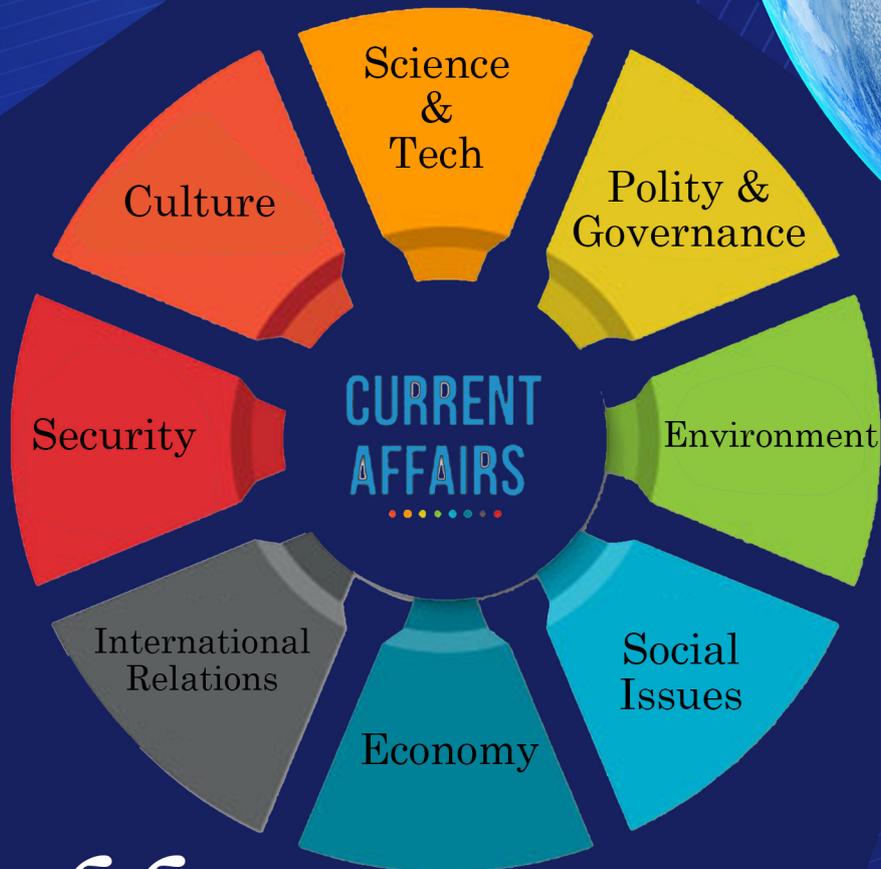




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TABLE OF CONTENTS

SCIENCE AND TECHNOLOGY 1

- 1.1 End to End Encryption
- 1.2 Near Earth Asteroid Ryugu
- 1.3 India's 1st Private Space Vehicle Launchpad
- 1.4 Air Breathing Engines
- 1.5 World Malaria Report 2022
- 1.6 National Policy of Rare Diseases
- 1.7 Anticancer mRNA Vaccine
- 1.8 Innovation in Agriculture
- 1.9 Zombie Virus
- 1.10 Space Sector of India
- 1.11 T-cell Acute lymphoblastic leukaemia (T-ALL)
- 1.12 Black Hole
- 1.13 Deepfake technology
- 1.14 BF.7 Variant of Coronavirus
- 1.15 Innovaccor, Intranasal Covid-19 Vaccine

2. POLITY AND GOVERNANCE 20

- 2.1 Rise in Organ Donations
- 2.2 Centre directs the States to upgrade Land Records
- 2.3 India's Progress in tackling IMR, MMR and Malnutrition
- 2.4 Dharavi Redevelopment Project
- 2.5 National Telemedicine Service of India: e-Sanjeevani
- 2.6 National Overseas Scholarship Scheme
- 2.7 Introduction of National Judicial Commission Bill, 2022
- 2.8 Private Members Bill on Election Commission
- 2.9 Family Pehchan Patra for J&K Residents
- 2.10 Ladakh's Demand of Inclusion Under 6th Schedule
- 2.11 DISHA Scheme
- 2.12 North-East Integration
- 2.13 Amendments to the Co-operative Societies Act
- 2.14 Amendments to the Multi-State Co-operative Societies Act, 2022
- 2.15 De-notified, Nomadic and Semi-Nomadic Tribes
- 2.16 National Single Window System
- 2.17 Dominance of Big Tech Companies
- 2.18 Jammu and Kashmir Land Grants Rules, 2022
- 2.19 Greater Tripaland (Demand of Tripura)
- 2.20 Imaging Fair and Free Elections
- 2.21 New Bills to Modify Scheduled Tribes List
- 2.22 Corruption in India
- 2.23 Development of 'Model Tribal' Villages
- 2.24 Poor State of Undertrials
- 2.25 Anti-Maritime Piracy Bill
- 2.26 Delimitation Exercise of Assam

3. INTERNATIONAL RELATIONS 55

- 3.1 India to become a Voice of Global South
- 3.2 NSA of India meets with his Central Asian Counterparts
- 3.3 Connecting India's East with the Indo-Pacific
- 3.4 India-Nepal Relations

4. SOCIAL ISSUES 62

- 4.1 India to become largest populated country
- 4.2 Moving Back to National Food Security Act 2013
- 4.3 Marital Rape
- 4.4 GLASS Report 2022
- 4.5 Tribal Development Report 2022
- 4.6 Global report on Health Equity for Disabilities
- 4.7 Development of Indian Cities

4.8 Social Progress Index 2022

5. ECONOMY 75

- 5.1 India's Pension System & its Position in Global Pension Index
- 5.2 New Changes to UPI
- 5.3 RBI Launches e- Rupee
- 5.4 Fertilisers Subsidy
- 5.5 Global Minimum Tax
- 5.6 Crypto Awareness
- 5.7 Rabi Crops
- 5.8 Horticulture Cluster Development Programme
- 5.9 India Development Report: World Bank
- 5.10 RBI's Monetary Policy Review
- 5.11 Plans to Raise Duty on Non-essential Goods
- 5.12 Growing FinTech Market
- 5.13 Right to Repair
- 5.14 AVGC-Extended Reality Mission for Gaming Sector
- 5.15 GDP and GVA

6. ENVIRONMENT 98

- 6.1 Binturong
- 6.2 Climate Finance
- 6.3 Perennial Rice (PR23)
- 6.4 Global Water Resources Report 2021- WMO
- 6.5 Green Cooling Solutions in India by 2040
- 6.6 Coastal Red Sand Dunes
- 6.7 Issue of Stubble Burning
- 6.8 Soil Health & Fertility
- 6.9 Issue of Pharmaceutical Pollution
- 6.10 India's Renewable Power Capacity: IEA Report
- 6.11 Western Disturbance
- 6.12 World Bank Report on Air Pollution
- 6.13 'Kunming-Montreal Global Biodiversity Framework' adopted at COP 15
- 6.14 Kerala government publishes map for people to seek exemption from ESZ
- 6.15 Cryomesh & Frozen Corals
- 6.16 Regenerative Agriculture
- 6.17 Global Status of Black Soils
- 6.18 . Fog Formation
- 6.19 Purse Seine Fishing
- 6.20 SC sends notice to the Centre regarding the 'Project Great Indian Bustard'

7. SECURITY 125

- 7.1 Agni 5 Ballistic Missile
- 7.2 iDEX Defence Start-up Challenge
- 7.3 PAC Report on Procurement Facilities of Soldiers
- 7.4 Indian and Chinese Troops Clash in Arunachal Pradesh
- 7.5 Issue of Left-Wing Extremism
- 7.6 12th Edition of Exercise Agni Warrior
- 7.7 INS Vagir

8. CULTURE 134

- 8.1 Dokra Metalcraft
- 8.2 3 Indian Sites in Tentative List of World Heritage Sites

- 9.1 World AIDS Day**
- 9.2 Indian Navy Day**
- 9.3 Vizhinjam Port Project**
- 9.4 National Bamboo Mission**
- 9.5 3 Himalayan Medicinal Plants Add IUCN Red List**
- 9.6 Okavango Delta (Inland Delta)**
- 9.7 Beypore Uru**
- 9.8 System for Pension Administration Raksha**
- 9.9 Kerala's 5 Agricultural Products got GI Status**
- 9.10 Water Worlds (Types of Planets)**
- 9.11 Tal Chhappar Sanctuary**
- 9.12 National Mathematics Day**
- 9.13 National Sports and Adventure Awards 2022**
- 9.14 DigiYatra**
- 9.15 Dr. Rajendra Prasad**
- 9.16 Maha-Pari-Nirvan Diwas**
- 9.17 Sri Aurobindo: The Prophet of Indian Nationalism**
- 9.18 AYURSWASTHYA Yojana**
- 9.19 SAMARTH Scheme**
- 9.20 Veer Bal Diwas**
- 9.21 Bomb cyclone**
- 9.22 PRASAD Project**
- 9.23 City Finance Rankings 2022**
- 9.24 Areca Nut**
- 9.25 J C Bose: A Satyagrahi Scientist**



1. SCIENCE & TECHNOLOGY

1.1 End to End Encryption

Why in News?

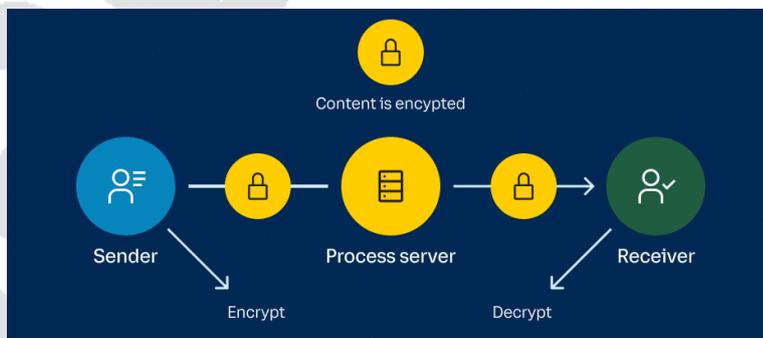
Recently, Apple has announced it will be increasing the number of data points protected by End-to-End Encryption (E2EE) on iCloud from 14 to 23 categories.

What is the Purpose of Announcing this?

1. There was significant increase in the number of data breach incidents on iCloud, in recent past.
2. The data-breach-research by Apple says that the total number of data breaches have increased more than thrice between 2013 and 2021.
3. With end-to-end encryption, the extra layer of protection would be valuable to targets of hacking attacks launched by well-funded groups.

What is End-to-End Encryption?

1. It is a communication process that encrypts (lock it through codes) the data, which is being shared between two devices.
2. It basically protects the data during its transfer and prevents the 3rd parties like cloud service providers, internet service providers (ISPs) and cybercriminals from accessing it.



How does End-to-End Encryption work?

1. The cryptographic keys used to encrypt and decrypt the messages are stored on the endpoints.
2. The process of end-to-end encryption uses a system that transforms standard text into an unreadable format.
3. This encrypted text or information can be read by only those, who have the decryption keys.
4. These decryption keys are stored only on the endpoints and not with any 3rd parties.

Applications of E2EE:

1. It is used while transferring business documents, financial details, legal proceedings, and personal conversations.
2. It can also be used to control users' authorisation when opening stored data.
3. End-to-end encryption is used to secure communications too.
4. It is also used to secure passwords, protect stored data and safeguard data on cloud storage.

Advantages & Disadvantages of E2EE:

<u>Advantages</u>	<u>Disdvantages</u>
<ol style="list-style-type: none"> 1. Encryption helps in better governance of data, as there are industries that are bound by regulatory compliance laws that 	<ol style="list-style-type: none"> 1. The E2EE enables the encrypted data to be encrypted and re-encrypted at certain points during transmission. 2. This makes it important to clearly define and distinguish the endpoints of the



<p>require encryption-level data security.</p> <ol style="list-style-type: none"> 2. E2EE can help different organizations in the country to protect their data through encryption, which is helpful for their business and also for economy at large. 3. End-to-end encryption uses public key cryptography, a technology which stores private keys on the endpoint devices. Hence, only people with access to the endpoint devices are able to read the message. 4. User data is protected from unwarranted parties including service providers, cloud storage providers, and companies that handle encrypted data. 5. With E2EE, the decryption key does not have to be transmitted, the recipient will already have it. 	<p>communication circuit. If endpoints are compromised, encrypted data may be revealed.</p> <ol style="list-style-type: none"> 3. Government and law enforcement agencies express concern that E2EE encourages people sharing illicit content because service providers are unable to provide law enforcement with access to the content. 4. There are loopholes in the security itself, as though the message is encrypted and impossible to read, the other information like date of sending message and recipient, is still visible, which may leak the useful information to an interloper.
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What is the Legal Framework for Encryption in India?

1. Though India has number of industrial rules but it does not have any specific encryption law.
2. The services like **banking, finance, and telecommunications industries**, require the **minimum encryption standards** for privacy of their transactions.
3. Users are not **authorised to hire encryption standards larger than 40 bits** without prior clearance.
[Bit is a unit for measuring data.]
4. **Information Technology Act of 2000 regulates electronic and wireless modes of communication**, but does not have any clear-cut policy on encryption.
5. The **earlier Information Technology (Intermediary Guidelines) Rules 2011 is superseded by The Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules 2021**, having new set of rules that can impact the end-to-end encryption techniques of social messaging applications like WhatsApp, Telegram, Signal, etc.

1.2 Near Earth Asteroid Ryugu

Why in News?

A sample of a space rock called **Ryugu** that **was carried to Earth in 2020** Hayabusa 2 may hold the answers to the **origin of the Earth**.

- Hayabusa 2 is **asteroid sample-return mission of Japanese space agency**.
- It was the **1st time that several grams of asteroid samples have been brought back to Earth**.

What are Asteroids?

1. These are **also known as minor planets**.
2. They are **rocky remnants left over from the early formation of our solar system about 4.6 billion years ago**.
3. Though a **few are nearly spherical**, most asteroids are **irregularly shaped**.



4. Many asteroids are known to have moon too (some have two moons).
5. There are also binary (double) asteroids, in which two rocky bodies of almost equal size orbit with each other, as well as triple asteroid systems.



About Asteroid Ryugu:

1. Asteroid Ryugu is a diamond-shaped space rock.
2. It comes under the category of near-earth asteroid.
3. Ryugu means "dragon palace" in Japanese and used for magical underwater castle in a Japanese folktale.
4. The asteroid is about 900 meters in diameter.
5. LINEAR (Lincoln Near-Earth Asteroid Research) project has discovered in 1999. [LINEAR is a collaborative, U.S.-based project to list and track space rocks.]
6. It is orbiting the sun between Earth and Mars and occasionally crosses Earth's orbit, which means the space rock is classified as "potentially hazardous," though the body poses no imminent danger to our world.

Classification of Asteroids:

<p>According to the location in solar system:</p> <ol style="list-style-type: none"> 1. Main Belt asteroids 2. Trojan asteroids 3. Near-Earth asteroids 	<p>According to the color and composition:</p> <ol style="list-style-type: none"> 1. C-type asteroids 2. S-type asteroids 3. M-type asteroids
---	---

According to Location in the Solar System:

<p>Main Asteroid Belt:</p>	<p>The majority of known asteroids orbit within the asteroid belt between Mars and Jupiter.</p>
<p>Trojans:</p>	<p>These asteroids share an orbit with a larger planet, but do not collide with it because they fold around 2 special places in the orbit that are L4 and L5 Lagrangian points). There, the gravitational pull from the sun and the planet are balanced.</p> <p>[Lagrange Points are positions in space where the gravitational forces of a 2-body system like the Sun and the Earth produce regions of attraction and repulsion.</p> <p>These L points can be used by spacecraft to reduce fuel consumption needed to remain in position.]</p>
<p>Near-Earth Asteroids:</p>	<p>These asteroids pass close by that of Earth & asteroids that actually cross Earth's orbital path are known as Earth-crossers.</p>

According to the colour & composition:



C - type	S - type	M - type
Extremely Dark	Bright	Bright
Having oldest materials like carbon & other minerals	Iron mixed with silicate rock	Pure Iron with Nickel & other Metal
75% of asteroids are C-type	17% of asteroids are S-type	8% of asteroids

What are the Key Highlights?

1. These samples are considered to be the **first solids to be formed in the solar system, so they could be the building blocks of Earth.**
2. Roughly **5 % of materials that assembled to form Earth could have come from space rocks like near-Earth asteroid Ryugu.**
3. Samples were containing **copper and zinc isotope ratios similar to a very rare group of meteorites that are likely the most primitive** (ones with the closest composition to the Sun).
4. They are primitive because **they likely formed in the outer solar system.**
5. Whereas, the **materials created closer to the Sun may have lost a part of their volatile components due to evaporation.**

Significance of the samples found:

1. It can also help in analysing whether the Ryugu-type materials also contributed to the origin of Mars.
2. Volatile elements such as hydrogen, carbon, nitrogen and oxygen are thought to have played a key role in copying complex organic molecules ingredients which are important to build habitable worlds like Earth.
3. These samples help in evaluating the role of Ryugu-like objects in depositing volatile elements to terrestrial planets.

1.3 India's 1st Private Space Vehicle Launchpad

Why in News?

Recently, Chennai-based space tech startup 'Agnikul Cosmos' inaugurated India's 1st private space vehicle launchpad at the Satish Dhawan Space Centre (SDSC) in Sriharikota.

So, What is Agnikul's Launchpad Facility?

1. The **facility has 2 parts: the Agnikul launchpad and the Agnikul mission control centre**, which are 4 kilometres apart.
2. The launchpad has been designed to **accommodate and support liquid stage-controlled launches.**
3. Agnikul Cosmos is **planning to launch its 'Agnibaan' rocket from this launchpad.**
4. The launchpad is specifically built to **address the need for ISRO's range operations team to monitor key flight safety parameters during launches.**



5. Additionally, it has the ability to share data and other critical information with ISRO's Mission Control Center.

About Agnibaan

1. It's a 2 stage launch vehicle that is capable of taking payloads of up to 100 kilograms to a low-earth orbit of around 700 kilometres from the surface of the Earth.
2. It will be powered by the company's 3D-printed Agnilet engines.
3. Agnilet is the world's first single-piece 3-D printed engine fully designed and manufactured in India and was successfully test-fired in early 2021, making Agnikul the 1st company in the country to test its engines at ISRO.
4. The Agnilet rocket is a "semi-cryogenic" engine that uses a mixture of liquid kerosene and supercold liquid oxygen to propel itself.
5. The engine is very complex and it functions at very high temperatures.

1.4 Air Breathing Engines

Why in News?

Recently, the Indian Space Research Organisation (ISRO) has successfully conducted the test of Scramjet Engine, a type of Air Breathing Engine.

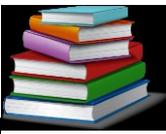
So, What are Air Breathing Engines?

1. An air-breathing engine is an engine that takes in air from its surroundings in order to burn fuel.
2. This system is lighter, efficient and cost-effective than other systems in use.
3. Almost all air breathing engines are internal combustion engines that directly heat the air by burning fuel, with the resultant hot gases used for propulsion via a propulsive nozzle.
4. A continuous stream of air flows through the air-breathing engine. The air is compressed, mixed with fuel, ignited and expelled as the exhaust gas.
5. Thrust produced by a typical air-breathing engine is about 8 times greater than its weight.
6. The thrust results from the expulsion of the working gases from the exhaust nozzle.

Types of Air Breathing Engines are:

1. **Ramjet:** A ramjet is a form of air-breathing jet engine that uses the vehicle's forward motion to compress incoming air for combustion without a rotating compressor. Ramjets work most efficiently at supersonic speeds but they are not efficient at hypersonic speeds. The average speed of Ramjet is 3-6 Mach.
2. **Scramjet:** A scramjet engine is an improvement over the ramjet engine as it efficiently operates at hypersonic speeds. It's speed is greater than 6 Mach (Six times the speed of Sound).
3. **Dual Mode Ramjet (DMRJ):** A dual mode ramjet (DMRJ) is a type of jet engine where a ramjet transforms into a scramjet over Mach 4-8 range, which means it can efficiently operate both in subsonic and supersonic combustion modes.

Speed Range	Mach Number	Velocity in m/s



Subsonic	< 0.8	< 274
Transonic	0.8–1.2	274–412
Supersonic	1.2–5	412–1715
Hypersonic	5–10	1715–3430
High-hypersonic	10–25	3430–8507

1.5 World Malaria Report 2022

Why in News?

Recently, the 'World Malaria Report 2022' was released by the World Health Organization (WHO).

Highlights of the Report are:

1. Although a **decline** in total no. of cases from about **81.1 cases per 1,000 population in the year 2000 to 59 per 1,000**, the world has not yet won the war against Malaria.
2. As per the report, **High-burden malaria countries maintained a strong fight against the disease in 2021 despite the Covid-19 pandemic, with cases and deaths stabilising.**
3. While **deaths came down to 619,000 in 2021 from 625,000 in the first year of the pandemic (2020) but it remained higher than the pre-pandemic level of 568,000 deaths in 2019.**
4. As far as Malaria cases are concerned, the **upward trend continued but at a slower rate — 247 million cases in 2021, compared to 245 million cases in 2020 and 232 million in 2019.**
5. Among the 11 high-burden countries, 5 countries (the Democratic Republic of the Congo, Ghana, India, Niger and the United Republic of Tanzania) recorded a **decline in deaths but these countries continued to contribute heavily to the global malaria burden.**
6. **Africa carries the world's largest burden of Malaria.**
7. In Africa, **84% of global cases and 86% of global deaths** have been recorded. It is alarming that **children aged 5 or younger account for 80% of these deaths.**
8. As per the report, **Insecticide-treated Bednets (ITNs) are the key vector control tool** used by the malaria endemic countries.
9. **Biggest hurdles in ending malaria are mutating parasites, increasing drug resistance etc.**



10. New tools and fundings are urgently needed to help defeat malaria.

11. Globally, around 240 million cases and 6,00,000 deaths were reported in 2020.

About Malaria

- 1. Malaria is a life-threatening mosquito borne disease caused by plasmodium parasites.**
- 2. There are 5 parasite species that cause malaria in humans, and 2 of these species are the biggest threat worldwide and these are – Plasmodium falciparum and Plasmodium vivax.**
- 3. Symptoms of malaria include fever and flu-like illness, including headache, muscle ache, tiredness etc.**
- 4. It is mostly found in the tropical and subtropical areas of Africa, South America as well as Asia.**
- 5. It is preventable as well as curable.**
- 6. The parasites spread through the bites of infected female Anopheles mosquitoes.**
- 7. After entering the human body, parasites initially multiply within the liver cells and then attack the Red Blood Cells (RBCs).**

About Malaria Vaccine

- 1. It's lab name is RTS but it was branded as 'Mosquirix' and the vaccine has passed lengthy scientific trials that found it to be safe and reducing the risk of malaria by nearly 40%.**
- 2. It was developed by 'GlaxoSmithKline' (GSK) company and approved by the European Medicines Agency in 2015.**
- 3. This vaccine trains the immune system to attack the malarial parasite (Plasmodium falciparum, the deadliest species of the malaria parasite).**

Initiatives taken to Curb Malaria are:

1. At Global Level:

- a) The WHO has identified 25 countries with the potential to eradicate malaria by 2025 under its 'E-2025 Initiative'.**
- b) The WHO's 'Global technical strategy for malaria 2016–2030' aims to reduce malaria case incidence and mortality rates by at least 40% by 2020, at least 75% by 2025 and at least 90% by 2030 against a 2015 baseline.**

2. India-Specific:

- a) In India, malaria elimination efforts were started in 2015 and were increased after the launch of the National Framework for Malaria Elimination (NFME) in 2016 by the Ministry of Health and Family Welfare.**
- b) NFME is in line with WHO's 2016-2030 Malaria Strategy.**
- c) The National Strategic Plan for Malaria Elimination (2017-22) was launched in July 2017 which laid down strategies for 5 years.**
- d) It gives year-wise elimination targets in various parts of the country depending upon the cases of malaria.**
- e) Implementation of the High Burden to High Impact (HBHI) initiative was started in 4 states (West Bengal, Jharkhand, Chhattisgarh and Madhya Pradesh) in July 2019.**
- f) Distribution of Long-Lasting Insecticidal Nets (LLINs) to high burden areas has led to a reduction in cases in these 4 very high endemic states.**



g) The **Indian Council of Medical Research (ICMR)** has established **Malaria Elimination Research Alliance-India (MERA-India)** which is a conglomeration of partners working on malaria control.

