors** in India are already playing a key role in **meeting the climate challenge**, helped by growing customer and investor awareness, as well as increasing regulatory and disclosure requirements.
- **Hydrogen Energy Mission:**
 - Focus on generation of hydrogen from green power resources.
- **Perform, Achieve and Trade (PAT):**
 - It is a **market-based mechanism** to further accelerate as well as incentivize **energy efficiency in the large energy-intensive industries**.

Bhitarkanika National Park

Why in News?

Recently, the **Bhitarkanika National Park** have reached a saturation point in the population of crocodile which could lead to more human-Crocodile conflict.



What is Bhitarkanika National Park?

- **About:**
 - Bhitarkanika National Park is spread in a vast area of 672 Kms in **Orissa**.

Note:



- It is the second largest **Mangrove ecosystems** of India.
- The National Park is essentially a network of creeks and canals which are inundated with waters from rivers **Brahmani, Baitarani, Dhamra and Patasala** forming a unique ecosystem.
- Its proximity to **Bay of Bengal** makes the soil of the area enriched with salts, the vegetation and the species of the sanctuary is comprised of those which are mainly found in the tropical and subtropical inter tidal regions.
- **It is the breeding place for the endangered Salt Water Crocodiles.**
- The Gahirmatha Beach which forms the boundary of the sanctuary in the east is the **largest colony of the Olive Ridley Sea Turtles.**
- The other unique phenomenon is the **Bagahana or the heronry near Surajpore** creek.
 - Thousands of birds colonise the creek for nesting and the aerial acrobatics performed prior to mating make for an impressive sight.
- Bhitarkanika is also home to **eight varieties of Kingfisher birds** which is also a rarity.

What are the Issues?

- **Rising conflict:**
 - Almost, 50 people have been killed by crocodiles since 2012 in and around the park, while 25 crocodiles died during the same time after entering human settlements or getting caught in fishing nets.
- **Territorial Reptile:**
 - Crocodile is a **territorial aquatic reptile**, that means too many crocodiles can't live in a small area as there will be **increased competition for food, mating partners, basking sites.**
- **Historical perspective:**
 - The **Union Ministry of Forest and Environment** in 1991 had directed the state forest department to stop the crocodile rearing programme in Bhitarkanika due to the saturation point reached by crocodile population.
 - However, the government **stopped funding** for the crocodile breeding and rearing project in 1990.
 - Further, the forest department had stopped the crocodile breeding and release programme in

1995 in the park as the crocodile population had reached around 1,000, from 94 in 1975.

What is Crocodile Conservation Project?

- The **crocodile conservation project in Bhitarkanika** was started in 1975.
- Its main objective was **to protect the reptiles' natural habitats and to rebuild the population quickly through captive breeding** as the survival rate of crocodile hatchlings in nature is low because of predation.
- Since Odisha is recognized for the existence of all the **three species of Indian crocodilians**, the Gharial and Saltwater crocodile conservation programme was first implemented in Odisha in early 1975 and subsequently, the Mugger conservation programme was initiated.
- The **UNDP/ FAO** provided funds and other technical support through the Government of India.

Snailfish to Survive Sub-Zero Temperatures

Why in News?

Recently, a study has found a **Snailfish** that lives in an **iceberg habitat in Greenland** can survive in icy Arctic waters due to the presence of antifreeze proteins in its bloodstream.

What are Snailfish?

- **About:**
 - The name **snailfish** can refer to any of the more than 400 species found in the family Liparidae.
 - Sometimes they're also called **sea snails**—not to be confused with gastropod sea snails (which are the animals).
 - The Snailfish releases **biofluorescence, which allows it to glow green and red in the dark arctic waters.**
 - Snailfish is the only polar fish reported to have biofluorescence.
 - Biofluorescence is the ability of an organism to convert blue light into green, red, or yellow light.
 - It is rarely found in Arctic fish due to prolonged periods of darkness in the region.
- **Habitat:**

Note:



- They are found all over the world, including in **Antarctica**.
- Although they're found in shallow waters, the deep-sea species are the ones that stand out.

What are the Key highlights of the Study?

- Snailfish found on an iceberg habitat in Greenland can survive in icy Arctic waters due to the presence of 'antifreeze' proteins in their bloodstream.
- Further, scientists also discovered the most highly expressed genes were related to **antifreeze proteins**.
 - This extraordinary feature, which is rare among sea organisms, allows snailfish to prevent ice crystals from accumulating in their cells and body fluid.
- The **climate change** could affect its survivability, as with rising ocean temperature icebergs would melt at a faster rate.
- The increase **biodiversity** that warmer waters bring to higher latitudes can increase competition, thereby jeopardizing its position in the food chain.
- The findings demonstrate how marine life can sustain in sub-zero temperatures using their unique **adaptation** mechanisms.

Conserving India's Coastal Ecosystems

Why in News?

Recently, the **Comptroller and Auditor General (CAG)** of India tabled a report in Parliament on whether steps taken by the Union Environment Ministry to **conserve India's coastal ecosystems have been successful**.

- This latest report **contains the observations from an audit of Conservation of Coastal Ecosystems from 2015-20**.

How is the Center Responsible for Conserving the Coastline?

- **About:**
 - The government has issued notifications under the **Environment Protection Act, 1986**, to regulate activities along India's coasts particularly regarding construction.

Why did the CAG conduct this Audit?

- The CAG has a **constitutional mandate to investigate and report** on publicly funded programmes.
- The CAG **conducted "pre-audit studies"** and found that there were large-scale Coastal Regulation Zone (CRZ) violations in the coastal stretches.
 - **Coastal land up to 500 metres from the High Tide Line (HTL)** and a stage of 100m along banks of creeks, lagoons, estuaries, backwater and rivers subject to tidal fluctuations is called Coastal Regulation Zone (CRZ).
- The media reported **incidents of illegal construction activities** (reducing beach space) and effluent discharged by local bodies, industries, and aquaculture farms that prompted a detailed investigation.

- The **Coastal Regulation Zone Notification (CRZ) 2019**, implemented by the Ministry, classifies the coastal area into different zones to manage infrastructure activities and regulate them.
 - The **three institutions responsible for the implementation of the CRZ** are:
 - **National Coastal Zone Management Authority (NCZMA)** at the Centre
 - **State/Union Territory Coastal Zone Management Authorities (SCZMAs/UTCZMAs)** in every coastal State and Union Territory and
 - **District Level Committees (DLCs)** in every district that has a coastal stretch and where the CRZ notification is applicable.
- **Role of the Bodies:**
 - These bodies examine if **CRZ clearances granted by the government are as per procedure**, if project developers once given the go-ahead are complying with conditions, and if the project development objectives under the **Integrated Coastal Zone Management Programme (ICZMP)** are successful.
 - They also **evaluate the measures taken up by the government** towards achieving the targets under **Sustainable Development Goals**.

What did the Audit Find?

- **NCZMA as a Permanent Body:**
 - The **Environment Ministry hadn't notified NCZMA as a permanent body** and it was being reconstituted every few years.

Note:



- In the absence of **defined membership**, it was functioning as an ad-hoc body.
- **Role of Expert Appraisal Committees:**
 - There were **instances of the Expert Appraisal Committees** not being present during project deliberations.
 - EAC is a **committee of scientific experts and senior bureaucrats** who evaluate the feasibility of an infrastructure project and its environmental consequences.
 - There **were also instances of the members of the EAC** being fewer than half of the total strength during the deliberations.
- **SCZMAs not Constituted:**
 - At state-level where the State Coastal Zone Management Authorities (SCZMAs) take decisions, the **central auditor observed the instances where SCZMA granted clearance on its own without recommending the projects** to relevant authorities.
 - Further, **SCZMAs had recommended many projects** without the submission of mandatory documents.

What are the Indian Initiatives for Coastal Management?

- **National Centre for Sustainable Coastal Management:**
 - It aims to **promote integrated and sustainable management of the coastal and marine areas** in India for the benefit and wellbeing of the traditional coastal and island communities.
- **Integrated Coastal Zone Management Plan:**
 - It is a **process for the management of the coast** using an integrated approach, regarding all aspects of the coastal zone, including geographical and political boundaries, in an attempt to achieve sustainability.
- **Coastal Regulation Zone:**
 - The Coastal Regulation Zone (CRZ) notification was issued in 1991 under the Environmental Protection Act, 1986, by the Ministry of Environment, Forest and Climate Change to regulate activities in coastal areas of India.

- **Approval of Projects despite Inadequacies:**
 - There were **instances of projects being approved despite inadequacies** in the **Environment Impact Assessment (EIA) reports**.
 - These included **non-accredited consultants preparing the EIA**, using outdated data, not

evaluating environmental impacts of the project, not appraising the disasters which the project area was prone to and so forth.

What Problems did the CAG find in the States?

- Tamil Nadu didn't have a **strategy in place to conserve the Gulf of Mannar Islands**.
- In Goa, there was no system for monitoring coral reefs and no management plans to conserve **turtle** nesting sites.
- In Gujarat, instruments procured to study the physiochemical parameters of soil and water of the inertial area of the **Gulf of Kutch** weren't used.
- Sea patrolling in **Gahirmatha Sanctuary**, in Kendrapara, Odisha did not happen.

New Addition to the Ramsar Sites List

Why in News?

Recently, India has **added 11 more Ramsar sites**, or wetlands that are of international importance, **taking the number of such sites to 75**.

- Tamil Nadu has maximum no. of Ramsar sites (14), followed by UP which has 10 nos. of Ramsar sites.

What is Ramsar Site?

- **About:**
 - A Ramsar site is a **wetland of international importance** under the **Ramsar Convention**, which is also known as the **'Convention on Wetlands'** — an intergovernmental environmental treaty established by **United Nations Educational, Scientific and Cultural Organization (UNESCO)** in **1971**, and named after the city of Ramsar in Iran, where the convention was signed that year.
- Earlier, **India designated 10 new wetlands of international importance:**
 - Koonthankulam Bird Sanctuary, Gulf of Mannar Marine Biosphere Reserve, Vembannur Wetland Complex, Vellode Bird Sanctuary, Vedanthangal Bird Sanctuary, Udhayamarthandapuram Bird Sanctuary, Satkosia Gorge, Nanda Lake, Ranganathittu Bird Sanctuary, Sirpur Wetland.

Note:



Which New Sites have been added?

Name	States	Specifications
Tampara Lake	Odisha	<ul style="list-style-type: none"> ➤ It is among the most prominent freshwater lakes in Odisha, situated in Ganjam district. ➤ The wetland is an important habitat for vulnerable species such as Cyprinus carpio, common pochard (<i>Aythya ferina</i>), and river tern (<i>Sterna aurantia</i>).
Hirakud Reservoir	Odisha	<ul style="list-style-type: none"> ➤ It is the largest earthen dam in Odisha started operating in 1957. ➤ Out of the known 54 species of fish from the reservoir, one has been classed as being endangered, six near threatened and 21 fish species of economic importance. ➤ It also provides important hydrological services by moderating floods in the Mahanadi delta, the ecological and socio-economic hub of the east coast of India.
Ansupa Lake	Odisha	<ul style="list-style-type: none"> ➤ It is the largest freshwater lake of Odisha situated in Banki sub-division of Cuttack district. ➤ The wetland is an oxbow lake formed by River Mahanadi. ➤ It provides a safe habitat to: <ul style="list-style-type: none"> ○ Three threatened bird species- <i>Rynchops albicollis</i> (EN), <i>Sterna acuticauda</i> (EN) and <i>Sterna aurantia</i> (VU) ○ Three threatened fish species- <i>Clarias magur</i> (Clariidae) (EN), <i>Cyprinus carpio</i> (Cyprinidae) (VU) and <i>Wallago attu</i> (VU).
Yashwant Sagar	Madhya Pradesh	<ul style="list-style-type: none"> ➤ Yashwant Sagar is one of the two Important Bird Areas (IBA) in the Indore region as well as one of the most important birding sites in Malwa region of Madhya Pradesh.

		<ul style="list-style-type: none"> ➤ It is considered to be a stronghold of the vulnerable Sarus Crane in central India. ➤ Due to its vast shallow reed beds, the wetland is considered heaven to a large number of winter migratory birds.
Chitrangudi Bird Sanctuary	Tamil Nadu	<ul style="list-style-type: none"> ➤ Locally, it is known as "Chitrangudi Kanmoli". ➤ The wetland has been a protected area since 1989 and declared as Bird Sanctuary, coming under the jurisdiction of Tamil Nadu Forest Department, Ramanathapuram division. ➤ It is an ideal habitat for winter migratory birds. Around 50 birds belonging to 30 families have been reported from the site. ➤ Notable waterbirds spotted from the site area include: <ul style="list-style-type: none"> ○ spot-billed pelican, little egret, grey heron, large egret, open billed stork, purple, and pond herons.
Suchindram Theroor Wetland Complex	Tamil Nadu	<ul style="list-style-type: none"> ➤ Suchindram Theroor Wetland complex is part of the Suchindram-Theroor Manakudi Conservation Reserve. ➤ It is declared an Important Bird Area (IBA) and lies at the southern tip of the Central Asian flyway of migratory birds. ➤ Copper plate inscriptions from the 9th century mention Pasumkulam, Venchikulam, Nedumarthukulam, Perumkulam, Elemchikulam and Konadunkulam.
Vaduvur Bird Sanctuary	Tamil Nadu	<ul style="list-style-type: none"> ➤ It is a large human-made irrigation tank and shelter for migratory birds as it provides a suitable environment for food, shelter, and breeding ground. ➤ Indian Pond Heron Ardeola grayii occurred in most of the surveyed tanks.

Note:



		<ul style="list-style-type: none"> ➤ Large concentrations of wintering waterfowl such as Eurasian Wigeon <i>Anas penelope</i>, Northern Pintail <i>Anas acuta</i>, Garganey <i>Anas querquedula</i> were recorded in tanks.
Kanjiran-kulam Bird Sanctuary	Tamil Nadu	<ul style="list-style-type: none"> ➤ It is notable as a nesting site for several migratory heron species that roost in the prominent growth of babul trees. ➤ The breeding population of migratory waterbirds arrive here between October and February and include: paint-ed stork, white ibis, black ibis, little egret, great egret. ➤ The site qualifies as an Important Bird and Biodiversity Area IBA as the threatened Spot-billed Pelican <i>Pelecanus philippensis</i> breeds here. ➤ The wetland exhibits rich biodiversity including many globally near-threatened species including: <ul style="list-style-type: none"> ○ Spot-billed Pelican, Oriental Darter, Oriental white Ibis and Painted Stork and also commonly occurring shore and water birds like greenshank, plovers, stilts and forest birds like bee-eaters, bul-buls, cuckoos, starlings, barbets, etc.
Thane Creek	Maharashtra	<ul style="list-style-type: none"> ➤ It has been declared as Thane Creek Flamingo Sanctuary. ➤ Thane creek is fringed by mangroves on both banks & comprises around 20% of the total Indian mangrove species. ➤ The area is an important part of the wetland complex of the Central Asian Flyway of the birds and has been categorized as an Important Bird Area (IBA).
Hygam Wetland Conservation Reserve	Jammu and Kashmir	<ul style="list-style-type: none"> ➤ It serves as an abode to many residents and migratory bird species.

		<ul style="list-style-type: none"> ➤ It is also recognized as an Important Bird Area (IBA). ➤ It provides a plethora of ecosystem services including <ul style="list-style-type: none"> ○ fish and fiber, water supply, water purification, climate regulation, flood regulation, and recreational opportunities.
Shallbugh Wetland Conservation Reserve	Jammu and Kashmir	<ul style="list-style-type: none"> ➤ The area has extensive reedbeds of <i>Phragmites communis</i> and <i>Typha angustata</i>, and rich growth of <i>Nymphaea candida</i> and <i>N. stellata</i> on open water. ➤ It serves as an abode to more than four lakh resident and migratory birds of at least 21 species.

New Elephant Reserve in Tamil Nadu

Why in News?

Recently, the Government of India has announced the notification of one more **Elephant Reserve (ER)** Agasthiyamalai in Tamil Nadu during a programme in the **Periyar Wildlife Sanctuary in Kerala**.

- This will be the **32nd Elephant Reserve in the country** after Singphan ER in Nagaland was notified in 2018.
- Agasthiyamalai is Tamil Nadu's 5th Elephant Reserve and also a **Biosphere Reserve**.

What do we need to know about Indian Elephant?

- **About:**
 - It is also known as "***Elephas maximus***".
- **Location:**
 - Central and Southern Western Ghats
 - North East India
 - Eastern India
 - Northern India
 - Some parts of Southern Peninsular India.
- **Protection Status:**
 - **IUCN Red List:** Endangered
 - **CITES:** Appendix I

Note:



- **Wildlife Protection Act 1972:** Schedule I

➤ Statistics in India:

- The population of elephants in India has reached up to about 27,312 (2017 Census).
- **Karnataka had the highest number** of elephants (6,049), followed by Assam (5,719) and Kerala (3,054).

What is Project Elephant?

➤ About:

- It is a **centrally sponsored scheme** and was launched in February 1992 for the **protection of elephants, their habitats and corridors**.
- The Ministry of Environment, Forest and Climate Change provides financial and technical support to major elephant range states in the country through the project.

➤ Objectives:

- To protect elephants, their habitat & corridors
- To address issues of man-animal conflict
- Welfare of captive elephants.

Air Quality and Health in Cities

Why in News?

Recently, a report was released titled **Air Quality and Health in Cities**, which analysed pollution and global health effects for more than 7,000 cities around the world between 2010 and 2019.

- The study ranked cities on the **basis of two major air pollutants found** — fine **Particulate Matter (PM_{2.5})** and **Nitrogen Dioxide (NO₂)**.

What is the State of Global Air?

- The State of Global Air (SoGA) is a research and outreach initiative to provide reliable, meaningful information about air quality around the world.
- A collaboration of the US-based Health Effects Institute and the Institute for Health Metrics and Evaluation's Global Burden of Disease project, the program **gives citizens, journalists, policymakers, and scientists access to high-quality, objective information about air pollution exposure** and its health impacts.

What are the Findings?

➤ PM 2.5 Levels:

- Delhi and Kolkata are ranked **first and second in the list of top 10 most polluted cities** when PM_{2.5} levels were compared.
 - PM_{2.5} is an atmospheric particulate matter of diameter of fewer than 2.5 micrometres, which is around 3% the diameter of a human hair. It causes respiratory problems and reduces visibility.
- While exposures to PM_{2.5} pollution **tend to be higher in cities located in low- and middle-income countries**, exposure to NO₂ is high across cities in high-income as well as low- and middle-income countries.

➤ NO₂ Levels:

- No Indian city appeared in the list of **top 10 or even top 20 polluted cities when NO₂ levels were compared**.
 - Average NO₂ levels for Delhi, Kolkata and Mumbai, according to the report, ranged from 20-30 µg/m³.
- This list saw **Shanghai at the top with an average annual exposure of 41 µg/m³**.
 - NO₂ comes mainly from the **burning of fuels in older vehicles, power plants, industrial facilities and residential cooking** and heating.
 - As city residents tend to live closer to busy roads with dense traffic, they are **often exposed to higher NO₂ pollution** than residents of rural areas.
- Other cities with high NO₂ population levels included Moscow, Beijing, Paris, Istanbul and Seoul.

➤ Death Burden:

- Beijing had the largest disease burden associated with a **PM 2.5-related illness**, with **124 attributable fatalities** per 100,000 persons.
 - Five Chinese cities were in the top 20.
- Delhi came in 6th, with 106 deaths per 100,000 and Kolkata at 8th with 99 deaths.

➤ Causes:

- Only 117 nations currently have **ground-level monitoring systems** to track PM 2.5, and only 74 nations are monitoring NO₂ levels.
- In 2019, exposure to pollutants in 86% of the more than 7,000 cities **exceeded WHO's standard**, therefore, impacting around 2.6 billion people.

Note:



What are the WHO's New Air Quality Guidelines?

- The 2021 guidelines **recommend new air quality levels** to protect the health of populations, by reducing levels of key air pollutants, some of which also contribute to climate change.
- WHO's new guidelines recommend **air quality levels for 6 pollutants**, where evidence has advanced the most on health effects from exposure.
 - 6 classical pollutants include **particulate matter (PM 2.5 and 10), ozone (O3), nitrogen dioxide (NO2), sulfur dioxide (SO2) and carbon monoxide (CO)**.

What are the Recommendations?

- **Leverage the expanding air quality monitoring toolbox:**
 - Efforts to expand ground monitoring of air quality **can improve the accuracy of estimates of Pollutant levels** and understanding of local air quality trends.
 - However, in addition to setting up monitors, it is **important to invest in resources for calibration and maintenance** to ensure the quality of data from these monitors.
- **Collect and digitize health records:**
 - Data on the burden of air pollution on health are vital for assessing the effectiveness of interventions, both in terms of public health benefits and economic impact.
 - It is important to **collect city-level health data consistently and systematically and make them accessible** to researchers. This can help researchers conduct more accurate and local analyses that inform communities and policymakers.

What are Initiatives taken by India for Controlling Air Pollution?

- **System of Air Quality and Weather Forecasting and Research (SAFAR) Portal**
- **Air Quality Index**
- **Graded Response Action Plan**
- **BS-VI Vehicles,**
- **Push for Electric Vehicles (EVs),**
- **Odd-Even Policy** as an emergency measure for reducing Vehicular Pollution.
- **New Commission for Air Quality Management**
- **Turbo Happy Seeder (THS) Machine**

Arctic Amplification

Why in News?

Recently, some studies were published on Arctic Amplification, which suggested that the **region is fast changing and that the best of climate models may not be able to capture the rate of changes** and predict it accurately.



What are the Findings of these Studies?

- The **Arctic is heating four times faster than the rest of the planet.**
- The warming is more concentrated in the **Eurasian part of the Arctic**, where the Barents Sea north of Russia and Norway is warming at an alarming rate — **seven times faster than the global average.**

What do Previous Studies Say?

- The Arctic was warming twice the global rate **prior to the beginning of the 21st century.**
- **Arctic surface air temperature has increased by more than double the global average** over the last two decades as per a 'Special Report on the Ocean and Cryosphere in a Changing Climate' in 2019 by the **Intergovernmental Panel on Climate Change (IPCC).**

Note:



- In May 2021, the **Arctic Monitoring and Assessment Programme (AMAP)** warned that the **Arctic has warmed three times quicker than the planet**, and the chance of the sea ice completely disappearing in summers is 10 times greater, if the planet is warmer by two degrees Celsius above the pre-industrial levels.
 - The report also said that the **average annual temperature in the region increased by 3.1 degree Celsius** compared to 1 degree Celsius for the planet.
- Mean Arctic amplification saw **steep changes in 1986 and 1999, when the ratio reached 4.0**, implying four times faster heating than the rest of the planet.

What is Arctic Amplification?

- Polar amplification happens **when changes to the earth's atmosphere led to a larger difference in temperature near the north and south poles** than to the rest of the world.
- This phenomenon is measured against the **average temperature change of the planet**.
- These changes are **more pronounced at the northern latitudes** and are known as the **Arctic amplification**.
- It occurs when the **atmosphere's net radiation balance is affected by an increase in greenhouse gases**.

What causes the Arctic Amplifications?

- The ice-albedo feedback, lapse rate feedback, water vapour feedback (Change in Water Vapour amplify or weaken temperature range) and ocean heat transport are the primary causes.
- **Sea ice and snow have high albedo** (measure of reflectivity of the surface), implying that they are capable of reflecting most of the solar radiation as opposed to water and land.
 - As the sea ice melts, the Arctic Ocean **will be more capable of absorbing solar radiation, thereby driving the amplification**.
- The lapse rate or the rate at which the **temperature drops with elevation decreases with warming**.
 - Studies show that the **ice-albedo feedback and the lapse rate feedback** are responsible for 40% and 15% of polar amplification respectively.

What are the consequences of Arctic Warming?

- **Thinning of Greenland Ice Sheet:**
 - The Greenland ice sheet is melting at an alarming

rate, and the rate of accumulation of sea ice has been remarkably low since 2000, marked by young and thinner ice replacing the old and thicker ice sheets.

- The unusual summer temperatures resulted in a melt of 6 billion tonnes of ice sheet per day, amounting to a total of 18 billion tonnes in a span of three days, enough to cover West Virginia in a foot of water.
- **Rise in Sea Level:**
 - The Greenland ice sheet **holds the second largest amount of ice**, after Antarctica, and therefore it is crucial for maintaining the sea level.
 - In 2019, this was the single biggest cause for the rise in the sea level, about 1.5 metres.
 - If the **sheet melts completely**, the sea level would rise by seven metres, capable of **subsuming island countries and major coastal cities**.
- **Impact on Biodiversity:**
 - The warming of the Arctic Ocean and the seas in the region, the acidification of water, changes in the salinity levels, is impacting biodiversity, including the **marine species and the dependent species**.
 - The warming is also **increasing the incidence of rainfall which is affecting the availability and accessibility of lichens** to the reindeer.
 - The Arctic amplification is causing widespread **starvation and death among the Arctic fauna**.
- **Thawing of Permafrost:**
 - The permafrost in the Arctic is thawing and in turn **releasing carbon and methane** which are among the major greenhouse gases responsible for global warming.
 - Experts fear that the thaw and the melt will also release the **long-dormant bacteria and viruses that were trapped in the permafrost and can potentially give rise to diseases**.
 - The best-known example of this is the permafrost thaw leading to an **anthrax outbreak in Siberia in 2016**, where nearly 2,00,000 reindeer succumbed.

What is its Impact on India?

- In recent years, scientists have pondered over the **impact the changing Arctic can have on the monsoons** in the Indian subcontinent.

Note:



- The link between the two is growing in importance **due to the extreme weather events India faces**, and the heavy reliance on rainfall for water and food security.
- **In 2021 a study** (A possible relation between Arctic Sea ice and late season Indian Summer Monsoon Rainfall extremes) **was published**, which found that the **reduced sea ice in the Barents-Kara Sea region can lead to extreme rainfall events in the latter half of the monsoons** — in September and October.
 - The changes in the atmospheric circulation due to diminishing sea ice combined with the warm temperatures in the Arabian Sea contribute to enhanced moisture and drive extreme rainfall events.
- According to the World Meteorological Organization's report in 2021 (State of Global Climate in 2021) sea level along the Indian coast is rising faster than the global average rate.
 - One of the **primary reasons for this rise is the melting of sea ice in the polar regions**, especially the Arctic.

Drought Tolerant Crop

Why in News?

Recently, a study has noted that a common weed named "**Portulaca oleracea**", commonly known as **purslane**, offers important clues about creating **drought-tolerant crops** in a world beset by **climate change**.

- Yale University scientists integrated **two metabolic pathways** to produce a novel type of **photosynthesis** that enables the weed to **withstand drought while remaining highly 'productive'**.

What do we know about Purslane?

- **About:**
 - Purslane possesses evolutionary adaptations that allow it to be **both highly productive and drought tolerant**.
- **Description:**
 - It is mostly an **annual**, but it may be **perennial in the tropics**.

- **Stems** are glabrous, fleshy, purplish-red to green, arising from a taproot, often prostrate, forming mats.
- **Distribution:**
 - It is most common in the **temperate and subtropical regions**, although it extends into the **tropics and higher latitudes**.
- **Habitat:**
 - **It is common in** fields, gardens, vineyards, lawns, driveways, dunes, beaches, salt marshes, waste areas, eroded slopes, bluffs and riverbanks.
- **Species Affected:**
 - It competes for resources with many field crops, particularly **herbaceous species** that are **germinating or growing in competition**.
 - **Affected crops include:** asparagus, red beets, celery, crucifers, cotton, maize, onions, potatoes, rice, soyabeans, sugarcane, tomatoes and wheat.
- **Ecology:**
 - **It has a wide tolerance of** photoperiod, light intensity, temperature, moisture and soil type.
 - Seeds germinate under conditions that **enhance the survival of seedlings**.
 - The species is **self-compatible**.

What are the Key Highlights of the Study?

- Plants have **independently evolved various mechanisms to improve photosynthesis**, the process by which green plants use sunlight to synthesise nutrients from carbon dioxide and water.
 - **Corn and sugarcane** evolved C4 photosynthesis, which allows the plant to **remain productive under high temperatures**.
- Succulents such as **cacti and agaves possess another type called CAM photosynthesis**, which helps them **survive in deserts and other areas with little water**.
- Both C4 and CAM serve different functions but **recruit the same biochemical pathway to act as 'add-ons' to regular photosynthesis**.
- The study conducted a spatial analysis of gene expression **within the leaves of purslane and found that C4 and CAM activity is totally integrated**.
 - They **operate in the same cells, with products of CAM reactions being processed by the C4 pathway**.
 - This system provides unusual levels of protection for a C4 plant in times of drought.

Note:



What are C3, C4, and CAM plants?

➤ C3 Cycle:

- It is also known as **Calvin Cycle**.
- It is a cyclic reaction occurring in the **dark phase of photosynthesis**.
- In this reaction, **CO₂ is converted into sugars** and hence it is a process of carbon fixation.
- The Calvin cycle was first observed by **Melvin Calvin in chlorella**, unicellular green algae. Calvin was awarded **Nobel Prize** for this work in 1961.
- Since the first stable compound in Calvin cycle is a **3 carbon compound** (3 phosphoglyceric acid), the cycle is also called as **C3 cycle**.
- **C3 plant examples:** Wheat, Oats, Rice, Sunflower, Cotton etc.

➤ C4 Plants:

- The C4 plants show a **different type of leaf anatomy**.
- The chloroplasts are **dimorphic in nature**. In the leaves of these plants, the **vascular bundles are surrounded by bundle sheath of larger parenchymatous cells**.
 - These bundle sheath cells have chloroplasts.
 - These chloroplasts of bundle sheath are larger, lack grana and contain starch grains.
 - The chloroplasts in mesophyll cells are smaller and always contain grana. This peculiar anatomy of leaves of C4 plants is called Kranz anatomy.
- Examples of C4 plants: **Maize, Sugarcane, Amaranthus**.

➤ CAM Cycle:

- CAM is a cyclic reaction occurring in the dark phase of photosynthesis in the plants of Crassulaceae.
 - It is a CO₂ fixation process wherein the first product is malic acid.
 - It is the third alternate pathway of Calvin cycle, occurring in mesophyll cells.
- CAM plants are usually **succulents** and they grow under extremely xeric conditions. In these plants, the leaves are succulent or fleshy.
 - In these plants, the stomata remain open during night and closed during day time.
 - The CAM plants are adapted to photosynthesis and survival under adverse xeric conditions.
- **Examples:** Sedum, Kalanchoe, Pineapple, Opuntia, Snake plant.

UN to Sign treaty on Ocean Biological Diversity

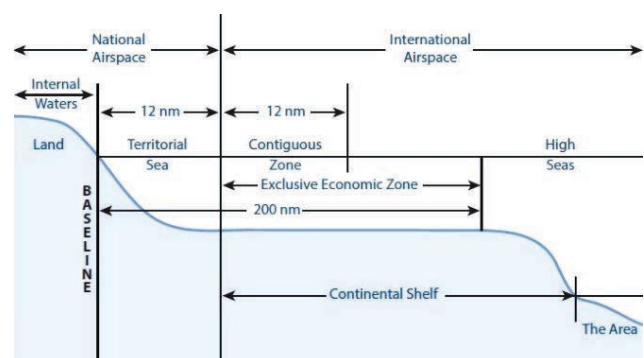
Why in News?

Recently, the **United Nations** organised the Intergovernmental Conference to draft the first-ever treaty on the **Ocean's Biological Diversity** to conserve marine diversity in the High Seas.

- The conference was held in New York, USA.
- A series of conferences was set in motion in 2018 to draft **international legislation under the 1982 UN Convention on the Law of the Sea (UNCLOS)** on the conservation and sustainable use of marine biological diversity in these areas.

What does Seek the New Treaty?

- The treaty seeks to address the **conservation and sustainable use of marine biodiversity in areas of the ocean which are beyond the limits of national maritime zones**.
- It will also address marine genetic resources, including questions on benefit-sharing, measures such as area-based management tools, environmental impact assessments, and the **transfer of marine technology**.
- The agreement will be **deciding on the rights of companies that undertake exploration for biological resources in the high seas**.
 - With advances in biotechnology and genetic engineering, several companies see potential in exotic microbes and other organisms – several of them undiscovered – that abide in the deep ocean and could be used for drugs, vaccines and a variety of commercial applications.



- Since marine life is **already reeling from the impact of industrial fishing**, climate change and other

Note:



extractive industries, the treaty seeks to protect our global oceans.

What are the High Seas?

- Countries can protect or exploit waters under 200 nautical miles (370 kilometres) to their shorelines, but **everything outside these 'exclusive economic zones' is considered international waters: the high seas.**
- The high seas **make up two-thirds of Earth's oceans**, providing 90% of its available habitat for life and **accounting for up to USD 16 billion a year in fisheries catch.**
- They are also **prime territory for the discovery of valuable mineral deposits**, potent pharmaceuticals and oil and gas reserves.
- International law identifies **four global commons namely:**
 - The High Seas; the Atmosphere; Antarctica; Outer Space.
 - Global commons **refer to resource domains that lie outside the political reach** of any one nation.

How are the High Seas Regulated Currently?

- The **United Nations Convention on the Law of the Sea (UNCLOS)** regulates activities in international waters, including sea-bed mining and cable laying.
- It **lays down rules for the use of the ocean and its resources**, but does **not specify how states should conserve** and sustainably use high seas biodiversity.
- No overarching **treaty exists to protect biodiversity or conserve vulnerable ecosystems in the oceans.**

United Nations Convention on the Law of the Sea (UNCLOS)

- The 'Law of the Sea Treaty', formally known as the United Nations Convention on the Laws of the Sea (UNCLOS) **was adopted in 1982** to establish jurisdictional limits over ocean areas.
- The convention defines **a distance of 12 nautical miles from the baseline as Territorial Sea limit and a distance of 200 nautical miles distance as Exclusive Economic Zone limit.**
- It provides for technology and wealth transfer from developed to underdeveloped nations and requires parties to implement regulations and laws to control marine pollution.
- India became a signatory to the UNCLOS in 1982.

➤ **UNCLOS created three new institutions:**

- **International Tribunal for the Law of the Sea:** It is an independent judicial body established by UNCLOS to adjudicate disputes arising out of the convention.
- **International Seabed Authority:** It is a UN body set up to regulate the exploration and exploitation of marine non-living resources of oceans in international waters.
- **Commission on the Limits of the Continental Shelf:** It facilitates the implementation of the United Nations Convention on the Law of the Sea (the Convention) in respect of the establishment of the outer limits of the continental shelf beyond 200 nautical miles.

African Rhinoceros

Why in News?

Recently, a report has stated that **Rhino poaching rates in Africa declined** to 2.3% in 2021 from 3.9% in 2018.

- At least **2,707 rhinos were poached in Africa** between 2018 and 2021, including critically endangered **black rhino and near threatened white rhino.**

What do we need to know about the Report?

- **About:**
 - The report was compiled by the **International Union for Conservation of Nature (IUCN)**, **Species Survival Commission (SSC)**, **African and Asian Rhino Specialist Group (AfRSG)** and **TRAFFIC.**
 - **African Rhino Specialist Group (AfRSG)** gathered information from thirteen rhino range countries:
 - Botswana, Chad, Eswatini, Kenya, Malawi, Mozambique, Namibia, Rwanda, South Africa, Tanzania, Uganda, Zambia and Zimbabwe.
- **Findings of the Report:**
 - Rhinoceros **poaching rates in Africa** have declined from a peak of 5.3% of the total population in 2015 to 2.3% in 2021.
 - South Africa accounted for 90% of all reported cases, **predominantly affecting white rhinos in Kruger National Park.**
 - South Africa lost 394 rhinos to poaching in 2020, while **Kenya didn't record any poaching that year.**

Note:



➤ Rhinos in Africa:

- The total estimate of rhinos in Africa was 22,137 at the end of 2021.
- **There has been an increase in poaching in private properties.**
 - A total of 451 rhinos were poached in South Africa in 2021:
 - 327 within government reserves and 124 on private properties.
- The number of **white rhinos** in the continent **declined by almost 11.8% during 2015-18**, while populations of **black rhinos increased by just over 12.2%**.
- **Zimbabwe conserves the largest population** of African Rhinoceroses among the four range countries in Africa namely South Africa, Namibia, Kenya and Zimbabwe.

What are the Key Points related to Black Rhino & White Rhino?

➤ Black Rhino:

- **About:**
 - Black rhinos are the **smaller of the two African Rhino species**.
 - The most notable difference between white and black rhinos is their **hooked upper lip**.
 - While **White Rhino has a square lip**.
 - Black rhinos are **browsers rather than grazers**, and their pointed lip helps them feed on leaves from bushes and trees.
 - They have **two horns, and occasionally a third, small posterior horn**.
- **Scientific Name:**
 - Diceros bicornis
- **Habitat:**
 - Semi-Desert Savannah, Woodlands, Forests, Wetlands.
- **Protection Status:**
 - **IUCN Red List:** Critically Endangered
 - **CITES:** Appendix I
 - **Wildlife Protection Act 1972:** N/A

➤ White Rhino:

- **About:**
 - White rhinos are the **second largest land mammal** after the elephant.

- White rhinos are also known as the **square-lipped rhinoceros due to their square (not pointed) upper lip**.
- Two genetically different subspecies exist, the **northern and southern white rhino** and are found in **two different regions in Africa**.

○ **Scientific Name:**

- Ceratotherium simum

○ **Habitat:**

- Long and short grass savanna areas in grasslands.

○ **Protection Status:**

- **IUCN Red List:** Near Threatened
- **CITES:** Appendix I & Appendix II
- **Wildlife Protection Act 1972:** N/A

What are Some Other Types of Rhinos?

➤ Greater One Horned Rhino:

○ **About:**

- Asia's largest species of rhino, also known as the Indian rhino.

○ **Scientific Name:**

- Rhinoceros unicornis

○ **IUCN Status:**

- Vulnerable

○ **Habitat:**

- Tropical grassland, shrublands, savanna

○ **Distribution:**

- India and Nepal

➤ Sumatran Rhino:

○ **About:**

- Closest living relative to the woolly rhinos. Only species to still be covered in hair.

○ **Scientific Name:**

- Dicerorhinus sumatrensis

○ **IUCN Status:**

- Critically Endangered

○ **Habitat:**

- Tropical and subtropical forests

○ **Distribution:**

- Sumatra, Sabah

➤ Javan Rhino:

○ **About:**

- All Javan rhinos in the world survive in Ujung Kulon National Park.

Note:



- **Scientific Name:**
 - Rhinoceros sondaicus
- **IUCN Status:**
 - Critically Endangered
- **Habitat:**
 - Tropical and subtropical forests
- **Distribution:**
 - Sumatra, Sabah

Net-Zero Emissions Target

Why in News?

According to the report by **Getting India to Net Zero**, India needs a massive USD 10.1 trillion investment from now on if India is to achieve its **net-zero emissions target** by 2070.

What are the Key Highlights of the Report?

- **Investment:**
 - The investment required by India would be USD 13.5 trillion if the net zero emission target is to be met by 2050.
- **Nationally Determined Contribution (NDC):**
 - India's **Nationally Determined Contribution (NDC)** targets set in 2015 are likely to be met early within the next few years through current policies.
- **Peak Emission:**
 - India could peak in emissions as soon as 2030.
- **Benefits:**
 - Achieving net zero by 2070 would **increase annual GDP by up to 4.7% by 2036. and create 15 million new jobs by 2047.**
- **Suggestions:**
 - Suggested various policies to **boost renewables and electrification** could make net zero possible by mid-century.
 - Ending new coal by 2023 and transitioning from unabated coal power by 2040, would be particularly impactful for reaching net zero emissions closer to mid-century.

What is Net-Zero Target?

- It is referred to as **carbon neutrality**, which does not mean that a country would bring down its emissions to zero.

- Rather, it is a **state in which a country's emissions are compensated by the absorption and removal of greenhouse gases from the atmosphere.**
 - Further, **absorption of the emissions can be increased by creating more carbon sinks** such as forests.
 - While the removal of gases from the atmosphere requires **futuristic technologies such as carbon capture and storage.**
- More than 70 countries have promised to become Net Zero by the middle of the century i.e., by 2050.
- India has promised to cut its emissions to net zero by 2070 at the **conference of parties-26(COP)** summit.

What Steps Have been taken by India to Achieve Net- Zero Emissions by 2070?

- **India's Renewable Energy Targets:**
 - India's **renewable energy targets** have steadily become more ambitious, from 175 GW by 2022 declared at Paris, to 450 GW by 2030 at the **UN Climate Summit**, and now 500 GW by 2030, announced at COP26.
 - India has also announced the **target of 50% installed power generation capacity from non-fossil energy sources by 2030, raising the existing target of 40%**, which has already been almost achieved.
- **Goals of NDC:**
 - There are EIGHT **GOALS** which are identified as follows:
 - To put forward and further propagate a **healthy and sustainable way of living based on traditions and values of conservation** and moderation, including through a mass movement for '**LIFE**'– '**Lifestyle for Environment**' as a key to combating climate change.
 - To **adopt a climate-friendly and cleaner path** than the one followed hitherto by others at the corresponding level of economic development.
 - To **reduce the Emissions Intensity of its GDP by 45%** by 2030, from the 2005 level.
 - To achieve about **50% cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030,**
 - With the help of the **transfer of technology and low-cost international finance including from the Green Climate Fund (GCF).**

Note:



- To create an **additional carbon sink of 2.5 to 3 billion tonnes of CO₂** equivalent through additional forest and tree cover by 2030.
 - To better **adapt to climate change by enhancing investments in development programmes in sectors vulnerable to climate change**, particularly agriculture, water resources, the Himalayan region, coastal regions, and health, and disaster management.
 - To **mobilize domestic and new & additional funds from developed countries to implement the above mitigation and adaptation actions** in view of the resource required and the resource gap.
 - To build capacities, and **create a domestic framework and international architecture for quick diffusion of cutting-edge climate technology** in India and for joint collaborative R&D for such future technologies.
- **Initiatives:**
- **Solar Energy:**
 - India has undertaken one of the world's largest solar energy installation initiatives.
 - Irrespective of whether it achieves the 175 GW capacity by 2022 or the 450 GW target by 2030,
 - **Creating Carbon Sinks:**
 - **India Cooling Action Plan (ICAP)** will help address cooling requirements and reduce the cooling demand in the country.
 - The **Bureau of Energy Efficiency (BEE)** and Energy **Efficiency Services Limited (EESL)** has taken a number of initiatives under the **National Mission for Enhanced Energy Efficiency (NMEEE)** to combat climate change.
 - The **Compensatory Afforestation Management and Planning Authority (CAMPA)** Fund created under the Compensatory Afforestation Fund Act, 2016, has thousands of crores which will hopefully be utilised soon to compensate for deforestation and restore the green cover comprising native species of trees.
 - **Hydrogen Energy:**
 - India has also announced a **Hydrogen Energy Mission** for grey and green hydrogen.