1.6 National Policy of Rare Diseases

Why in News?

Recently, a **Rajya Sabha MP** raised concerns over 'National Policy of Rare Diseases' (NPRD) as it has not reached to any patient with rare diseases even after several months since its introduction.

So, What are Rare Diseases?

1. These diseases have different definitions in various countries and range from those that are prevalent in 1 in 10,000 of the population to 6 per 10,000.
2. Broadly, a 'rare disease' is defined as a health condition of low prevalence that affects a small number of people when compared with other prevalent diseases in the general population. Many cases of rare diseases may be **serious, chronic and life-threatening**.
3. The definition accepted in the **United States** is that it is a disease that afflicts fewer than **2,00,000** people.
4. This definition is also accepted by the **National Organisation for Rare Disorders (NORD)** in India.
5. Rare diseases came to be known as 'orphan diseases' because pharmaceutical companies were not ready to adopt them and develop drugs for them because of the low prevalence.

About the NPRD

1. Launched in 2021 by the **Ministry of Health and Family Welfare** for the treatment of rare disease patients.
2. Aim of the scheme was:
 - a) To increase focus on **indigenous research and local production of medicines**.
 - b) To **lower the cost of treatment** of rare diseases.
 - c) To **screen and detect rare diseases at early stages**, which will in turn help in their prevention.

Some Key Provisions of the Policy are:

1. Focused on Categorization of Diseases:

Group 1: Disorders which can be cured by one-time treatment.

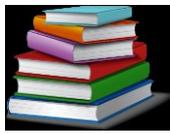
Group 2: Those requiring long term or lifelong treatment.

Group 3: Diseases for which definitive treatment is available but challenges are to make optimal patient selection for benefit, very high cost and lifelong therapy.

2. Will get Financial Support:

a) Those who are suffering from rare diseases listed under **Group 1** will have the financial support of up to **Rs. 20 lakh** under the umbrella scheme of '**Rashtriya Arogya Nidhi**'. **Rashtriya Arogya Nidhi** provides for financial assistance to patients who are living **Below Poverty Line (BPL)** and who are suffering from major life-threatening diseases, to receive medical treatment at any of the **super specialty Government hospitals / institutes**.

b) Under NPRD, beneficiaries for such financial assistance will not be limited to **BPL families only**, but extended to about **40%** of the population, who are eligible



as per norms of Pradhan Mantri Jan Arogya Yojana, for their treatment in Government tertiary hospitals only.

3. **Try for Alternate Funding:** This includes **voluntary crowdfunding treatment** by setting up a **digital platform for voluntary individual contribution** and corporate donors to voluntarily contribute to the treatment cost of patients of rare diseases.
4. **Centres of Excellence:** The policy aims to strengthen tertiary health care facilities for prevention and treatment of rare diseases through designating 8 health facilities as '**Centres of Excellence**' and these will also be **provided one-time financial support of up to Rs.5 crore** for upgradation of diagnostics facilities.
5. **Creation of National Registry:** A national **hospital-based registry of rare diseases will be created** to ensure **adequate data and comprehensive definitions of such diseases are available for those interested in research and development.**

Concerns Raised Regarding NPRD are:

1. Unlike conditions under Group 1 and Group 2, patients with Group 3 disorders require sustainable treatment support. In the **absence of a sustainable funding support for Group 3 patients**, the precious lives of all patients, mostly children, are now at risk and at the mercy of crowdfunding.
2. **Lack of drugs is another cause of concern** and where drugs are available, they are highly **expensive**.
3. Currently **few pharmaceutical companies are manufacturing drugs for rare diseases globally** and there are no domestic manufacturers in India except for those who make medical-grade food for those with metabolic disorders.
4. **Another cause of concern is that Rs.20 lakh seems to be quite less and does not cover the actual costs of treatment, according to many caregivers of patients with rare diseases.**

1.7 Anticancer mRNA Vaccine

Why in News?

Recently, the results of the trial of messenger Ribonucleic Acid (mRNA-4157/V940) vaccine made by Moderna and MSD (Merck & Co.) when taken along with an immunotherapy drug named 'Keytruda' has shown good results against advanced 'Melanoma' (a kind of skin cancer).

So, What is Cancer?

1. It's a **large group of diseases that can start in almost any organ or tissue of the body when abnormal cells grow uncontrollably and go beyond their usual boundaries to invade adjoining parts of the body and spread to other organs.** The latter process is called '**Metastasizing**' and is a major cause of death from cancer.
2. A '**Neoplasm**' and '**Malignant Tumour**' are **other common names for cancer.**
3. **Lung, prostate, colorectal, stomach and liver cancer are the most common types of cancer in men, while breast, colorectal, lung, cervical and thyroid cancer are the most common among women.**
4. **World Cancer Day** is organized by the **Union for International Cancer Control (UICC)** and observed each year on **4th February.**

What is mRNA Vaccine Therapy for Advanced Melanoma Cancer?

1. It is a **personalised cancer vaccine i.e., made separately for every patient as per his body requirements.**



2. To build the vaccine, researchers **took samples of patients' tumor and healthy tissue.**
3. After analysing the samples to **decode their genetic sequence and isolate mutant proteins associated only with the cancer then that information was used to design** the vaccine.
4. The personalised cancer vaccine **uses the same m-RNA technology** that was used to **produce the Covid-19 vaccine.**

How this Vaccine Works?

1. It **allows the body's immune system** to seek and **destroy cancerous cells.**
2. The personalised cancer vaccine **works in co-ordination with Keytruda, to disable a protein called Programmed Death 1 (PD-1), that help tumors to surpass the immune system.**
3. When injected into a patient, the **patient's cells act as a manufacturing plant, producing perfect copies of the mutations for the immune system to recognise and destroy.**
4. Having been **exposed to the mutations without the virus, the body learns to fight off the infection.**

Efficacy of the Vaccine:

1. The vaccine showed a **44% reduction in the risk of dying due to cancer or having the cancer progress.**
2. The combination of **mRNA-4157/V940 and Keytruda** was generally **safe.**

1.8 Innovation in Agriculture

Why in News?

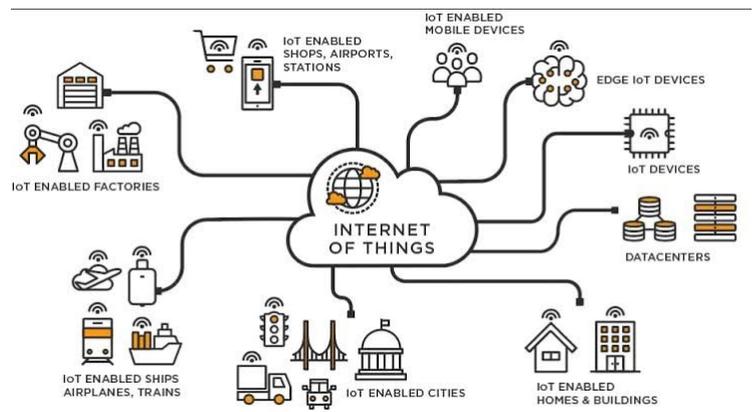
In the recent years, the Government of India has taken various initiatives related to Agriculture by using Internet of Things (IoT) and Artificial Intelligence (AI).

So, What is Internet of things (IOT)?

1. IoT is a **computing concept that works on the idea of everyday physical objects being connected to the internet and being able to identify themselves to other devices.**
2. It is one of the **fastest emerging technologies across the world**, providing enormous beneficial opportunities for society, industry, and consumers.
3. **IOT can be used to create smart infrastructure in various areas such as Power, Automotive, Safety & Surveillance, Remote Health Management, Agriculture, Smart Homes and Smart Cities etc, using connected devices.**

What is Artificial Intelligence (AI)?

1. It can be described as the **action of machines doing tasks that have historically required human intelligence.**
2. It includes technologies like **machine learning, pattern recognition, big data, neural networks, self-algorithms etc.**





3. Few Examples of AI are: **Facebook's list of suggested friends for its users, self-driving cars, trains etc.**
4. AI automates processes and reduces human error but **the principal limitation of AI is that it learns from the data. This means any inaccuracy in the data will be reflected in the results.**
5. **AI is expected to add almost USD 967 Billion to the Indian economy by 2035 and USD 450–500 billion to India's GDP by 2025, accounting for 10% of the country's USD 5 trillion GDP target.**

What is the Need for IoT and AI in the Agriculture Sector?

1. **In India, agriculture remained a priority sector as it accounts for the livelihoods of almost 58 % of the country's population, so, adoption of technology in the sector is highly required.**
2. **Currently, agriculture sector is facing many challenges like increased labour cost, issues related to irrigation and so on and these challenges can be tackled by technological solutions such as the IoT and AI.**
3. **Adoption of AI technologies can pave the way for higher production with the optimum utilization of available resources and will facilitate pointed analysis, crop health management, enhanced quality etc.**

About the Usage of AI in Agriculture

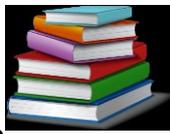
1. **Agricultural Farms produce hundreds of thousands of data points on the daily basis. So, with the help of AI, farmers can now analyze a variety of things in real-time such as weather conditions, temperature, water usage or soil conditions collected from their farm and it can lead to better decisions.**
2. **Farmers are also using AI for seasonal forecasting to improve agricultural accuracy and increase productivity.**
3. **Precision agriculture uses AI technology to help in detecting diseases in plants, issues related to pests, and poor plant nutrition on farms.**
4. **AI sensors can detect and target weeds and then decide which herbicides to apply within the right area. This helps to prevent over-application of herbicides and excessive toxins that find their way in food.**

Initiatives taken by Government in this Direction are:

1. **Digital India Initiative:**
 - a) **Under the Digital India initiative, government has set up Centres of Excellence on Internet of Things with the objective to enable India to emerge as an innovation hub in IoT.**
 - b) **One of the focus areas of Centres of Excellence on IoT is on Agri-tech and it connects various entities such as startups, enterprises, governments and academia.**
2. **National Mission on Interdisciplinary Cyber Physical Systems (NM-ICPS):**
 - a) **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 5 years to encourage innovation in new age technologies.**
 - b) **Under the Mission, 25 Technology Innovation Hubs (TIHs) have been set up in premier institutes of national importance across the country.**

1.9 Zombie Virus

Why in News?



European researchers have raised concerns of yet another pandemic after restoring to life a 48,500-year-old 'Zombie Virus' from a frozen lake in Russia.

- The researchers warned that Climate change-induced melting of the permanently frozen land (permafrost) in the Arctic could raise a new public health threat.

About Zombie Virus:

1. 13 new pathogens have been characterized and named as 'Zombie Viruses'.
2. These viruses remained infectious, even after spending many millennia trapped in the frozen ground.
3. The viruses have emerged due to the melting of permafrost as the global temperature is rising.
4. The new strain is one of 13 viruses, each of which has its own genome.
5. The oldest, dubbed Pandoravirus yedoma (after the mythological character Pandora) was 48,500 years old, a record age for a frozen virus returning to a state where it has the potential to infect other organisms.
6. This has broken the previous record of 30,000-year-old virus discovered by the same team in Siberia in 2013.



What are the Causes of the Zombie Virus?

1. 1/4th of Northern hemisphere lies below the permanently frozen ground, known as permafrost.
2. Due to climate warming, irreversibly melting permafrost is releasing organic matter which was frozen from millions of years.
3. Most of the organic matter decomposes into carbon dioxide and methane, further enhancing the greenhouse effect.
4. Part of this organic matter also consists of recharged cellular microbes (prokaryotes, unicellular eukaryotes) as well as viruses that remained inactive since prehistoric times.
5. All of the "zombie viruses" have the potential to be infectious and hence can be very dangerous for human health.
6. It is believed that pandemics like Covid-19 will become more common in the future as melting permafrost releases long-dormant viruses like a microbial Captain America.

1.10 Space Sector of India

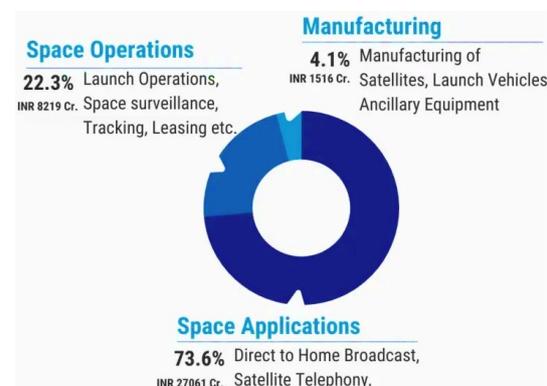
The successful launch of Vikram-S, India's 1st privately built rocket from start-up Skyroot, has focused on the opening up window for private enterprises. While it offers many opportunities, it also carries various challenges that need to be examined to develop holistic perspectives of New Space.

Current status India's Space Sector:

India's Space Economy is likely to be worth nearly USD 13 billion by 2025.

Why is Development in the Space Sector Important?

1. Investment in the space field would help in growth of other sectors as well as space sector is an integration of the aerospace, IT hardware and telecom sectors.





2. **Space sector development would help in achieving better connectivity as satellite communication can reach more remote areas where conventional networks would require a heavy infrastructure.**
[The World Economic Forum had stated (in September 2020) that satellite communication can help connect 49% of the world's unconnected population.]
3. **Satellites provide help in tackling climate change also by giving more accurate information on weather forecasts and long-term trends in the climate of a region.**
4. **By monitoring the long-term impact of climate change at regional, territorial, and national scales, governments would be able to have more efficient policies for farmers and dependent industries.**
5. **Space can also serve as real-time monitoring and early-warning solutions against natural disasters such as earthquakes, tsunamis, floods, wildfires, mining etc.**
6. **Real-time tracking can also serve multiple purposes in defence.**

What are the Challenges Related to Outer Space?

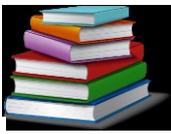
1. **Approximately Rs. 15,000 crore is reserved for ISRO's annual budget, most of which is spent on building rockets and satellites, and lesser amount is left for research.**
2. **India's space economy is small as private sector has a relatively small window of opportunity.**
3. **Also, the existing potential of Indian space sector has not been fully realized.**
4. **Due to the successful launch of its own navigation system named BeiDou, China has established a strong presence in space already, & emerging space powers like India face a serious challenge in this regard.**
5. **Increasing space exploration is causing more space debris, which can damage ongoing space missions due to high orbital speeds.**
6. **A race for dominating outer space is creating an environment of competition, and aggressiveness & leading to conflict.**
7. **Unregulated Commercialisation of outer space is accelerating due to the development of satellite tours to provide Internet services (Starlink-SpaceX) and for space tourism (Jeff Bezos) also, this rising commercialisation could lead to monopolization of space.**

Some good steps:

1. **The Kilo Ampere Linear Injector (KALI) is being developed as a possible response to incoming missiles intended to disrupt the country's peace is a good step in this direction.**
2. **Project NETRA, an early warning system in space to detect debris and other hazards to Indian satellites is a good step in this direction.**

What can be done?

1. **As per the Economic Survey 2020–2021, over 40 funded start-ups are working in India in the space segment and the number is likely to increase in the coming years.**
2. **India should look forward to having policies to effectively discharge its obligations under UN Treaties on Outer Space activities.**
3. **As space becomes a 4TH battlefield, India needs to enhance its space capabilities by investing more and adopting technologies.**
4. **India can promote gender equality and women's empowerment in space through programmes like "Space 4Women in India" by replicating the United Nations Office for Outer Space Affairs (UNOOSA)'.**
5. **Space awareness programmes should be established in rural areas in India, to introduce them to the possibility of extending their eyes beyond our planet.**



1.11 T-cell Acute lymphoblastic leukaemia (T-ALL)

Why in News?

Recently, the **experimental treatment called base editing** gave **revolutionary results in clearing a T-ALL cancer**.

What is T-Cell?

1. T (thymus) cells are type of white blood cell.
2. They are part of the immune system and develop from stem cells in the bone marrow.
 - [Stem cells are the body's raw materials — cells from which all other cells with specialized functions are generated.]
 - [Bone marrow produces a particular kind of white blood cells (WBC) called T lymphocytes (T cells)]
3. They help in protecting the body from infection and may help fight cancer.
4. These are also called T lymphocyte and thymocyte.

About T-ALL:

1. Recently, a teenager was diagnosed with a particular type of blood cancer.
2. It was a kind of blood cancer known as T-cell acute lymphoblastic leukaemia (T-ALL).
3. T-ALL affects the stem cells in the bone marrow.
4. These cells provide a person immunity by killing cells carrying infections, activating other immune cells, and strengthening the immune response.
5. At least 20% of these WBC are different as they accumulate in the bone marrow, and they crowd out good WBCs and hence weaken the immune system.
6. These unhealthy cells can also accumulate in other parts of the body like the liver, spleen and lymph nodes etc.
7. T-ALL is found in both children and adults, but incidence decreases with age.

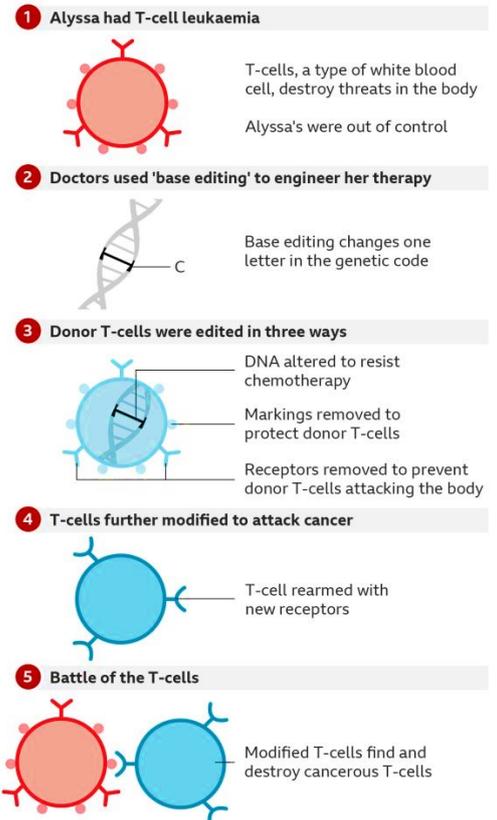
How is T-ALL typically treated?

1. It is treated just like the treatment of any other leukaemia.
2. It includes chemotherapy and stem cell/bone marrow transplant.
3. Overall treatment for T-ALL is effective, where children have a survival rate of over 85% after 5 years of receiving this treatment.

What is Base Editing?

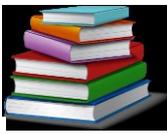
1. Bases are the language of life, which tells us about the characteristic features of a person.
2. There are 4 types of bases:
 - Adenine (A)
 - Cytosine (C)
 - Guanine (G)
 - Thymine (T)
3. These 4 are the building blocks of our genetic code.
4. Just as letters in the alphabet spell out words that carry meaning, the billions of bases in our DNA spell out the instruction manual for our body.
5. Scientists have been able to zoom into an exact part of the genetic code.

How does the treatment work?



Source: BBC research

B B C



6. The zoom has helped in changing & modifying the molecular structure of just one base thus effectively changing its genetic instructions.

How base editing helped this teenage cancer patient?

1. Doctors started with healthy T-cells that came from a donor and started modifying them.
2. The 1st base edit disabled the T-cells targeting mechanism so they would not assault patient's body. (It was just a trial)
3. In the 2nd editing, removed a chemical marking, called CD7, which is on all T-cells.
4. The 3rd editing was an invisibility cloak that prevented the cells being killed by a chemotherapy drug.
5. The final stage of genetic modification has made the T-cells to find anything with the CD7 marking on it so that it would destroy every T-cell in patient's body – including the cancerous ones.
6. That's why this marking has to be removed from the therapy – otherwise it would just destroy itself.
7. If this works successfully, the patient's immune system and the destroyed T-cells in the process, will be restored with the 2nd bone-marrow transplant.

1.12 Black Hole

Why in News?

An intensely bright flash of light coming from the universe had shocked astronomers worldwide, earlier this year.

- This flash of light is believed to be coming from black holes.

About Black Holes:

1. A place in space where gravity pull is so high that even light cannot escape, is known as Black Hole.
2. The gravity is so strong because matter has been squeezed into a tiny space. This can happen when a star is dying.
3. They are invisible, because no light can get out of them.
4. Space telescopes with special tools can help in finding black holes.
5. The gases spinning around the black holes actually help in getting their images.
6. Black holes can be big or small, in their size.
7. Scientists think the smallest black holes are as small as just an atom but have the mass of a large mountain.
8. Also, there is a different kind of black hole "stellar" & its mass can be up to 20 times more than the mass of the sun.
9. The largest black holes are called 'supermassive' and they have masses that are more than 1 million suns together.

How Do Black Holes Form?

1. The smallest black holes formed when the universe began.
2. Stellar black holes are made when the centre of a very big star falls in upon itself or collapses, which causes a supernova.

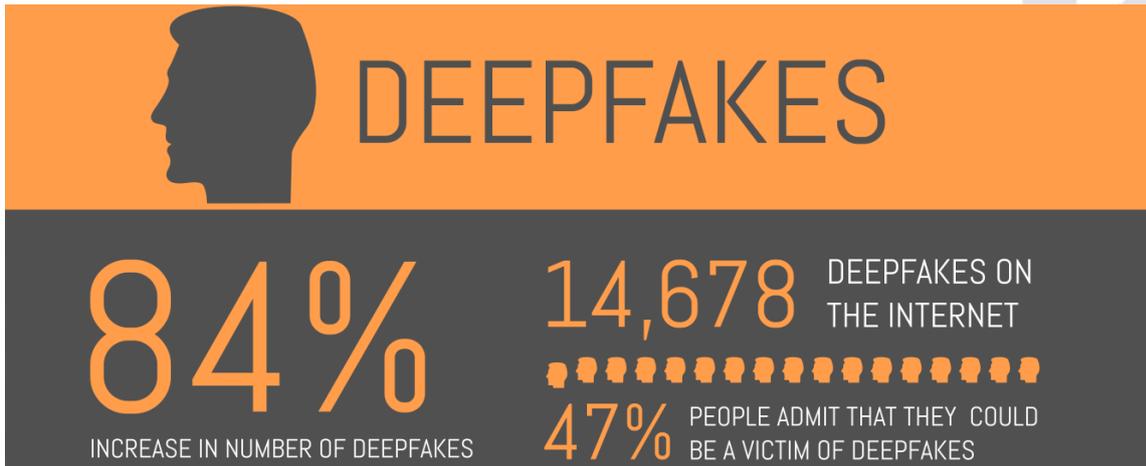
1.13 Deepfake Technology

Why in News?

The Cyberspace Administration of China, are coming up with new regulations to restrict the use of deep synthesis technology and control false information.



- **Cyberspace Administration of China is country's cyberspace watchdog.**

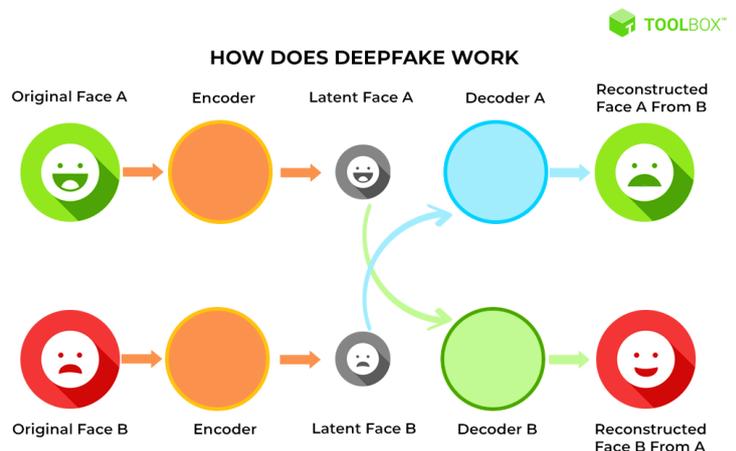


What is Deep Synthesis?

1. **Deep synthesis** is the use of technologies, augmented (improved) reality, to create virtual scenes along with audio and video.
2. One of the misuses of this technology is deepfakes, where synthetic media is used to switch the face or voice of one person with another.
3. Also, these deepfakes are getting harder to detect with the advancement of technology.