Battery Waste Management Rules, 2022

Why in News?

Recently, the **Ministry of Environment, Forest and Climate Change(MOEFCC)** notified the **Battery Waste Management Rules, 2022** to ensure environmentally sound management of waste batteries.

- These rules will replace the **Batteries (Management and Handling) Rules, 2001**.

What are the Key Highlights of the Rules?

- **Coverage:**
 - The rules cover **all types of batteries, including Electric Vehicle batteries, portable batteries, automotive batteries, and industrial batteries.**
- **Extended Producer Responsibility (EPR):**
 - The rules function based on the concept of **Extended Producer Responsibility (EPR)** where the **producers of batteries are responsible for the collection and recycling/refurbishment of waste batteries and the use of recovered materials from waste into new batteries.**
 - EPR mandates that all waste batteries be collected and sent for recycling/refurbishment, and it prohibits disposal in landfills and incineration.
 - To meet the EPR obligations, producers may engage themselves or authorise any other entity for the collection, recycling, or refurbishment of waste batteries.
 - It will enable the **setting up of a mechanism and centralized online portal for the exchange of EPR certificates between producers and recyclers/refurbishers** to fulfill the obligations of producers.
- **Waste Management:**
 - They promote the **setting up of new industries and entrepreneurship in the collection and recycling/refurbishment of waste batteries.**
- **New Business Opportunities:**
 - Mandating the minimum percentage of recovery of materials from waste batteries under the rules will **bring new technologies and investment in the recycling and refurbishment industry and create new business opportunities.**

Note:



- **Reduce Dependency on Raw Materials:**
 - Prescribing the use of a certain number of recycled materials in the making of new batteries will reduce the dependency on new raw materials and save natural resources.
- **Online Registration:**
 - Online registration & reporting, auditing, and committee for monitoring the implementation of rules and taking measures required for removal of difficulties.
- **Principle of Polluter Pays:**
 - Environmental **compensation will be imposed for non-fulfilment of Extended Producer Responsibility targets**, responsibilities and obligations set out in the rules.
- **Environmental compensation Fund:**
 - The funds collected under environmental compensation shall be **utilized in the collection and refurbishing or recycling of uncollected and non-recycled waste batteries.**

Vishnugad Pipalkoti Hydro Electric Project

Why in News?

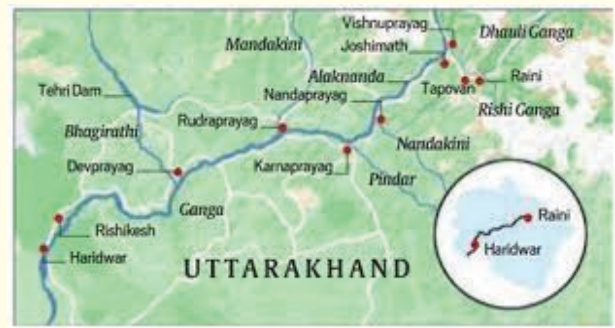
Recently, the World Bank has agreed to look into environmental damage from the under-construction **Vishnugad Pipalkoti Hydro Electric Project (VPHEP)** on the Alaknanda River in Uttarakhand.

- The panel has considered the request for an enquiry after accepting the Complaints from 83 Local Communities.

What is the Geography of Alaknanda River?

- It is one of the **headstreams of the Ganga.**
- It rises at the confluence and feet of the **Satopanth and Bhagirath glaciers** in Uttarakhand.
- It meets the Bhagirathi River at Devprayag after which it is called the Ganga.
- Its main tributaries are the **Mandakini, Nandakini, and Pindar rivers.**
- The Alaknanda system drains parts of **Chamoli, Tehri, and Pauri districts**
- The Hindu pilgrimage center of Badrinath and the natural spring Tapt Kund lie along the banks of the Alaknanda River.

- At Its origin, **Lake Satopanth** is a triangular lake located at a height of 4402 m and named after the Hindu trinity Lord Brahma, Lord Vishnu, and Lord Shiva.
- **Panch Prayag:** Five sites in Uttarakhand where **five rivers merge into River Alaknanda to ultimately form the holy River Ganga is called Panch Prayag** (in Hindi, 'panch' means five and 'prayag' means confluence).
 - First, Alaknanda meets **Dhauliganga** river at **Vishnuprayag**; move on to **Nandaprayag** to meet **Nandakini** river then travels to **Karnaprayag** to join Pindar river. It unites with Nandakini river at **Rudraprayag** and joins the last and the final Bhagirathi river at **Devprayag**.



What are the Complaints?

- The project would **destroy the ancient Laxmi Narayan Temple** in Haat village.
 - The temple is a **cultural resource for the locals** and is the source of their livelihood.
- Muck-dumping from the dam **threatens the architecture of the temple walls**, which is an ancient heritage site, the villagers claimed.
 - The locals claimed to have a **sacred bond with Laxmi Narayan Temple**, which was allegedly established by **Adi Shankaracharya** in the 19th century.
- The residents are being **forcefully relocated from their village**.
 - Some locals who refused to accept compensation and move to another place were removed from their homes while **some were locked up by the police.**
- The project has also **not taken disasters caused by climate change and extreme weather events** into account.
- A mid-day **cloudburst** in Kedarnath in 2013 and the Chamoli disaster of 2021 were also ignored.

Note:



What is VPHEP?

- The 444-MW VPHEP is being built by the **Tehri Hydropower Development Corporation**, a partially Centre-owned enterprise.
- The project is primarily funded by the **World Bank and was sanctioned in 2011**
- The hydropower project has been targeted to be completed by 30th June, 2023 at the cost of USD 922 million.
- The project will build a 65-meter diversion dam near Helang village in Chamoli district of Uttarakhand to create a small reservoir in the **Alaknanda River**.

What are the Hydro Power Projects in Uttarakhand?

- **Tehri Stage 2:** 1000 MW on Bhagirathi river
- **Tapovan Vishnugadh:** 520 MW on Dhauliganga river
- **Vishnugadh Pipalkoti:** 444 MW on Alaknanda river
- **Singoli Bhatwari:** 99 MW on Mandakini river
- **Phata Bhuyang:** 76 MW on Mandakini river
- **Madhyamaheshwar:** 15 MW on Madhyamaheshwar Ganga
- **Kaliganga 2:** 6 MW on Kaliganga river.

What are the Challenges to Hydropower Projects in Himalayas?

- **Decreasing Stability:**
 - Glacier retreat and **Permafrost Thaw** are projected to decrease the stability of mountain slopes and increase the number and area of glacier lakes.
 - Permafrost Thawing is the release of the powerful greenhouse gas methane into the atmosphere, which contributes to further warming in a reinforcing feedback loop.

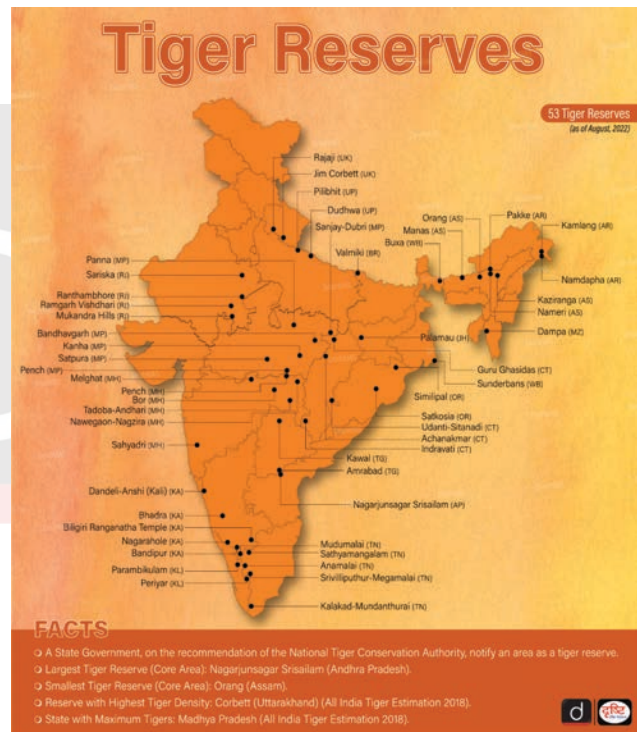
Climate Change:

- Climate change has driven erratic weather patterns like increased snowfall and rainfall.
- The thermal profile of ice is increasing, which means that the temperature of ice that used to range from -6 to -20 degree C, is now -2 degree C, making it more susceptible to melting.

Increase in Calamitic Instances:

- With increased instances of **cloudbursts, and intense spells of rainfall and avalanches**, residents of the region are also placed at increased risk of loss of lives and livelihood.

Tiger Reserve



Note:



History

Highlights

- Women Heroes of India's Freedom Struggle
- Sri Aurobindo
- Lord Curzon
- Pandurang Khankhoje & Swami Vivekananda

Women Heroes of India's Freedom Struggle

Why in News?

Recently, **Prime Minister** in his Independence Day Speech paid tribute to women freedom fighters.

What is the Role Played by Women in Freedom Struggle?

➤ Rani Laxmibai:

- The queen of the **princely state of Jhansi**, Rani Laxmibai is known for her role in the **First War of India's Independence in 1857**.
- Born Manikarnika Tambe in 1835, she married the king of Jhansi.
- The couple adopted Damodar Rao as her son before the king's death, **which the British East India Company refused to accept as the legal heir** in accordance with the **Doctrine of lapse** and decided to annex Jhansi.
 - The Doctrine of Lapse was an annexation policy followed widely by Lord Dalhousie when he was India's Governor-General from 1848 to 1856.
- Refusing to cede her territory, the queen decided to rule on behalf of the heir and later joined the uprising against the British in 1857.
- Under **General Hugh Rose**, the East India Company's forces had begun their counteroffensive in Bundelkhand by January 1858.
- She single-handedly fought with the British, riding on a horse, tying Damodar Rao behind her back.
- She conquered the fort of Gwalior with the help of **Tatya Tope and Nana Saheb**.

- Cornered by the British, she escaped from Jhansi fort. She was wounded in combat near Gwalior's Phool Bagh, where she later died.
- **Jhalkari Bai:**
 - A **soldier in Rani Laxmibai's women's army**, Durga Dal, rose to become one of the queen's most trusted advisers.
 - She is **known for putting her own life at risk to keep the queen out of harm's way**.
 - Till date, the story of her valor is recalled by the people of Bundelkhand, and **she is often presented as a representative of Bundeli identity**.
 - Many Dalit communities of the region look up to her as an incarnation of God and also celebrate Jhalkaribai Jayanti every year in her honour.
- **Durga Bhabhi:**
 - Durgawati Devi, who was popularly known as Durga Bhabhi, was a **revolutionary who joined the armed struggle against colonial rule**.
 - A member of the **Naujawan Bharat Sabha**, she **helped Bhagat Singh escape** in disguise from Lahore after the 1928 killing of British police officer John P Saunders.
 - During the train journey that followed, Durgawati and Bhagat Singh posed as a couple and Rajguru as their servant.
 - Later, as revenge for the hanging of Bhagat Singh, Rajguru, and Sukhdev, she made an unsuccessful attempt to kill the former Punjab Governor, Lord Hailey.
 - Born in Allahabad in 1907 and married to **Hindustan Socialist Republican Association (HSRA)** member Bhagwati Charan Vohra, Durgawati, along with other revolutionaries, also ran a bomb factory in Delhi.
- **Rani Gaidinliu:**
 - Born in 1915 in present-day Manipur, Rani Gaidinliu

Note:



was a **Naga spiritual and political leader who fought the British.**

- She joined the **Heraka religious movement** which later became a movement to drive out the British.
 - **She rebelled against the Empire and refused to pay taxes, asking people to do the same.**
 - The British launched a manhunt, but she evaded arrest, moving from village to village.
 - Gaidinliu was finally arrested in 1932 when she was just 16 and later sentenced for life.
 - She was released in 1947.
 - **Prime Minister Jawaharlal Nehru** described Gaidinliu as the “daughter of the hills”, and gave her the title of ‘Rani’ for her courage.
- **Begum Hazrat Mahal:**
- After her husband, Nawab of Awadh Wajid Ali Shah was exiled after the 1857 revolt, Begum Hazrat Mahal, along with her supporters, took on the British and wrested control of Lucknow. She was forced into a retreat after the colonial rulers recaptured the area.
- **Velu Nachiyar:**
- Many years **before the revolt of 1857, Velu Nachiyar waged a war against the British** and emerged victorious.
 - **Born in Ramanathapuram** in 1780, she was married to the king of Sivagangai.
 - After her husband was killed in battle with the East India Company, she entered the conflict, and won with support of neighbouring kings.
 - She went on to **produce the first human bomb** as well as establish the first army of trained women soldiers in the late 1700s.
 - Her army commander Kuyili is believed to have set herself ablaze and walked into a British ammunition dump.

Sri Aurobindo

Why in News?

On 15th August, the Prime Minister paid tribute to **Sri Aurobindo on his 150th birth anniversary.**

What do Know about Sri Aurobindo?

➤ **About:**

- Aurobindo Ghose was **born in Calcutta on 15th August 1872.** He was a yogi, seer, philosopher, poet, and Indian nationalist who propounded a philosophy of divine life on earth through spiritual evolution.
 - He died on 5th December 1950 in Pondicherry.
 - Aurobindo’s pragmatic strategies to get rid of British rule marked him as **“the Prophet of Indian Nationalism”.**
- **Education:**
- His education **began in a Christian convent school** in Darjeeling.
 - He entered the University of Cambridge, where he became proficient in two classical and several modern European languages.
 - In 1892, he held various administrative posts in Baroda (Vadodara) and Calcutta (Kolkata).
 - He began the study of Yoga and Indian languages, including classical Sanskrit.
- **Indian Revolutionary Movement:**
- From 1902 to 1910 he **partook in the struggle to free India from the British.**
 - The partition of Bengal in 1905 provoked Aurobindo to leave his job in Baroda and plunge into the nationalist movement. He **started the patriotic journal Bande Mataram to propagate radical methods** and revolutionary tactics instead of supplication.
 - He was **arrested thrice by the British — twice for sedition** and once for conspiring to “wage war”.
 - He was imprisoned in **1908 (Alipore Bomb case).**
 - Two years later he **fled British India and found refuge in the French colony** of Pondichéry (Puducherry), gave up overt political activities and embraced spiritual pursuits, soon to emerge as one of the most original thinkers, philosophers and spiritual masters.
 - He **met Mirra Alfassa in Pondicherry, and their spiritual collaboration led to “Integral Yoga”.**
 - Integral Yoga, is a yoga of Earth transformation. The aim of this yoga is not an escape from life or a shunning of worldly existence, but a radical change in our life even while living amidst it.
- **Aurobindo’s Ideas on Second World War**
- Several Indians saw the Second World War as an opportune moment to get rid of colonial occupation;

Note:



Aurobindo, asked his compatriots to support the Allies and ensure Hitler's defeat.

➤ Spirituality:

- In Pondichéry he **founded a community of spiritual seekers**, which took shape as the Sri Aurobindo Ashram in 1926.
- He believed that the **basic principles of matter, life, and mind would be succeeded** through terrestrial evolution by the principle of supermind as an intermediate power between the two spheres of the infinite and the finite.

➤ Literary Works:

- An English newspaper called Bande Mataram (in 1905)
- Bases of Yoga
- Bhagavad Gita and Its Message
- The Future Evolution of Man
- Rebirth and Karma
- Savitri: A Legend and a Symbol
- Hour of God

Lord Curzon

Why in News?

Recently, the West Bengal Government has decided to erect a **statue of Bardhaman's Maharaja Bijay Chand Mahatab** and his wife Radharani in **front of the Lord Curzon Gate**.

- Mahtab had built the gate in **1903 when Curzon visited the town**.
- Maharajadhiraja Bijay Chand Mahtab (1881 – 1941) was the ruler of Burdwan Estate, Bengal in British India from 1887 till his death in 1941.

Who Was Curzon?

- George Nathaniel Curzon (11th January, 1859- 20th March, 1925) born in **Kedleston Hall, England was a British Statesman and Foreign Secretary** who during his terms in office played a major role in British policy making.
 - He succeeded **Lord Elgin and served as India's Viceroy between 1899 and 1905**.
 - He became the **youngest Viceroy of India** at the age of 39.

- He was one of the **most controversial and consequential holders** of that post.

- Before assuming office as governor general and viceroy, Curzon had visited India (four times) Ceylon, Afghanistan, China, Persia, Turkestan, Japan, and Korea.

What were Curzon's Foreign Policies?

➤ North-West Frontier Policy:

- Curzon, unlike his predecessors, pursued a policy of consolidation, strength and security of the British occupied territories in the north-west.
- He kept **Chitral under British control and constructed a road connecting Peshawar and Chitral thereby** arranging for the security of Chitral.

➤ Afghan Policy:

- Lord Curzon's Afghan policy was **conditioned by the political and economic interests, fear of Russian expansion** in Central Asia and Persian Gulf area.
- From the very start there was an estrangement of relations between Afghans and the British.

➤ Policy towards Persia:

- In order to secure British influence in that region Lord Curzon personally went to the Persian Gulf area in 1903 and took firm measures to protect the British interests there.

➤ Relation with Tibet:

- Lord Curzon's Tibet policy was also influenced by fear of Russian dominance in the region.
- It was Lord Curzon's efforts that revived the trade relations between the two under which Tibet agreed to pay a huge indemnity to the British.

What were Reforms in Various Fields?

➤ Calcutta Corporation Act, 1899:

- The act reduced the number of elected legislatures and increased the number of nominated officials to deprive Indians from self-governance.
- 28 members of the Corporation resigned in protest and it, therefore, became a government department with the English and the Anglo-Indians as the majority in it.

➤ Economic:

- In 1899, the British currency was declared legal tender in India and a pound was declared equivalent to rupees fifteen.

Note:



- The rate of salt-tax was reduced by Curzon, from two-and-a-half rupees per maund (1 maund is equal to approximately 37 kg) to one-and-a-third rupees per maund.
- People with annual income of more than Rs. 500 paid the tax. Moreover, income-tax payers also received relaxation.

➤ **Famine:**

- When Curzon arrived in India, it was in the grip of a terrible famine which affected the extensive territories in south, central and western India. Curzon provided all possible relief to the affected people.
- **People were provided work on payment basis** and the cultivators were exempted from the payment of revenue.
- By 1900, when the famine was over, Curzon appointed a Commission to probe into the causes of the famine and suggest preventive measures which were later brought into consideration.

➤ **Agriculture:**

- In 1904, the **Co-operative Credit Societies Act** was passed to induce the people to form societies for the purpose of deposits and loans, mainly to save peasants from the clutches of the money-lenders who usually charged an exorbitant rate of interest.
- In 1900, the **Punjab Land Alienation Act** was passed which restricted the transfer of lands of the peasants to money-lenders in cases of failure of payment of their debts.

➤ **Railways:**

- Curzon decided to **improve railway facilities in India** and also to make the Railway profitable to the government.
- The Railway lines were increased, the Railway department was abolished and the management of the Railways was taken away from the hands of the Public Works Department and handed over to a Railway Board consisting of three members.

➤ **Education:**

- In 1901, Curzon **called an education conference at Shimla** following which the University Commission was appointed in 1902.
- The Indian Universities **Act was passed in 1904** upon the recommendations of the commission.

- Gurudas Banerjee, Calcutta HC judge and a member of the commission, had given his dissent-note in the report and the Indian public despised the Act but all in vain.

What was Curzon's Role in the Partition of Bengal?

- The partition of the undivided Bengal Presidency in 1905 was one of Curzon's most criticized moves, which triggered widespread opposition not only in Bengal but across India, and gave impetus to the freedom movement.
- Bengal was the **most populous province of India**, with around 8 crore people.
- It comprised the present-day states of **West Bengal, Bihar, parts of Chhattisgarh, Odisha, and Assam** and present-day Bangladesh.
- In July 1905, Curzon announced the partition of the undivided Bengal Presidency.
 - A new province of East Bengal and Assam was announced, with a population of 3.1 crore with a Muslim-Hindu ratio of 3:2.
 - The western Bengal province was overwhelmingly Hindu.

What are the Consequences of the Partition?

- The partition provoked great resentment and hostility all over India. All sections of the Congress, the Moderates and the Radicals, opposed it.
- The struggle that unfolded in the response, came to be known as the Swadeshi movement, was the strongest in Bengal but with echoes elsewhere too; in deltaic Andhra for instance, it was known as the Vande Mataram Movement.
 - The protest was to boycott British goods, especially textiles, and promote swadeshi goods.
- There were marches and demonstrations with the protesters singing Vande Mataram to underline their patriotism and challenge the colonialists.
- Rabindranath Tagore led the marches at many places, and composed many patriotic songs, most famously **'Amar Sonar Bangla' (My Golden Bengal)**, which is now the national anthem of Bangladesh.

What are the Impacts of the Protests?

- Curzon left for Britain in 1905, but the agitation continued for many years.

Note:



- King George V at his Coronation Durbar abrogated Bengal's partition in **1911**.
 - **Lord Hardinge** was the Viceroy of India in 1911.
- The Swadeshi movement, which had grown significantly during the agitation, later reached nationwide proportions.
- The partition of Bengal and the highhanded behaviour of Curzon fired the national movement and the Congress.

Pandurang Khankhoje & Swami Vivekananda

Why in News?

Lok Sabha Speaker will travel to Mexico to unveil statues of **Swami Vivekananda** and Maharashtra-born freedom fighter and agriculturalist **Pandurang Khankhoje** (1883-1967).

- The Speaker's visit is part of India's efforts to honor lesser-known Indian-origin leaders outside India.

Who was Pandurang Khankhoje?

- **Birth:**
 - Pandurang Khankhoje was born in **Wardha, Maharashtra**, in the late 19th century.
- **Revolutionary Connections:**
 - Pandurang Khankhoje came in **contact with other revolutionaries early on**.
 - Hindu reformer **Swami Dayanand** and his **Arya Samaj movement**, which called for a spirit of reform and social change, **became the hero to a young student group led by Khankhoje**.
 - Khankhoje was an **ardent admirer of the French Revolution** and of the American War of Independence.
 - Before leaving India for training in abroad, he visited **Bal Gangadhar Tilak**, by who he was inspired.
- **Life Abroad:**
 - Khankhoje **decided to go abroad for further training in revolutionary methods and militaristic strategy**.
 - After spending time with nationalists from Japan and China, Khankhoje eventually **moved to the US, where he enrolled in college as a student of agriculture**.
 - A year later, he joined the **Mount Tamalpais Military Academy in California** to fulfil his original purpose of leaving India.

How was Khankhoje associated with the Indian Independence Movement?

- **Khankhoje & Ghadar Party:**
 - In the US, **Khankhoje met Lala Har Dayal**, an Indian intellectual teaching at Stanford University.
 - Har Dayal had begun a propagandist campaign, **publishing a newspaper that featured patriotic songs and articles in the vernacular languages of India**.
 - This was the seed from which the **Ghadar Party** would emerge.
 - Khankhoje was **one of the founding members of the Ghadar Party**, established by Indians living abroad in 1913, mostly belonging to Punjab.
 - Its aim was to **lead a revolutionary fight against the British in India**.

What is the Connection between Khankhoje and Mexico?

- **Connections with Mexicans in the US:**
 - At the **military academy in the US**, Khankhoje met **many people from Mexico**.
 - Khankhoje was inspired by "**The Mexican Revolution of 1910**" which led to the overthrow of the dictatorial regime.
 - While he was reaching out to **Indians working on farms in the US** with the aim of discussing the idea of Indian independence with them, **he met with Mexican workers as well**.
 - He reached out to **Bhikaji Cama in Paris**, and met with **Vladimir Lenin in Russia** among other leaders, seeking support for India's Independence.
 - He was **facing deportation from Europe and he could not go to India**, so he sought shelter in Mexico.
- **Life in Mexico:**
 - With the help of some friends in Mexico, he was appointed a **professor at the National School of Agriculture in Chapingo**, near Mexico City.
 - He researched **corn, wheat, pulses and rubber**, developing **frost and drought-resistant varieties**, and was part of efforts to bring in the **Green Revolution in Mexico**.
 - Later on in the 20th Century, the American agronomist Dr Norman Borlaug, called the **Father**

Note:



of the **Green Revolution in India**, brought the Mexican wheat variety to Punjab.

- Khankhoje was revered as an **agricultural scientist in Mexico**.
 - The renowned Mexican artist **Diego Rivera** painted murals that featured Khankhoje, including one titled **'Our Daily Bread'** that prominently depicted **him breaking bread with people seated around a table**.

Who was Swami Vivekananda?

➤ Birth:

- Swami Vivekanand ,original name **Narendranath Datta** was born on 12th January, 1863.
- **National Youth Day** is held every year to observe the birth anniversary of Swami Vivekananda.
- In 1893, upon the request of **Maharaja Ajit Singh of the Khetri State**, he took the name '**Vivekananda**.'

➤ Contributions:

- Introduced the world to the **Indian philosophies of Vedanta and Yoga**.
 - He preached '**neo-Vedanta**', an interpretation of Hinduism through a Western lens, and believed in **combining spirituality with material progress**.
- Laid the greatest emphasis on **education for the regeneration of our motherland**. Advocated a man-making character-building education.

- Best known for his speech at the **World Parliament of Religion in Chicago in 1893**.
- Spelt out the **four pathways of attaining moksha from the worldly pleasure and attachment** in his books:
 - Raja-yoga
 - Karma-yoga
 - Jnana-yoga
 - Bhakti-yoga
- **Netaji Subhas Chandra Bose** had called Vivekananda the "**maker of modern India**."

➤ Associated Organisations:

- He was the chief disciple of the 19th-century mystic **Ramakrishna Paramhansa** and established the **Ramakrishna Mission in 1897**.
 - Ramakrishna Mission is an organization which works in the area of **value-based education, culture, health, women's empowerment, youth and tribal welfare and relief and rehabilitation**.
- In 1899, he established **Belur Math, which became his permanent abode**.

➤ Death:

- He **died at Belur Math in 1902**.
- Belur Math, located in West Bengal, is the headquarters of Ramakrishna Math & Ramakrishna Mission.



Geography

Highlights

- Pakistan's Devastating Floods
- Formation of Continents
- Hunger Stones
- Drought in Europe
- Mahanadi River
- Godavari River
- Third Consecutive La Nina Event

Pakistan's Devastating Floods

Why in News?

India will be extending humanitarian assistance to Pakistan to deal with the Devastating **Flood** that occurred because of Pakistan's Monster **Monsoon**.

- The climate crisis is the prime reason for the devastating scale of flooding in Pakistan, which has killed more than 1,000 people and affected 30 million.

What caused the Severe Flood in Pakistan?

- **Extremely Wet monsoon:**
 - The current flood is a **direct result of an extremely wet monsoon season** this year.
 - The same southwest monsoon that brings the bulk of India's annual rainfall causes rain in Pakistan as well.
 - The monsoon season in Pakistan, however, is **a little shorter than in India**. That is because the **rain-bearing monsoon winds take time to travel northward from India into Pakistan**.
 - There's been a **400% increase in average rainfall in areas like Baluchistan and Sindh**, which led to extreme flooding.
- **Extreme Heat:**
 - In May 2022, Pakistan consistently saw temperatures **above 45 degrees Celsius (113 Fahrenheit)**.
 - Warmer air holds more moisture — about 7% more per degree Celsius (4% per degree Fahrenheit) — and that eventually comes down, in this case in torrents.
 - Instead of just swollen rivers flooding from extra rain, **Pakistan is hit with another source of flash flooding**.

What is the Indian Assistance to Pakistan?

- The aid will be the first time since 2014 that India will be extending aid to Pakistan on account of a natural disaster.
- In the past, India **extended assistance to Pakistan for the floods in 2010**, and for the earthquake in 2005.

How has been the Bilateral Trade between India and Pakistan?

- In 2021, Pakistan allowed the import of cotton and sugar from India, partially reversing a two-year old decision to suspend all trade with India.
- The decision to cancel trade was taken by the Pakistan government in August, 2019, days after the Indian government **amended Article 370 and reorganised Jammu and Kashmir**.
- Over the years, India has had a **trade surplus with Pakistan, with much less imports than exports** and trade has always been linked to politics.
 - India's exports to Pakistan fell around 16% to USD 1.82 billion in 2016-17 as compared to 2015-16 after relations deteriorated **in the aftermath of the Uri terror attack and the Indian Army's surgical strikes** on militant launchpads in Pakistan-occupied Kashmir in 2016.
- Despite continuing tensions, trade between the two countries **grew marginally in subsequent years**.
 - The **extreme heat accelerates the long-term glacier melting** then water speeds down from the **Himalayas** to Pakistan in a dangerous phenomenon called glacial lake outburst floods.
- **ENSO:**
 - The **El Niño–Southern Oscillation (ENSO)** appears to be in its La Niña phase.

Note:



- “La Niña is behaving very strongly in some metrics and is a significant factor for enhancing monsoonal rains.

Formation of Continents

Why in News?

According to a new study, **the earth’s continents were formed by massive meteorite impacts** that were prevalent during the first billion years of our planet’s four and a half billion-year history.

What are the Highlights of the Study?

- **About:**
 - Meteorite impacts **generated massive energy to form oceanic plates**, which later evolved into continents.
 - The theory that giant meteorite impacts formed continents had been around for decades, but until now, there was little solid evidence for its support.
 - The most commonly accepted theory in place attributes continent formation to the movement of **Tectonic Plates**.
- **Evidence for Meteorite Impact Theory:**
 - **Zircon crystals in Pilbara Craton:** The researchers looked for evidence in zircon crystals embedded in rocks from the Pilbara Craton in Western Australia. This craton is the remnant of an ancient crust that began forming more than three billion years ago.
 - **Zircons are formed by the crystallisation of magma** or are found in metamorphic rocks.
 - They act as tiny time capsules, recording the period of geologic activity. Newer zircon adds to the original crystal as time progresses.
 - The study of the variants or isotopes of oxygen within these crystals i.e., oxygen-18 and oxygen-16 and their ratio helped to estimate past temperatures.
 - Older grains of zircon possessed the lighter oxygen-16. The younger ones contained the heavier oxygen-18.
 - **Cratons:** A craton is an old and stable part of the continental lithosphere, which consists of Earth’s two topmost layers, the crust and the uppermost mantle.

- **Need for Understanding the Formation of Continents:**
 - Understanding the formation and evolution of continents is important, as **it is the key to reserves of metals such as lithium, tin and nickel**.
 - **Most of Earth’s biomass and most humans live on these landmasses**, so understanding how continents form and evolve is crucial.

What are the Theories related to Continent Formation?

- **Plate Tectonics Theory:**
 - Developed from the 1950s to the 1970s, the **theory of plate tectonics is the modern update to continental drift**, an idea first proposed by scientist Alfred Wegener in 1912 which stated that **Earth’s continents had “drifted” across the planet over time**.
 - **Wegener didn’t have a correct explanation for how continents could move** around the planet, but researchers do now.
 - Plate tectonics is the theory that **Earth’s outer shell is divided into large slabs of solid rock**, called “plates,” that glide over Earth’s mantle, the rocky inner layer above Earth’s core.
 - Earth’s solid outer layer, which includes the crust and the uppermost mantle, is called the **Lithosphere**.
 - Below the lithosphere is the asthenosphere — a viscous layer kept malleable by heat deep within the Earth.
 - It lubricates the undersides of Earth’s tectonic plates, allowing the lithosphere to move around.
 - The Earth’s Lithosphere is divided into seven major and some minor plates.
 - **Major Plates:**
 - The **Antarctic** (and the surrounding oceanic) **Plate**
 - The **North American Plate** (with western Atlantic floor separated from the South American plate along the Caribbean islands)
 - The **South American Plate** (with western Atlantic floor separated from the North American plate along the Caribbean islands)
 - The **Pacific Plate**
 - The **India-Australia-New Zealand Plate**
 - **Africa with the eastern Atlantic floor Plate**
 - **Eurasia and the adjacent oceanic Plate**

Note:

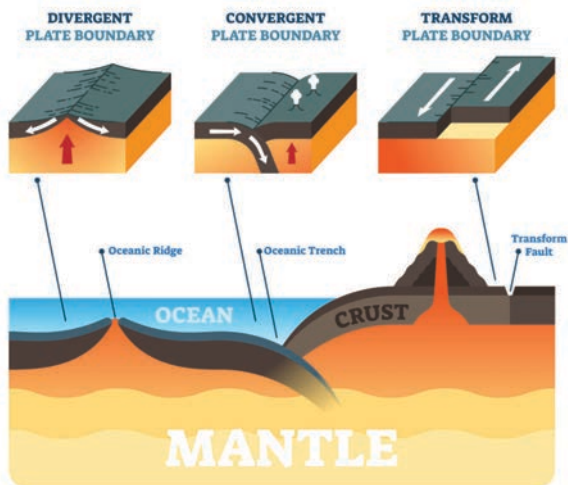


- Some important minor plates include:
 - **Cocos Plate:** Between Central America and Pacific plate
 - **Nazca Plate:** Between South America and Pacific plate
 - **Arabian Plate:** Mostly the Saudi Arabian landmass
 - **Philippine Plate:** Between the Asiatic and Pacific plate
 - **Caroline Plate:** Between the Philippine and Indian plate (North of New Guinea)
 - **Fuji Plate:** North-east of Australia
 - **Juan De Fuca Plate:** South-East of North American Plate

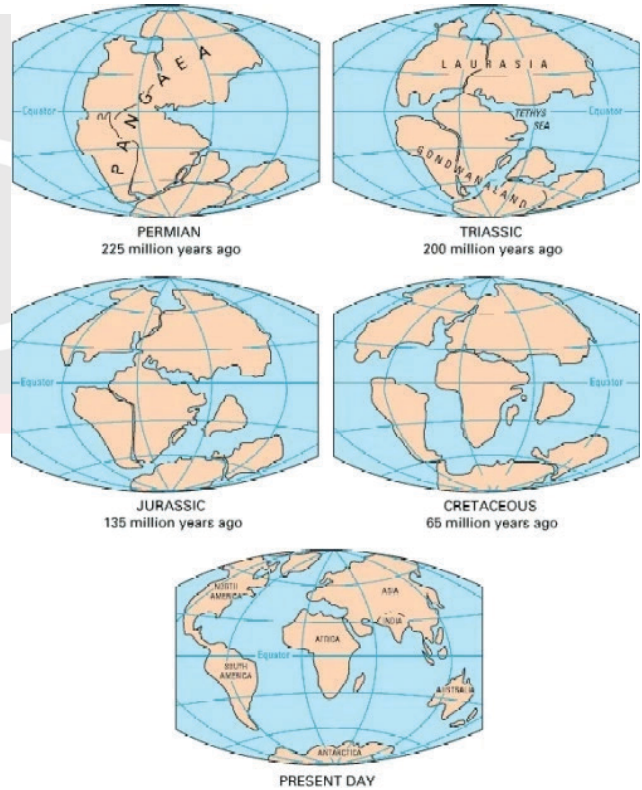


- The movement of the tectonic plates creates three types of tectonic boundaries:
 - **Convergent**, where plates move into one another.
 - **Divergent**, where plates move apart.

PLATE BOUNDARIES



- **Transform**, where plates move sideways in relation to each other.
- **Continental Drift Theory:**
 - Continental drift theory **deals with the distribution of the oceans and the continents.** It was first suggested by a German meteorologist, Alfred Wegener in 1912.
 - According to the theory, all the continents formed a single continental mass- **Pangea** and mega ocean- **Panthalassa** surrounded it.
 - Around 200 million years ago Pangea started splitting and **broke down into two large continental masses as Laurasia and Gondwanaland** forming the northern and southern components respectively.
 - Subsequently, **Laurasia and Gondwanaland** continued to break into various smaller continents that exist today.



- **Prominent Evidence in Support of Continental Drift Theory**
 - **South America and Africa seem to fit in with each other**, especially the eastern bulge of Brazil fits into the Gulf of Guinea.
 - **Greenland seems to fit in with Ellesmere and Baffin islands.**

Note:



- The **west coast of India, Madagascar and Africa seems to fit.**
- North and South America on one side and Africa and Europe on the other fit along the Mid-Atlantic Ridge.
- Alfred Wegner studied fossils of ancient plants and animals, geographical features on the borders of the continent and mineral resources and found similar results on the boundaries of the other continents.

Hunger Stones

Why in News?

Recently, Europe was suffering from the worst **drought**, therefore rivers have dried up and there is the emergence of **Hunger Stones**.

What are Hunger Stones?

- **About:**
 - They are the **common hydrological marker in central Europe** and date back to the pre-instrumental era.
 - They serve as **reminders to today's generation of previously dire water shortages.**
 - Usually found in Europe, they were embedded into rivers by our ancestors when rivers subsided to severe levels subsequently causing **famine and food shortages.**
 - Many of the hunger stones found have unique carvings on them that seek to remind the next generation that if water levels get to this point, food availability will be affected.
 - These stones were **embedded into the rivers in Germany & other German settlements from the 15th to 19th centuries.**
- **Inscriptions:**
 - It expressed that drought had brought a bad harvest, lack of food, high prices, and hunger for poor people.

Drought in Europe

Why in News?

After the **record-breaking summer heat**, 2022 may be the **worst drought year in Europe in 500 years**. Large

rivers have been reduced to shallow streams, hitting power generation.

- **China and the US too are facing drought situations.**

What is a Drought?

- **About:**
 - Drought is generally considered as a **deficiency in rainfall /precipitation over an extended period**, usually a season or more, resulting in a **water shortage causing adverse impacts on vegetation, animals, and/or people.**
- **Causes:**
 - **Variability in rainfall**
 - **Deviation in the route of monsoon winds**
 - **Early withdrawal of the monsoon**
 - **Forest fires**
 - **Land degradation** in addition to **Climate change**
- **Types:**
 - **Meteorological Drought:** It is based on the degree of dryness or rainfall deficit and the length of the dry period.
 - **Hydrological Drought:** It is based on the impact of rainfall deficits on the water supply such as stream flow, reservoir and lake levels, and ground water table decline.
 - **Agricultural Drought:** It refers to the impact on agriculture by factors such as rainfall deficits, soil water deficits, reduced groundwater, or reservoir levels needed for irrigation.
 - **Socioeconomic Drought:** It considers the impact of drought conditions (meteorological, agricultural, or hydrological drought) on supply and demand of some economic goods such as fruits, vegetables, grains and meat.

How bad is the Drought Situation in Europe?

- **Present Scenario:**
 - The drought is considered the worst in 500 years. The European summer was this dry last in **1540**, when a **year-long drought killed tens of thousands of people.**
 - However, earlier European droughts such as those in **2003, 2010, and 2018** too were compared to the 1540 event.
 - Some of Europe's biggest rivers — **Rhine, Po, Loire, Danube** — which are usually formidable waterways, are unable to support even mid-sized boats.

Note:



- As per an analytical report by the **Global Drought Observatory (GDO)**, an agency of the **European Commission**, about **64% of the continent's landmass was experiencing drought** conditions.
 - Nearly **90% of the geographical area in Switzerland and France**, about **83% in Germany**, and close to **75% in Italy**, was facing **agricultural drought**.
 - The **situation is unlikely to improve** substantially in the coming months.
- **Causes:**
 - Droughts are part of the natural climate system and are not uncommon in Europe. The extraordinary dry spell has been the result of a **prolonged and significant deviation from normal weather patterns**.
 - It is the **record-breaking heat waves** that have resulted in temperatures in many countries rising to historic highs.
 - Unusually high temperatures have led to **increased evaporation of surface water and soil moisture**.
 - The severity of the current drought can also be attributed, to an extent, to the fact that it occurred **so soon after the 2018 drought**.
 - **Many areas in Europe were yet to recover from the last drought**, soil moisture had also not been restored to normal.

What is Understood by Heat Waves?

- A heat wave is a **period of abnormally high temperatures** typically occurring between the months of March and June, and in some rare cases even extending till July.
- According to **India Meteorological Department (IMD)**, a heat wave is declared when the **maximum temperature of a station reaches at least 40°C for Plains** and at least **30°C for Hilly regions**.

- **Impacts:**
 - **Transportation:** Europe depends heavily on its rivers to move cargo in an economical manner, including coal to power plants. With water levels down to less than a metre in some stretches, **most large ships have been rendered unusable**.
 - **Power:** Power production has been hit, leading to **electricity shortages** and a further **increase in energy prices** which were already high due to the **war between Russia and Ukraine**.

- Lack of adequate water has **affected the operation of nuclear power plants**, which use large amounts of water as coolant.
- **Food Security: Food has become sharply more expensive** in many countries, and **drinking water is being rationed** in some regions. **Agriculture** has also been affected badly.

What about the Drought Situations in the US and China?

➤ Drought in China:

- Many parts of China too are headed towards a serious drought, **being described as the worst in 60 years**.
- The country's **longest river, Yangtze**, which caters to about a third of the Chinese population, is seeing water levels drop to record lows.
- Two of the country's biggest freshwater lakes, **Poyang and Dongting, have reached their lowest levels since 1951**.
- The water scarcity is leading to problems similar to those in Europe.
 - The drought has posed a **"serious threat" to China's autumn grain production** which makes up about 75% of the country's annual grain output.
 - Power shortages in some areas have begun to **force factories to shut**, adding to the **strain on global supply chains**.

➤ Drought in the US:

- According to the US government, **over 40% of the area in the United States too is under drought conditions** currently, affecting about 130 million people.

How Drought is Declared in India?

- In India, there is **no single, legally accepted definition** of drought. The **State Government is the final authority** when it comes to declaring a region as drought affected.
- The Government of India has published two important documents in respect of managing a drought.
 - The first step is to **look at two mandatory indicators - rainfall deviation and dry spell**.
 - Depending on the extent of the deviation, and whether or not there is a dry spell, the manual specifies various situations that may or may not be considered a drought trigger.