About Deepfake Technology:

1. It is a method for manipulating, audios, videos, images by using the powerful computers and deep learning.
2. It was originated in 2017, when an unnamed Reddit user called himself "Deepfakes."
3. He altered the Google's open-source with the help of the deep-learning technology to create and post pornographic videos.
4. These days too, the technology is being used for immoral purposes like scams, celebrity pornography, election manipulation, social manufacturing, disinformation attacks, financial frauds etc.
5. Deepfake has been used to copy notable personalities like former U.S. Presidents Barack Obama and Donald Trump, India's Prime Minister Narendra Modi, etc.
6. It overlaps the false audio, video or picture over already-existing video, picture, or audio.
7. Cybercriminals use Artificial Intelligence technology to perform Deepfake Technology.



What are other Countries doing to Combat Deepfakes?

India:	In India, however, there are no legal rules against using deepfake technology . However, specific laws are there to control the tech misuse, which include Copyright Violation, Defamation and cyber frauds, etc.
United States:	1. The U.S. introduced the bipartisan Deepfake Task Force Act .



	<ol style="list-style-type: none"> It works to assist the Department of Homeland Security (DHS) to control the deepfake technology. It asks to conduct an annual study of deepfakes assess the technology used, track its uses by foreign and domestic entities, and come up with available countermeasures to tackle the same.
European Union:	<ol style="list-style-type: none"> The European Union has an updated Code of Practice to stop the spread of disinformation through deepfakes. The tech companies like Google, Meta, and Twitter are required to take measures in countering deepfakes and fake accounts on their platforms, within 6 months after signing up the Code. In case of non-compliance, these companies can face penalties as much as 6% of their annual global turnover, according to the updated Code.

What should be done?

- As media consumers, we must be able to decipher, understand, translate, and use the information we encounter.
- Technical solutions supported by artificial intelligence should be adopted to identify and control deep fakes.
- Media literacy has to be improved, and should be made more responsible to restrict the spread of the fake news.

Way Forward:

There is a need for easy-to-use and accessible technology solutions to detect deep fakes, authenticate media, and amplify authoritative sources. On the part of society, to counter the menace of deep fakes, there is a need to take the responsibility of being important consumer of media on the Internet, by thinking before sharing on social media, and be part of the solution.

1.14 BF.7 Variant of Coronavirus

Why in News?

The current surge in Covid-19 infections in China, is believed to be driven by the BF.7 sub-variant of Omicron that is circulating over there.

What is the BF.7 Variant of Coronavirus?

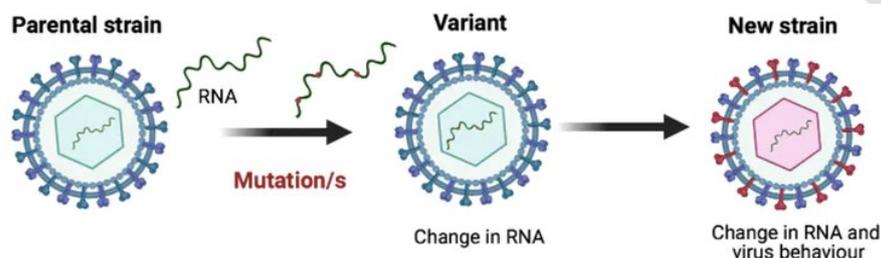
- BF.7 is a sub-variant of Omicron that has been in circulation for over a year now.
- There are over 500 Omicron sub-variants currently in circulation.
- BF.7 is the name for the BA.5.2.1.7, which itself has evolved from the BA.5 sub-variant.
- This is dominant virus strain in China, but not unique to China.
- It accounted for more than 5% of the cases in the US in October, 2022 and over 7% of the cases in the UK.
- When viruses change, they create lineages and sub-lineages, like the main trunk of the SARS-CoV-2 tree sprouting branches and sub-branches.
- BF.7 sub-variant has a 4.4-fold higher neutralisation resistance than the original D614G variant.
[Neutralisation Resistance is ability of antibodies to block the sites on bacteria or virus that they used to enter their target cell.]
- Hence, in this case the antibodies from a vaccinated or infected individual were less likely to destroy BF.7 than the original Wuhan virus that spread worldwide in 2020.



9. A higher neutralisation resistance means there is a higher likelihood of the variant spreading in a population and replacing other variants.

How are New Variants Formed?

1. When a virus multiplies, it doesn't always produce an exact copy of itself.
2. This means that, over time, the virus may start to differ in terms of its characteristics & genetic sequence.



3. Any changes to the viral genetic sequence during this process is known as a **Mutation**.
4. **Viruses** with new mutations are sometimes called **Variants**. Variants can differ by one or multiple mutations.
5. When a **new variant** has different functional properties to the **original virus** and becomes established in a population, it is sometimes referred to as a **New Strain of the virus**.
6. All strains are variants, but not all variants are strains.

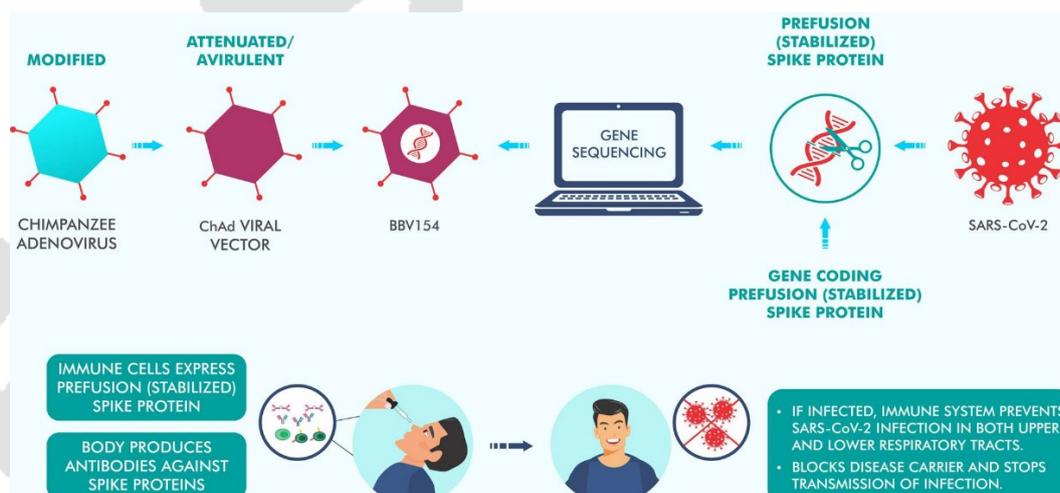
1.15 Innovaccr, Intranasal Covid-19 Vaccine

Why in News?

Bharat Biotech's intranasal vaccine, BBV154 or Incovacc is the world's first intranasal vaccine to be approved as a booster dose for Covid-19.

About Innovaccr:

1. The nasal vaccine is a recombinant replication-deficient adenovirus vectored vaccine.
2. It works with a pre-fusion stabilized spike protein.



What is the Significance of intranasal Vaccine?

1. With the vaccine being delivered through a nasal spray, it will do away with the need for needles and syringes.



2. It will also reduce dependence on trained personnels to give shots.
3. Incovacc is effective for Omicron variants that replicate in the upper respiratory tract before entering the lungs.

How does Incovacc work?

1. The vaccine will be given through nose.
2. Vaccine than triggers an immune response in the mucosal membrane.
3. BBV154 may produce local antibodies in the upper respiratory tract which may provide the potential to reduce infection and transmission.
4. The nasal vaccine gives only the local immunity (in the nose where the virus first enters).
5. Due to generating local immunity, it can be said that it is more likely to be effective at preventing transmission than the current generation of vaccines we have.

ABOUT THE VACCINES

BBV154

■ An intra-nasal vaccine stimulates a broad immune response — neutralising IgG, mucosal IgA, and T cell responses

■ Triggers immune responses at site of infection (in the nasal mucosa) — essential for blocking infection and transmission of Covid-19

■ Non-invasive, needle-free

■ Ease of administration: Does not require trained health care workers

■ Scalable manufacturing

ABOUT 100 INTRA-NASAL VACCINES UNDER CONSIDERATION

■ AstraZeneca (UK) and University of Oxford

■ Beijing Wantai Biological Pharmacy (China)

■ Codagenix (US) and Serum Institute of India (Pune)

■ AstraZeneca (UK) and University of Oxford



2. POLITY AND GOVERNANCE

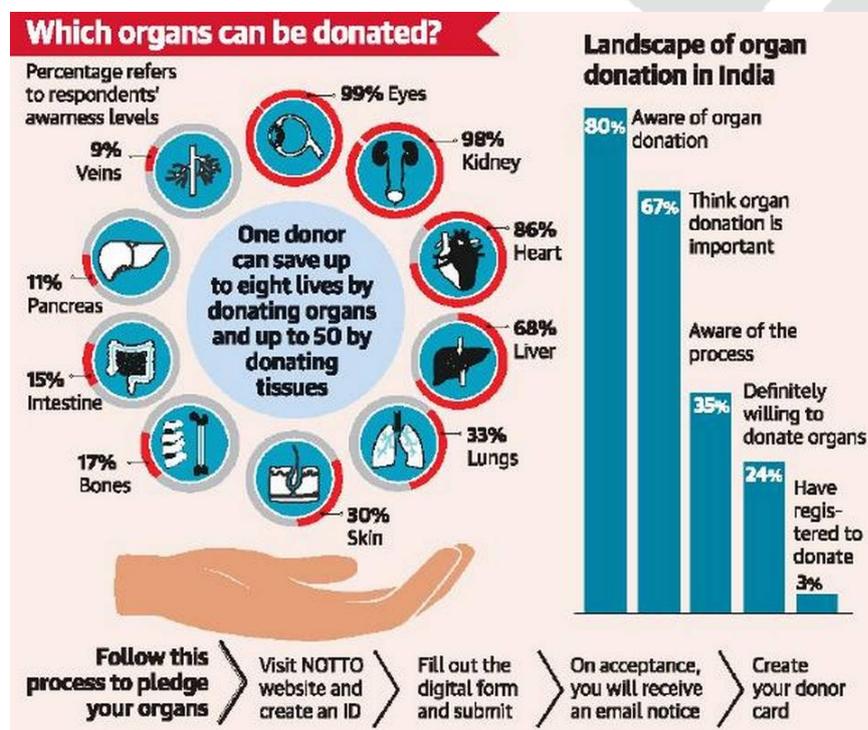
2.1 Rise in Organ Donations

Why in News?

The organ donation numbers increased back in 2021.

Organ Donation and related regulations in India:

1. In India, Transplantation of Human Organs Act, 1994 provides various regulations for the removal of human organs and its storage.
2. It also regulates the transplantation of human organs for therapeutic purposes.
3. Transplantation of Human Organs Act, 1994 also work for the prevention of commercial dealings in human organs.



Status of Organ Donation in India:

1. India conducts the 3rd highest number of transplants in the world, with an organ donation rate of about 0.52 per million population.
2. Although organ donation has increased, however, the number of dead donations has remained lower than the number of donations from living persons.
3. Only 14.07% of the total organs harvested in 2021 were from deceased donors, much less than the 16.77% of 2019.
[Deceased Donation is the organs donated by the kin of those who suffered brain death or cardiac death.]
4. There is also a geographical twist in deceased donations. Every 2nd deceased organ donation in 2021 was from one of the 15 states only.
5. The top 5 donor states were Telangana, Tamil Nadu, Maharashtra, Gujarat, and Karnataka, accounting for more than 85% of the total donations.
6. One reason for the geographical angle could be the presence of most organ transplant and harvesting centres in these geographies.



Need for Increasing the Donations?

1. **There is a huge gap in the number of organs needed and the number of transplants that happen in the country.**
For example, almost 1.5-2 lakh persons need a kidney transplant every year but, only around 8,000 get one.
2. **Because of the increasing prevalence of lifestyle diseases, the demand of the organs is increasing day by day.** Besides, organs like heart and lungs can be kept only from dead donors.
3. **Nearly 1.5 lakh persons die in road traffic accidents every year in India, many of whom can ideally donate organs.** Although donations are possible after the heart stops working, almost all organs are currently harvested from brain dead persons.

What should be done?

1. **The public hospitals need to increase the infrastructural capacity to provide affordable treatment to the poor by increasing accessibility of donated organs to weaker sections**
2. **Cross-subsidization should also be increased to increase the accessibility to the weaker section.** For every 3 or 4 transplants, the private hospitals should carry out free of cost transplantation to the section of the population that donates a majority of organs.
3. **The Transplantation of Human Organs Act, 1994, should be reformed to ease up the bureaucratic procedure of hospitals by self-declaration and mandatory verification involving civil society.**

Way Forward:

Unlike India where a person has to register to be an organ donor and the family has to consent to it after death, Spain has an opt-out system where a person is presumed to be a donor unless otherwise specified, India should learn from these types of practices from all over the world.

2.2 Centre directs the States to upgrade Land Records

Why in News?

Recently, the Union Government has written a letter to all the states across the country, directing them to record settlement rights (record of land) in Revenue and Forest records within a period of 3 months.

The letter stated that the **revenue and forest departments** should prepare a **final map of the forest land** that was given to the communities under 'The Forest Rights Act (FRA), 2006'.

Key Points of the Notification are:

1. **Digital information on the Record of Rights (RoR)** (a legal document that gives details about the land and who owns it) under **The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006** or **Forest Right Act (FRA)** will also be integrated in the **PARIVESH portal** and other web **Geographic Information System (GIS) platforms** of central and state government departments.
2. It will be done after completion of the process of **settlement of rights and issuance of titles.** The map should then be included in the land records under relevant state laws.
3. The centre has also directed states to undertake **Geographic Information System (GIS) surveys of each land patch.**



Benefits of this Exercise:

1. Land records with data of Forest Right Act (FRA) titles **eliminates the conflict between the tribals and govt officials.**
2. **Sometimes, a piece of land that has been allotted under FRA, is also diverted for afforestation and this creates a lot of problems for both locals as well as government.**
3. GIS of Record of Rights (ROR) under FRA will be beneficial for the people of the states as the forest and tribal welfare departments will be **able to initiate specific projects and schemes for improving the livelihoods of the FRA title holders.**

About the Forest Rights Act, 2006

1. The Act **recognizes and vests the forest rights and occupation on Forest land to the Forest Dwelling Scheduled Tribes (FDST) and Other Traditional Forest Dwellers (OTFD)** who have been residing in such forests for generations.
2. Forest rights can also be claimed by **any person or community who has for at least 3 generations (75 years) prior to the 13th day of December, 2005 primarily resided in forest land for livelihood needs.**
3. It **strengthens the conservation regime of the forests while ensuring livelihood and food security of the FDST and OTFD.**
4. The **Gram Sabha is the authority to initiate the process for determining the nature and extent of Individual Forest Rights (IFR) or the Community Forest Rights (CFR) or both that may be given to FDST and OTFD.**

2.3 India's Progress in tackling IMR, MMR and Malnutrition

Why in News?

Recently, the data presented by the Registrar General of India (RGI) shows a gain in the pace of decline in India's Maternal Mortality Rates (MMRs) and Infant Mortality Rates (IMRs) post-2005.

About the Progress Made in Reducing MMRs and IMRs

1. **IMR is the number of infants dying before their 1st birthday per 1,000 live births.**
2. **MMR is the number of women who died from pregnancy-related causes or within 42 days of pregnancy per 100,000 live births.**
3. **As per the special bulletin released by the office of the RGI, India's MMR was 97 during 2018-2020 compared to 301 during 2001-03.**
4. **The IMR has also been reduced to 27 (as of 2021) compared to 58 in 2005.**
5. **It's a big relief that the Rural-Urban difference in this context has also been narrowed.**
6. **As observed in the last few years, the National Rural Health Mission (NRHM) and the National Health Mission (NHM) has been a game changer for the country in terms of mortality reductions for infants and mothers.**
7. **The NRHM was launched by the Government of India (GOI) in 2005 to provide accessible and affordable healthcare through a public system of primary health care.**
8. **NHM was launched by the Government of India (GOI) in 2013 subsuming the National Rural Health Mission (Launched in 2005) and the National Urban Health Mission (Launched in 2013).**



So, What is the Scenario of Tackling Malnutrition?

1. Unfortunately, Nutrition is still one key area that is restricting any major progress.
2. Malnutrition is the situation that develops when the body is deprived of essential vitamins, minerals and other nutrients that it needs to maintain proper organ function.
3. Malnutrition occurs in people who are either undernourished or over nourished.
4. **Related Findings of National Family Health Survey (NFHS) 5:**
 - a) The 5th National Family Health Survey 2019-21 reports that almost 35% of children under 5 are stunted, 19% are wasted and 32% are underweight.
 - b) Meghalaya has the highest number of stunted children (46%), followed by Bihar (43%).

Initiatives taken by the Government to Tackle Malnutrition are:

1. **Integrated Child Development Services (ICDS) Scheme:** It was launched in 1975 and the scheme aims at providing food, preschool education, primary healthcare, immunisation, health check-up and referral services to children under 6 years of age and their mothers.
2. **The National Food Security Act (NFSA), 2013:** It aims to ensure food and nutrition security for the most vulnerables through its associated schemes and programmes, making access to food a legal right.
3. **Anemia Mukt Bharat Abhiyan:** Launched in 2018, the mission aims at increasing the annual rate of decline in anaemia from 1 to 3 percentage points every year.

About the Registrar General of India (RGI)?

1. Founded in 1961 under the Ministry of Home Affairs, the RGI arranges, conducts and analyze the results of the demographic surveys of India (Census of India and Linguistic Survey of India etc).
2. The position of Registrar is usually held by a civil servant holding the rank of Joint Secretary under the Government of India.

2.4 Dharavi Redevelopment Project

Why in News?

Recently, the Bombay High Court (HC) seeks the Dharavi Redevelopment Project Authority's reply to the Public Interest Litigation (PIL) for removal of Mahim Nature Park from the Dharavi Redevelopment Project.

Basically, Mahim Nature Park is a protected forest under Indian Forest Act, 1927 and is situated near Dharavi.

So, What is Dharavi?

1. Dharavi is the biggest slum cluster of Asia that lies in the middle of Mumbai.
2. It is spread over an area of 300 hectares, of which the state government has notified almost 240 hectares for the project.
3. The settlements at Dharavi started in 1882 at the time of British Raj. During the 18 and 19th century, unplanned localities started to grow in Mumbai when the process of urbanization was started.
4. Almost 5 lakh people lives in Dharavi. Apart from the currently estimated 56,000 families, it houses tens of thousands of small commercial establishments,



ranging from pottery to leather work but the living conditions are quite poor here due to high density of population and the lack of many basic amenities.

About Dharavi Redevelopment Project

1. 'Dharavi Redevelopment Project' is the **makeover of Mumbai's slum cluster, Dharavi.**
2. First time, the project was planned in **2004**, but **never got started due to various reasons.** Recently, the **Adani Group** won the bid for this project.
3. This project will **resettle almost 68,000 people, including slum dwellers and those with commercial establishments.**
4. The rehabilitation construction cost is **estimated at 23,000 crore.**
5. **A special purpose vehicle (SPV) is to be formed, with Adani Group as the lead partner. Adani Group will hold 80% equity in the SPV while the state government will hold 20%.**
6. The SPV will **construct free housing for eligible slum residents, with amenities and basic infrastructure** such as **water and power supply, sewage disposal, piped gas, etc.**

2.5 National Telemedicine Service of India: e-Sanjeevani

Why in News?

Recently, National Telemedicine Service of India- 'e-Sanjeevani' achieved 8 crore tele-consultations.

What is Telemedicine?

1. As per the **World Health Organisation (WHO)**, telemedicine is the delivery of health care services, where distance is a critical factor, by health care professionals **using Information Technology (IT)** for diagnosis, treatment and prevention of disease and injuries, research and evaluation, etc
2. **Tele-consultation is one of the applications of telemedicine.** It uses IT to facilitate communications between a patient and a doctor who are otherwise geographically separated.

So, What is e-Sanjeevani?

1. It was **started in 2019.**
2. It's a **national telemedicine service** that works to provide an alternative to the conventional physical consultations.
3. e-Sanjeevani is an integral part of **Ayushman Bharat Digital Health Mission (ABDHM)** and **more than 45,000 health IDs** have been generated via e-Sanjeevani application.
4. It aims to **connect all Health and Wellness Centres** using the '**Hub-and-Spoke Model**'.
5. Under the model, **a network will be established comprising an anchor establishment, or hub, which offers a full array of services, and will be complemented by secondary establishments, or spokes, which offer limited services, routing patients needing more intensive services to the hub for treatment.**
6. **Leading 10 states for usage of this platform** are: **Andhra Pradesh, West Bengal, Karnataka, Tamil Nadu, Maharashtra, Uttar Pradesh, Madhya Pradesh, Bihar, Telangana and Gujarat.**



About the Ayushman Bharat Health and Wellness Centres (AB-HWCs) Programme:

1. It aims to **bridge rural-urban digital health divide** by providing **assisted teleconsultations from AB-HWCs**.
2. It ensures that **e-beneficiaries of Ayushman Bharat Scheme** are able to **avail of the benefits** they are entitled to.

About e-Sanjeevani OPD:

1. It was **launched during the Covid-19 pandemic** to enable **patient-to-doctor tele-consultations**.
2. Offered at **no cost**, this **e-health service** has made it **convenient for the people to avail of the health services without having to travel**. It enables **two-way interaction** and even generates a **prescription slip**.
3. It **uses technology like smartphones, tablets, laptops** enabling **doctor consultations to be accessible from the patient's residence regardless of location**.
4. It is **hosting over 40 online Out Patient Department (OPD) services**, more than half of these are speciality OPDs which include **Gynaecology, Psychiatry, Anti-Retroviral Therapy (ART) for the AIDS/HIV patients, Non-Communicable Disease (NCD)** etc.
5. **Under e-Sanjeevani-OPD initiative, a total of 2,22,026 specialists, doctors and health workers were trained till date**.
6. This platform has an impressive record of having **served over 4.34 lakhs patients in one day**.

2.6 National Overseas Scholarship Scheme

Why in News?

Recently, Indians who have been sent abroad to study through the 'National Overseas Scholarship Scheme' have sent their gratitude towards the Indian Government for the scholarship programme.

About the National Overseas Scholarship Scheme

1. **National Overseas Scholarship Scheme** is a **Central Sector Scheme (fully funded by the central government)** that aims to support the **low-income students** belonging to the **Scheduled Castes (SCs), Scheduled Tribes, Landless Agricultural Labourers and Traditional Artisans** category to obtain higher education by studying abroad.
2. The Scheme provides **financial assistance to the selected candidates for pursuing Masters level courses and Ph.D. courses abroad** in the Institutions/Universities approved by the Government/an authorized body of that country in any fields of study.
3. **Bachelors Level courses in any discipline are not covered under the Scheme**.
4. **Ministry of Social Justice and Empowerment is the nodal ministry for the scheme**.
5. **Candidates already staying or studying or having completed studies abroad by utilizing any other scholarship from the government or through their own funds are not eligible to apply under the scheme**.
6. Each year, **125 scholarships are given under the Scheme**.
7. **30% of the scholarship for each year are reserved for women candidates**.
8. **Eligibility:** In order to be eligible for the scholarship, **at least 60% marks or equivalent grade in the qualifying examination is required**.



9. **Age:** Not more than 35 (Thirty-Five) years, as on the 1st Day of April for selection year.
10. **Income Criteria:** Total family income from all sources shall not exceed Rs. 8.00 lakh per annum in the preceding financial year.

2.7 Introduction of National Judicial Commission Bill, 2022

Why in News?

Recently, the 'National Judicial Commission Bill, 2022' was introduced in the Parliament.

Highlights of the Bill are:

1. The bill aims to **regulate the procedure to be followed by the National Judicial Commission for recommending people for appointment as the Chief Justice of India and other judges of the Supreme Court and Chief Justices and other judges of the High Courts.**
2. It also aims to **regulate their transfers and to lay down judicial standards and provide for accountability of judges, and to establish mechanism for investigating into individual complaints for misbehaviour or incapacity of a judge of the supreme court or of a high court and to regulate the procedure for such investigation.**

So, What was the National Judicial Appointments Commission (NJAC)?