- The second step is to **look at four impact indicators** — **agriculture, vegetation indices** based on remote sensing, **soil moisture, and hydrology**.
 - The **States may consider any three of the four types** of the Impact Indicators (one from each) for assessment of drought, the intensity of the calamity and make a judgement.
 - If all three chosen indicators are in the 'severe' category, it amounts to **severe drought**; and if two of the three chosen impact indicators are in the 'moderate' class, it amounts to **moderate drought**.
- The third step comes in after both previous triggers have been set off. In that event, "**States will conduct sample surveys for ground** in order to make a final determination of drought.
 - The finding of field verification exercise will be the final basis for judging the intensity of drought as 'severe' or 'moderate'.
- Once a drought is determined, the state government needs to **issue a notification specifying the geographical extent**. The **notification is valid for six months unless de-notified earlier**.

Mahanadi River

Why in News?

The **Indian Meteorological Department (IMD)** has forecast a heavy rainfall causing the **flood situation** in the Mahanadi River, Odisha.

- The low-pressure area is expected to form over the north Bay of Bengal and trigger **heavy rainfall** at a few places in Odisha and Chhattisgarh.

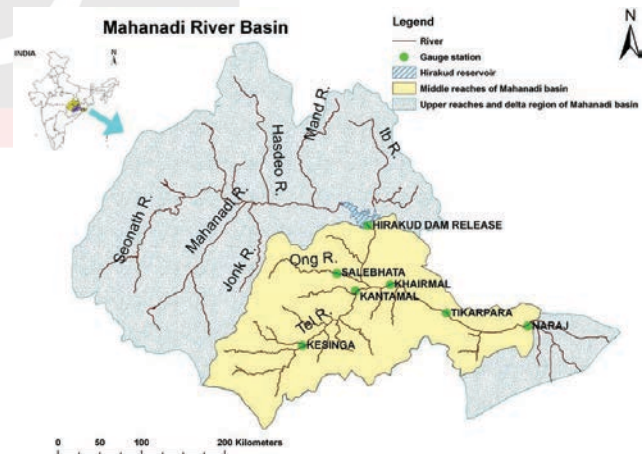
What is the India Meteorological Department (IMD)?

- IMD was **established in 1875**.
- It is an agency of the **Ministry of Earth Sciences**.
- It is the principal agency responsible for meteorological observations, weather forecasting and seismology.

What are the Key Points of Mahanadi River?

- **About:**
 - The Mahanadi River system is the **third largest of peninsular India after Godavari and Krishna**, and the **largest river of Odisha state**.

- The catchment area of the river **extends to Chhattisgarh, Madhya Pradesh, Odisha, Jharkhand and Maharashtra**.
- Its basin is **bounded by the Central India hills** on the north, by the **Eastern Ghats** on the south and **east and by the Maikala range** in the west.
- **Source:**
 - It originates from the **Amarkantak hills of the Bastar Plateau in Raipur district** of Chhattisgarh.
- **Major Tributaries:**
 - The Seonath, the Hasdeo, the Mand and the Ib joins Mahanadi from **left** whereas the **Ong, the Tel and the Jonk** joins it from **right**.
- **Mahanadi River Dispute:**
 - The Central Government constituted **Mahanadi Water Disputes Tribunal in 2018**.
- **Major Dams/Projects on Mahanadi:**
 - **Hirakud Dam:** This is the longest dam of India.
 - Ravishankar Sagar, Dudhawa Reservoir, Sondur Reservoir, Hasdeo Bango and Tandula are other major projects.
- **Urban Centres:**
 - Three important urban centres in the basin are **Raipur, Durg and Cuttack**.



- **Industries:**
 - Mahanadi basin, because of its rich mineral resource and adequate power resource, **has a favourable industrial climate**.
 - **Iron and Steel plant** at Bhilai
 - **Aluminium factories** at Hirakud and Korba
 - **Paper mill** near Cuttack
 - **Cement factory** at Sundargarh.

Note:



- Other industries based primarily on agricultural produce are **sugar and textile mills**.
- **Mining of coal, iron and manganese** are other industrial activities.

Godavari River

Why in News?

Recently, Officials issued the second warning with the flood level crossing 50 feet in **Godavari River at Bhadrachalam, Telangana**, and the flow in the river crossing the 13-lakh cusecs mark.



Why is the River Overflowing?

- Due to **heavy rains in the catchment areas** in Upper Godavari Basin.
- Discharge of water from Medigadda Barrage, receding with inflow coming down into all reservoirs.
- Discharge of water from projects in the Krishna Basin, Almatti, Narayanpur, and Tungabhadra in Karnataka, which get most of the inflows into projects in Telangana and Andhra Pradesh.
 - **Further, Srisaialam reservoir (Hydro-electric Power plant)** was getting over 3.60 lakh cusecs flood and discharge was over 3.17 lakh cusecs.

What are the Key Points of Godavari River?

- **About:**
 - The Godavari is the **largest Peninsular River system**. It is also called the **Dakshin Ganga**.
 - The basin is bounded on the north by the **Satmala hills**, on the south by the **Ajanta range and the Mahadeo hills**, on the east by the Eastern Ghats and on the west by the Western Ghats.

- **Source:**
 - Godavari River rises from **Trimbakeshwar near Nashik** in Maharashtra and flows for a length of about 1465 km before **outfalling into the Bay of Bengal**.
- **Drainage Basin:**
 - The Godavari basin extends over states of **Maharashtra, Telangana, Andhra Pradesh, Chhattisgarh and Odisha** in addition to smaller parts in Madhya Pradesh, Karnataka and Union territory of Puducherry.
- **Tributaries:**
 - Pravara, Purna, Manjira, Penganga, Wardha, Wain-ganga, Pranhita (combined flow of Wainganga, Penganga, Wardha), Indravati, Maner and the Sabri.
 - The Pravara, Manjira and Maner are **right bank tributaries**.
 - The Purna, Pranhita, Indravathi and Sabari are important **left bank tributaries**
- **Cultural Significance:**
 - **Kumbh Mela** also takes place on the **banks of the Godavari River in Nashik**.
 - Other locations for Kumbh are the **Shipra River in Ujjain**, the **Ganges in Haridwar**, and the **confluence of the Ganges, Yamuna, and the mythical Saraswati River in Prayag**.
- **Urban Centers:**
 - Nagpur, Aurangabad, Nashik, Rajahmundry.
- **Industries:**
 - Nashik and Aurangabad have a large number of industries, especially **automobiles**.
 - The industries in the basin are mostly based on agricultural produce such as rice milling, cotton spinning and weaving, sugar and oil extraction.
 - Cement and some small engineering industries also exist in the basin.
- **Important Projects on Godavari:**
 - Polavaram Irrigation Project
 - Kaleshwaram.
 - Sadarmatt Anicut
 - Inchampalli project
 - Sriram Sagar Project (SRSP)

Note:



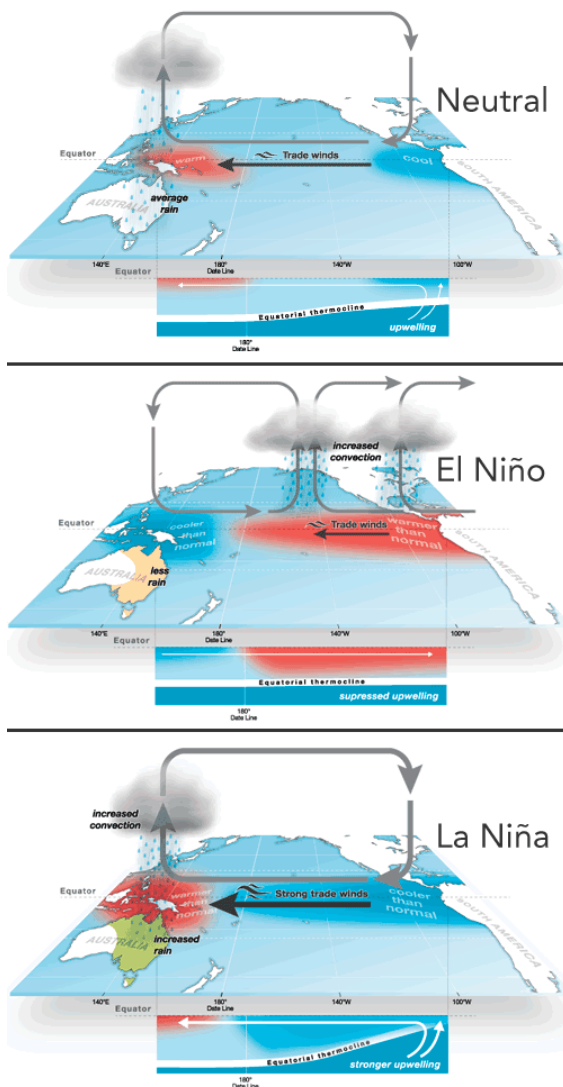
Third Consecutive La Nina Event

Why in News?

Recently, **Australia's Bureau of Meteorology (BOM)** predicted, that a third consecutive event of La Nina could be underway which could lead to unusual weather effects in various countries.

- There is an **extended period of La Nina in 2022**. It is the **first time that this has happened since the 1950s** when the event started to be recorded. The years 1973-76 and 1998-2001 were consecutive La Nina years.

What is La Nina and El Nino?



➤ Normal Condition:

- In the neutral state (neither El Niño nor La Niña) **trade winds blow east to west across the surface of the tropical Pacific Ocean, bringing warm moist air and warmer surface waters towards the western Pacific** and keeping the central Pacific Ocean relatively cool.

- Warm sea surface temperatures in the western Pacific pump heat and moisture into the atmosphere above.
- In a process known as **atmospheric convection**, this **warm air rises high into the atmosphere and, if the air is moist enough, causes towering cumulonimbus clouds and rain.**
 - The pattern of air rising in the west and falling in the east with westward moving air at the surface is referred to as the **Walker Circulation.**

➤ La Nina:

- La Nina means the **Little Girl in Spanish**. It is also sometimes called **El Viejo, anti-El Nino, or simply "a cold event."**
- La Nina events represent periods of **below-average sea surface temperatures across the east-central Equatorial Pacific.**
 - It is indicated by **sea-surface temperature decreased by more than 0.9°F for at least five successive three-month seasons.**
- La Nina event is observed when the **water temperature in the Eastern Pacific gets comparatively colder than normal**, as a consequence of which, there is a **strong high pressure over the eastern equatorial Pacific.**

○ Impacts:

- **Europe:** In Europe, El Nino reduces the number of autumnal hurricanes.
 - La Nina tends to lead to **milder winters in Northern Europe** (especially UK) and **colder winters in southern/western Europe** leading to snow in the Mediterranean region.
- **North America:** It is continental North America where most of these conditions are felt. The wider effects include:
 - **Stronger winds along the equatorial region**, especially in the Pacific.
 - **Favourable conditions for hurricanes** in the Caribbean and central Atlantic area.

Note:



- **Greater instances of tornados** in various states of the US.
 - **South America:** La Nina causes **drought in the South American countries of Peru and Ecuador.**
 - It usually has a **positive impact on the fishing industry** of western South America.
 - **Western Pacific:** In the western Pacific, La Nina increases the **potential for landfall** in those areas most vulnerable to their effects, and especially into **continental Asia and China.**
 - It also leads to **heavy floods in Australia.**
 - There are **increased temperatures** in Western Pacific, Indian Ocean and off the Somalian coast.
- **EL Nino:**
- **El Nino** is a climate pattern that describes the **unusual warming of surface waters** in the **eastern tropical Pacific Ocean.**
 - It is the “warm phase” of a larger phenomenon called the **El Nino-Southern Oscillation (ENSO).**
 - It occurs more frequently than La Nina.
 - **Impacts:**
 - **Impact on Ocean:** El Nino also impacts ocean temperatures, the speed and strength of ocean currents, the health of coastal fisheries, and local weather from Australia to South America and beyond.
 - **Increased Rainfall:** Convection above warmer surface waters brings increased precipitation.
 - Rainfall increases drastically in South America, contributing to coastal flooding and erosion.
 - **Diseases caused by Floods and Droughts:** Diseases thrive in communities devastated by natural hazards such as flood or drought.
 - El Nino-related flooding is associated with increases in cholera, dengue, and malaria in some parts of the world, while drought can lead to wildfires that create respiratory problems.
 - **Positive impact:** It can sometimes have a positive impact too, for example, El Nino reduces the instances of hurricanes in the Atlantic.
 - **In South America:** As El Nino brings rain to South America, it brings droughts to Indonesia and Australia.

- These droughts threaten the region’s water supplies, as reservoirs dry and rivers carry less water. Agriculture, which depends on water for irrigation, is also threatened.
- **In Western Pacific:** These winds **push warm surface water** towards the western Pacific, where it borders **Asia and Australia.**
 - Due to the warm trade winds, the sea surface is normally about **0.5 meter higher** and **4-5°F warmer in Indonesia than Ecuador.**
 - The westward movement of warmer waters causes **cooler waters to rise up** towards the surface on the coasts of **Ecuador, Peru, and Chile.** This process is known as **upwelling.**
 - Upwelling elevates cold, nutrient-rich water to the euphotic zone, the upper layer of the ocean.

➤ **El Nino-Southern Oscillation (ENSO):**

- The **combined phases of La Nina and El Nino** are termed **El Nino-Southern Oscillation (ENSO)** and affect rainfall patterns, global atmospheric circulation, and atmospheric pressure across the planet.

What will be the Impacts of Third Consecutive La Nina?

- The **India Meteorological India (IMD)** has stated in its report that La Nina conditions currently prevail over the equatorial Pacific Ocean.
- **Impacts on India:**
 - **Extreme weather:**
 - The India Meteorological India (IMD) has predicted that **some parts of India may witness heavy rains.**
 - The Western Ghats may receive average or below-average rain.
 - Winter rainfall is less than normal in North India.
 - Snowfall over Western Himalayas is less than normal.
 - Winter temperatures in the plains are less than normal.
 - Prolonged Winter Season over North India (extended winters).
 - More rain during the second half of the Northeast Monsoon.

Note:



○ **Negative Impact on Agriculture:**

- Farmers will be at risk of **losing their standing Kharif crops** if it rains during this period.
 - As the **harvesting of the Kharif crops begins in September-end or early October** and any

rain just before that would prove detrimental to the standing crops.

- Farmers will suffer a double whammy if untimely rains coincide with the harvest.



Note:



Social Issues

Highlights

- Sex Ratio at Birth
- Period Poverty
- Chronic Fatigue Syndrome
- Manual Scavengers Enumeration Exercise
- Validity of Child Gang-Rape Law
- Nikshay Poshan Yojna
- Scheme for Economic Empowerment of DNTs
- Community Forest Resource Rights

Sex Ratio at Birth

Why in News?

A recent study has reported that “son bias” is on a decline in India as **Sex Ratio** at Birth normalised from **111 boys per 100 girls in 2011 to 108 boys per 100 girls in 2019-21**.

What are the Key Findings of the Report?

➤ National Figures:

- The **average annual number** of baby girls “missing” in India fell from about 4.8 lakh in 2010 to 4.1 lakh in 2019.
 - The “missing” here refers to **how many more female births would have occurred during this time** if there were **no female-selective abortions**.
- From 111 boys per 100 girls in India’s 2011 census, the sex ratio at birth have normalised slightly, narrowing to about **109 in the 2015-16** wave of the **National Family Health Survey (NFHS)** and to 108 boys in the NFHS 5 2019-21.
- Between 2000-2019, **nine crore female births** went “missing” because of **female-selective abortions**.

➤ Religion Wise Sex Ratio:

- The report has also analysed **religion-wise sex selection**, pointing out that the **gap was the highest for Sikhs**.
 - In the 2001 census, Sikhs had a sex ratio at birth of **130 males per 100 females**, far exceeding that year’s national average of 110.
 - By the 2011 census, the Sikh ratio had **narrowed to 121 boys per 100 girls**.

- It now hovers around 110, about the same as the ratio of males to females at birth among the country’s Hindu majority (109), according to the latest NFHS.

- Both **Christians** (105 boys to 100 girls) and **Muslims** (106 boys to 100 girls) have sex ratios close to the natural norm.

➤ Religion Wise Share in Missing Girls:

○ Share in Indian Population:

- Sikh: 2%
- Hindu: 80%
- Muslim: 14%
- Christian: 2.3%

○ Share in Missing Girls due to Sex-Selective Abortion:

- Sikh: 5%
- Hindu: 87%
- Muslim: 7%
- Christian: 0.6%

What has been the History of Sex Ratio in India?

- Globally, **boys modestly outnumber girls at birth**, at a ratio of approximately **105 male babies for every 100 female babies**.
 - This was the ratio in India in the 1950s and 1960s, **before prenatal sex tests became available across the country**.
- The problem began in the 1970s with the availability **prenatal diagnostic technology allowing for sex selective abortions**.
 - **India legalised abortion in 1971** but the trend of sex selection started picking up in the **1980s due to the introduction of ultrasound technology**.

Note:



- In the **1970s**, India's sex ratio **was at par with the global average of 105-100**, but this widened to **108 boys per 100 girls in the early 1980s**, and reached **110 boys per 100 girls in the 1990s**.

What are the Challenges in Ensuring Balanced Birth Sex Ratio?

- **Regressive Mindset:**
 - There is considerable **son preference** in all states, except possibly in Kerala and Chhattisgarh.
 - This son's preference is derived from a regressive mindset. E.g.: **People associate girls with dowry**.
- **Misuse of Technology:**
 - Cheaper technology like ultrasound helps in sex selection.
- **Failure in Implementation of Law:**
 - **The Prenatal Conception and Prenatal Determination Act (PC-PNDT)**, 1994 which punishes healthcare professionals for telling expectant parents the sex of a child with imprisonment and hefty fines, **has failed to control the sex selection**.
 - Reports found major gaps in the **training of personnel implementing PC-PNDT**.
 - Poor training meant that they were unable to prepare strong cases against violators to secure convictions.
- **Illiteracy:**
 - **Illiterate women** in the reproductive age group of 15-49 years have **higher fertility than literate women**.

Period Poverty

Why in News?

Scotland has become the first nation in the world to legally protect the **right to access free period products** and have made **period products free for all** by passing the **Period Products Act**.

- Period poverty is when those on low incomes can't afford, or access, suitable period products (tampons, sanitary pads, etc.).

What do we know about the Development in Scotland?

- **About:**



- Under the **Period Products Act**, schools, colleges and universities as well as local government bodies must **make a range of period products available for free in their bathrooms**.
- **Every council in Scotland** is required with local communities to determine the best access point for menstrual products.
- **Accessibility:**
 - A mobile phone app (**PickUpMyPeriod**) also helps people find the nearest place — such as the local library or community center — where they can pick up period products.
 - The period products would be available at libraries, swimming pools, public gyms, community buildings, town halls, pharmacies & doctor's offices.

What has been the state of Menstrual Hygiene in India?

- According to a **United Nations Children's Fund (UNICEF)** study conducted in 2011:
 - Only 13% of girls in India are aware of **menstruation** before menarche.
 - 60% of girls missed school on account of menstruation.
 - 79% faced low confidence due to menstruation and 44% were embarrassed and humiliated over restrictions.
 - Thereby, Menstruation adversely impacts **women's education, equality, maternal and child health**.

Note:



- **National Family Health Survey 5:**
 - **Women aged 15-24 years using period products:**
 - **Seventeen states and Union Territories (UTs)** had 90% or more of their women using period products.
 - In Puducherry and the Andaman and Nicobar Islands, the fraction was 99%.
 - Tripura, Chhattisgarh, Assam, Gujarat, Meghalaya, Madhya Pradesh and Bihar – had 70% or fewer of their women using period products.
 - Bihar was the only state to report a figure lower than 60%.
 - **Top three states that reported an increase in the percentage of women using period products from NFHS-4 to NFHS-5:**
 - Bihar: 90%
 - Odisha: 72%
 - Madhya Pradesh: 61%

What Initiatives has the Indian Government taken for Menstrual Hygiene?

- **Shuchi Scheme:**
 - **Shuchi Scheme** aims aimed at **instilling awareness about menstrual hygiene** among adolescent girls.
 - It was started in 2013-14 initially as a **Centrally-sponsored one**.
 - However, the **Centre asked States to take over the scheme from 2015-16**.
- **Menstrual Hygiene Scheme:**
 - **Menstrual Hygiene Scheme** focuses on promotion of menstrual hygiene among adolescent girls (10-19 years) in rural areas of selected districts in 2011.
- **SABLA programme:**
 - It was implemented by the Ministry of Women and Child Development.
 - It focuses on **nutrition, health, hygiene and reproductive and sexual health** (linked to rural mother and childcare centres).
- **National Rural Livelihood Mission:**
 - It supports **self-help groups** and small manufacturers to produce sanitary pads.
- **Swachh Bharat Mission and Swachh Bharat: Swachh Vidyalaya (SB:SV):**
 - Menstrual hygiene management is also an integral part of the **Swachh Bharat Mission**.

- **Guidelines for Gender Issues in Sanitation (2017):**
 - These have been evolved by the **Ministry of Drinking Water and Sanitation** to ensure **gender equality and empowerment of women and girls** with respect to sanitation.
 - Safe and effective menstrual hygiene management is a trigger for better and stronger development for adolescent girls and women.
- **The National Guidelines on Menstrual Hygiene Management:**
 - It was released by the **Ministry of Drinking Water and Sanitation in 2015**.
 - It seeks to address every component of menstrual hygiene ranging from, raising awareness, addressing behaviour change, creating a demand for better hygiene products, capacity building etc.

Chronic Fatigue Syndrome

Why in News?

A petition has been filed in the **Delhi High Court** to stop a person, who has been suffering from **Chronic Fatigue Syndrome** since 2014, from travelling to Europe to undergo a physician-assisted **euthanasia**.

What is Chronic Fatigue Syndrome?

- **About:**
 - It is a **serious and debilitating disease** that affects the **nervous system**, the **immune system** and the **body's production of energy**.
 - It is also known as "**Myalgic Encephalomyelitis**".
 - Its potential results are **viral or bacterial infection, hormonal imbalances and genetic predispositions**.
 - It can **affect anyone**, from children to adults of all ages.
- **Symptoms:**
 - Significantly **lowered ability to do activities** that were performed before the illness.
 - **At least 6 months (or longer) of debilitating fatigue** that is more severe than everyday feelings of tiredness.
 - Most recognizable symptom is **Post-Exertional Malaise (PEM)**.
 - A "**crash**" in physical/mental energy following even minor activities like grocery shopping or brushing teeth.

Note:



- **Other Symptoms:**
 - Trouble sleeping, difficulty in thinking, memory retention and concentration, dizziness/light-headedness, headaches, muscle pain, joint ache, flu-like symptoms, tender lymph nodes and digestive issues.

➤ **Treatment:**

- There is **no specific test for the disease**, and doctors have to rely on medical examinations, blood and urine tests.
- Doctors have recommended ways to deal with the symptoms of the disease like **“Pacing”** in which patients learn to balance rest and activity to prevent crashes caused by exertion.

What is Euthanasia?

➤ **About:**

- **Euthanasia** is the practice of **ending the life of a patient** to limit the patient’s suffering. The patient in question would typically be terminally ill or experiencing great pain and suffering.

➤ **Types:**

- **Active euthanasia:**
 - Killing a patient by active means, for example, injecting a patient with a lethal dose of a drug. Sometimes called “aggressive” euthanasia.
- **Passive euthanasia:**
 - Intentionally letting a patient die by withholding artificial life support.
- **Voluntary euthanasia:**
 - With the consent of the patient.
- **Involuntary euthanasia:**
 - Without the consent of the patient, for example, if the patient is unconscious and his or her wishes are unknown.

➤ **Legal Provisions in India:**

- In 1994, the **Supreme Court of India** in **Gian Kaur vs State of Punjab** had held that **both assisted suicide and euthanasia were unlawful**.
 - The bench stated that **the right to life did not include the right to die**, hence **overruling the two-judge bench decision in P. Rathinam vs Union of India which struck down section 309 of Indian Penal Code** (attempt to suicide) as **unconstitutional**.

- In 2011, the Supreme Court in **Aruna Ramchandra Shanbaug vs Union of India** held that **passive euthanasia could be given a nod in case of exceptional circumstances and under strict monitoring of the apex court**.
- In 2018, the Supreme Court declared **the right to die with dignity as a fundamental right**, allowing **passive euthanasia** in the country.

Manual Scavengers Enumeration Exercise

Why in News?

The Ministry of Social Justice and Empowerment (MoSJ&E) is preparing to undertake a nationwide survey to **enumerate all Sanitation workers engaged in cleaning of sewers and septic tanks**.

What are the Key Points?

- The enumeration exercise is part of the **National Action Plan for Mechanised Sanitation Ecosystem (NAMASTE) Scheme** and will be conducted across **500 AMRUT (Atal Mission for Rejuvenation and Urban Transformation) cities**.
- It will merge with and replace the **Self-Employment Scheme for the Rehabilitation of Manual Scavengers (SRMS)**, which was started in 2007.
- Programme Monitoring Units (PMUs) for the 500 AMRUT cities will be set up to carry out the exercise.
- Once this exercise is completed across the 500 cities, it will be **expanded nationwide, making it easier to bring government benefits** like upskilling and loan and capital subsidies to them.

What is the Need for Enumeration Exercise?

- **Manual Scavenging** has led to at **least 351 deaths since 2017**.
- It is aimed at streamlining the process of rehabilitating sanitation workers.
- It will make it easier to bring government benefits like upskilling and loan and capital subsidies to them.
- To link listed sanitation workers to the **Swachha Udyami Yojana**, through which the workers will be able to own sanitation machines themselves and the government will ensure that at the municipality level, the work keeps coming in.

Note:



What is the NAMASTE Scheme?

➤ About:

- It was launched in July 2022.
- The NAMASTE scheme is being undertaken jointly by the Ministry of Housing and Urban Affairs and the MoSJ&E and **aims to eradicate unsafe sewer and septic tank cleaning practices.**

➤ Objectives:

- Zero fatalities in sanitation work in India.
- All sanitation work **is performed by skilled workers.**
- No sanitation workers come in direct contact with human faecal matter.
- Sanitation workers are collectivised into **Self Help Groups (SHGs)** and are empowered to run sanitation enterprises.
- Strengthened supervisory and monitoring systems at National, State and Urban Local Body (ULB) levels to ensure enforcement and monitoring of safe sanitation work.
- Increased awareness among sanitation services seekers (individuals and institutions) to seek services from registered and skilled sanitation workers.

- Swachha Udyami Yojana has twin objectives of **cleanliness and providing livelihood to Safai Karamcharis** and liberated Manual Scavengers to achieve the overall goal of **“Swachh Bharat Abhiyan”**.

What is Manual Scavenging?

- Manual scavenging is defined as **“the removal of human excrement from public streets and dry latrines, cleaning septic tanks, gutters and sewers”**.
- India banned the practice under the **Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013 (PEMSR)**.
 - The Act bans the use of any individual manually cleaning, carrying, disposing of or otherwise handling in any manner human excreta till its disposal.
 - The Act recognizes **manual scavenging as a “dehumanizing practice.**

Why is Manual Scavenging Still Prevalent?

➤ Indifferent Attitude:

- A number of independent surveys have talked about **the continued reluctance on the part of state governments** to admit that the practice prevails under their watch.

➤ Issues due to Outsourcing:

- Many times, local **bodies outsource sewer cleaning tasks to private contractors. However,** many of them fly-by-night operators, do not maintain proper roles of sanitation workers.
- In case after case of workers being asphyxiated to death, **these contractors have denied any association with the deceased.**

➤ Social Issue:

- The practice is driven by **caste, class and income divides.**
- It is linked to India’s caste system where so-called lower castes are expected to perform this job.
- In 1993, **India banned the employment of people as manual scavengers** (The Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act, 1993), however, the stigma and discrimination associated with it still linger on.
 - This makes **it difficult for liberated manual scavengers** to secure alternative livelihoods.

➤ Lack of Enforcement and Unskilled Labourers:

- The lack of enforcement of the Act and exploitation of unskilled labourers are the reasons why the practice is still prevalent in India.

What are the Steps taken to tackle the Menace of Manual Scavenging?

➤ **The Prohibition of Employment as Manual Scavengers and their Rehabilitation (Amendment) Bill, 2020:**

- It proposes to completely mechanise sewer cleaning, introduce ways for ‘on-site’ protection and provide compensation to manual scavengers in case of sewer deaths.
- It will be an amendment to The Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013.
- It is still awaiting cabinet approval.

➤ **The Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013:**

- Superseding the 1993 Act, the 2013 Act goes beyond prohibitions on dry latrines, and outlaws all manual excrement cleaning of insanitary latrines, open drains, or pits.

Note:



➤ **The Building and Maintenance of Insanitary Latrines Act of 2013:**

- It outlaws construction or maintenance of insanitary toilets, and the hiring of anybody for their manual scavenging, as well as of hazardous cleaning of sewers and septic tanks.
- It also provides a constitutional responsibility to provide alternative jobs and other assistance to manual scavenging communities, as reparation for historical injustice and indignity.

➤ **Prevention of Atrocities Act:**

- In 1989, the Prevention of **Atrocities Act** became an integrated guard for sanitation workers, more than 90% people employed as manual scavengers belonged to the Scheduled Caste. This became an important landmark to free manual scavengers from designated traditional occupations.

➤ **Safaimitra Suraksha Challenge:**

- It was launched by the Ministry of Housing and Urban Affairs on **World Toilet Day** (19th November) in 2020.
- The Government launched this “challenge” for all states to make sewer-cleaning mechanised by April 2021 — if any human needs to enter a sewer line in case of unavoidable emergency, proper gear and oxygen tanks, etc., are to be provided.

➤ **‘Swachhta Abhiyan App’:**

- It has been developed to identify and geotag the data of insanitary latrines and manual scavengers so that the insanitary latrines can be replaced with sanitary latrines and rehabilitate all the manual scavengers to provide dignity of life to them.

➤ **SC Judgment:** In 2014, a **Supreme Court** order made it mandatory for the government to identify all those who died in sewage work since 1993 and provide Rs. 10 lakh each as compensation to their families.

Validity of Child Gang-Rape Law

Why in News?

Recently, a petition was filed by a 29-year-old man, in the **Supreme Court**, who is serving a life sentence, for the gang rape of a nine-year-old in Maharashtra.

- The **Supreme Court** will examine the validity of a law which sends a guilty man either to a lifetime in

prison or to the gallows for gangraping a child under 12 years without affording him a chance to atone for his crime or reform.

What are the Issues Highlighted in the Petition?

➤ **Restrict judge’s options:**

- It argued that **Section 376DB (gang rape of a child under 12 years of age)** of the **Indian Penal Code** restricted the trial judge’s options to either a **sentence for the remainder of the person’s natural life or the death penalty**.

- However, Life imprisonment is the minimum, mandatory punishment under the provision.

➤ **Anomaly in 2018 Amendment:**

- The petitioner further argued that there is an **anomaly in the sentencing system drafted through the criminal amendments carried out in August 2018**.

- Section 376DB was introduced in 2018 when the penal code was **amended to provide harsher sentences for the offense of rape**.

➤ **Arbitrariness:**

- While **Section 376-AB** provided for a **minimum sentence of 20 years for a person convicted of raping an under-12 girl**.

- Whereas, **Section 376-DB** provides for a **mandatory minimum punishment of life imprisonment for each of the persons involved in the gang rape of an under-12 girl**.

- Both sections provided the **death penalty as maximum punishment**.

- This life sentence without remission could mean 60-70 years of jail for a person who is in his twenties.

➤ **Violates Right to Life:**

- Section 376DB offered a trial court no option but a life sentence or the higher punishment of the death penalty.

- The petitioner argued that Section 376DB violated **Articles 21** (Right to life) and **Article 14** (right to equality) of the Constitution.

➤ **Global Scenario:**

- **Given the global context of this issue, the European Court of Human Rights** in the case of **Winter vs the United Kingdom** ruled that life imprisonment

Note:



without a **real** prospect of **parole** was a violation of Article 3 of the European Convention on Human Rights.

- It held that life sentences cannot be considered just punishment as they provided the prisoner with no opportunity for atonement and such sentences were incompatible with respect for human dignity.
- The U.S. Supreme Court had held that in extreme cases, a disproportionate sentence **violated the Eighth Amendment, which prohibits cruel and unusual punishment, of the U.S. Constitution.**

What's the View of the Supreme Court?

- The SC bench said that this question required consideration, as the SC has already quashed the provision imposing mandatory death sentence as unconstitutional.
 - Further, it asked an additional solicitor general, as well as the petitioner to submit written submissions and propositions on the issue.
- **Historical Perspective:**
 - Also, the SC in '**Mithu Vs Punjab**' in **1983**, had ruled that **Section 303 of IPC was unconstitutional** to the extent it provided for the mandatory death penalty to a person who committed a murder while serving a life sentence in another case.
 - Section 303 had mandated that courts would impose no other punishment but the death penalty in such cases.

What are the Other Related Initiatives for Child Protection?

- **POSCO (Protection of Children from Sexual Offences).**
- **Child Abuse Prevention and Investigation Unit.**
- **Beti Bachao, Beti Padhao.**
- **Juvenile Justice Act/Care and Protection Act, 2000.**
- **Child Marriage Prohibition Act (2006).**
- **Child Labour Prohibition and Regulation Act, 2016.**

Nikshay Poshan Yojna

Why in News?

Only two-thirds of people living with tuberculosis benefitted from the Union government's Nikshay Poshan

Yojana (NPY), sole nutrition support scheme, in 2021, which raises major public health concern.

What is Tuberculosis (TB)?

➤ **About:**

- TB is caused by a **bacterium called Mycobacterium tuberculosis**, belonging to the Mycobacteriaceae family consisting of about 200 members.
 - Some Mycobacteria cause diseases like TB and **Leprosy in humans** and others infect a wide range of animals.
- In humans, TB most **commonly affects the lungs (pulmonary TB)**, but it can also affect **other organs (extra-pulmonary TB)**.
- TB is a **very ancient disease** and has been documented to have existed in Egypt as early as 3000 BC.

➤ **Transmission:**

- TB is spread from person to person through the air. When people with lung TB cough, sneeze or spit, they propel the TB germs into the air.

➤ **Symptoms:**

- Common symptoms of active lung TB are cough with sputum and blood at times, chest pains, weakness, weight loss, fever and night sweats.

➤ **Treatment:**

- **TB is a treatable and curable disease. It is treated with a standard 6-month course of 4 antimicrobial drugs** that are provided with information, supervision and support to the patient by a health worker or trained volunteer.
- **Anti-TB medicines** have been used for decades and strains that are resistant to 1 or more of the medicines have been documented in every country surveyed.
 - **Multidrug-resistant tuberculosis (MDR-TB)** is a form of TB caused by bacteria that do not respond to isoniazid and rifampicin, the 2 most powerful, first-line anti-TB drugs. MDR-TB is treatable and curable by using second-line drugs.
 - **Extensively drug-resistant TB (XDR-TB)** is a more serious form of MDR-TB caused by bacteria that do not respond to the most effective second-line anti-TB drugs, often leaving patients without any further treatment options.

Note:



What is Nikshay Poshan Yojna?

➤ About

- The NPY was launched in 2018 by the Ministry of Health and Family Welfare.
- It aims to support every Tuberculosis (TB) Patient by providing a Direct Benefit Transfer (DBT) of Rs 500 per month for nutritional needs.
 - Since its inception around Rs 1,488 crore has been paid to 5.73 million notified beneficiaries.

➤ Performance:

- As per India TB Report 2022, only 62.1% of 2.1 million notified cases across the country **received at least one payment in 2021.**
- In Delhi, which has the highest burden of all forms of TB at 747 cases per 100,000 people, only 30.2% of patients have got at least one DBT.
 - Other poor performers are Punjab, Jharkhand, Maharashtra, Bihar, Rajasthan and Uttar Pradesh. In the North East, Manipur and Meghalaya fared the worst.

➤ Challenges:

- Several hurdles were found in the DBT for both health providers and patients such as non-availability of bank accounts and unlinked bank accounts.
- Lack of communication, stigma, illiteracy and the multi-step approval process as key hurdles.
- States have their own nutritional support schemes, but caveats remain here too; for instance, **some schemes are only for patients showing resistance to TB drugs.**

What is the Status of TB in India?

- As per **India TB Report 2022**, during 2021, the total number of TB patients was more than 19 lakhs. In 2020 it was around 16 lakhs, increasing 19%.
- In India, the mortality rate due to all kinds of tuberculosis **increased by 11% between 2019 and 2020.**
- The total number of estimated TB-related deaths for the year 2020 was 4.93 lakh, which is **13% higher than the estimates of 2019.**
- Malnutrition, HIV, diabetes, alcohol, and tobacco smoking are the comorbidities that impact a person suffering from TB.

What are the Initiatives to Combat TB?

➤ Global Efforts:

- The WHO has launched a joint initiative “Find. Treat. All. #EndTB” with the **Global Fund and Stop TB Partnership.**

- WHO also releases the **Global Tuberculosis Report.**

➤ India's Efforts:

- **National Strategic Plan (NSP)** for Tuberculosis Elimination (2017-2025), The Nikshay Ecosystem (National TB information system), Nikshay Poshan Yojana (NPY- financial support), **TB Harega Desh Jeetega Campaign.**
- Currently, two vaccines VPM (Vaccine Projekt Management) 1002 and MIP (Mycobacterium Indicus Pranii) have been developed and identified for TB, and are under **Phase-3 clinical trial.**
- **The Saksham Project:** It is a project of the Tata Institute of Social Sciences (TISS) that has been providing psycho-social counselling to DR-TB patients.

Scheme for Economic Empowerment of DNTs

Why in News?

Recently, the Ministry of Social Justice and Empowerment has said that only 402 online applications are received to avail benefits under SEED (Scheme for Economic Empowerment of Denotified, Nomadic and Semi-Nomadic Tribes).

- More than 10 crore Indians from 1,400 communities belong to these groups, as per the latest estimates available with the government.

What is SEED?

➤ About:

- The Scheme for Economic Empowerment of Denotified/Nomadic/SemiNomadic (SEED) communities was launched in February 2022 by **the Ministry of Social Justice & Empowerment.**
- It aims to **provide free competitive exam coaching to these students**, to provide health insurance to families, to uplift clusters of these communities through livelihood initiatives, and to provide financial assistance for housing.

➤ Components:

- Free coaching to students from these communities

Note:



for Civil Services, entry to professional courses like medicine, engineering, MBA, etc.

- **Health Insurance** through **PMJAY** of National Health Authority.
- Livelihoods to support income generation
- Housing (through PMAY/IAY).

➤ **Features:**

- It ensures expenditure of **Rs.200 crore to be spent over five years** beginning 2021-22.
- The **DWBDCs (Development and Welfare Board for De-notified, Nomadic and Semi-Nomadic Communities)** has been tasked with the implementation of this scheme.
- An online portal has been developed by the department which will ensure seamless registration and will also act as a repository of the data on these communities.

Who are De-Notified, Nomadic and Semi-Nomadic Tribes?

- These are communities that are the **most vulnerable and deprived**.
- DNTs are communities that were '**notified**' as being '**born criminals**' during the British regime under a series of laws starting with **the Criminal Tribes Act of 1871**.
 - These Acts were repealed by the Independent Indian Government in 1952, and these communities were "**De-Notified**".
- A few of these communities which were listed as de-notified were also nomadic.
 - **Nomadic and semi-nomadic communities** are defined as those who move from one place to another rather than living in one place all the time.
- Historically, Nomadic Tribes and De-notified Tribes never had access to private land or home ownership.
- While most DNTs are spread across the **Scheduled Castes (SC), Scheduled Tribes (ST) and Other Backward Classes (OBC) categories**, some DNTs are not covered in any of the SC, ST or OBC categories.
- Many commissions and committees constituted since Independence have referred to the problems of these communities.
 - These include the Criminal Tribes Inquiry Committee, 1947 constituted in the United Provinces (now Uttar Pradesh),

- **Ananthasayanam Ayyangar Committee in 1949** (it was based on the report of this committee the Criminal Tribes Act was repealed),
- **Kaka Kalelkar Commission** (also called first OBC Commission) constituted in 1953.
- The B P Mandal Commission constituted in 1980 also made some recommendations on the issue.
- The National Commission to Review the Working of the Constitution (NCRWC), 2002 held that DNTs have been wrongly stigmatised as crime prone and subjected to high handed treatment as well as exploitation by the representatives of law and order and general society.
 - The NCRWC was established under the chairmanship of Justice M N Venkatachaliah.
- It has been **estimated that South Asia has the world's largest nomadic population**.
 - In India, roughly 10% of the population is Denotified and Nomadic.
 - While the number of Denotified Tribes is about 150, the population of Nomadic Tribes consists of about 500 different communities.

What are the Developmental Efforts Regarding DNT?

➤ **Background:**

- A **National Commission for De-notified, Nomadic and Semi-Nomadic Tribes (NCDNT)** was constituted in 2006 by the then government.
 - It was headed by **Balkrishna Sidram Renke** and submitted its report in 2008.
 - The commission held that "It is an irony that these tribes somehow escaped the attention of our Constitution makers.
 - They are deprived of Constitutional support unlike Scheduled Castes and Scheduled Tribes".
 - The Renke commission estimated their population at around 10.74 crores based on **Census 2001**.
- **Idate Commission:**
 - The National Commission was constituted in 2015 under the chairmanship of **Shri Bhiku Ramji Idate**.
 - This commission was tasked to **identify and properly list** DNT communities in different states, to evaluate the progress of development of these communities in the states.

Note:



- Based on the recommendation of this commission, the Government of India set up the **Development and Welfare Board for DNTs, SNTs &NTs (DWBDNCs) in 2019.**
- **Schemes for DNT:**
 - **Dr. Ambedkar Pre-Matric and Post-Matric Scholarship for DNTs:**
 - This Centrally Sponsored Scheme was launched w.e.f. 2014-15 for the welfare of those DNT students who are not covered under SC, ST or OBC.
 - **Nanaji Deshmukh Scheme of Construction of Hostels for DNT Boys and Girls:**
 - This Centrally Sponsored Scheme launched w.e.f. 2014-15 is implemented through State Governments/ UT Administrations/ Central Universities.
 - From the year 2017-18, the scheme “Assistance to Voluntary Organization working for the Welfare of OBCs “ has been extended for DNT.

Community Forest Resource Rights

Why in News?

Residents of the four villages in Chhattisgarh’s Mungeli district have received **Community Forest Resource Rights (CFRR)**.