1. In August 2014, Parliament passed the Constitution (99th Amendment) Act, 2014 along with the NJAC Act, 2014, providing for the creation of an independent commission to appoint judges to the Supreme Court and high courts to replace the existing collegium system.
2. In 2015, the Supreme Court declared both the 99th Constitutional Amendment, 2014 and the NJAC Act, 2014 as unconstitutional.
3. **Composition of NJAC was:**
 - a) The Chief Justice of India as the **ex officio Chairperson,**
 - b) **2 senior-most Supreme Court Judges** as ex officio members,
 - c) The Union Minister of Law and Justice as **ex officio member,**
 - d) **2 eminent persons from the civil society** (to be nominated by a committee consisting of the Chief Justice of India, Prime Minister of India and the Leader of Opposition in the Lok Sabha; 1 of the eminent persons to be nominated from SC/ST/OBC/minorities or women)

What is a Collegium System and How Did It Evolve?

1. **Collegium system** is the way by which **judges of the Supreme Court and High Courts are appointed and transferred.**
2. The **collegium system is not mentioned anywhere in the Indian Constitution or in any specific law made by the Parliament, it has evolved through judgments of the Supreme Court.**
3. The **Supreme Court's Collegium is a 5-member body, which is headed by the Chief Justice of India (CJI) and comprises the 4 other senior most judges of the SC.**
4. A **High Court collegium is led by the Chief Justice of the High Court concerned and 2 other senior most judges of that court.**
5. The **government can also raise objections and seek clarifications regarding the collegium's choices, but if the collegium recommends the same names again then the government is bound to appoint them as judges.**



About the Evolution of the Collegium System:

- a) **First Judges Case (1981):** It declared that the “**primacy**” of the **CJI’s (Chief Justice of India)** recommendation on judicial appointments and transfers can be refused for “many reasons.” The ruling of this case gave the Executive primacy over the Judiciary in judicial appointments for the next 12 years.
- b) **Second Judges Case (1993):** SC introduced the Collegium system, holding that “**consultation**” really meant “**concurrence**”. It added that **it was not the CJI’s individual opinion, but an institutional opinion formed in consultation with the 2 senior-most judges of the SC.**
- c) **Third Judges Case (1998):** SC on the **President’s reference (Article 143)** expanded the Collegium to a **5-member body, comprising the CJI and 4 of his senior-most colleagues.**

About the Procedures of Judicial Appointments

1. For CJI:

- a) The **President of India appoints the CJI and the other SC judges.**
- b) As far as the CJI is concerned, **the outgoing CJI recommends his successor.**
- c) In practice, **it has been strictly by seniority ever since the supersession controversy of the 1970s.**

2. For Other SC Judges:

- a) **For other judges of the SC, the proposal is initiated by the CJI.**
- b) **The CJI consults the rest of the collegium members and from the High Court to which the recommended person belongs.**
- c) **The consultees must give their opinions in writing and it should form part of the file.**
- d) **The Collegium sends the recommendation to the Law Minister, who forwards it to the Prime Minister to advice the President.**

2.8 Private Members Bill on Election Commission

Why in News?

Recently, a Bill by the private member was introduced in the Lok Sabha seeking to make Election Commission (EC) of India responsible for regulating and monitoring the internal operations of political parties in the country.

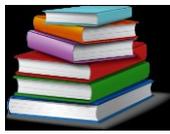
In the bill, it is argued that the **internal functioning and structures of a large number of political parties have become very “opaque and least transparent”**. So, there is a need to make their functioning transparent, accountable, rule-based and to promote **Inner-Party Democracy**.

What is Inner Party Democracy?

Taking the **decisions on the basis of consensus of its members** in a political party is called Inner Party Democracy.

So, What is a Private Member’s Bill?

1. Any **Member of Parliament (MP) who is not a minister** is referred to as a private member and a bill introduced by such member is **known as Private Member’s Bill**.
2. The purpose of the private member’s bill is to **draw the government’s attention to what individual MPs see as ‘issue’** and gaps in the existing legal framework, which require legislative attention.
3. Its introduction in the House requires 1 month notice and **can be introduced and discussed only on Fridays**.



4. Its rejection by the House has no implication on the parliamentary confidence in the government or its resignation.
5. The last time a private member's bill was passed by both Houses was in 1970. It was the Supreme Court (Enlargement of Criminal Appellate Jurisdiction) Bill, 1968.

Highlights of the Bill are:

1. It also seeks the members of the Election Commission (EC), including the Chief Election Commissioners (CEC), to be appointed by a panel consisting of the Prime Minister, Union Home Minister, Leader of Opposition in Lok Sabha, Leader of Opposition in Rajya Sabha, the Chief Justice of India and 2 senior most judges of the Supreme Court.
2. The Bill seeks for a fixed tenure of 6 years for the CEC and ECs and 3 years from the date of appointment for the Regional Commissioners.
3. They should not be removed from office except in accordance with the procedure laid down for the removal of a SC Judge.
4. Also, after retirement, they should not be eligible for any reappointment to any office under the Government of India or any State Governments.
5. If any registered political party fails to comply with the advisories, duration and instructions issued by the ECI with regard to their internal functions, the recognition of such political party as a State or National Party may be withdrawn including any other action as the Election Commission deems fit under section 16A of the Election Symbols (Reservation and Allotment) Order 1968.

About Election Commission of India (ECI)?

1. ECI is an independent constitutional body which is responsible for administering union and state election processes in India.
2. The body administers elections to the Lok Sabha, Rajya Sabha, State Legislative Assemblies and the office of the President and Vice President of India.

What are the constitutional provisions related to ECI?

1. Part XV of the Indian constitution deals with elections and establishes a commission for these matters.
2. The ECI was established in accordance with the constitution on 25th January 1950.
3. Article 324 to 329 of the constitution deals with the powers, function, tenure, eligibility etc of the commission and its members.

Articles related to Elections	
324	Superintendence, direction and control of elections to be vested in an Election Commission.
325	No person to be ineligible for inclusion in, or to claim to be included in a special, electoral roll on grounds of religion, race, caste or sex.



326	Elections to the House of the People (Lok Sabha) and to the Legislative Assemblies of States to be on the basis of adult suffrage.
327	Power of Parliament to make provision with respect to elections to Legislatures.
328	Power of Legislature of a State to make provision with respect to elections to such Legislature.
329	Bar to interference by courts in electoral matters.

2.9 Family Pehchan Patra for J&K Residents

Why in News?

Recently, the Government of India (GOI) decided to introduce a 'Family Pehchan Patra' (FPP) for the residents of the Union Territory of Jammu & Kashmir.

About the Proposed Family Pehchan Patra (FPP)

1. The FPP will be an **identity card with a unique 8-digit alphanumeric number** (like in a PAN Card) **to identify each family and its members through the head of the family.**
2. It will be a **single identity card for the entire family unlike the Aadhar card which contains information about an individual only.**
3. FPP will contain details of all the members of the family, including their **names, ages, qualifications, employment status, etc.** and will be **linked with the Aadhaar and bank account number of the head of the family.**
4. As per the Government, the database will be **created only with the consent of the family.** However, the **families that do not consent** to having a family card will **likely face practical difficulties in getting benefits** of the various welfare schemes.
5. Subsidised rations through the **Targeted Public Distribution System (PDS), free medical treatment, old age/ widow/family pensions, help to victims of militancy, scholarships, etc.** will all be linked with the family ID card.

Significance of FPP

1. The FPP aims to **create an authentic, verified, and reliable database of families in J&K to ensure speedy and transparent doorstep delivery** of welfare schemes to **eligible beneficiaries.**
2. Such a system **will facilitate direct transfer of benefits to their bank accounts with minimum human interference.**
3. The database **will also help in identifying and weeding out duplicate ration cards and Aadhaar** and will help the government in **identifying families that have a number of educated youths, but without jobs.**
4. The **information in the database (births, deaths, and marriages) will be continuously and automatically updated** and people will no longer have to visit local officials for such purposes.



5. It will also help the government to plan policy based on authentic, updated population data.

Arguments against the FPP are:

1. The opposition parties have criticised the idea of a FPP describing it as a **'surveillance tool' to keep a watch on Kashmiris.**
2. They claim the **"unique family IDs"** as a symbol of widening trust deficit on the **people of J&K.**
3. The proposed unique IDs were criticised as a **waste of time and resources and were not needed as a similar system (Aadhar) already exists.**
4. There are **also concerns regarding the ability of the government in protecting the personal data of the residents** in the wake of recent cyber and ransomware attacks in India.

2.10 Ladakh's Demand of Inclusion Under 6th Schedule

Why in News?

Recently, a demand has been raised in Parliament to include the Union Territory (UT) of Ladakh in the 6th Schedule of the Constitution to safeguard land, employment, and cultural identity of the local population.

The 'Jammu and Kashmir Reorganisation Act, 2019' was introduced to divide the State of Jammu and Kashmir into 2 separate union territories of Jammu and Kashmir (with legislature), and Ladakh (without legislature).



So, what is 6th Schedule of the Constitution?

1. The 6th Schedule under **Article 244** provides for the formation of **Autonomous Administrative Divisions (AADs)** and **Autonomous District Councils (ADCs)** — that have some legislative, judicial, and administrative autonomy within a state.
2. The 6th Schedule contains special provisions for the administration of tribal areas in the 4 north-eastern states of **Assam, Meghalaya, Tripura and Mizoram.**
3. The tribal areas in these 4 states have been constituted as autonomous districts. The **governor is empowered to organise and re-organise the autonomous districts.**
4. The **acts of Parliament or the state legislature do not apply to autonomous districts directly or apply with specified modifications and exceptions.** The power of direction, in this regard, lies **either with the President and the Governor.**
5. Each autonomous district has a district council consisting of 30 members, of whom 4 are nominated by the Governor and the remaining 26 are elected on the basis of adult franchise.

Is there any Need for Inclusion of Ladakh in 6th Schedule?

1. The administration of the UT of Ladakh region is now completely in the hands of bureaucrats. The government now looks even more distant than Srinagar.
2. The changed domicile policy in Jammu and Kashmir has raised fears in the region about its own land, employment, demography, and cultural identity.



3. The UT of Ladakh has 2 Hill councils in Leh and Kargil, but neither is under the 6th Schedule. Their powers are limited to the collection of some local taxes such as parking fees, allotment and use of land vested by the Centre.
4. Recently, the National Commission for Scheduled Tribes (NCST) has recommended that the Union Territory (UT) of Ladakh should be included in the 6th Schedule of the Constitution. NCST is a constitutional body to safeguard socio-cultural rights of Scheduled Tribes.
5. Reason given by NCST for this recommendation is that more than 90% of Ladakh's population is tribal. The primary Scheduled Tribes (STs) in Ladakh are Balti Beda, Bot (or Boto), Brokpa (or Drokpa, Dard, Shin), Changpa, Garra, Mon and Purigpa.

About the Difficulty Behind Ladakh's Inclusion in 6th Schedule

1. Ladakh's inclusion in the 6th Schedule will be difficult. The Constitution is very clear that the 6th Schedule is for the Northeastern states. So, till now no region outside the Northeast has been included in the 6th Schedule
2. For tribal areas, in the rest of the country, there is the 5th Schedule in the Constitution.
3. In fact, even in Manipur, which has predominantly tribal populations in some places, the autonomous councils are not included in the 6th Schedule.
4. Nagaland and Arunachal Pradesh which are highly tribal dominated states, are also not in the 6th Schedule.
5. If included, Ladakh will be the only UT in the 6th Schedule. Also, giving such a status to Ladakh will require a constitutional amendment.

2.11 DISHA Scheme

Why in News?

Recently, the Minister of Law and Justice has informed Lok Sabha that "Designing Innovative Solutions for Holistic Access to Justice" (DISHA) Scheme was launched for a period of 5 years from 2021-2026.

About the DISHA Scheme

1. This scheme was launched in 2021 by the Ministry of Law and Justice.
2. It was launched in order to provide a comprehensive, integrated and systemic solution on access to justice at pan India level.
3. It aims to secure "Justice" to the people of India as mentioned in the Preamble and under Articles 39A, 14 and 21 of the Constitution of India.
4. It aims to design and consolidate various initiatives to provide citizen-centric delivery of legal services.
5. There are 3 components under DISHA Scheme at present:
 - a) **Tele-Law: Reaching the Unreached:** To strengthen pre-litigation (before reaching the court) legal advice and consultation, the Tele-Law Service connects the citizens with the Panel lawyers through the use of video /Teleconferencing facilities available at the Common Service Centres (CSCs) and via Tele-Law Mobile App.
 - b) **The Nyaya Bandhu Programme:** The Nyaya Bandhu programme aims to provide free legal assistance to the marginalized sections. Nyaya Bandhu Mobile Application has been developed to connect the registered Advocates with the registered applicants.
 - c) **Legal Awareness Programmes:** To provide for a more robust framework, Legal Service Institutions network at the National, State, District and Taluk level were constituted under the Legal Services Authorities, Act, 1987.



So, what are the Major Steps Taken on Access to Justice?

1. National Mission for Justice Delivery and Legal Reforms:

The Mission is working in a **phased manner** to solve the issues related to **arrears and pendency in judicial administration** and also the issues like **better infrastructure in courts, including computerization, an increase in strength of subordinate judiciary etc.**

2. Improving Infrastructure for Judicial Officers of District and Subordinate Courts: **Rs. 9291.79 crores** have been released since the starting of this **Centrally Sponsored Scheme (CSS) for Development of Infrastructure Facilities**. The number of court halls has increased significantly in last few years.

3. Leveraging Information and Communication Technology (ICT): The Government has been implementing the **e-Courts Project** in mission mode throughout the country. The number of computerised district & subordinate courts has increased to **18,735** so far.

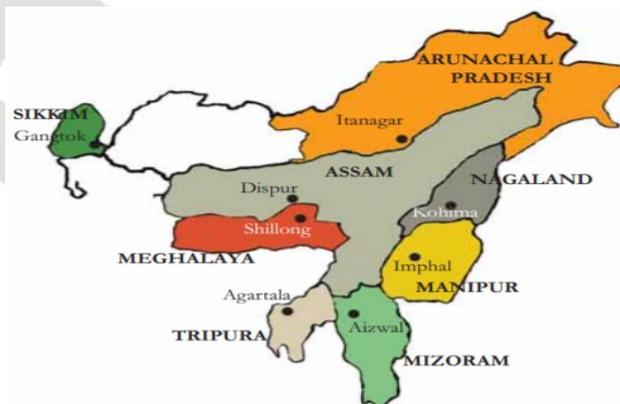
2.12 North-East Integration

Why in News?

Recently, in the **North East Council (NEC)** meeting, the **PM of India** has said that **red cards** have been shown to challenges in the **Northeast region**, including **corruption, political nepotism and unrest**.

Which part of India is called Northeast Region?

The Northeast Region of India has a total of **8 States** and these are 1) **Arunachal Pradesh** 2) **Assam** 3) **Manipur** 4) **Meghalaya** 5) **Mizoram** 6) **Nagaland** 7) **Sikkim** 8) **Tripura**.



Central Government's Efforts towards North-East

1. A **Department of Development for the North Eastern Region (DoNER)** was established in **2001**. It was elevated to a full ministry in **2004**.
2. The government is working towards **bringing peace and development** in the **North-eastern region** and in **solving the conflicts**.
3. The **Government of India** has tried its best to accept the demands of the **tribal groups and other inhabitants** in the region, within the framework of the **Indian Constitution**.
4. The **outcomes** are visible in the form of the **Nagaland Peace Accord** and **Bodo Peace Accord**, which have decreased the prevalence of violence and insurgency in the region, bringing the focus back to the development of the region.
5. There is **work going on** to develop the **border villages**, like the **'Vibrant Border Village project'** which focuses on developing the villages in border areas.

Significance of North East for India:

1. **North-East India** is the **gateway to South-East Asia** and beyond. It is **India's land-bridge to Myanmar**.



2. **India's Act East Policy places the northeastern states on the territorial frontier of India's eastward engagement.**
3. North East India is **one of the most culturally diverse areas of the world**. It is **home to more than 200 tribes**. Popular festivals include the **Hornbill Festival of Nagaland, Pang Lhabsol of Sikkim**, etc. Another thing is North-east India is a highly 'Dowry Free Zone'.
4. The rich culture of Northeast is reflected in its highly developed Folk dance forms like **Bihu (Assam)**.
5. Economically, the **region is rich in natural resources of "TOT" (Tea, Oil, and Timber)**.

Current Challenges Related to North-East India are:

1. **Isolation from the Rest of India:** The region's accessibility has always remained weak due to **geographical reasons and underdeveloped transport links with the rest of India**.
2. **Lack of Good Infrastructure:** Infrastructure i.e., physical (like roadways, waterways, energy and so on) as well as social infrastructure (for instance educational institutions, health facilities etc) plays an important role in human development and economic growth of any region. One of the reasons for the **economic backwardness of the North-Eastern states is the poor state of basic infrastructural facilities**.
3. **Slow Industrial Growth:** North-East India has remained historically underdeveloped in terms of industrial growth.

Conclusion and Way Forward

Investing in infrastructure will generate employment and will play a major role in restricting secessionist movements in the North-East region. India's North East is surrounded by International borders, So international level infrastructure development will be the best choice for inclusive development in India's Northeast.

2.13 Amendments to the Co-operative Societies Act

Why in News?

Recently, responding to the demands by the Opposition, the Lok Sabha has referred the 'Multi-State Co-operative Societies (Amendment) Bill 2022' to a joint committee of the Parliament.

The Bill is aimed to amend the Multi-State Cooperative Societies Act, 2002, which was formed almost 20 years ago.

What are Cooperative Societies?

1. They are the voluntary (made by choice) organisations of individuals having common needs who come together for the achievement of some common interest.
2. Aim of any cooperative society is to provide support to its members, with a special focus on the poorer sections of society, through the principle of mutual help (helping each other).
3. In a cooperative society, people can enter as per their wish and can leave it as per their wish, but they cannot transfer their share to anyone.
4. Almost 12% of the world's population is associated with some or the other cooperative society.
5. Presently, there are more than 30 lakh cooperative societies working in the world.
6. There are many types of cooperative societies working in India today and some of these are: Consumers cooperative societies, Producers cooperative societies,



Cooperative credit societies, Cooperative Farming Societies, Housing Cooperative societies, Marketing Cooperative Societies etc.

7. Among the 300 largest cooperative societies of the world, 3 societies of India are there and these are: 1) Amul 2) IFFCO (Indian Farmers Fertilizer Cooperative Limited) 3) KRIBHCO (Krishak Bharati Cooperative Limited).

What are the Challenges faced by the Cooperative Societies in India?

1. **High interference by governments:** Govt is the major source of finance for many cooperative societies and also govt has the power to regulate the functioning of the cooperatives through various rules and regulations.
2. **Politicisation:** Many cooperative societies are dominated by locally powerful members of the society with having strong political connections. This results in internal politics and rivalries that defeats the objective of such societies.
3. **Regional imbalance in growth:** The cooperatives in northeastern parts of India and in areas like West Bengal, Bihar, Odisha etc are not well developed as the ones in Maharashtra and Gujarat.
4. **Very Limited area of operation:** In India, most of the cooperatives are having very few members and their area of work is limited to only 1 or 2 villages. As a result, their resources remains limited.
5. **Lacks skilled workforce:** Shortage of skilled workforce and inability of cooperative societies to attract efficient workers is one of the biggest challenge it is facing. As a result of this, Cooperative societies are also suffering from lack of professionalism.

What is the Need for Amendment?

1. Since 2002, many changes have taken place in the field of cooperatives. At that time, Cooperation was a department under the Ministry of Agriculture. However, in July 2021, the government formed out a separate Cooperation Ministry.
2. Part IXB was inserted in the Constitution via 97th Constitutional Amendment Act 2011. In view of this inclusion of Part IXB, it has become important to amend the Act.
3. Under 97th Amendment:
 - a) The right to form cooperative societies was included under Right to Freedom (Article 19 (1)).
 - b) Promotion of Cooperation societies was inserted as one of the DPSPs (Article 43-B).
4. Further, many developments over the years also necessitated changes in the Act so as to strengthen the multi-State co-operative societies.

Associated Concerns related to Multi-State Cooperative Societies are:

1. **Lack of Checks and Balances:** While the system for state-registered cooperative societies includes checks and balances at multiple layers to ensure transparency in the process but these layers do not exist in case of multi state cooperative societies.
2. The central registrar can only allow inspection of the societies under special conditions only. Further, inspections can happen only after prior intimation to societies.
3. Another issue is that the on-ground infrastructure for central registrar is thin — there are no officers or offices at state level, with most work being carried out either online or through correspondence.
4. So due to this, the grievance redressal mechanism has become very poor.

So, What are the Changes Proposed in the New Bill?



1. The amendments aim to improve ease of doing business, bringing greater transparency and to enhance governance.
2. It has included provisions relating to representation of women and Scheduled Caste/Scheduled Tribe members on the board of multi-state cooperative societies.
3. The amendments have been brought to reform the electoral process, strengthen monitoring mechanisms and to enhance accountability.
4. It will also widen the composition of the board and will ensure financial discipline, besides enabling the multi-state cooperative societies to raise funds.
5. To improve the governance of multi-state cooperative societies, the bill has specific provisions for setting up of Cooperative Election Authority, Cooperative Information Officer and Cooperative Ombudsman.
6. There will also be a provision for issuing non-voting shares in multi-state co-operative societies to help them raise funds.
7. Further, the newly proposed Rehabilitation, Reconstruction & Development Fund will help in revitalising sick co-operative societies.

What are the Criticisms of the Proposed Bill?

1. The Opposition members in the Lok Sabha have argued that the bill aims to “take away” state governments’ rights.
2. Some of the objections are based on the fact that cooperative societies are a state subject. Entry 43 of the Union List (7th Schedule) makes it clear that co-operative societies do not come in the Centre’s domain.
3. Entry 43 says - “Incorporation, regulation and winding up of trading corporations, including banking, insurance and financial corporations comes under central government, but not including co-operative societies”.

Conclusion

Need is to reduce the political influence in cooperative societies and to make them more Inclusive and representative. Another thing is to bring Cooperative societies under the Right to Information Act (RTI), 2005 as it will make them more transparent and responsible. Digitisation especially in governance, banking and businesses can ensure a transparent(open), accountable and efficient system.

2.14 Amendments to the Multi-State Co-operative Societies Act, 2022

Why in News?

Recently, responding to the demands by the Opposition, the Lok Sabha has referred the ‘Multi-State Co-operative Societies (Amendment) Bill 2022’ to a joint committee of the Parliament.

The Bill is aimed to amend the Multi-State Cooperative Societies Act, 2002, which was formed almost 20 years ago.

About the Multi State Co-operative Societies (MSCS)

1. Although Cooperatives is a state subject but there are many societies such as those for sugar, milk, banks etc whose members and areas of operation are spread across more than 1 state. For example, most sugar mills along the districts on the Karnataka-Maharashtra border procure sugarcane from both states.
2. Maharashtra has the highest number of such cooperative societies at 567, followed by Uttar Pradesh (147) and then Delhi (133).
3. The MSCS Act was passed to govern such cooperatives.



4. Their board of directors has representation from all states they operate in.
5. Administrative and financial control of these societies is with the central registrar and this law has made it clear that no state government official can have any control on them.
6. The exclusive control of the central registrar was meant to allow smooth functioning of these societies, without interference of state authorities.

What is the Need for Amendment?

5. Since 2002, many changes have taken place in the field of cooperatives. At that time, Cooperation was a department under the Ministry of Agriculture. However, in July 2021, the government formed out a separate Cooperation Ministry.
6. Part IXB was inserted in the Constitution via 97th Constitutional Amendment Act 2011. In view of this inclusion of Part IXB, it has become important to amend the Act.
7. Under 97th Amendment:
 - a) The right to form cooperative societies was included under Right to Freedom (Article 19 (1)).
 - b) Promotion of Cooperation societies was inserted as one of the DPSPs (Article 43-B).
8. Further, many developments over the years also necessitated changes in the Act so as to strengthen the multi-State co-operative societies.

Associated Concerns related to Multi-State Cooperative Societies are:

5. Lack of Checks and Balances: While the system for state-registered cooperative societies includes checks and balances at multiple layers to ensure transparency in the process but these layers do not exist in case of multi state cooperative societies.
6. The central registrar can only allow inspection of the societies under special conditions only. Further, inspections can happen only after prior intimation to societies.
7. Another issue is that the on-ground infrastructure for central registrar is thin — there are no officers or offices at state level, with most work being carried out either online or through correspondence.
8. So due to this, the grievance redressal mechanism has become very poor.

So, What are the Changes Proposed in the New Bill?

1. The amendments aim to improve ease of doing business, bringing greater transparency and to enhance governance.
2. It has included provisions relating to representation of women and Scheduled Caste/Scheduled Tribe members on the board of multi-state cooperative societies.
3. The amendments have been brought to reform the electoral process, strengthen monitoring mechanisms and to enhance accountability.
4. It will also widen the composition of the board and will ensure financial discipline, besides enabling the multi-state cooperative societies to raise funds.
5. To improve the governance of multi-state cooperative societies, the bill has specific provisions for setting up of Cooperative Election Authority, Cooperative Information Officer and Cooperative Ombudsman.

What are the Criticisms of the Proposed Bill?

4. The Opposition members in the Lok Sabha have argued that the bill aims to “take away” state governments’ rights.



5. Some of the objections are based on the fact that cooperative societies are a state subject. Entry 43 of the Union List (7th Schedule) makes it clear that cooperative societies do not come in the Centre's domain.
6. Entry 43 says - "Incorporation, regulation and winding up of trading corporations, including banking, insurance and financial corporations comes under central government, but not including co-operative societies".

Conclusion

Need is to reduce the political influence in cooperative societies and to make them more Inclusive and representative. Another thing is to bring Cooperative societies under the Right to Information Act (RTI), 2005 as it will make them more transparent and responsible. Digitisation especially in governance, banking and businesses can ensure a transparent(open), accountable and efficient system

2.15 De-notified, Nomadic and Semi-Nomadic Tribes

Why in News?

Recently, the Parliamentary panel on Social Justice and Empowerment has asked the government to increase the process of categorisation of De-notified, Nomadic and Semi-Nomadic Tribes under either the SC/ST/OBC lists. More delay will only increase their suffering and deprive them of welfare schemes.

So, Who are De-notified (DNT), Nomadic and Semi-Nomadic Tribes?

1. These are the communities that are most vulnerable and deprived.
2. DNTs (De-notified) are the 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.
3. Later, these Acts were repealed by the Independent Indian Government in 1952, and these communities were made "De-Notified".
4. A few of these communities which were listed as de-notified were also nomadic.
5. Nomadic and semi-nomadic communities are defined as those who move from one place to another for livelihood rather than living in one place all the time.
6. Historically, Nomadic Tribes and De-notified Tribes never had access to private land or home ownership.
7. While most DNTs are spread across the Scheduled Castes (SCs), Scheduled Tribes (STs) and Other Backward Classes (OBC) categories but still some DNTs are not covered in any of the SC, ST or OBC categories.
8. Many commissions and committees constituted since Independence have referred to the problems of these communities and these are:
 - a) Criminal Tribes Inquiry Committee, 1947 constituted in the United Provinces (now Uttar Pradesh).
 - b) Ananthasayanam Ayyangar Committee of 1949 and it was based on the report of this committee only that the Criminal Tribes Act was repealed.
 - c) Kaka Kalelkar Commission, also known as the 1st OBC Commission constituted in 1953 also made recommendations in this regard.
 - d) The B P Mandal Commission constituted in 1980 also made some recommendations on the issue.
 - e) The 'National Commission to Review the Working of the Constitution' (NCRWC), 2002 held that the DNTs have been wrongly stigmatised as crime prone and this subjected them to the exploitation by the representatives of law and order and general society. The NCRWC was established under the chairmanship of Justice M N Venkatachaliah.
9. It has been estimated that South Asia has the world's largest nomadic population.



10. In India, roughly 10% of the population is De-notified and Nomadic.
11. While the number of De-notified Tribes is about 150, the population of Nomadic Tribes consists of more than 500 different communities.

About the Challenges Faced by Nomadic Tribes

1. Due to the tag of criminals pasted upon them in the past, they are still treated as criminals and tortured by the local administration and police.
2. They lack basic infrastructure facilities like drinking water, shelter, and sanitation etc. Healthcare and education facilities are also not available.
3. Since they are on move frequently, they do not have a permanent settlement. As a result, they lack social security cover and are not issued Ration Cards, Aadhar Card, etc. and hence, they are not able to get benefits under the government welfare schemes.
4. Another issue is that the caste categorization is not very clear for these communities, in some states some of the communities are included under the SC category, in some other states they are included under OBCs. However, most of the groups from these communities do not have caste certificates and hence are not able to avail the benefits of government welfare programs.

Some Related Developmental Efforts taken by Government are:

1. **Dr. Ambedkar Pre-Matric and Post-Matric Scholarship for DNTs:** This Centrally Sponsored Scheme was launched in 2014-15 for the welfare of those DNT students who are not covered under SC, ST or OBC. This scheme is helpful in spreading education amongst DNT children especially the girl child.
2. **Nanaji Deshmukh Scheme of Construction of Hostels for DNT Boys and Girls:**
 - a) This centrally sponsored scheme was launched in 2014-15 and is implemented through State Governments/UT Administrations and Central Universities.
 - b) The aim of the scheme is to provide hostel facilities to those DNT students; who are not covered under SC, ST or OBC; and to enable them to pursue higher education.
3. **Scheme for Economic Empowerment of DNTs:**
 - a) It aims to provide free competitive exam coaching, health insurance, housing assistance, and livelihood initiatives.
 - b) It ensures expenditure of Rs. 200 crores to be spent over 5 years beginning 2021-22.

2.16 National Single Window System

In the News

Recently, the Union Minister of Commerce and Industry, Consumer Affairs, Food, and Public Distribution and Textiles said that the National Single Window System (NSWS) would help in Prime Minister Shri Narendra Modi's vision of transforming red tape into the red carpet.

About National Single Window System (NSWS)

1. It is a digital platform for the guidance of investors.
2. It will help investors to identify and apply for approvals as per their business requirements.
3. Platform will serve as an advisory tool to identify approvals based on user input and is to be used for guidance purposes only.



4. **Invest India, under the guidance of the Department for Promotion of Industry and Internal Trade (DPIIT), manages the National Single Window System project and is involved in:**
- **Abstracting and designing the portal**
 - **Onboarding of the various Ministries and States**
 - **Maintaining the portal**
 - **Monitoring the performance of the portal**

Objective of NSWS:

1. **It brings together several State Governments, Central Ministries, and Departments onto one platform & increase collaboration.**
2. **It provides a one-stop solution for investors to apply for approvals and registrations required even before the establishment and operational stage of setting up a business in India.**

2.17 Dominance of Big Tech Companies

Big Tech companies are becoming backbones of large economies around the world due to **innovative products and services which bring tremendous benefits to consumers, businesses, and governments.** But they are also criticised for **monopolising markets and weakening the democratic processes.** It's high time for India to update its competition law and make amendments to ensure a free, fair, and justified competitive market.

What is Big Tech?

1. The term '**Big Tech**' is used for the **large technology companies** having **global importance**, such as **Google, Facebook, Amazon, Apple and Microsoft.**
2. **Big Tech is more like a concept, rather than a fixed set of companies as new companies may become big tech, while the existing ones may drop down.**

Contribution of Big Techs to Digital Space of India:

1. They have **significant contribution in the fintech market**, an **attractive revenue source** particularly because of **low per user ad revenues** in India.
2. **Big techs offer various voice-based and regional language interfaces to reach new users and overcome literacy barriers, which is helpful in achieving dream of digital India.**
3. These **companies through their services help in democratising the exercise of the right of free speech (Constitutional Right).**
4. **New business that bridges existing infrastructural and employment gaps by providing warehousing, delivery facilities and job opportunities are helping in strengthening the Indian markets better.**
5. **Most Indian internet users uses Big Tech platforms to communicate, access information, and participate in political and social life.**

India's Current Approach towards regulation of Big Tech?

1. In India, **antitrust issues are governed by the Competition Act, 2002**, and the **Competition Commission of India checks upon monopolistic practices.**
2. For instance, the **Competition Commission of India has recently questioned the Google's commercial flight search option, making it a dominant position in the online search market.**
3. In 2019 too google was found guilty for **impose unfair conditions on device manufacturers & misusing its dominant position in the mobile Android market.**
4. In addition, **the government has proposed amendments to the competition law in the Competition Amendment Bill, 2022.**



What are the Challenges Associated with Big Tech Firms in India?

1. **Data economy is evolving at faster pace**, but the regulation of digital data **has not taken care as effectively**, as there is **sensitive data stored on these platforms** (financial records, phone location, and medical history).
2. Tech generally focusses on acquiring monopoly in **different spheres of business instead of earning consumers' loyalty & make them bound to use their platforms.**
3. It is also **possible for them to influence elections and change the political mood of a nation with their combined power of broadcasting, advertisement etc.**
4. As **Big Tech firms innovate rapidly & sometime hideaway from the regulations**, as the **platforms generally maintain that they are only intermediaries and therefore cannot be held responsible for the content they generate.**

What Should India do?

1. **India is currently in the age of digital transformation**; hence, it is important to provide **level-playing field to ensure a fair opportunity for new-age start-ups and Micro, Small and Medium Enterprises.**
2. There is an **urgent need to contextualise the law to the digital marketplace on the lines of competition Act of 2000** which was constituted to deal with the **physical marketplace.**
3. India should **learn from the best practices in the world**, for example, **EU has adopted the European Union Digital Services Act.** It is time that similar legislation is adopted in India.
4. India should design a **framework for pricing to ensure a level playing field for local sellers**, as **pricing plays a fundamental role in defining the position of any digital platform in the market.**

Way Forward:

There is a need to devise a mechanism to ensure fair compensation for consumers who face the brunt of the anti-competitive practices of the Big Techs. Also, Big tech companies should be made to follow certain basic and essential measures for data security and privacy to protect users right to privacy.

2.18 Jammu and Kashmir Land Grants Rules, 2022

Why in news?

The Jammu & Kashmir (J&K) Lieutenant Governor's administration notified fresh land rules under J&K Land Grant Rules-2022 and replaced the J&K Land Grants Rules-1960.

What was the need for new rules?

1. The previous land laws were regressive.
2. The present land holders just paid Rs.5 to enjoy profits from Rs.100 crore property.

J&K Land Grants Rules 1960	New Land Laws
<ol style="list-style-type: none"> 1. It dealt with the special rules to grant government land on lease in the state. 2. Prime location such as Srinagar, Jammu, Gulmarg and Pahalgam were opened up for construction of hotels, commercial structures and residential buildings. 	<ol style="list-style-type: none"> 1. As per new rules, leases of current land owners will not be extended after expiry. 2. Earlier, the lease period was 99 years, which has been reduced to 40 years. 3. The people returning their expired leased land will be recompensed after valuation for any improvement carried out on the plot.



<p>3. No such land shall be granted on lease to a person, who is not a permanent resident of the State.</p>	<p>4. The outgoing lease holders has to evict properties or else will face evictions under the new rules.</p> <p>5. However, the current land holders termed these rules exclusive to J&K where the first right to lease-holders has not been granted and revised rates negotiated.</p>
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What is the L-G administration's plan for lease now?

1. An expert committee will make list of all the properties where lease had ended. It will be e-auctioned afresh.
2. The rules open bidding to any person eligible under the Section 11 of the Indian Contract Act, 1872.
3. These rules says that a person in default of Government Revenue or convicted under Prevention of Money Laundering Act, 2002 shall not be eligible to participate in auction.
4. According to new land laws, no such land shall be granted on lease to the person, who is not a permanent residence of the State.
5. However, land can be leased when the government relaxes this restriction in the interest of industrial or commercial development.

Who all are eligible for lease rights in J&K after amendments?

1. The L-G administration has diversified the use of land on lease to education, healthcare, agriculture, tourism, skill development and development of traditional art, craft, culture and languages.
2. The land could be leased for hydro-electric projects, stadiums, playgrounds, gymnasiums or other recreational purposes.
3. It included provisions for self-employment or for housing purposes of ex-servicemen, war widows and the families of martyrs, one who has sacrificed his life in the line of duty.
4. In a first, the land could also be used for facilities of migrant workers, buildings and other construction workers.

What will be the immediate impact of the amendments?

1. The new rules have hundreds of properties open for fresh auction, where outsiders could also participate.
2. The government has not yet released the list of properties where lease has ended.
3. The impact will be of great significance in tourist hotspot Gulmarg, where 56 hotels out of 59 have their leases expired already.

Why are regional parties opposing these amendments?

1. The parties state that the first right to these lease properties belongs to those who were already settled here.
2. They fear that it will bring rich outsiders to buy primer property in J&K at the cost of local businesses and their interests.
3. They fear that no local could participate in the e-auction due to the bad financial conditions of business houses, due to the uncertain situation of the past 30 years.
4. Kashmir's important traders' bodies, the Jammu Kashmir Hoteliers Club (JKHC) and the Chamber of Commerce Industry Kashmir (CCIK), said J&K's economy would come to an unending break.



- 5. They estimate that the move can leave 7 lakhs locals unemployed and will hit Kashmir’s economy badly

2.19 Greater Tipraland (Demand of Tripura)

Why in News?

Recently, a political party of Tripura ran a 2-day dharna at Jantar Mantar, New Delhi, to increase the demand for a “Greater Tipraland”.

- The party is demanding Greater Tipraland to secure the rights of indigenous communities in the state.

About the issue of Tipraland:

1. The party is demanding a separate state of ‘Greater Tipraland’ for the indigenous communities of the north-eastern state.
2. Among the 19 notified Scheduled Tribes in Tripura, Tripuris are the largest community.
3. Tripuris want the Centre to make a separate state under Article 2 and 3 of the Constitution.
4. According to the 2011 census, there are at least 5.92 lakh Tripuris in the state, followed by Bru or Reang and Jamatias.
5. These communities are demanding a separate state for indigenous people and for all communities who live in the Tripura Tribal Areas Autonomous District Council (TTAADC) area.



Historical Background:

1. Tripura was a kingdom ruled by the Manikya dynasty from the late 13th century.
2. In 1949 it got merged into independent India, after the Instrument of Accession with the Indian government.
3. The demand has raised from the concern of the indigenous communities due to changes in demographics of the state, which has reduced them to a minority.
4. It happened due to the displacement of Bengalis from the former East Pakistan between 1947 and 1971.

Other Demands in the North East:

1. Greater nagalim (Parts of Arunachal Pradesh, Manipur, Assam and Myanmar)
2. Bodoland (It is made up of 5 districts on the north bank of the Brahmaputra River below the foothills of Bhutan and Arunachal Pradesh)
3. Tribal Autonomy Meghalaya

Does Parliament have Powers to Create a New State?

Parliament derives powers to create a new state from Article 2 and Article 3 of the Constitution of India.

Article 2	Article 3
1. Parliament may by law admit into the Union, or establish, new States on such terms and conditions as it thinks fit.	1. It empowered the Parliament to make law relating to the formation of new states and alteration of existing states.



<p>2. However, Parliament cannot establish a new union territory by passing a law, it can only be done through a constitutional amendment.</p> <p>3. States like Sikkim (previously not within India) became a part of the country under Article 2.</p>	
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About Tripura Tribal Areas Autonomous District Council:

1. The Tripura Tribal Areas Autonomous District Council (TTADC) was formed under the 6th schedule of the Constitution in 1985.
2. It works to ensure development and secure the rights and cultural heritage of the tribal communities.
3. TTADC also proposes dedicated bodies to secure the rights of the Tripuris and other aboriginal communities living outside Tripura.
4. It has legislative and executive powers which covers nearly two-third of the state's geographical area.
5. The council comprises 30 members of which 28 are elected while two are nominated by the Governor.
6. Also, out of the 60 Assembly seats in the state, 20 are reserved for Scheduled Tribes.

What can be done?

7. Economic and social capabilities must be given importance rather than political considerations.
8. There should be certain parameters and safeguards to check the unregulated demands.
9. Development, decentralisation and good governance are some areas need to be worked upon rather than religion, caste, language or dialect to be bases for granting the demands for a new state.

Way Forward:

Development and governance deficit are some fundamental problems but the concentration of power, corruption, administrative inefficiency etc must also need to be addressed.

2.20 Imagining Fair and Free Elections

Elections in India are held to elect members of the Lok Sabha, Rajya Sabha, State Assemblies, Legislative Council, to the posts of President, Vice-President, Local Bodies, Municipal Corporation, Gram Panchayat, Zila Panchayat and Block Panchayat. But the current election system is facing a number of challenges that raise doubts about its "free and fair" nature.

What are the Powers and Responsibilities of the Election Commission?

1. Determining the territorial areas of Electoral Constituencies throughout the country.
2. Preparing and periodically revising electoral rolls and registering all eligible voters.
3. Notifying the schedules and dates of elections and scrutinising nomination papers.
4. Granting recognition to the various political parties and assigning them election symbols.



5. The Commission also has advisory jurisdiction in the matter of post-election disqualification of members of Parliament and State Legislatures.
6. It is also responsible for conducting bye-elections in any constituency whenever the need arises.

What are the Challenges Associated with Free and Fair Elections in India?

1. Parties offers 'irrational freebies' during election campaigns, which affect the informed decision-making process for choosing their representatives.
2. Since ECI does not have its own staff, it depends on those of the Central/State Governments employee whenever elections are held.
3. There is no clarity on the powers of Election Commission of India (ECI) to enforce regulations on ground.
4. A polling booth, i.e., the location where voters exercise their right to vote, is the most important part of the election process, there are incidents of capturing a polling booth to ensure that a particular candidate wins.
5. The political campaigns on social media sometimes spark religious and social tensions in different parts of the country that affect the impartial electoral process.
6. A large number of persons with disability (PwD) faced immense problems in casting their vote due to lack of supporting infrastructure at polling booths.

What are the Recent Initiatives by Election Commission of India?

1. Systematic Voters' Education and Electoral Participation (SVEEP)
2. Model Polling Station
3. Committee for Accessible Elections at National and State Level
4. Electors Verification Programme.
5. Cvigil App – to report the violations of Model Code of Conduct (MCC)
6. Voter Helpline App- to ease the registration process
7. Divyang Sarathi and Divyang Doli

What Should be the Way Forward?

1. In a democracy, equality for all parties is demanded, and free & fair elections ensure those opportunities.
2. The Election Commission of India should make sure that one party doesn't have an excessive advantage over another just because it is in power.
3. There should be regulations to ensure checks on use of personal data in the context of electoral campaigns complies with national laws.
4. Apart from conducting free and fair polls, the Election Commission should ensure "participative, accessible, inclusive" electoral process.
5. EC should provide necessary infrastructure and facilities specially to the persons with disabilities.
6. Voters hold the power to block or permit the march of freebies.
7. There must be a consensus on regulating irrational freebies and ensuring voters are not swayed by irrational promises.
8. There is a need to enforce the Model Code of Conduct for Guidance of Political Parties and Candidates by providing it a statutory backing.

2.21 New Bills to Modify Scheduled Tribes List

Why in News?

Recently, 4 Bills, seeking to modify the Scheduled Tribes (ST) list in 4 States - Tamil Nadu, Karnataka, Himachal Pradesh and Chhattisgarh, were introduced in Lok Sabha.

- These new bills would come via amendments proposed in the Constitution (STs) Order, 1950.



Evolution of STs Representation in India:

1. **Census-1931**, termed STs as "backward tribes" living in the "Excluded" and "Partially Excluded" areas.
2. STs are **not defined by constitution of India**, neither it tells any criteria for recognition of STs.
3. The **Government of India Act of 1935**, for the 1st time called for representatives of "backward tribes" in provincial assemblies.

What are the Proposed Changes?

1. The bill introduces **Betta-Kuruba** as other name for already listed **Kadu kuruba** in the ST list of Karnataka.
2. **Bill also Proposed a number of synonyms in Devanagri script for the already categorised Bhariya Bhumia tribe in the ST list of Chhattisgarh.**
[As per the Ministry of Tribal Affairs, they are all part of the same tribe but has not been included in the list yet, just because they pronounce and spell their names differently.]
3. **Bill call for addition of Narikoravan and Kuruvikkaran hill tribes to the ST list of Tamil Nadu.**
[The **Lokur Committee (1965)**, in its report, also recommended their inclusion in the list.]
4. It also proposes to add **Hattee community of Trans-Giri region** in Sirmaur district to the **ST list of Himachal Pradesh** (after almost 5 decades).

[The inclusion of any community in the STs comes into effect only after the President assents to a Bill amending the Constitution (Scheduled Tribes) Order, 1950.]

What is the Process of Inclusion in the ST List?

1st STEP	It starts with the recommendations from the respective State governments
2nd STEP	List of recommendations goes to Ministry of Tribal Affairs for review.
3rd STEP	Then it goes to the Registrar General of India for general approval.
4th STEP	Then the list goes to the National Commission for Scheduled Tribes (NCST) for the approval.
5th STEP	After NCST it goes to Cabinet for framing the decision.
6th STEP	Then it is sent for President's Assent & the final decision rests with the President (under Articles 342).

What are the Provisions Related to STs in India?

Constitutional Provisions	Statutory Provisions
<ol style="list-style-type: none"> 1. Article 366(25): It only provides a process to define STs, "STs means such tribes or tribal communities or parts of or groups within such tribes or tribal communities as are deemed under Article 342 to be Scheduled Tribes for the purposes of this Constitution." 2. Article 342(1): The President with respect to any State/UT may specify the tribes/tribal communities/part of or 	<ol style="list-style-type: none"> 1. Protection of Civil Rights Act, 1955 against Untouchability. 2. Scheduled Castes and the Scheduled Tribes (Prevention of Atrocities) Act, 1989. 3. Provisions of the Panchayats (Extension to the Scheduled Areas) Act, 1996. 4. Scheduled Tribes and Other Traditional Forest Dwellers



<p>groups within tribes/ tribal communities as a Scheduled Tribe in that State/UT but after consultation with the Governor in case of state.</p> <p>3. 5th Schedule: Have provisions for Administration and Control of Scheduled Areas and STs in states other than 6th Schedule States.</p> <p>4. 6th Schedule: Deals with the administration of the tribal areas in Assam, Meghalaya, Tripura and Mizoram.</p>	<p>(Recognition of Forest Rights) Act, 2006.</p>
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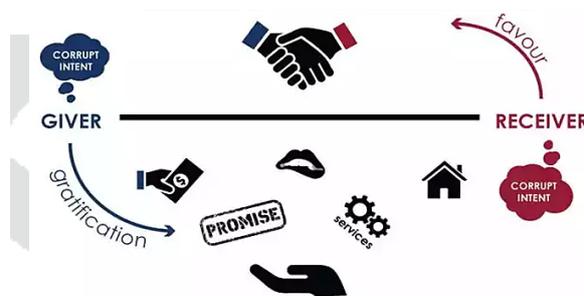
2.22 Corruption in India

Why in News?

Recently the International Anti-Corruption Day-2022 was organised by the CBI.

What is Corruption?

1. Corruption is misuse of public power for personal gain.
2. It can be done by the elected politician, civil servant, journalist, administrator of a school, or anyone having authority.
3. Apart from public corruption, corruption can be private i.e., between individuals and businesses.



Status of Corruption in India:

1. Corruption in India is **not limited to high-level scams**, rather there is widespread **Minor corruption**, which **affects the delivery of basic services and rights to people**.
2. According to a survey released by **global civil society Transparency International**, India has the **highest rate of corruption** and **use of personal links to access public services** such as **healthcare and education in Asia**,
3. India is at the **85th position out of 180 countries** in the **Corruption Perception Index, 2021**.

Causes of Corruption in India, as Identified by Santhanam Committee:

1. **Administrative Delays.**
2. **Excessive burden of Regulatory functions on government.**
3. **Government officials vested with personal discretion.**
4. **Complex procedures in matters of importance to citizens.**

Issues arises out of Corruption:

1. Corruption has **direct and indirect impact on poor and most vulnerable**, as it increases the **costs of services** and **sometime reduces access to services, including health, education and justice.**
2. Corruption **makes the governance less significant and ineffective** & can lead to **economic inefficiency** in the country which can be a serious **threat to national security** too.