- Achanakmar became the second **tiger reserve** in Chhattisgarh to get CFRR, following Udanti Sitanadi Tiger Reserve in Dhamtari district.

What is a Community Forest Resource?

- The Community Forest Resource (CFR) area is common **forest land that has been traditionally protected and conserved for sustainable use** by a particular community.
- The community uses it to **access resources available within the traditional and customary boundary** of the village; and for seasonal use of landscape in the case of pastoralist communities.
- Each CFR area has a **customary boundary with identifiable landmarks recognised by the community** and its neighbouring villages.

- It may include forest of any category – **revenue forest, classified & unclassified forest, deemed forest, DLC (District Level Committee) land, reserve forest, protected forest**, sanctuary and national parks etc.

What are Community Forest Resource Rights?

- The Community Forest Resource rights under Section 3(1)(i) of the **Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006** (commonly referred to as the Forest Rights Act) provides for **recognition of the right to “protect, regenerate or conserve or manage”** the community forest resource.
- These rights allow the **community to formulate rules for forest** use by itself and others and thereby discharge its responsibilities under **Section 5 of the FRA**.
- CFR rights, along with Community Rights (CRs) under Sections 3(1)(b) and 3(1)(c), which include nistar rights and rights over non-timber forest products, **ensure sustainable livelihoods of the community**.
- **Once CFRR is recognised for a community, the ownership of the forest passes into the hands of the Gram Sabha instead of the forest department.**
- Effectively, the Gram Sabha becomes the nodal body for management of the forests.
- These rights give authority **to the Gram Sabha adopt local traditional practices of forest conservation and management** within the community forest resource boundary.
- Chhattisgarh is only the second state to have recognised CFR rights inside a national park i.e., **Kanger Ghati National Park**.
- In 2016, the Odisha government was the first to recognise Community Forest Resources (CFRs) inside the **Simlipal National Park**.

What is the Significance of CFR?

- Aimed at undoing the “historic injustice” meted out to forest-dependent communities due to curtailment of their customary rights over forests, the **FRA came into force in 2008**.
- It is important as **it recognises the community’s right to use, manage and conserve** forest resources, and to legally hold forest land that these communities have used for cultivation and residence.

Note:



- It also underlines the **integral role that forest dwellers play in sustainability** of forests and in conservation of biodiversity.
- It is of greater significance inside **protected forests**

like national parks, sanctuaries and tiger reserves as traditional dwellers then become a part of management of the protected forests using their traditional wisdom.



Note:



Ethics

Highlights

- Peer Pressure

- Acculturation

Peer Pressure

Why in News

There is still much disagreement over whether peer pressure is a genuine phenomenon.

What do we understand by Peer Pressure?

➤ About:

- Peer pressure is the process in which individuals within the same group influence others in the group to engage in a behavior or activity that they may not otherwise engage in.
 - A peer can be any individual who belongs to the same social groups or circles as you and has some type of influence over you.
- Peer pressure or influence is **when you do something because you want to feel accepted** and valued by your friends.
- Peer influence can be **positive or negative**.
- **Coping well with peer influence is about getting the right balance** between being yourself and fitting in with your group.

➤ Effects:

- **Positives:**
 - Positive peer influences **might refer to peers who inspire constructive outcomes**, offer moral support, motivate us to do well in life, stimulate interest in reading or extracurricular activities, always teach us something new, speak against bullies, and, above all, respect our boundaries.
- **Negatives:**
 - This form of **peer pressure can include ridiculing someone's choices or values, forcing them to do things against their principles**, leading to bad habits or even disagreeable acts like stealing,

cheating, indulging in alcohol and drugs, skipping classes, using the internet for inappropriate activities, or other risky behaviours.

➤ Reasons:

- Desire to Fit in
- To Avoid Rejection and Gain Social Acceptance
- Hormonal Inconsistencies
- Personal/social Confusion and/or Anxiety
- A Lack of Structure at Home

How does Peer Pressure affect Young People?

- **A young person's academic performance, educational choices and career (one may quit one's dream career and go after what their friends are doing), concentration levels, and overall personality and behaviour might alter due to peer pressure.**
- These are all but a cumulative effect of negative peer influences.
- According to developmental theorist Erik Erikson, "When there is a similarity among peers, it provides us with a sense of security," which causes the **crisis of identity vs identity confusion**.
- Adolescents modify their thinking patterns, speech, dressing, behaviour, and other choices to those of their friends. Instead of cherishing their individuality, they try to be someone else.
- They fail to understand that each person is unique and trying to emulate someone else can reveal low self-esteem.

Acculturation

Why in News?

India, with its distinctive fusion of various cultures, has ideals that provide a deeper understanding of the concept of **acculturation** and its outcomes.

Note:



What is Meant by Acculturation?

- The concept of acculturation was **coined in 1880 by American geologist John Wesley Powel** in a report for the U.S. Bureau of Ethnology.
 - He defined it as the **psychological changes induced in people due to cross-cultural imitation**, resulting from the **interaction with different cultures**.
- Acculturation, in present days, is defined as the process in which a person or group from one culture comes in contact with another culture, **adopting the values and practices of the other while still retaining their own distinct identity**.
 - A suitable example would be the **integration of Black Americans within the white American society**.
- Sociologists understand acculturation as a **two-way process**, wherein the **minority culture adopts aspects of the majority** to fit in and the culture of the **majority is also influenced by that of the minority**.

What are the Different Outcomes of Acculturation?

- **Assimilation:**
 - A study by W.I. Thomas and Florian Znaniecki in 1918 on Polish immigrants in Chicago provided a better understanding of the concept of assimilation.
 - It is a process in which groups **adopt a new culture that virtually replaces their original culture**, leaving only traces behind.
 - In assimilation, individuals or groups **eventually become indistinguishable** from the culture they came in contact with.
 - It occurs when the **importance given to one's culture is minuscule and where 'fitting in' is given high significance**, deeming it necessary for survival in a new cultural space.
 - This outcome is likely to occur in societies that are **"melting pots"** into which new members are absorbed.
- **Separation:**
 - It refers to the process wherein an individual/group comes in contact with a new cultural group, but **does not embrace aspects of the new culture, as they wish to maintain their own unique identity** without being **'contaminated'** by the values and norms of another culture.

- The rejection of a new culture while maintaining one's own traditions and customs **usually occurs in culturally or racially segregated societies**.

➤ Integration:

- Under integration, an **individual/group adapts to a new culture while maintaining their original culture**. It occurs where cultural adoption is **considered significant for the smooth functioning of society**.
- Such a strategy is used in a multicultural society with a **relatively high proportion of minority groups**.
- Individuals or groups who use this strategy can switch between the values and norms of the different cultures they have absorbed to **interact with groups from both cultures with ease**.

➤ Marginalisation:

- It occurs when **individuals/groups barely interact with a new cultural group**.
 - This strategy **results in the isolation** of the person or group, pushing them aside to the corners of society, forgotten by the rest.
 - In a society where cultural exclusion is practised, it becomes **almost impossible to interact and integrate with a different cultural group** due to the barriers created between the two.

➤ Transmutation:

- It is the process in which importance is placed on both **maintaining one's own culture while also adopting aspects of a new culture**.
- It is different from integration in the sense that the **cultures are amalgamated into creating a new one** (instead of integrating and switching between the codes and conducts of two different cultures).
 - Thus, a unique blend of two cultures creates a new one that is **accepted by both the individuals/groups**.

How Relevant is Acculturation in India's Context?

- India's distinctive fusion of various cultures helps significantly in understanding the concept of acculturation and its outcomes.
- **Persian culture** has influenced almost all aspects of Indian society; the origins of popular **food items like biryanis and faloodas and spices like saffron, and cumin seeds trace back to Persian origins**.

Note:



- The **Urdu language**, a blend of Arabic, Persian, Turkish and Hindi, is an example of the **amalgamation and transmutation of cultures**.
- The architectures of **Christian Churches in Kerala** like the Cheriapally (small church) in Kottayam or the Pazhaya Suriyani Pally (old Syrian church) in Chengannur have marks of **Hindu Temple architectural styles**.
 - **Sculptures of Christian deities inside a lotus** similar to that of Hindu deities, and **sculptures of animals** like cows, elephants, and monkeys carved onto the church walls are excellent examples of the **integration of Hindu and Christian traditions and cultures in Indian society**.

Conclusion

- **Acculturation is an inevitable social process**, as migration and interactions with different cultures have always been part of the evolution of civilization.
- Acculturation allows us to learn and understand new aspects of various cultures and **appreciate their differences**.
 - **Resentment toward other cultures** and the belief that one's heritage is superior can **result in the marginalisation and separation** of different cultures, ultimately **disrupting the functioning of a society**.
- **A harmonious exchange of cultures between various groups is imperative for a peaceful society.**



Note:



Security

Highlights

- Advanced Towed Artillery Gun System (ATAGS)
- 'Udarashakti' Exercise
- AK-203 Rifles
- F/A 18 Super Hornet Fighter Jets
- New Defence Systems for Indian Army

Advanced Towed Artillery Gun System (ATAGS)

Why in News?

On **Independence Day**, ATAG, an indigenously developed howitzer, became part of a 21-gun salute at the Red Fort.

What do we Know about the ATAGS?

➤ About:

- The ATAGS is an **indigenous 155 mm x 52 calibre howitzer gun**.
 - Howitzers is an umbrella term for a category of long-range artillery guns.
- It is developed by the **Defence Research and Development Organisation (DRDO)** with its Pune-based facility Armament Research and Development Establishment (ARDE) being the nodal agency.
- The ATAGS project was **started in 2013 by DRDO** to replace older guns in service in the Indian Army with a modern 155 mm artillery gun.

➤ Features:

- The armament system of ATAGS mainly **comprises barrel, breech mechanism, muzzle brake and recoil mechanism** to fire 155 mm calibre ammunition held by Army with a longer range, accuracy and precision and provides greater firepower.
- The **ATAGS is configured with all electric drive** to ensure maintenance free and reliable operation over a longer period of time.
- It has **advanced features in terms of high mobility, quick deployability**, auxiliary power mode, advanced communication system, automatic command and

control system with night firing capability in the direct fire mode.

- The specialised gun system is **compatible with C4I (command, control, communications, computers, and intelligence) systems** like the Artillery Combat Command and Control System (ACCCS) called Shakti for technical fire control, fire planning, deployment management, and operational logistics management of the Army.

➤ Future Role:

- The **development process of ATAGS by the DRDO coincides with development of Howitzer Dhanush** for Advanced Weapons and Equipment India of the erstwhile **Ordnance Factory Board**.
- In 2019, the Army and the Ministry of Defence gave bulk production clearance to produce 114 Dhanush.
- In the coming days, ATAGS and **Dhanush** will successfully replace older artillery systems.

'Udarashakti' Exercise

Why in News?

Recently, a contingent of the **Indian Air Force** left for Malaysia to participate in a bilateral exercise named 'Udarashakti'.

- While **Harimau Shakti** is **Joint military exercises** which are held annually between the two countries.

What are the Highlights of the Exercise?

➤ About:

- The Indian Air Force is **participating in the air exercise with Su-30 MKI and C-17 aircraft** while Malaysian Air Force will be flying **Su 30 MKM aircraft**.

Note:





- The four days of exercise will witness the conduct of various aerial combat drills between the two Air Forces.
- **Background:**
 - The first bilateral Air Force exercise that **staged frontline Sukhoi-30 combat aircraft was conducted in 2018.**
 - From 2008 to 2010, the Indian Air Force Training Team was deployed in Malaysia to give training to Malaysian pilots on the SU-30SKM aircraft.

What is the Significance of the Exercise?

- Exercises will **strengthen long-standing friendships** and enhance defense cooperation between both armies. As a result, regional security will be strengthened.
- IAF will have an **opportunity to share and learn best practices** with the Royal Malaysian Air Force through this exercise. It is also likely that they will discuss mutual combat capabilities.

AK-203 Rifles

Why in News?

The Indo-Russian joint venture “**Indo-Russian Rifles Private Ltd (IRRPL)**” will be manufacturing over 6.1 lakh **AK-203 assault rifles** costing over ₹5,000 crore in Amethi, Uttar Pradesh.

- Training of Indian workers of the factory will begin shortly and the manufacturing process will reach **100% indigenisation in three years.**
- The AK-203 assault rifles will replace the India-made INSAS assault rifles and the older AK-47.

What do we know about the Contract?

A Defence Upgrade

Korwa Rifle Factory in Amethi being upgraded to manufacture latest version of the Kalashnikov rifles

After multiple hurdles like payment issues over western sanctions and a complicated technology transfer agreement, the JV is back on track and equipment to make the rifles will be sent in two stages, officials said

Kalashnikov has delivered a batch of 70,000 AK-203 assault rifles made in Russia as part of the larger order

₹5,124-crore deal was signed between India and Russia last December

- **Indo-Russian Rifles Private Ltd (IRRPL)** was set up jointly between erstwhile **Ordnance Factory Board OFB** [now Advanced Weapons and Equipment India Limited (AWEIL) and **Munitions India Limited (MIL)]** of India and **Rosoboronexport (RoE)** and concern **Kalashnikov** of Russia.
- The Rs 5,124 crore deal was signed between India and Russia in December 2021.
 - It is the **biggest defence deal between the two nations** in recent years. The deal has a clause for complete technology transfer. The rifles will also be exported to friendly foreign nations.
- Kalashnikov has already delivered a batch of **70,000 rifles made in Russia as part of the larger AK-203 assault rifles order.**

How has Indo-Russia Defence and Security Relations been?

- India-Russia military-technical cooperation has evolved from a **buyer-seller framework** to one involving **joint research, development and production of advanced defence technologies and systems.**
- Both countries regularly conduct the Tri-Services exercise '**INDRA**'.
- **The joint programmes between India and Russia include:**
 - **BrahMos cruise missile programme**
 - 5th generation fighter jet programme
 - **Sukhoi Su-30MKI programme**
 - Ilyushin/HAL Tactical Transport Aircraft
 - **KA-226T twin-engine utility helicopters**
- **The military hardware purchased/leased by India from Russia includes:**

Note:



- **S-400 Triumph**
- Kamov Ka-226 200 to be made in India under the **Make in India** initiative
- **T-90S Bhisma**
- **INS Vikramaditya** aircraft carrier programme
- Russia also plays a very important role in assisting the **Indian Navy** with its submarine programmes:
- Indian Navy's first submarine, '**Foxtrot Class**' came from Russia.
- India is **dependent on Russia** for its **nuclear submarine programme**.
- INS Vikramaditya, the sole aircraft carrier operated by India, is also Russian in origin.
- Nine of the fourteen conventional submarines operated by India are Russian.

F/A 18 Super Hornet Fighter Jets

Why in News?

Ahead of Commissioning India's **first Indigenous Aircraft Carrier (IAC) Vikrant**, the US aviation major Boeing has proposed Indian Navy to choose its **F/A 18 Super Hornet fighter jet**.

What are the Key Features of F/A 18 Super Hornet Fighter Jets?

- The F/A-18 Super Hornet Block III is the world's **most advanced, combat proven, multi-role frontline naval fighter** that offers unique and differentiated capabilities and full compatibility with Indian Navy carriers.
- It has been designed and built **for carrier operations**, and is fully compliant with **INS Vikramaditya and INS Vikrant aircraft carrier**.
- F/A-18 will be able to **operate on the deck**, in the hangar and on the lifts of the Indian Navy's aircraft carriers.
- It will help further the interface between manned and unmanned systems in a carrier environment.
- The Super Hornet's Precision Landing Mode software is **specially designed to reduce pilot workload while landing** on the Indian Navy's Vikramaditya carrier by maintaining the proper glide slope and proper approach speeds.
- It has fully redundant systems and is independent of the carrier's optical landing system.

BOEING

**LETHAL
ADVANCED
AFFORDABLE**

F/A-18E/F BLOCK III SUPER HORNET

40 Year legacy of carrier-based operations

1.5M+ Flight hours since 2008

10k+ Hours airframe life

400+ Sales opportunities

700+ F/A-18s delivered

KEY FEATURES

- ★ **MULTI-ROLE CAPABILITY**
Capable of tactical strike, aerial reconnaissance, air defense, and maritime roles
- ★ **CUTTING-EDGE TECHNOLOGIES**
Enhanced computing and data link, advanced cockpit system, signature improvements
- ★ **LIFECYCLE AFFORDABILITY**
Lowest cost per flight hour among all U.S. tactical fighter in production. High mission capability rates
- ★ **FUTURE READY**
Unrivaled growth potential to complement future air wing capabilities

ADVANTAGE INDIA

- **STATE-OF-THE-ART PRODUCTION FACILITY**
World-class manufacturing ecosystem built on Boeing's broad presence in India
- **ADVANCED INDIGENOUS TECHNOLOGY**
Scope for technology insertions, maximizing indigenous content
- **"BY INDIA - FOR INDIA" SUSTAINMENT**
Lifecycle support in partnership with Indian partners and India's armed forces

- F/A-18 Super Hornet is in single-seater (E-Variant) and two-seater variant (F-Variant), and both variants are **carrier compatible** to perform the full range of combat missions and can fully operate from the carrier deck.
 - The two-seater is also a capable trainer aircraft - both ashore and carrier borne.

What is IAC Vikrant?

- **About:**
 - Vikrant is the **largest warship to have ever been built in India**, and the first indigenously designed and built aircraft carrier for the Indian Navy.
 - It puts India in an **elite club of nations that have the capability to design and build** these giant, powerful warships.
 - It is designed by the Cochin Shipyard Ltd (CSL), a public sector shipyard under the Ministry of Ports, Shipping & Waterways.
 - The ship had **successfully completed its fourth and final phase of sea trials**.
- **Operation Capabilities:**

Note:



- It has a maximum designed speed of 28 knots (about 52 km/h) with an endurance of 7500 NM.
- The ship will be capable of operating 30 aircraft including **MiG-29K fighter jets, Kamov-31 Air Early Warning Helicopters, MH-60R Seahawk multi-role helicopters**, as well as the **Advanced Light Helicopters (ALH)**, and the Light Combat Aircraft (LCA).
- Using a novel aircraft-operation mode known as **Short Take Off But Arrested Recovery (STOBAR)**, the IAC is equipped with a **ski-jump for launching aircraft**, and a set of three 'arrestor wires' for their recovery onboard.
- **Significance:**
 - It will enhance a **Navy's capability to travel far from its home shores** to carry out air domination operations.
 - It is considered to be a "blue water" navy — that is, a navy that has the capacity to project a nation's strength and power **across the high seas**.

What is the Significance of Vikrant Building in India?

- Only five or six nations currently have the capability of manufacturing an aircraft carrier, and India has joined this prestigious club now.
 - Experts have said that India has demonstrated the capacity and self-reliance to build what is considered to be one of the most advanced and complex battleships in the world.
- India has had aircraft carriers earlier too — but **those were built either by the British or the Russians. The 'INS Vikramaditya'**, which was commissioned in 2013 and which is currently the Navy's only aircraft carrier, started out as the Soviet-Russian warship 'Admiral Gorshkov'.
- India's two earlier carriers, the 'INS Vikrant' and the 'INS Viraat', were originally the British-built 'HMS Hercules' and 'HMS Hermes'. These two warships were commissioned into the Navy in 1961 and 1987 respectively.

Why will the new warship IAC-1 be named 'INS Vikrant'?

- The name 'INS Vikrant' **originally belonged to India's much-loved first aircraft carrier**, a source of immense national pride over several decades of service before it was decommissioned in 1997.

- The original 'Vikrant', a Majestic-class 19,500-tonne warship, which was acquired from the UK in 1961, **played a stellar role in the 1971 War with Pakistan**.
- Last year, as the IAC-1 started her first sea trial, the **Navy hailed the "proud and historic day for India as the reincarnated 'Vikrant' sails for her maiden sea trials**.

What are the Future Plans for IACs?

- Since 2015, the Navy has been seeking approval to build a third aircraft carrier for the country, which, if approved, **will become India's second Indigenous Aircraft Carrier (IAC-2)**.
- This proposed carrier, to be named '**INS Vishal**', is intended to be a giant 65,000-tonne vessel, much bigger than both IAC-1 and the 'INS Vikramaditya'.

New Defence Systems for Indian Army

Why in News?

Recently, the Ministry of Defense has handed over **several new defence systems**, including the **F-INSAS, the Nipun mines, the Landing Craft Assault (LCA), to the Indian Army** as a part of Army's Modernization Plans.

What is the F-INSAS system?

- **About:**
 - F-INSAS stands for **Future Infantry Soldier as a System**.
 - It is a **programme for infantry modernisation**, which is aimed at **increasing the operational capability of the soldier**.
 - Under the project, **soldiers are being equipped with modern systems** that are lightweight, all-weather-all-terrain, cost-effective and low maintenance.
 - They have been indigenously designed by the Indian entities, including the **DRDO (Defense Research and Development Organisation)** and the **ordnance factories** ecosystem.
- **Items Under F-INSAS System:**
 - **AK-203 assault rifle:**
 - It is a Russian-origin gas-operated, magazine-fed, select-fire assault rifle.
 - It has a **range of 300 metre**.