3. After the **liberalisation in India**, the **nature of corruption** has become more **complex**.
4. **Technological development** provides **opportunities to prevent corruption** but also offers **areas where corruption** can be much more difficult to trace, particularly in **fields like cryptocurrency**.

Government initiatives to control the corruption:

1. Government has **enacted the Black Money (Undisclosed Foreign Income and Assets) and Imposition of Tax Act, 2015**, which is a comprehensive law to fight corruption.
2. **Benami Transactions (Prohibition) Amendment Act, 2016**, empowers the **authorities to attach and seize benami properties**.
3. Agencies such as CBI have done a great deal to reduce corruption by ensuring the **enforcement of laws**.
4. The **Prevention of Corruption Act, 1988** is an Act of the Parliament of India enacted to **combat corruption in government agencies and public sector businesses in India**.
5. The **Lokpal and Lokayuktas (Amendment) Bill, 2016**, amends the **Lokpal and Lokayuktas Act, 2013**, & requires a public servant to **declare his assets and liabilities**, and also of his spouse and dependent children.

way ahead:

1. Education is **one of the most critical steps**. It can help in reinforcing the **correct business practices**.
2. **Mandatory education courses like anti-money laundering** must be introduced.
3. **Government should work towards strengthening the accountability** which can be helpful in curbing corruption.

2.23 Development of 'Model Tribal' Villages

Why in News?

The **Ministry of Tribal Affairs** is working to develop **36,428 villages** across the country into **'model tribal' villages**.

More About the News:

1. The **villages with at least 50% tribal population** will be included under the **programme**.
2. It is the part of the **existing Special Central Assistance to Tribal Sub Scheme (SCA to TSS)**.
3. **Actually, it is the SCA to TSS**, which has now been renamed to the **Pradhan Mantri Adi Adarsh Gram Yojna (PMAAGY)**, for the period of **2021-26**.

What is Pradhan Mantri Adi Adarsh Gram Yojana?

1. This **scheme requires the state governments to increase the efforts for development and welfare of tribal people** by providing **'Special Central Assistance'**.
2. It aims at providing **basic infrastructure in villages with significant tribal population**.
3. To **works to ensure the all-round development of the selected villages**, with **major focus on sanitation, education, health, nutrition & agricultural best practices** etc.
4. The **villages which will be developed under the scheme** will be known as **'Adi Adarsh Gram'**.



Objectives of the Adi Adarsh Gram Yojana:

1. To prepare the **village development plan** based on the needs, potential, and aspirations of the locals.
2. Improving the **infrastructure** in sectors like **health, education, connectivity and livelihood**.
3. The scheme aims to reduce the gaps in **8 prominent sectors of development and these are:**
 - **Road connectivity** (Internal as well Inter village /block)
 - **Telecom connectivity** (Mobile /internet)
 - **School**
 - **Anganwadi Centres**
 - **Health Sub-Centre**
 - **Drinking water facility**
 - **Drainage**

Additional Information:

Basic safeguards provided by the Indian Constitution for scheduled tribes:

The Constitution of India has not defined the term 'tribe' anywhere. However, the term 'Scheduled Tribe' is mentioned in Article 342 (i).

Article 342 (i)	It says that the President may, by public notification, specify the tribes or tribal communities for the purpose of constitution.
5th schedule of the constitution	Calls for 'Tribal Advisory Council' in each of the state having scheduled areas.
Article 15(4) and 16(4).	Provides special provisions for the advancement of other backward classes (it includes STs too).
Article 29	Talks regarding the protection of Interest of Minorities (it includes STs too).
Article 46	It says that the state shall promote with special care, the educational and economic interest of the weaker sections of the people, and in particular of the scheduled castes and the scheduled tribes and shall protect them from social injustice and all forms of exploitation.
Article 330:	Reservation of seats for STs in Lok Sabha.
Article 332	Reservation of seats for STs in state Legislatures.
Article 243	Reservation of seats for STs in Panchayats.

2.24 Poor State of Undertrials

Why in News?

Recently, the Indian President has raised the issue of the plight of a large number of undertrials holed up in the prisons.

What are the Undertrials?

1. Undertrial is a person who is currently on trial or who is imprisoned on remand while waiting for the trial to get complete.



- It can also be understood as a person, **who is arrested for some crime** and is **waiting to appear before the magistrate** (a government official dealing with administration of laws).
- The **78th Report of Law Commission** also includes a person who is in **judicial custody on remand during investigation** in the definition of an 'undertrial'.

why undertrials has become an issue?

- According to **National Crime Record Bureau (NCRB)**, **76% of prisoners** in Indian jails are undertrials.
- The **basic rights of a person** (undertrial) **get harmed** as there is **possibility** that he/she is **innocent** but **due to delay** in trials they have to **spend time in police custody**.

What is the Status of Undertrials in India?

- In **2020**, about **76%** of all prison were undertrials & from them **68%** were either **illiterate or school dropouts**.
- As per **NCRB** (National Crime Report Bureau), in the **last 10 years**, the number of undertrials in jails has **risen constantly**.
- Almost **27%** undertrials are illiterate, and **41%** had dropped out before **Class X**.
- Delhi and Jammu and Kashmir (J&K)** were found to have the highest ratio of undertrials in jails at **91%**, followed by **Bihar and Punjab** at **85%**, and **Odisha** at **83%**.

HIGHEST SHARE OF UNDERTRIALS IN JAIL

States/UTs	Number	Share
Delhi	14,506	91%
J&K	3,717	91%
Bihar	44,187	85%
Punjab	15,643	85%
Odisha	15,619	83%
All India	3,71,848	76%

What is the Constitutional protection for Undertrials?

State Subject:	<p>It is responsibility of state to handle & manage the administration of prisons.</p> <p>The detained persons & prisons are a State subject under Entry 4 of List II of the 7th Schedule to the Constitution of India.</p> <p>Ministry of Home Affairs provides regular guidance and advice to States and UTs on various issues concerning prisons and prison inmates.</p>
Article 39A:	<p>It was inserted through 42nd Constitutional amendment act.</p> <p>It directs the State to ensure that the operation of the legal system promotes justice on a basis of equal opportunity and shall, in particular, provide free legal aid by suitable legislation or schemes or in any other way, to ensure that opportunities for securing justice are not denied to any citizen by reason of economic or other disabilities.</p>
Article 21:	<p>liberty guaranteed under Article 21 of the Constitution of India, which says, "No person shall be deprived of his life or personal liberty except according to procedure established by law".</p> <p>Right to free legal aid or free legal service is an essential fundamental right guaranteed by the Constitution, it was already implicit in Article 21.</p>

What are the Concerns?

- There are many **poor and resourceless undertrials** who continue to be **arrested, routinely remanded** due to **lack of financial resources** to hire lawyers.



2. **Physical mishandling and extra-judicial torture by jail officials are usually seen in India.**
3. **Prisons often become dangerous place, as there has been incidents of group violence.**
4. **Prison authorities are not made accountable for their conduct & no action is criminalized, making authority uncontrollable, which can result in the death of inmates.**
5. **Overcrowding and shortage of adequate space is a major problem in the prisons which impacts the safe and healthy conditions of prisoners.**
6. **The unhealthy conditions lead to spread of infectious and communicable diseases easily.**
Example: Spread of Tuberculosis (TB).
7. In many cases the **families of prisoners also face social stigma and social exclusion, leading the family towards poverty & exploitation by others**

What are the Recommendations of Prison Reforms?

The Supreme Court has appointed Justice Amitava Roy (retd.) Committee, which has given the following recommendations to reform prisons.

For Overcrowding:	For Prisoners:
<ol style="list-style-type: none"> 1. To control the overcrowding in the jails, one of the best ways is speedy recovery of the cases. 2. The petty offences, pending for more than 5 years, should be send to fast-track courts, established to deal with them. 3. The prisoner lawyer ratio should be maintained and there should be at least one lawyer for every 30 prisoners 4. An adjournment should not be granted in cases where witnesses are present. 5. Also, the concept of plea bargaining, in which the accused admits guilt for a lesser sentence, should be promoted. 6. Further, accused persons who are charged with petty offences and those granted bail, but who are unable to arrange surety should be Personal Recognizance (PR) Bond. 	<ol style="list-style-type: none"> 1. Every new prisoner should be allowed a free phone call a day to his family members to see him through his first week in jail. 2. Providing effective legal aid to prisoners and taking steps to provide vocational skills and education to prisoners. 3. Video-conferencing should be used for trials. 4. In 2017, the Law Commission of India had recommended that undertrials who have completed a third of their maximum sentence for offences attracting up to seven years of imprisonment be released on bail. 5. The courts should use their "discretionary powers" and award fine the convicts, if possible, instead of sending them to jails. 6. Further, courts may be encouraged to release offenders on probation at pre-trial stage.

Reasons for a high number of undertrials:

1. **The initial police investigation itself remains slow, which hampers the overall judicial process.**
2. **In India the bail system is not efficient and regular, which results in many innocents remain imprisoned for longer due to judicial delays.**
3. **Shortages of court staff and judges hinders the smooth judicial process.**



4. There is a major chunk of population which is not financially well off and hence not been able to get proper legal representation (to get Government lawyer of legal help etc.)

Initiative for Undertrials in India:

1. setting up of **several Fast-Track Courts** so that **cases can be solved speedily**.
2. **Modernization of Prison scheme**.
3. **IPC and CrPC laws** have been **revised and reviewed for less confusion**.
4. **Similar type of small offences is merged together** so that they can be **solved fast with better efficiency**.

What can be done?

1. Both the **police and courts**, should strictly follow the provisions of **Section 167 of the criminal procedure code (CrPC)** with regard to the time limit for police investigation.
2. **Automatic extension of remands without any adequate reason** should stop. As, only the comfort of authorities **cannot supersede the Constitutional guarantees under Article 21**.
3. The **Undertrials are victims of multiple failings at multiple levels, followed by indiscriminate arrests, weak bail entitlements and inadequate concern from the Lok Adalats**. Hence, there is need for a holistic legislative reform to expand the horizons of individual liberties.
4. **Undertrial prisoners should be provided with better facilities than convicts, including food, clothing, water, medical facilities, sanitation, recreation and communication with relatives and lawyer**.

Way Forward:

The emphasis should be on reducing undertrial population, by implementing the amended statutory provisions, judicial decisions regarding rights of undertrials, arrests and grant of bails, and the recommendations of various committees on prison reforms.

2.25 Anti-Maritime Piracy Bill

Why in News?

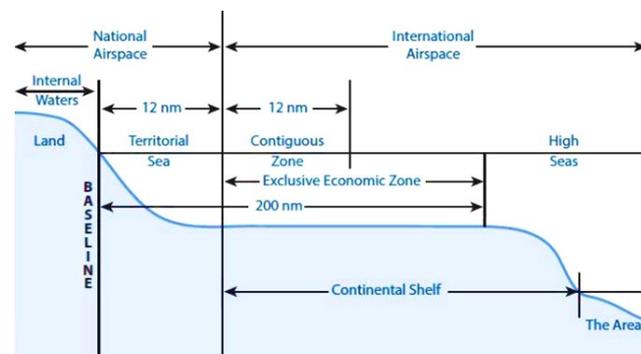
Recently, The Rajya Sabha has passed Anti-Maritime Piracy Bill to provide an effective legal tool to control Maritime Piracy, on high seas.

What is piracy?

Piracy is the act of attacking ships in order to steal from them.

What was the need of this Bill?

1. Till now, pirates were **sued under the Indian Penal Code, 1860 (IPC)**. Hence, the **foreigner convicts, who have committed piracy outside India's territorial waters have been escaped due to the lack of jurisdiction**.
[India's sovereignty is delimited by the outer boundary of its territorial waters, 12 nautical miles from the coast.]
2. The **security of sea lanes of communication** is important as **more than 90% of India's trade takes place by sea routes** and **more than 80% of the country's hydrocarbon requirements was sea-borne**.





3. Due to an increased naval presence in the Gulf of Aden, it has been observed that piracy operations are shifting towards the east and south, which increases their proximity to India's west coast.

For Example, 18 Indians aboard a crude oil carrier were kidnapped off the coast of Nigeria last year (2021).

What are the Provisions in the Bill:

Definition of Piracy:	Piracy is defined as an act of violence or detention by the crew or passengers of a private vessel or private aircraft on high seas, directed against another vessel or aircraft and/or people or property on board.
Extra-territorial Jurisdictions	The Bill will apply to the sea beyond the Exclusive Economic Zone (EEZ), means beyond 200 nautical miles from India's coastline.
Punishment	The convicts shall be punished with imprisonment for life. Also, one shall be punished with death sentence if act of piracy itself include causing death of someone. Helping in piracy will be punishable with up to 14 years of imprisonment and a fine.
Extraditable offences	Means, the accused can be transferred to any country for prosecution with which India has signed an extradition treaty.
Designated Court	The central government, in consultation with the Chief Justice of the concerned High Court, may notify the Sessions Courts to be the Designated Courts under this Bill.
Presumption of guilt	The presumption of guilt will be on the accused if: <ul style="list-style-type: none"> ▪ There is evidence of the use of force against the ship's crew or passengers. ▪ The accused is in possession of arms, explosives and other equipment which were used or intended for use in committing the offence

What are the Key Challenges in the Bill?

Provision of the Bill	Problem with the Provision
Under the Bill, if a person, while committing an act of piracy causes or seeks to cause death, he will be punished with death. (Mandatory death penalty for such offences).	The Supreme Court has held that mandatory death penalty for any offence is unconstitutional as it violates Articles 14 and 21 of the Constitution.
The Bill provides for imprisonment of up to 14 years if a person participates in an act of piracy. Committing an act of piracy (which includes voluntarily participating in the operation of a pirate ship or aircraft) is punishable with life imprisonment.	it is unclear how the punishment would be determined in such cases, as these circumstances can overlap.
The Bill will apply to all parts of the sea adjacent to and beyond the limits of the Exclusive Economic Zone (EEZ) of India, i.e., beyond 200 nautical miles from the coastline.	The question is whether the Bill should cover the EEZ also, that is the area between 12 nautical miles and 200 nautical miles (from the coastline of India).



2.26 Delimitation Exercise of Assam

Why in News?

The **Election Commission** is set to begin the delimitation exercise of Assembly and parliamentary constituencies in Assam using census figures of 2001.

- The **last delimitation of constituencies in Assam** was done on the basis of census figures of 1971 by the then Delimitation Commission in 1976.

What is Delimitation?

1. Delimitation is the **act of redrawing boundaries of an Assembly or Lok Sabha seat to represent changes in population over time.**
2. This exercise is carried out by a **Delimitation Commission**, whose orders have the force of law and cannot be questioned before any court.

Why is it needed?

1. The **objective is to redraw boundaries** (based on the data of the last Census) **in a way so that the population of all seats, be the same throughout the State.**
2. Aside from **changing the limits of a constituency**, the process may result in a **change in the number of seats in a state.**

How is delimitation carried out?

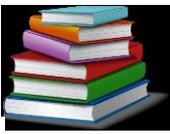
1. Delimitation is **carried out by an independent Delimitation Commission (DC).**
2. Under **Article 82**, the **Parliament enacts a Delimitation Act after every Census.**
3. Once the **Act is in force**, the **Union government sets up a DC made up of a retired Supreme Court judge, the Chief Election Commissioner** and the respective State Election Commissioners.

Terms of reference for DC

1. The **Commission is supposed to determine the number and boundaries of constituencies in a way that the population of all seats, so far as practicable, is the same.**
2. The **Commission is also tasked with identifying seats reserved for Scheduled Castes and Scheduled Tribes.**
3. All this is **done on the basis of the latest Census** and, in case of difference of opinion among members of the Commission, the opinion of the majority prevails.

Implementation:

1. The **draft proposals of the DC are published in the Gazette of India**, official gazettes of the states concerned and at least two vernacular papers for public feedback.
2. The **Commission also holds public sittings.**
3. After hearing **the public**, it **considers objections and suggestions**, received in **writing or orally during public sittings**, and **carries out changes**, if any, in the draft proposal.
4. The **final order is published in the Gazette of India and the State Gazette** and **comes into force on a date specified by the President.**



How often has delimitation been done in the past?

1. The **first delimitation exercise in 1950-51** was carried out by the President (with the help of the Election Commission).
2. The **Constitution at that time was silent on who should undertake the division of states into Lok Sabha seats.**
3. This **delimitation was temporary as the Constitution mandated redrawing of boundaries after every Census.**
4. Pointing out that the **first delimitation had left many political parties and individuals unhappy, the EC advised the government that all future exercises should be carried out by an independent commission.**
5. This **suggestion was accepted and the DC Act was enacted in 1952.**
6. **DCs have been set up four times — 1952, 1963, 1973 and 2002 under the Acts of 1952, 1962, 1972 and 2002.**

Why postponed till 2026?

1. There was **no delimitation after the 1981 and 1991 Censuses.**
2. Although the **freeze on the number of seats in Lok Sabha and Assemblies should have been lifted after the 2001 Census, another amendment postponed this until 2026.**
3. This was **justified on the ground that a uniform population growth rate would be achieved throughout the country by 2026.**
4. So, the **last delimitation exercise, started in July 2002 and completed on May 31, 2008, was based on the 2001 Census and only readjusted boundaries of existing Lok Sabha and Assembly seats and reworked the number of reserved seats.**



3.

INTERNATIONAL RELATIONS

3.1 India to become a Voice of Global South

Why in News?

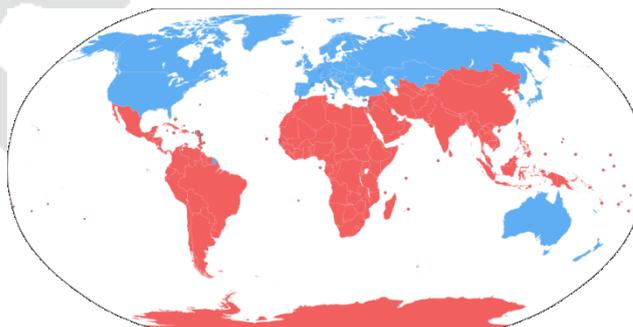
As India assumed the G20 Presidency, the Indian External Affairs Minister said that India would be the “voice of the Global South, that is otherwise under-represented in such forums”.

- India assumed the presidency of the G20 group of countries for 2022 to 2023.

What is Global North and Global South?

Global North	Global South
‘Global North’ includes countries like the US, Canada, Europe, Russia, Australia and New Zealand.	Global South’ includes countries in Asia, Africa and South America.

- These countries also share similarities in terms of wealth, indicators of education and healthcare, etc.
- Some of the South countries like India and China have emerged economically, in the last few decades.
- The progress achieved by many Asian countries is also seen as challenging the idea that the North is the ideal.



Earlier Used Classification Systems of the world:

1. First, Second and Third Worlds countries:

It refers to countries associated with the Cold war-era alliances of the US, the USSR, and non-aligned countries, respectively.

2. World Systems Approach:

It is another approach, that has perspective of looking at world politics as a whole. There are 3 major zones of production:

core, peripheral and semi-peripheral.

Core Zones	Peripheral Zones	Semi-Peripheral Zone
The core zones are sophisticated zones which makes greater profits, having ultra-modern technologies countries like the US or Japan.	Peripheral zones, on the other hand, engage in less sophisticated production which is more labour-intensive.	Semi-peripheral zone is in the middle including countries like India and Brazil.



3. Eastern and Western Countries:

Western countries generally mean greater levels of economic development and prosperity among their people, whereas the Eastern countries considered as being in the process of that transition.

What has resulted into new classification i.e., Global North and South?

1. In the **post-Cold War world, the First World/Third World classification was no longer practical**, as after the **disintegration of USSR in 1991**, most countries had **no choice but to go with US**, the only remaining global superpower.
2. The **East/West binary was also seen as often continuing orthodox thinking about African and Asian countries.**
3. **Categorising incredibly diverse countries into a monolith was felt to be too simplistic.**
4. **There are commonalities in Global South Countries** Most of the **Global South countries share a history of colonisation.**
5. The **region has mostly remained under-represented in international forums** such as their **exclusion from the permanent membership of the UNSC.**
6. This **exclusion is seen as something that contributes towards the slower growth of global south.**

What are the Initiatives for South-South Cooperation?

Global:	Indian:
<ol style="list-style-type: none"> 1. Brazil, Russia, India, China and South Africa (BRICS) Forum. 2. India, Brazil and South Africa (IBSA) Forum. 3. International Day for South-South Cooperation, originally observed on December 19, for better cooperation of the region. 	<ol style="list-style-type: none"> 1. Trade-Related Aspects of Intellectual Property Rights (TRIPS) waiver, first proposed by the India and South Africa in 2020, to simplify the intellectual property rights (IPRs) on COVID-19 vaccines and treatments etc. 2. In 2021, India began its historic campaign called the “Vaccine Maitri” initiative in line with the ‘Neighbourhood First’ Policy.

What are the Roadblocks to the Development of Global South?

1. **The geopolitical conditions such as, the Russia-Ukraine war severely affected the least developed countries (LDCs) & has raised the concerns related to food, energy and finance resulting into affecting the development prospects of LDCs.**
2. **China is increasingly making inroads in the Global South through Belt & Road Initiative (BRI) is still questionable, as it’s not clear whether BRI will be beneficial for the associated countries or will focus only on China’s Profit.**
3. **Global North countries have contributed highest towards global emissions, but ultimate sufferers are the least emitters, the lesser developed countries, which affects their developmental process too.**
4. **Though world is considered to be multipolar by many but still, the US alone dominates international affairs, leading to polarization of power.**
5. **Global North-South divergences have been historically characterised by major gaps in the access to resources required for crucial developmental outcomes.**
6. **Covid-19 pandemic has worsened the already existing gaps and disparities.**

How can India be the Voice of Global South?



1. Indian policy should be designed for different regions and groups of the developing world.
2. There is much differentiation within the South today in terms of wealth and power, needs and capabilities, hence there is need to have greater cooperation to facilitate the interdependency.
3. Global South needs active Indian engagement with the disordered regional politics to be with the developing world.
4. India must realize that Global South is not a coherent group and does not have a single shared agenda.

Way Forward:

India is ready to become a bridge between the North and the South by focusing on practical outcomes rather than returning to old ideological battles. If India can translate this ambition into effective policy, there will be no contradiction between the simultaneous pursuit of universal and particular goals.

3.2 NSA of India meets with his Central Asian Counterparts

Why in News?

Recently for the 1st time, the National Security Advisor (NSA) of India hosted a special meeting with his counterparts from Central Asian countries - Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.

In January 2022, the Prime Minister of India hosted the 1st India-Central Asia Summit in virtual format.

Key Highlights of the Recent Meeting are:

1. This was the 1st time that NSAs of Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan were in Delhi for a high-level security meeting.
2. The meeting coincides with the 30th anniversary of the establishment of diplomatic ties between India and the Central Asian countries.
3. It was also decided that a 'India-Central Asia Secretariat' will be established in New Delhi.
4. During the summit, the NSA's of all the countries agreed to institutionalise the Summit mechanism by deciding to hold it biannually (twice a year).
5. The focus of the meeting was mainly on the security situation in Afghanistan and the threat of terrorism originating from the Afghanistan under the Taliban rule.
6. The NSAs of Central Asian Countries supported India's proposal to include Chabahar port within the framework of the INSTC (International North-South Transport Corridor) connecting Iran to Russia via Central Asia.
7. NSA's of all the countries agreed to the need for a collective and coordinated action against the "misuse of new and emerging technologies, arms and drugs trafficking, abuse of cyber space to spread disinformation and unmanned aerial systems".



So, How are India's Relations with Central Asia?



1. Central Asia is a **zone of India's civilisational influence**; the **Ferghana Valley** was **India's crossing-point of the Silk Route**.
2. **Buddhism connects India with the Central Asian Countries**.
3. **Silk route was an ancient land route that used to connect Europe with the inner parts of Asia like China, India etc. Silk was the most traded commodity along this route that's why got the name Silk Route**.
4. India considers the Central Asian countries as the **"Heart of Asia"** and they are also the members of the **Shanghai Cooperation Organisation (SCO)**.
5. India and the Central Asian nations have **similarities in approach in countering terrorism** and the **threat of radicalisation**. Central Asian countries are **"aware" of Pakistan's support to cross-border terrorism and its links to various terror groups**.
6. **India and the Central Asian countries have common concerns over the terrorism originating from Afghanistan** and its implications for regional security. **India has been a strong proponent for re-establishment of peace in Afghanistan**.
7. In **November 2021**, India hosted a **regional dialogue on the situation in Afghanistan**, which was **attended by NSAs of Russia, Iran, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan**.
8. Recently, the India has registered significant progress through **renovation of Chabahar port (Iran)**. The **port played an important role during the humanitarian crisis in Afghanistan by delivering humanitarian goods to the Afghan people through international organisations**.

About the Challenges in India-Central Asia Ties:

1. There are **many barriers to physical connectivity due to Pakistan's hostility and Afghan instability**.
2. **Politically, Central Asian countries are highly fragile and more prone to threats like terrorism & Islamic fundamentalism making the region a volatile and unstable market**.
3. **Involvement of China in the region through the 'Belt and Road Initiative' has significantly reduced India's influence in the region**.
4. **Porous borders and huge corruption along with the proximity to the regions of high opium production makes the region a powerhouse for drug and money trafficking**.

3.3 Connecting India's East with the Indo-Pacific

Background

1. **Indo-Pacific is a recent concept. It was almost a decade ago that the world started talking about the Indo-Pacific**.
2. One of the reasons behind the popularity of this term is an understanding that the **Indian Ocean and the Pacific are linked strategically**.
3. **Another** reason behind the popularity of the **Indo-Pacific region** is the shift in the **center of gravity of geopolitics towards Asia**.
4. The Asia-Pacific region varies in area depending on context, but it generally includes **East Asia, Russia's Far East, South Asia, Southeast Asia, Australasia and Pacific Islands**.
5. The Indo-Pacific region is **1 of the most populous and economically active regions of the world** which includes 4 continents: **Asia, Africa, Australia and America**.
6. Almost **60% of the world's population and 2/3rd of the global economic output** makes this region a global economic centre.



7. The region is also a **great source and destination for Foreign Direct Investment (FDI)**.
8. There are **vast reserves of marine resources in the Indian and Pacific Oceans**, including **offshore hydrocarbons, methane hydrates, seabed minerals and rare earth metals**.
9. A number of the **world's largest economies are located in the Indo-Pacific region**, including **India, U.S.A, China, Japan, Australia etc**.
10. India's "**Look East**" and "**Act East**" policies also entered the phase of '**Indo-Pacific policy and strategy in 2018**'.
11. The **Northeastern region of India is highly significant from strategic as well as economic point of view when it comes to strengthening India's ties with the southeast and east Asian nations which are also a part of the Indo-Pacific**.

So, What are the 'Look East' and 'Act East' Policies of India?

1. India's Look East Policy:

- a) To **recover the loss of the strategic partner USSR (end of the Cold war 1991)**, India tried to **build up a relationship with the USA and allies of the USA in Southeast Asia**.
- b) In **1992**, former Prime Minister of India **P V Narasimha Rao** launched **Look East policy**, to give a strategic push to India's engagement with the **South-East Asian region** and to **counter the strategic influence of China**.

2. Act East Policy:

- a) The '**Act East Policy**' was announced in **November 2014** and is the **upgrade of the Look East Policy**.
- b) It's a **diplomatic initiative to promote economic, strategic and cultural relations** with the vast **Asia-Pacific region** at different levels.
- c) It involves **continuous engagement with Southeast Asian countries** in the field of **connectivity, trade, culture, defence and people-to-people-contact** at **bilateral, regional and multilateral levels**.



How North-East Region of India Connects it with the Indo-Pacific Region?

1. **North-East India** is the gateway to **South-East Asia** and beyond. Basically, **NER is India's land-bridge to Myanmar**.
2. The **Act East Policy of India** places the **northeastern states on the front of India's eastward engagement**.
3. The **strategic location of the region connects the product markets of Indian with the robust South and Southeast Asian markets**.
4. **Japan** has been engaged from decades in the development and modernization of **infrastructure, particularly road connectivity, across states in the NER**.
5. Presently, **Japan** is involved in the construction of the **Dhubri-Phulbari bridge across the Brahmaputra River**.

Major Challenges in Connecting NER with the Indo-Pacific are:

1. **Serious Non-Traditional Threats** like **smuggling, drug trafficking, transnational border crime, rebel activity, and the inflow of refugees from Myanmar, Bangladesh etc**.



- China's Suspicious Activities:** China has been known to play a pivotal role in the India's border tensions in the Northeast region and also in the Anti-India activity within India. Many militant groups in northeastern region are getting funds from China.

3.4 India-Nepal Relations

Why in News?

Recently, Pushpa Kamal Dahal "Prachanda" was sworn in as Nepal's new Prime Minister.

So, What are the Areas of Co-operation Between the 2 Countries?

1. In area of Trade and Economy:

- India remains Nepal's largest trade partner, with bilateral trade crossing USD 7 billion in FY 2021-22.
- India provides transit for almost the entire 3rd country trade of Nepal.
- Indian firms are among the largest investors in Nepal, accounting for more than 33% of the total Foreign Direct Investment (FDI) stock in Nepal, worth nearly USD 500 million.

2. In area of Connectivity:

- Nepal being a landlocked country is surrounded by India from 3 sides and 1 side is open towards Tibet which has very limited vehicular access.
- India-Nepal has undertaken various connectivity programs to enhance people-to-people linkages and promote economic growth and development.
- India is looking to develop the inland waterways for the movement of cargo, within the framework of trade and transit arrangements, providing additional access to sea for Nepal calling it linking Sagarmatha (Mt. Everest) with Sagar (Indian Ocean).

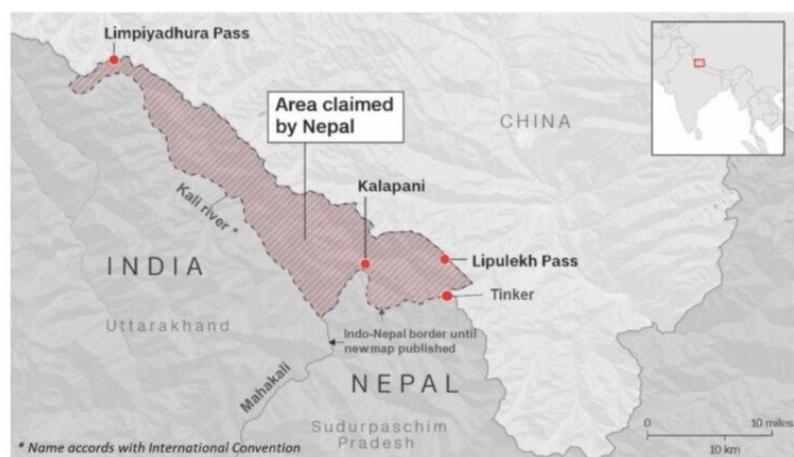
3. In area of Defence Cooperation:

- Bilateral defence cooperation includes assistance to the Nepalese Army in its modernisation through the provision of equipment and training.
- The Gorkha Regiments of the Indian Army are raised partly by recruitment from hill districts of Nepal.
- Every year, India undertakes a joint military exercise with Nepal known as 'Surya Kiran'.

- Humanitarian Assistance:** Nepal lies in the sensitive ecological fragile zone which is prone to earthquakes and floods causing massive damage to both life and money, whereby it remains the biggest recipient of India's humanitarian assistance.

- Partners in many Multilateral Forums:** India and Nepal share multiple multilateral forums such as BBIN (Bangladesh, Bhutan, India, and Nepal), BIMSTEC (Bay of Bengal Initiative for Multi Sectoral Technical and Economic Cooperation), Non-Aligned Movement, and SAARC (South Asian Association for Regional Cooperation) etc.

Challenges are:





- 1. Territorial Disputes:** One of the main challenges in the Indo-Nepal ties is the 'Kalapani Boundary Issue'. These boundaries have been fixed in 1816 by the British, and India inherited the areas over which the British had exercised territorial control till 1947.
- 2. Issues with Peace and Friendship Treaty:** The 1950 Treaty of Peace and Friendship was signed by the Nepali authorities to continue the special links they had with British India and to provide them an open border and the right to work in India. But today, it is viewed as a sign of an unequal relationship, and an Indian imposition.
- 3. China's Intervention:** In recent years, Nepal has drifted away from India's influence, and China has gradually filled the space with investments, aid and loans.

Additional Information

About BRI (Belt and Road Initiative)

1. It is a **transcontinental (passes through many continents) policy and investment program which aims at infrastructure development** and increase of the economic integration of countries along the route of the historic **Silk Route**.
2. **Silk route was an ancient land route that used to connect Europe with the inner parts of Asia** like China, India etc. Silk was the most traded commodity along this route that's why got the name Silk Route.
3. It was **launched in 2013 by China** and **until 2016**, was known as **OBOR (One Belt One Road)**.
4. According to the Belt and Road Portal, currently **71 countries are taking part in this Initiative**, which together represents more than 1/3 of the world's GDP and 2/3 of the world's population.



4.

SOCIAL ISSUES

4.1 India to Become Largest Populated Country

Why in News?

It is estimated that around April 2023, India's 1.43 billion people will exceed China's population.

- In 2022, China will for the first time register an absolute decline in its population.

Evolution of Population planning in India:

1. 1950 --- India became one of the first developing countries to come up with a state-sponsored family planning programme in the 1950s.
2. 1952 --- A population policy committee was established.
3. 1956 --- A Central Family Planning Board was set up and its focus was on sterilisation.
4. 1976 --- GOI announced the 1st National Population Policy.
5. 1980 --- Realising the potential of education to tackle the problems related to education sector the Ministry of Education launched a Population Education Programme.
6. In 2000 --- National Population Policy came, with an aim of achieving a stable population for India.

What were the major objectives of National Population Policy of 2000?

1. The Policy aims to achieve stable population by 2045.
2. One of its immediate objectives is to address the unmet needs for contraception, health care infrastructure, and personnel and provide integrated service delivery for basic reproductive and child health care.

What are the Drivers of Increasing Population?

What are the factors which Drive Changes in Population Characteristics?

<p>Total Fertility Rate (TFR):</p>	<ol style="list-style-type: none"> 1. The TFR is the average number of births by women aged 15-49 for a particular period/year. 2. TFR has fallen for India in the last 3 decades. 3. It came down from 3.4 to 2, between 1992 to 2021 4. The fall in TFR is very significant in the rural areas, especially due to family planning policies. 5. A TFR of 2.1 is considered as "replacement-level fertility" (RLF). [RLF is the level of fertility at which a population exactly replaces itself from one generation to the next.] 6. Populations can keep growing even with TFRs falling. De-growth requires TFRs to remain below replacement levels for extended periods. 7. China's TFR dipped below replacement first in 1991, which was almost 30 years before India's.
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	<p>CHART-1 TOTAL FERTILITY RATE</p> <table border="1"> <caption>Data for CHART-1: Total Fertility Rate</caption> <thead> <tr> <th>Year</th> <th>All-India</th> <th>Rural</th> <th>Urban</th> </tr> </thead> <tbody> <tr> <td>1992-93</td> <td>3.4</td> <td>3.7</td> <td>2.7</td> </tr> <tr> <td>1998-99</td> <td>2.9</td> <td>3.1</td> <td>2.3</td> </tr> <tr> <td>2005-06</td> <td>2.7</td> <td>3</td> <td>2.1</td> </tr> <tr> <td>2015-16</td> <td>2.2</td> <td>2.4</td> <td>1.8</td> </tr> <tr> <td>2019-21</td> <td>2</td> <td>2.1</td> <td>1.6</td> </tr> </tbody> </table>	Year	All-India	Rural	Urban	1992-93	3.4	3.7	2.7	1998-99	2.9	3.1	2.3	2005-06	2.7	3	2.1	2015-16	2.2	2.4	1.8	2019-21	2	2.1	1.6
Year	All-India	Rural	Urban																						
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2015-16	2.2	2.4	1.8																						
2019-21	2	2.1	1.6																						
<p>Fall in Mortality:</p>	<ol style="list-style-type: none"> 1. CDR is the number of persons dying per year per 1,000 population. 2. It fell to single digits in 2020, for both the countries. 3. Mortality falls with increased education levels, public health and vaccination programmes, access to food and medical care, and provision of safe drinking water and sanitation facilities. <table border="1"> <thead> <tr> <th>Country/CDR Rates</th> <th>1950</th> <th>2020</th> </tr> </thead> <tbody> <tr> <td>India</td> <td>22.2</td> <td>7.4</td> </tr> <tr> <td>China</td> <td>23.2</td> <td>7.4</td> </tr> </tbody> </table>	Country/CDR Rates	1950	2020	India	22.2	7.4	China	23.2	7.4															
Country/CDR Rates	1950	2020																							
India	22.2	7.4																							
China	23.2	7.4																							
<p>Life Expectancy at Birth:</p>	<ol style="list-style-type: none"> 1. It is defined as how long, on average, a new born can expect to live after birth. 2. It went up from 41.7 to 70.1 years for India, between 1950 and 2020. <p>[It went up from 43.7 to 78.1 years for China in the same period.]</p>																								

What are the Challenges and Opportunities?

Challenges	Opportunity
<ol style="list-style-type: none"> 1. Having the most people on the planet could prove to be a big negative for India unless it can provide food, education, housing, health services and jobs to its people. 2. Across India, water scarcity is a chronic issue. All these needs are crucial but by far the single most important thing for India to do is to generate jobs. The scale of this - particular challenge is truly daunting. 3. In 2020, India has 900 million people (67% of the total population) in the working age group of 15-64. 4. This is expected to expand by another 100 million by 2030. 	<ol style="list-style-type: none"> 1. If India becomes the largest country, its high population will push its existing demand for a permanent seat on the UN Security Council. 2. The geopolitical reality has changed and new powers have emerged which deserve a place alongside the old, Russia, the UK, China, France and the United States. 3. With more than 65% of the working age population, India can supply more than half of Asia’s potential workforce and can emerge as economic superpower. 4. Rise in Women’s Workforce that naturally accompanies a decline in fertility, and which can be a new source of growth. 5. Increase in the Labour Force that enhances the productivity of the economy.



What should be the Strategy of India?

1. To absorb the influx of young people into the workplace, India would need to create close to 12 million additional, non-farm jobs every year, starting in 2023.
2. While India is expected to have a demographic dividend from this large workforce, reaping its potential benefits requires significant investments in education.
3. There should be comprehensive plans and schemes for dependent population too, to provide them with social and financial security.
4. New skills and opportunities for women and girls should be ensured as their participation in a 3 trillion-dollar economy is urgently needed.
5. There is a need of suitable infrastructure, helpful social welfare schemes and massive investment in quality education and health.
6. For those already in the 25-64 age bracket, there is a need for skilling, which is the only way to ensure they are more productive and have better incomes.

Way Forward:

There is an opportunity for India to reap a demographic dividend as its working-age population's share of the overall population reached 50% only in 2007 and will peak at 57% by the mid-2030s but, it is depending upon the creation of meaningful employment opportunities for a young population.

4.2 Moving Back to National Food Security Act 2013

The government discontinued the Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) and has decided to provide free foodgrains to all 81 crore beneficiaries covered under the National Food Security Act (NFSA) for 1 year.

FOODGRAIN ALLOCATION UNDER NFSA (FOR FY23, IN LMT)

	Rice	Wheat	Nutri-cereals	Total
Antyoday Anna Yojana	71.07	28.68	0	99.75
Priority Households	272.8	144.76	6.3	423.86
Targeted PDS (tide over)	20.94	5.46	0	26.4
Total under Targeted PDS	364.81	178.9	6.3	550.01

More About the News:

About PMGKAY:

1. PMGKAY is a food security welfare scheme announced by the GoI in March 2020, during the COVID-19 pandemic in India.
2. The program is operated by the Department of Food and Public Distribution under the Ministry of Consumer Affairs, Food and Public Distribution.
3. It is the largest food security program in the world.
4. The scheme targets to feed the poorest citizens of India by providing grain through the Public Distribution System to all the priority households. (Ration card holders and those identified by the Antyodaya Anna Yojana scheme).
5. PMGKAY provides 5 kg of rice or wheat (according to regional dietary preferences) per person/month and 1 kg of dal to each family holding a ration card.

Achievements of the scheme:

1. **Pandemic mitigation:** It was the first step by the government when pandemic affected India.
2. **Wide section of beneficiaries:** The scheme reached its targeted population feeding almost 80Cr people.
3. **Support to migrants:** It has proven to be more of a safety net to migrant people who had job and livelihood losses.



4. **Food and Nutrition security:** This has also ensured nutrition security to children of the migrant workers.

Limitations of the scheme

1. The scheme has been affected by widespread corruption, leakages and failure to distribute grain to the intended recipients.
2. Out of the 79.25 crore beneficiaries under the National Food Security Act (NFSA), only 55 crores have so far received their 5 kg.
3. Many people were denied their share due to inability to access ration cards.
4. Livelihood losses led to decline in aggregate demand and resulted into lowest ever consumption expenditure by the people owing to scarcity of cash.
5. This in turn led to selling of the free grains obtained in the local markets for cash.

WHY PMGKAY, NFSA WERE MERGED

LOWER FOODGRAIN STOCKS

As on Nov 30, combined stock of rice (115.42 lakh metric tonne) and wheat (190.27 LMT) was at 305.69 LMT. This was lower than the figure of 591.56 LMT (rice 213.03 LMT, wheat 378.53 LMT) on Nov 30, 2021.

HIGHER ECONOMIC COST

Economic cost for rice has increased to Rs 3,670.04 per quintal this year from Rs 3,597.17 last year. For wheat, it has gone up to Rs 2,588.70 per quintal from Rs 2,4999.69 per quintal last year.

Back2Basics: National Food Security (NFS) Act

1. The NFS Act, 2013 aims to provide subsidized food grains to approximately two-thirds of India's 1.2 billion people.
2. It was signed into law on 12 September 2013, retroactive to 5 July 2013.
3. It includes the Midday Meal Scheme, Integrated Child Development Services (ICDS) scheme and the Public Distribution System (PDS).
4. The NFS Act 2013 also recognizes maternity entitlements.
5. The Midday Meal Scheme and the ICDS are universal in nature whereas the PDS will reach about two-thirds of the population (75% in rural areas and 50% in urban areas).
6. Pregnant women, lactating mothers, and certain categories of children are eligible for daily free cereals.

New changes in NFSA:

1. Beneficiaries will now get 35kg of foodgrains free for the next year and others will get 5kg for free in a month till December 2023.
2. The Union government has estimated an additional amount of ₹2 lakh crore for the scheme. Entire expenses for the scheme would be borne by the Union Government.

Key provisions of NFSA

1. The NFSA gives a legal right to a person belonging to "eligible households" to receive foodgrains at a subsidised price.
2. It includes rice at Rs 3/kg, wheat at Rs 2/kg and coarse grain at Rs 1/kg under the Targeted Public Distribution System (TPDS).
3. These are called central issue prices (CIPs).

Way forward:

The NITI Aayog has suggested that the national rural and urban coverage ratio be reduced from the existing 75-50 to 60-40. If this reduction happens, the number of beneficiaries under the NFSA will drop to 71.62 crores based on the projected population in 2020.



Additional Information:

[To make these changes in **national rural and urban coverage ratio**, the government will have to amend sub-section (2) of Section 3 of the NFSA which will require parliamentary approval.]

4.3 Marital Rape

Out of 185 countries in the world, 77 have laws that clearly criminalise marital rape while there are 34 countries decriminalise marital rape. India is one of the 34 countries that have decriminalised marital rape.

What is Marital Rape?

1. Marital rape or spousal rape is the act of sexual intercourse with one's spouse without the spouse's consent.
2. The lack of consent is the essential element and need not involve physical violence.
3. Marital rape is considered a form of domestic violence and sexual abuse.

What is the History of the Marital Rape Law in India?

1. **Parliament:** The issue has been brought up in Parliament too but has been dismissed with the view that "marital rape cannot be applied in the country since marriage was treated as a sacrament or sacred in the Indian society".
2. **Government's Stand:**
 - The Central Government initially defended the rape exception and later changed its stand & said "wider deliberations are required on the issue".
 - The Delhi government argued in favour of retaining the marital rape exception, in order to protect men from possible misuse of the law by wives.
3. **Delhi High Court:** The Delhi High Court has been hearing arguments in the case since 2015. By May 2022, they had arrived at a controversial split verdict. One judge was in favour of criminalising marital rape, while the other was against it. Later the matter went to Supreme Court.
4. **Supreme Court:** In September 2022, a Supreme Court ruling on women's right to safe abortions regardless of marital status held that for the purposes of the Medical Termination of Pregnancy Act, the definition of rape should include marital rape.
5. **Law Commission of India:** The need to remove the marital rape exception was rejected by the Law Commission of India in 2000.
6. **Justice JS Verma Committee:** In 2012, the Justice JS Verma Committee was appointed to propose amendments to India's rape laws, while some recommendations helped shape the Criminal Law (Amendment) Act passed in 2013, some suggestions, including that on marital rape, were not acted on.





What is Indian Law on Marital Rape?

- 1. Domestic Violence Act, 2005:** It hints at marital rape by any form of sexual abuse in a live-in or marriage relationship. However, it only provides for civil remedies. There is no way for marital rape victims in India to initiate criminal proceedings against their committer.
- 2. Section 375 of the Indian Penal Code (IPC):** It defines the acts that create rape by a man. However, it gives 2 exceptions as well.
 - Apart from decriminalising marital rape, it mentions that **medical procedures or interventions shall not constitute rape.**
 - **Exception 2 of Section 375 of the Indian Penal Code states that “sexual intercourse by a man with his wife, and if the wife not being under 15 years of age, is not rape”.**

How is Marital Rape Treated around the World?

The **United Nations** has highlighted the issue of marital rape & said that “**the home is one of the most dangerous places for women**”.

<u>Countries that Criminalise Marital Rape:</u>	<u>Countries that Decriminalise Marital Rape:</u>
<ol style="list-style-type: none"> 1. South Africa- Marital rape has been illegal since 1993 in South Africa. 2. United States: Marital Rape was criminalised in all 50 states of the US, from 1950. 3. United Kingdom– Marital rape has also been criminalised in the UK and those found guilty could be sentenced to life imprisonment. 4. Canada– Marital Rape is punishable in Canada. 	<p>Ghana, India, Indonesia, Jordan, Lesotho, Nigeria, Oman, Singapore, Sri Lanka and Tanzania expressly decriminalise marital rape of a woman or a girl by her husband.</p>

How did the Exception on Marital Rape was introduced in IPC?

1. Under the **1st version of the rules**, the marital rape exception was applicable to **women over 10 years of age** which was raised to 15 in 1940.
2. The **IPC was implemented in India** during **British colonial rule in 1860.**
3. **In January 2022**, it was **argued that the IPC is based on the 1847 draft of Lord Macaulay.** (Chairman of the First Law Commission established in colonial-era India.)
4. The **exception in the draft decriminalised marital rape without any age limit.**
5. This Idea of **decimalisation** came from **Doctrine of Hale.** (By **Matthew Hale**, the then **British Chief Justice**, in 1736.)
6. It states that a husband cannot be guilty of rape, since “**by their mutual matrimonial consent and contract the wife has given up herself in this kind to the husband**”.
7. The provision is an age-old idea that implies consent by married women and protects the conjugal rights of the husband.

Additional Information:

Doctrine of Curvature:

1. It is a **custom from the colonial period** had an impact on the **exceptional prohibition of rape in marriage.**
2. According to the **Doctrine of Coverture**, a woman has no personal legal identity **after marriage.**
3. Notably, the **Supreme Court of India’s decision to abolish adultery as a crime in 2018** drew attention to the **Doctrine of Coverture** throughout the hearing.
4. **It was decided that the Doctrine of Coverture formed the foundation for Section 497**, which defined adultery as a crime.



- Despite the Constitution's rejection of this doctrine holds that a woman loses her identity and legal rights when marriage, which is an infringement on her fundamental rights.

4.4 GLASS Report 2022

Why in News?

Recently, World Health Organization (WHO) and UN-Water has jointly released the Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS) report.