Note:



- **Multi-Mode Hand Grenade:**
 - It can be used in **defensive and offensive** modes.
 - In defensive mode, the grenades are to be hurled when the thrower is in a shelter or has a cover.
 - In the offensive mode, the **grenades do not fragment and the adversary is harmed by the blast** or is stunned.
- **Ballistic Helmets and Ballistic Goggles:**
 - It provides soldiers with **ballistic helmets and ballistic goggles** for protection **against small projectiles and fragments**, along with a bullet-proof vest.
 - The helmet and the bullet-proof jacket are capable of protecting the soldier against 9 mm bullets and ammunition fired from AK-47 rifles.
- **Other Items:**
 - It also comes with hands-free, secured advanced communications set for real-time exchange of information with the command post and fellow soldiers for enhanced situational awareness.
- **Related Systems with other Countries:**
 - The US has Land Warrior, while the UK has FIST (Future Integrated Soldier Technology).
 - Over 20 armies around the world are following such programmes.

What are Nipun mines?

- Nipun mines are **indigenously designed and developed anti-personnel mines**, termed by the DRDO as 'soft target blast munition'.
 - Anti-personnel mines are meant to be used against humans as against anti-tank mines that are aimed at heavy vehicles.
 - **Russia's PFM-1 and PFM-1S** are commonly referred to as '**Butterfly mines**' or 'Green Parrots'. Butterfly mine is a very sensitive anti-personnel landmine.
- These mines are meant **to act as the first line of defence against infiltrators and enemy infantry.**

- They are smaller in size and can be deployed in large numbers.
- They provide protection to the troops on the borders and are more potent and effective than the existing anti-personnel mines in their arsenal.

What is the Landing Craft Assault?

- The **Landing Craft Assault (LCA)** is meant to serve as **a replacement for the boats with limited capabilities** currently in use in the **Pangong Tso lake**.
- It has better launch, speed and capacity to operate across water obstacles in eastern Ladakh.
- Similar vessels are already in operation in the **Indian Navy**.

What are the other Defence Systems?

- **Solar Photovoltaic Energy Project:** One of the most challenging terrain and operational sectors of the country is the **Siachen Glacier**.
 - The complete power requirement in the area to operate various equipment was met only through captive generator supply. A solar photo-voltaic plant has been installed to improve the overall energy requirements and also obviate dependence on fossil fuels.
- The Ministry of Defence also handed over to the Army a thermal imaging sight for T-90 tanks; hand held thermal imager; and frequency-hopping radio relay for tactical communication across much longer ranges.
- Further, Downlink Equipment with Recording Facility to help helicopters in surveillance missions was also handed over.
 - Using this system, reconnaissance data is recorded and can be accessed only when the helicopter returns to the base.
- Some other defence systems included, Infantry Protected Mobility Vehicles; Quick Reaction Fighting Vehicles and Mini Remotely Piloted Aerial System surveillance, detection and reconnaissance at the infantry battalion and mechanised units level.



Note:



Miscellaneous

Highlights

- Exercise VAJRA PRAHAR 2022
- Italy's Lake Garda
- India & China in Russian War Games
- Supercharged Biotech Rice
- GI Tag for Mithila Makhana
- National Sports Day 2022
- FIFA Ban on India

Exercise VAJRA PRAHAR 2022

Why in News?

Recently, India - USA Joint Special Forces conducted the 13th edition of exercise **Vajra Prahar 2022** culminated at Bakloh (Himachal Pradesh).

What are the Key Highlights?

➤ About:

- It's an annual exercise is hosted alternatively between Special Forces **India and the United States**.
 - Special Forces are the units of a country's armed forces that undertake covert, counterterrorist, and other specialized operations.

➤ Aim:

- The 21-day joint training **provided an opportunity for the Special Forces from both nations to train in Air Borne Operations, Special Operations and Counter Terrorism operations** in a joint environment under United Nations Charter.
- **It was conducted in two phases;**
 - The first phase involved **combat conditioning and tactical level special missions training exercises,**
 - The second phase **included 48 hours of validation of training received by both contingents in the first phase.**

➤ Significance:

- Exercise VAJRA PRAHAR with the US Special Forces is significant in terms of **security challenges faced by both Nations in the backdrop of the current global situation.**

- The joint military exercise has further **strengthened the traditional bond of friendship between the special forces of both Nations** as well as improved bilateral defence cooperation between India and the USA.

What are Other Exercises between India and the USA?

- **Exercise Tiger Triumph** (Humanitarian Assistance and Disaster Relief exercise)
- **Cope India** (Air Force).
- **Malabar Exercise** (Quadrilateral naval exercise of India, USA, Japan and Australia).
- **Red Flag** (US' multilateral air exercise).
- Exercise Yudh Abhyas (Army).

Italy's Lake Garda

Why in News?

Italy's worst **drought** in decades has reduced **Lake Garda**, the country's largest lake, to near its lowest level ever recorded.

- It has exposed **swaths of previously underwater rocks and warmed the water** to temperatures that approach the average in the **Caribbean Sea**.

What do we need to know about the Shrink of Lake Garda?

- **Northern Italy** saw significantly **lower rainfall for months**, and **snowfall in 2022 was also down 70%**, drying up important rivers like the Po, which flows across Italy's agricultural and industrial heartland.

Note:





- The **parched condition** of the Po, Italy's longest river, caused billions of euros in losses to farmers who normally rely on it to irrigate fields and rice paddies.
 - To compensate for the loss, **authorities allowed more water from Lake Garda** to flow out to local rivers.
 - But in late July 2022, **they reduced the amount to protect the lake** and the financially important tourism tied to it.
 - With huge amounts of **water being diverted to rivers**, the lake recorded its lowest level.

What do we need to know about Drought?

- **About:**
 - **Drought** is generally considered as a **deficiency in rainfall /precipitation** over an extended period, usually a season or more, resulting in a **water shortage** causing adverse impacts on **vegetation, animals, and/or people**.
- **Types:**

- **Meteorological Drought:**
 - It is based on the degree of dryness or rainfall deficit and the length of the dry period.
- **Hydrological Drought:**
 - It is based on the impact of rainfall deficits on the water supply such as stream flow, reservoir and lake levels, and ground water table decline.
- **Agricultural Drought:**
 - It refers to the impact on **agriculture** by factors such as rainfall deficits, soil water deficits, reduced ground water, or reservoir levels needed for irrigation.
- **Socioeconomic Drought:**
 - It considers the **impact of drought conditions** (meteorological, agricultural, or hydrological drought) on supply and demand of some economic goods such as fruits, vegetables, grains and meat.
- **Causes:**
 - The **variability in rainfall is a major cause of drought**. The percentage of variability is inversely related to the total rainfall.
 - A deviation in the route of monsoon winds, or an early withdrawal of the monsoon too can also lead to drought conditions in an area.
 - Drought can also be caused due to **forest fires**, making the soil **unsuitable for cultivation and making the soil water deficit**.
 - **Land degradation** in addition to **Climate change** results in an increase in droughts.
- **Way to Tackle:**
 - **Water management:**
 - Saving, reuse of treated water, rainwater harvesting, desalination, or direct use of seawater for salt-loving plants.
 - **Farmer Managed Natural Regeneration (FMNR):**
 - Enabling **native sprouting tree growth** through selective pruning of shrub shoots.
 - The residue from pruned tress **can be used to provide mulching for fields** thus increasing **soil water retention and reducing evaporation**.
 - **Other Measures:**
 - **Buttressing** the soil through sand fences, windbreaks etc.
 - Need for **enriched and hyper fertilization of soil**.

Note:



- Install **irrigation devices that are the most water efficient** for each use, such as **micro** and **drip irrigation**, and **soaker hoses**.

➤ **Indian Government's Initiative:**

- **Integrated Watershed Management Programme**
- **National Mission on Green India**
- Desert Development Programme
 - Launched in 1995 to minimize the adverse effects of drought and to rejuvenate the natural resource base of the identified desert areas.

India & China in Russian War Games

Why in News?

Indian and Chinese troops will take part in **military exercises** in Russia at the end of August 2022, the first such major war games (military drills) to be hosted by Russia since its **invasion of Ukraine** in February 2022.

- While there was no comment from the Ministry of External Affairs of India, the Chinese Defence Ministry said the exercise is 'unrelated' to the regional conditions.

What do we need to know about the Military Drill?

- Led by host Russia, the drill will include troops from **India, Belarus, Mongolia, Tajikistan and other countries besides China**.
- The drill, which will be held between 30th August 2022 to 5th September 2022 at various military facilities in Russia.
- It is likely to be closely tracked globally given the ongoing Russian invasion of Ukraine.
- The drills will bring together the airborne forces, long-range and military transport aircraft and also military contingents of other countries.

What are India's Exercises with China & Russia?

- **China:**
- **Exercise Hand-in-Hand:**
 - The aim of the exercise is to **practice joint planning** and conduct of counter terrorist operations in semi urban terrain.
- **Russia:**

○ **Exercise Indra:**

- The exercise will entail the conduct of counter terror operations under the **United Nations** mandate by a joint force against international terror groups.
- The INDRA series of exercises began in 2003 and was conducted as a **bilateral naval exercise** alternately between the two countries.
 - However, the first joint Tri-Services Exercise was conducted in 2017.

○ **Exercise TSENTR:**

- Exercise TSENTR 2019 is part of the **annual series of large-scale exercises** that form part of the **Russian Armed Forces' annual training cycle**.

The series rotates through the four main Russian operational strategic commands i.e **Vostok** (East), **Zapad** (West), **TSENTR** (Centre) and **Kavkas** (South).

Supercharged Biotech Rice

Why in News?

Recently, the Scientists from the Chinese Academy of Agricultural Sciences have shown how a transcriptional regulator can **boost grain yields and shorten the growth duration of rice**.

- This 'supercharged biotech rice' yields 40% more grain.

Why are the Key Highlights of the Report?

➤ **Supercharged Rice:**

- The report has pointed out that giving a Chinese rice variety a **second copy of one of its own genes** has boosted its yield by up to 40%.
- When a second copy of a single gene (called **OsDREB1C**) is added to rice, it **improves photosynthesis and nitrogen use**, speeds up **flowering** and **absorbing nitrogen more efficiently** — offering larger and more abundant grains.
 - The change helps the plant absorb more fertilizer, boosts photosynthesis, and accelerates flowering, all of which could **contribute to larger harvests**.
- The **researchers added the same 'native' gene again**, and not any foreign one (as in the case of **BT cotton** or **BT soybean**). This method is best described as **genetic modulation**.
 - Gene modulation refers to the process of temporarily altering gene expression levels

Note:



without making heritable changes to the underlying cellular DNA.

- It is not a **genetic modification (GM)** and neither is the result of a **transgenic plant**, carrying elements from another donor.

➤ **Significance in India's Context:**

➤ This report is particularly relevant to India, which must aim to continue its world position in the production of rice and marketing.

➤ **India is the world's largest exporter of rice.** It exported 18.75 million metric tons to over 150 countries during the year 2021-22, thereby earning \$6.11 billion.

- **Vietnam was the second largest** producer of rice.
- With growing demand in the coming years, **strategies should be found to increase the production and export of rice** and it has to be much more than the 18.75 million tons for India to continue and expand its role as the world's largest producer and exporter of rice.
- India has some excellent rice researchers located in Andhra Pradesh, Karnataka, Punjab and Haryana, and genetic engineers in several laboratories across the country.
 - The **Ministry of Agriculture & Farmers' Welfare** can come together with the **Department of Biotechnology (DBT)** and nutritionists from the **Indian Council of Medical Research (ICMR)** can support these researchers to **augment India's role as the major rice exporter in the world.**

What are the Important

Points about Cultivation of Rice?

- It is a **kharif crop** which requires high temperature, (above 25°C) and high humidity with annual rainfall above 100 cm.
- Rice is **grown in the plains of north and north-eastern India, coastal areas and the deltaic regions.**
- **Deep clayey and loamy soil** is the ideal type of soil for growing rice.
- **Leading producer states of rice are West Bengal, Uttar Pradesh, and Punjab.**
 - **High yielding** states are Punjab, Tamil Nadu, Haryana, Andhra Pradesh, Telangana, West Bengal and Kerala.
 - In southern states and West Bengal, the climatic conditions allow the cultivation of two or three crops of rice in an agricultural year.



- In states like Assam, West Bengal and Odisha, three crops of paddy are grown in a year; these are **Aus, Aman and Boro.**

➤ It is the **staple food crop of the majority** of Indian people.

➤ India is the **second largest producer of rice** in the world. About one-fourth of the total cropped area in India is under rice cultivation.

GI Tag for Mithila Makhana

Why in News?

- The government has recently awarded the **Geographical Indication (GI) tag** to **Mithila Makhana**.
- The move is expected to **help growers get the maximum price for their premium produce.**

What is Understood by a Geographical Indication (GI) Tag?

- **About:**
 - **Geographical Indication (GI)** is an indication used to identify goods having special characteristics originating from a definite geographical territory.
 - The **Geographical Indications of Goods (Registration and Protection) Act, 1999** seeks to provide for the registration and better protection of geographical indications relating to goods in India.

Note:



- It is governed and directed by the **WTO** Agreement on **Trade-Related Aspects of Intellectual Property Rights (TRIPS)**.
 - It was decided and also stated under Articles 1 (2) and 10 of the Paris Convention that the protection of industrial Property and **Geographical Indication** are elements of Intellectual Property.
- It is **primarily an agricultural, natural or a manufactured product** (handicrafts and industrial goods).
- **Validity:**
 - This tag is valid for a **period of 10 years** following which it can be **renewed**.
- **Significance:**
 - Once a product gets this tag, **any person or company cannot sell a similar item under that name**.
 - GI registration of a product **provides it legal protection** and prevention **against unauthorised use** by others.
 - GI tag helps in **promoting the exports** of the product.
 - It also provides **comfort to customers about the authenticity** of that product.
- **GI Registration:**
 - There is a proper process of registration of GI products which includes **filing of application, preliminary scrutiny and examination**, show cause notice, publication in the geographical indications journal, opposition to registration, and registration.
 - Any association of persons, producers, organisation or authority established by or under the law can apply.
 - The applicant must represent the interest of the producers.
- **GI Tag Products:**
 - Some famous goods which carry this tag include **Basmati rice, Darjeeling Tea, Chanderi Fabric, Mysore Silk, Kullu Shawl, Kangra Tea, Thanjavur Paintings, Allahabad Surkha, Farrukhabad Prints, Lucknow Zardozi, Kashmir Saffron** and Kashmir Walnut Wood Carving.

What do we need to know about Mithila Makhana?

- Mithila Makhana or Makhan (botanical name: *Euryale ferox* Salisb.) is a special variety of **aquatic fox nut cultivated in Mithila region** of Bihar and Nepal.

- Makhana is the **one of the three prestigious cultural identities** of Mithila.
 - **Pan, Makhan and Machh (fish)** are the three prestigious cultural identity of Mithila.
- It is also very famous in **Kojagara festival of Maithil Brahmins** celebrated for newly married couples.
- Makhana contains **protein and fiber**, along with **micronutrients like calcium, magnesium, iron, and phosphorus**.

What Other Products of Bihar have GI Tag?

- GI tagging of products in Bihar has helped in **brand building, creating local employment, creating a regional brand, generating spin-off effects in tourism, preserving traditional knowledge** and traditional cultural expressions and conserving biodiversity.
- Many products from Bihar have been granted GI tag such as:
 - **Bhagalpuri Jardalu Mango**
 - Katarni Rice
 - Magahi Betel (Paan)
 - Shahi Litchi
 - Silao Khaja (a delicacy)
 - **Madhubani Painting**
 - Pipli Work
- In June 2022, the **Geographical Indications (GI) Registry in Chennai** accepted the initial proposal for conferring the GI tag to Nalanda's '**Bawan Buti Saree**, Gaya's '**Pattharkatti stone craft**' and Hajipur's '**Chiniya**' variety of banana.
 - There have also been proposal for providing GI Tag to three sweet delicacies of Bihar - **Khurma, Tilkut and Balushahi**.

National Sports Day 2022

Why in News?

The National Sports Day or Rashtriya Khel Divas is celebrated on **29th August every year** in India as a tribute to hockey legend **Major Dhyhan Chand** who was born on this date in 1905.

What are the Key Points?

- **About:**
 - The day was first designated and celebrated in 2012 as India's National Sports Day.

Note:



- The nation celebrates the day honouring our sports stars.
- The president gives away sports awards such as the **Major Dhyan Chand Khel Ratna Award, Arjuna Award, Dronacharya Award, and Dhyan Chand Awards** on this occasion.
- **Significance:**
 - The primary motto of National Sports Day is to **promote awareness about the significance of sports** and being physically active in day-to-day life.
 - The Government of India organises various programs, events, seminars etc to raise awareness about the significance of National Sports Day.

Who was Major Dhyan Chand?

- Widely known as the '**Wizard of Hockey**', the greatest hockey player of India, Major Dhyan Chand Singh, was born on 29th August 1905 in present-day Prayagraj, Uttar Pradesh.
- He played as the centre forward at three Olympic Games for India winning Gold Medals at Amsterdam in 1928, Los Angeles in 1932 and **Berlin in 1936 where he was the captain.**
- He was a member of the first Indian overseas army team that toured New Zealand in 1926.
- Major Dhyan Chand scored more than 400 international goals in his career from 1926 to 1948 while scoring nearly 1,000 goals in his entire career.
- In a bid to pay tribute to such a legendary player, the Government of India decided to celebrate his birthday as the National Sports Day in 2012.
- Before this recognition, he was **awarded the Padma Bhushan Award by the Government of India in 1956**, the third-largest civilian honour in India.
- He breathed his last on 3rd December, 1979, in Delhi having slipped into a coma.

FIFA Ban on India

Why in News?

Recently, **Federation Internationale de Football Association (FIFA)**, suspended the country's top administrative organization, the **All-India Football Federation (AIFF)**, for **undue influence from third parties.**

- This suspension took away the country's rights to hold

the **FIFA U-17 Women's World Cup 2022**, scheduled to be held from October 11-30.

What is FIFA?

➤ About:

- FIFA or the Federation Internationale de Football Association is the highest governing body of football in the world.
- It is the international governing body of association football, futsal, and beach soccer.
- FIFA is a non-profit organisation.
- Founded in 1904, FIFA was launched to oversee international competition among the national associations of **Belgium, Denmark, France, Germany, Netherlands, Spain, Sweden, and Switzerland.** FIFA now comprises 211 member nations.
- It is headquartered in **Zurich.**

➤ Objectives:

- The primary objective of FIFA is to spread football internationally and promoting integrity and fair play.
- It is responsible for the organization and promotion of international tournaments, including the men's World Cup, which started in 1930, and the women's World Cup, which began in 1991.
- It is **affiliated with the International Olympic Committee** and is also a member of the **International Football Association Board**, which is responsible for setting the rules of football.
- **Six Regional confederations affiliated with FIFA:**
 - The **Asian Football Confederation (AFC)** is the governing body for Asia and Australia.
 - **Confederation of African Football (CAF)** has 56 members,
 - Confederation of North, Central American and Caribbean Association Football (**CONCACAF**) has 41 members,
 - **Confederation Sudamericana de Fútbol (CONMEBOL)** is the South American federation with 10 members,
 - **Oceania Football Federation (OFC)** has 14 members including New Zealand,
 - **Union of European Football Associations (UEFA)** with 55 members is the governing body for Europe.

Note:



What is AIFF?

- The All-India Football Federation (AIFF) is the organization that manages the game of association football in India.
- It administers the running of the India national football team and also controls the I-League, India's premier domestic club competition, in addition to various other competitions and teams.
- The AIFF was founded in 1937, and gained FIFA affiliation in the year 1948, after India's independence in 1947.
- Currently, it has an office in Dwarka, New Delhi. India was one of the founding members of the Asian Football Confederation in 1954.

Why Did FIFA Ban the All-India Football Federation (AIFF)?

- **AIFF'S President's Unwillingness to Vacate His Post:**
 - President Praful Patel, also a FIFA council member, refused to relinquish his post as the head of football in the country.
 - He cited the long-drawn-out pandemic, coupled with a court case regarding the AIFF constitution.
- **Third-Party Intervention:**
 - Despite the growing concerns about the working of AIFF, the **Supreme Court of India** intervened and removed Patel from his post.
 - Further, The SC also appointed a **Committee of Administrators (COA)** to run the AIFF.
 - As per FIFA Statutes, member federations should not be subject to legal and political interference in their respective countries.

- Third Party Intervention refers to a **situation in which a member association of FIFA fails to remain independent, is co-opted, and no longer has control over its organization.**
 - In India's case, the SC's diktat to the COA to run the AIFF was a textbook case of third-party interference.

What Does the Suspension Mean to India?

- It means that there would be **no international football participation by India, and this applies to all national teams, club teams** across all age groups.
- The suspension also **impacts international transfers, as well as any courses or developmental programs that AIFF officials** could, or were taking part in.
 - This in effect means a total ban on **all football-related activities outside India.**
- However, the league in the country, as well as domestic transfers, can continue.

What Does India have to do to Lift the Ban?

- According to FIFA, to lift the ban on AIFF, it needs to follow the directives which are as follows:
 - The **mandates of the COA** would have to be **repealed in full.**
 - The AIFF administration would need to be **completely in charge of its day-to-day running** once again.
 - The **AIFF constitution** is to be **revised on the terms of FIFA and the Asian Football Confederation's (AFC) policies**, and the election is to be held on current AIFF membership structures that are based on state associations only.



Note:



Key Points

Details

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Summary

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Key Points

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Summary

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