About the GLAAS Report:

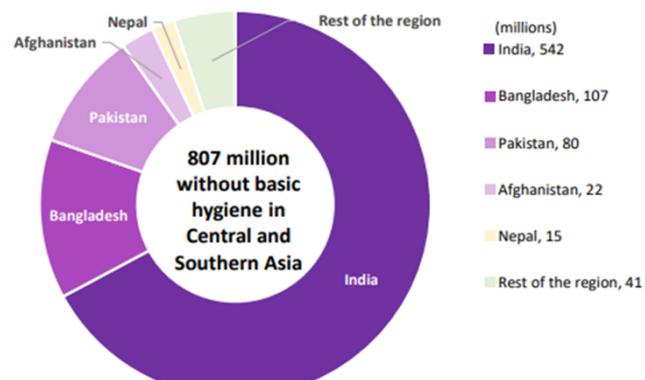
- It collects new data on drinking-Water, Sanitation and Hygiene (WASH) from 121 countries and territories and 23 External Support Agencies (ESAs).
- It helps to inform about the commitments, priority-setting and actions during the second half of the 2030 Agenda for Sustainable Development.
- It also collects data for 2023 Conference for the Midterm Comprehensive Review of Implementation of the United Nations Decade for Action on Water and Sanitation (2018–2028) (UN 2023 Water Conference).
- GLASS also highlights the opportunities to fast-track the progress in key WASH areas.
- It tells about the key areas of global importance these days like pandemic preparedness and resilience to climate change.



What are the Highlights of the Report?

- 45% of countries are on track to meet their drinking-water coverage targets, but only 25% are meeting their sanitation targets.
- However, report has suggested that more acceleration is needed to achieve national targets.
- While WASH budgets in increased in some countries but 75% of them still reported having inadequate resources to carry out their WASH plans and objectives.
- Most WASH policies do not consider climate change threats nor do they take the climate resilience of WASH technology systems into account.
- The frequent extreme weather events caused by climate change hamper the delivery of safe WASH services, thus affecting the health of users.

In Central and Southern Asia, two thirds of the population without a basic handwashing facility with soap and water at home live in India





6. **Aid for water and sanitation decreased by 5.6% between 2017-20, and the geographical targeting of the aid shifted.**

Some Regional performances:

Region	Fact about the grants to WASH	Performance
Sub-Saharan Africa	From 32% to 23%,	Proportion of WASH aid dropped
Central and Southern Asia	From 12% to 20%,	Increased
Eastern and South-Eastern Asia	From 11% to 20%	Increased

What can be done?

1. **Governments must target vulnerable & needy populations** such as people living in poverty or in remote areas so that they also have access to safe, sustainable WASH services.
2. **Government should work to strengthen the community participation** to adapt and sustain the SDG 6 goals.
3. **Increased inclusion, financial support and monitoring** are needed to ensure women are considered in WASH decisions.
4. **Gender and WASH are connected in many ways**, from menstrual health and hygiene to local participation and women working in WASH.

Way Forward:

Governments and development partners need to strengthen WASH systems and dramatically increase investment to extend access to safely managed drinking water and sanitation services to all by 2030, beginning with the most vulnerable.

4.5 Tribal Development Report 2022

Why in News?

Recently, the **Tribal Development Report 2022** was launched by the **Bharat Rural Livelihood Foundation (BRLF)**.

More about the News:

1. It is **1st** of its kind report since 1947.
2. **The BRLF was set up by the Union Cabinet in 2013.**
[BRLF is an independent society, under the Union Ministry of Rural Development to scale up civil society action in partnership with central and state governments.]

What are the Findings of the Report?

1. India's **tribal communities form 8.6% of the country's population** according to the **2011 Census**, but are at the bottom of the country's development pyramid.
2. **Central India is home to 80% of the tribal communities in the country.**
3. Of the **257 Scheduled Tribe districts**, 230 (90%) are forested or hilly or dry.
4. **Adivasis are the most deprived**, be it sanitation, education, nutrition, access to drinking water and education, despite 70 years of independence.
5. Tribal areas are **also areas that have faced a lot of disturbance and conflict**, so many government welfare schemes and policies are unable to take off in these areas.
6. The report stated that **indigenous communities of India have been pushed farther away from alluvial plains and fertile river basins into the harshest ecological regions of the country like hills, forests, and drylands.**



Forest Conservation Act in 1980:

1. The conflict came to be seen between environmental protection and the needs of local Adivasi communities.
2. It was in the National Forest Policy of 1988 that domestic requirements of local people were explicitly recognised for the very 1st time.
3. The Policy focus on the rights of Adivasis and also associating Adivasis in the protection of forests. But the movement has not been matched by reality on the ground.

Recommendations by Report:

1. It is important to understand the special characteristics of tribal communities to effectively frame policies for them.
2. There are many tribal communities that prefer isolation and silence & policy makers should understand this feature and then work towards the welfare of Adivasis so that they connect with them in a better way.

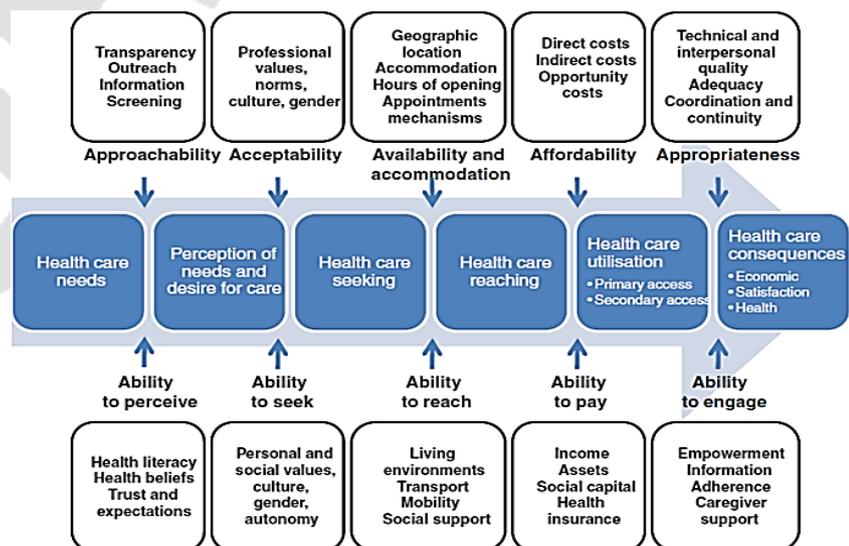
4.6 Global report on Health Equity for Disables

Why in News?

The World Health Organization (WHO) has released a report titled Global report on health equity for persons with disabilities, ahead of the International Day of Persons with Disabilities (3rd December)

What are the Findings of the Report?

1. Currently, 1.3 billion people, (1 in every 6) worldwide suffer from major disabilities.
2. Because of the systemic and persistent health inequities, many persons with disabilities face the risk of dying much earlier, even up to 20 years earlier than persons without disabilities.
3. Almost 80 % of people with disabilities lives in lower- and middle-income countries with limited resources, making it difficult to address these inequities.
4. They are at greater risk of contracting chronic illnesses like asthma, depression, diabetes, obesity, dental disorders and stroke.
5. Many of the irregularities in health outcomes cannot be credited to health conditions but rather to preventable, unfair and unjust circumstances.



Some Factors for Inequity in Healthcare:

1. Unfriendly attitudes of healthcare providers
2. Non understandable health information formats
3. Physical barriers, lack of transportation, or financial constraints that prevent access to a health centre.

What are the Recommendations?

1. It is important to ensure that people with disabilities participate fully in all sides of society.



2. For an inclusive society it's important to achieve inclusion, accessibility and non-discrimination in the medical field.
3. Health systems should be designed in a way which address the challenges that people with disabilities face, not adding to them.
4. Governments and civil society should ensure all health sector to be inclusive for persons with disabilities so that they can enjoy their right of having a good health.
5. Ensuring health equity for persons with disabilities will also have wider benefits and can advance global health priorities in 3 ways:
 - Health equity for all is important for achieving universal health coverage.
 - Inclusive and well managed public health interventions can contribute to healthier populations.
 - Advancing health equity for persons with disabilities is a central component to protect everyone in health emergencies.

What are the Initiatives to Empowerment of Disables?

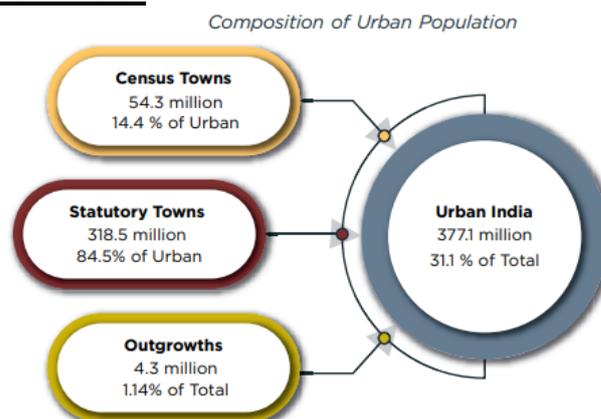
India:	Global:
<ol style="list-style-type: none"> 1. Right of Persons with Disabilities Act 2016 2. Unique Disability Identification Portal 3. "Accessible India Campaign" (Sugamya Bharat Abhiyan) 4. DeenDayal Disabled Rehabilitation Scheme 5. District Disability Rehabilitation Centres 6. Assistance to Disabled Persons for Purchase/fitting of Aids and Appliances 7. National Fellowship for Students with Disabilities 	<ol style="list-style-type: none"> 1. "Make the Right Real" for Persons with Disabilities in Asia and the Pacific. 2. United Nations Convention on Rights of Persons with Disability. 3. International Day of Persons with Disabilities 4. UN Principles for People with Disabilities

4.7 Development of Indian Cities

India's Urban Population contributes 63% to the Gross Domestic Product (GDP), which is expected to rise to 75% by 2030. But the growth has not been equal across cities, which impacts the developmental process of cities directly and indirectly by reducing the quality of social standards, civic infrastructure, transportation inadequacies, climate change, and an increasing disconnect with our culture and heritage.

Evolution of the concept of Urban Development in India:

1. India's 1st pan-Indian urban vision was articulated in the 1980s with the creation of the National Commission on Urbanisation (1988).
2. The Indian Constitution brings a clear mandate for Democratic Decentralization (Municipality) in India's urban space through 74th Amendment Act 1992.

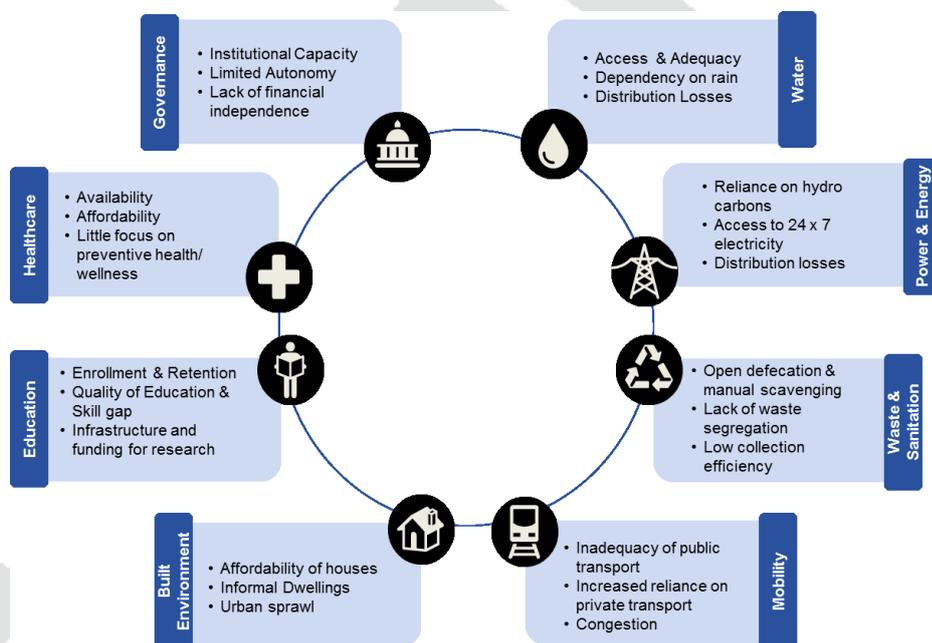




3. Also, the 15th Finance Commission report on local bodies focused to empower city governance structures financially.

What are the Major Issues Related to Indian Cities?

1. Cities are managed by a range of disorganised government bodies for water, electricity & transport etc. There is lack of coordination among state bodies which hampers the overall developmental process.
2. Also, the absence or weak citizen grievance redressal mechanisms and lack of transparency in finances and operations, adds to the problem.
3. There is excessive growth of unauthorised settlements and slums in the cities. The inability of migrants to afford the high cost of living in urban areas, it leads to the growth of slums as safe havens for migrants.
[According to the World Bank, the population living in slums in India was reported at 35.2 % of the total urban population. Dharavi in Mumbai is considered the largest slum in Asia.]
4. India is lacking at strong and uniform city planning, which according to a UNEP report, may be costing us up to 3% of our GDP every year.
5. There are no structured platforms or participatory processes for citizen participation, which hampers the overall management of the cities.
6. Rapid urbanisation leads to unplanned growth of cities, most of which suffer from inadequate sewage systems.
[According to GOI almost 78% of the sewage generated in India remains untreated and is disposed of in rivers, lakes, or sea.]
7. City residents mostly uses private transport for maintaining social status. Which led to overcrowding of roads, pollution, and increased travel times. Also, the vehicular pollution is becoming the key driver of climate change.



What can be done?

1. Centre-State Collaboration should be strengthened for city development: Central government can lead the way by framing city model laws and policies.
2. State governments must work for institutional reforms in planning, fiscal decentralisation, recruitment rules for municipalities, empowering mayors and municipal councils etc.
3. States should proactively consider organising the Informal Urban Economy by managing data on migrants for use in city development activities. The Labour Ministry's proposed Unorganised Worker Index Number Card would also help formalise the workforce.



4. **Citizen's Participation is very important** in city development hence states must strive to ensure the participation of citizens in the **city-making through awareness programmes** etc.
5. **City leadership should be well equipped, efficient and aware of how to make cities both liveable and inclusive.**
6. There is a **need to align towards effective solutions for urban issues that can include blue- green infrastructure** (environment friendly), **mixed-use of public spaces and use of alternative energy sources such as solar and wind.**
7. **Public-private partnerships should also be invited for the green transition of cities.**
8. **Urban areas also need a scheme like MGNREGA in rural, to provide the livelihood & basic living standards to urban poor.** The **Indira Gandhi Urban Employment Guarantee Scheme** has been rolled out in Rajasthan is a good step in this direction

Recent Government Initiatives:

1. Smart Cities
2. AMRUT Mission
3. Pradhan Mantri Awas Yojana-Urban
4. Pradhan Mantri Garib Kalyan Yojana
5. Atmanirbhar Bharat Abhiyan (self-reliant India)

Way Forward:

While the economic revolution of the last 25 years moved India towards a paradigm that focuses on urban economic development, it is now evident that India must develop solutions that prioritise more equitable and sustainable growth for its next-gen cities.

4.8 Social Progress Index 2022

Why in News?

Recently, the Social Progress Index (SPI) for States and Districts of India was released by the 'Economic Advisory Council to the Prime Minister' (EAC-PM).

1. SPI 2022 was compiled by 2 organisations named the 'Institute for Competitiveness' and 'Social Progress Imperative'.

So, What is SPI all about?

1. SPI is a **comprehensive tool that measure the country's social progress at the national and sub-national levels.**
2. The report aims to **provide a systematic picture of the social progress made at all levels of the country.**
3. The **index uses a framework comprising 89 indicators at the state level and 49 at the district level.**
4. The **index assesses states and districts based on 12 components across 3 critical dimensions of social progress.**
5. **These 3 dimensions are:**
 - a) **Basic Human Needs:** It assesses the performance of states and districts in terms of **Nutrition, Basic Medical Care, Water and Sanitation, Personal Safety and Shelter.**
 - b) **Foundations of Wellbeing:** It evaluates the progress made by the country across the components of **Access to Basic Knowledge, Access to Information and Communication, Health and Wellness, and Environmental Quality.**



- c) **Opportunity:** It focuses on Personal Rights, Personal Freedom and Choice, Inclusiveness, and Access to Advanced Education.

Findings of the Index are:

1. **State With Lowest SPI Score:** Jharkhand and Bihar
2. **State with Highest SPI Score:** Puducherry
3. **On the dimension of Basic Human Needs:** Goa, Puducherry, Lakshadweep, and Chandigarh are the top 4 states with the best performance in water, sanitation and shelter.
4. **On the dimension of Foundations of Wellbeing:** Mizoram, Himachal Pradesh, Ladakh, and Goa have emerged as the best-performing states for the Foundations of Wellbeing. In area of Environmental Quality, Mizoram, Nagaland, and Meghalaya are the top 3 states.
5. **On the dimension of Opportunity:** Tamil Nadu has achieved the highest component score for Opportunity dimension.
6. **Best Performing Districts of India:** Aizawl (Mizoram), Solan (Himachal Pradesh) and Shimla (Himachal Pradesh) have emerged as the top 3 best-performing districts

About EAC-PM

1. It's an independent body which was constituted to give advice on economic and related issues to the Prime Minister.
2. EAC-PM is responsible for analysing and advising the Prime Minister on any issue of macroeconomic importance that the Prime Minister refers to.
3. These could be either suo-motu (by self) or on reference from the Prime Minister or anyone else.
4. It also works on any other task as may be desired by the Prime Minister from time to time.

Global SPI 2022

1. The index uses 12 components and 60 indicators to measure the social performance of 169 countries fully and an additional 27 countries partially.
2. The 'Institute for Competitiveness' released the annual Global Social Progress Index (SPI) 2022 which was published by 'Social Progress Imperative'.
3. India secured a global rank of 110 with score of 60.19 in Global SPI 2022.
4. India's aggregate Social Progress Index score in 2022 is slightly lower than the world average of 65.24.
5. The countries are divided into 6 Tiers and India comes under 4th Tier.
6. The index is topped by Norway with a score of 90.74 in Tier-1 countries i.e. high income countries.

7.
5.

ECONOMY

5.1 India's Pension System & its Position in Global Pension Index

Why in News?

Recently, the **Global Pension Index** ranked India's pension system at **41 out of the 44 countries**. The index ranks the pension systems across the world & known as **Mercer CFA Institute Global Pension Index**.

More about the Index:

Index says that it is **neither easy nor straightforward to compare pension systems across the world, because of differences in population profile and requirements, economic growths, government revenues, regulatory maturity and the development of private markets.**

1. The **2022** edition of this index ranks India's pension system at **41 out of the 44 countries**.
2. It is to be noted that India has consistently ranked low on this index even when only **16 countries** were analysed in 2011.

The index ranks countries on three criteria:

1. **Adequacy:** What **benefits** are future retirees likely to receive?
2. **Sustainability:** Can the **existing systems** continue to address the demographic and financial challenges?
3. **Integrity:** Are the **private pension plans** regulated in a way that achieves the community confidence?

What is pension & what is its need?

1. Pension **provides people with a monthly income** when they are no longer earning.
2. Pension is highly needed when:
 - one is not as productive in the old age as in youth.
 - The rise of nuclear family Migration of younger earning members.
 - Rise in cost of living with changing time
3. **Assured monthly income** ensures dignified life in old age.

About National Pension Scheme (NPS):

1. NPS is an **easily accessible, low cost, tax-efficient, flexible and portable retirement savings account**.
2. **Under NPS, a person contributes to his retirement account** and also his employer also **co-contributes for the individual**.
3. The **accumulated wealth depends on the contributions made** and the **income generated from investment of such wealth**.
4. **Resident as well as non-resident Indians in the age group of 18-60 years** can invest in the account.
5. **Over the last 8 years, the NPS has built a healthy subscriber base, and its assets under management have increased**.
6. **Pension Fund Regulatory and Development Authority (PFRDA)** is the regulator for NPS.



About PFRDA:

1. PFRDA is an **Authority set up by the Government of India through the PFRDA Act 2013.**
2. PFRDA aims to **promote old age income security by establishing, regulating and developing pension funds to protect the interest of subscribers to schemes of pension funds.**

India's pension System:

New pension system came into effect for those joining government services from January 1, 2004. Comparison between the Old and New system:

Criteria	New Pension Scheme (NPS)	Old Pension Scheme (OPS)
Public Coverage	Anyone from age 18 till 55	Only central government employees
Contribution	All the contributions are included along with dearness allowance	10% of (special pay + basic pay + other allowances)
Fund Management	6 Fund managers	Managed by Provident fund Trust
Regulations	PFRDA (Pension Fund Regulatory Development Authority)	No such body
Charges	Fixed as well extra Charges applicable	No extra charges applicable
Bank Account	Same account can be used	Separate account needed

Major Changes:

Old System	New System
<ol style="list-style-type: none"> 1. Pension to government employees at the Centre as well as states was fixed at 50% of the last drawn basic pay. 	<ol style="list-style-type: none"> 1. It gives 'defined' benefit to the retiree hence, described as a 'Defined Benefit Scheme'. Example - if a government employee's basic monthly salary at the time of retirement was Rs 10,000, she would be assured of a pension of Rs 5,000. 2. The monthly payouts of pensioners also increased with hikes in dearness allowance (DA) announced by the government for serving employees

Status of India's pension architecture:

1. At least **85%** current workers are not members of any pension scheme, and likely to face problems in old age.
2. Of all elderly, **57%** receive no income support from public expenditure, and **26%** collect social pension as part of poverty alleviation.



3. 11.4% of the elderly get fixed benefits as government's ex-workers.
4. The system for old age income support entailed 11.5% of public expenditure, and sub-national governments bear more than 60%.

Significance of NPS over OPS:

1. NPS was undertaken mainly to address concerns regarding the coverage, sustainability, and scalability of the old pension framework.
2. As per research carried out in the early 2000s, India's implicit pension debt, owing to central (civil) employees, state government employees and the funding gap of the employees' pension scheme, was reaching unmanageable, unsustainable levels.
3. Moreover, this framework only benefited a tiny portion of the total labour force.

Way ahead:

India's pensions system is in a terrible need of a reform and merely fluctuating between OPS and NPS is not a reform. Reforming the pension system will be both good politics and good economics.

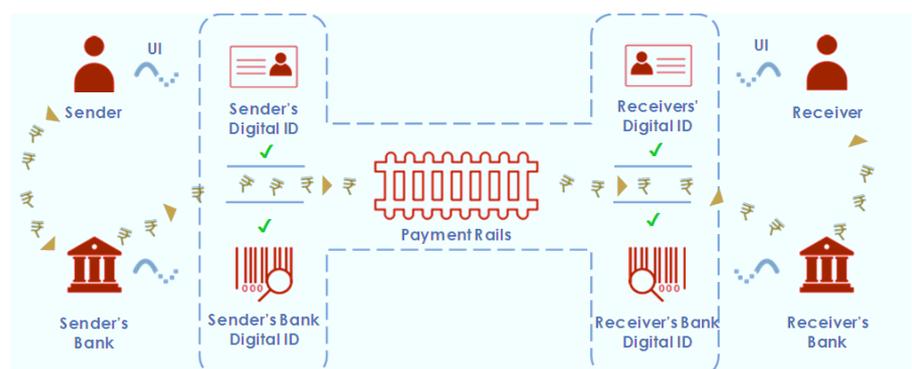
5.2 New Changes to UPI

Why in News?

Recently, the RBI governor has announced an additional function for Unified Payments Interface (UPI) platforms.

About Unified Payments Interface (UPI):

1. It is an instant real-time payment system.
2. UPI was developed by National Payments Corporation of India (NPCI).
3. It was launched in April 2016.
4. It is regulated by the Reserve Bank of India (RBI).
5. UPI allows a customer to pay directly from a bank account to different merchants, both online and offline.
6. It helps in having inter-bank, peer-to-peer (P2P) and person-to-merchant (P2M) transactions.
7. It can be used on mobile devices to transfer funds between two bank accounts, instantly.
8. The mobile number on the device is required to be registered with the bank.
9. It does not need the credit card details, IFSC code, or net banking/wallet passwords etc.
10. Every account has a unique UPI ID associated with it. So, UPI uses the UPI ID of the recipient to transfer money.
11. UPI runs as an open-source application programming interface (API) on top of Immediate Payment Service (IMPS).
12. In the last 2 years, the platform has emerged as a popular choice among users for sending and receiving money.



New changes to UPI:



Before the Changes	After the Changes
The UPI had the power to undertake the payments and block payments.	Now, the customer is allowed to block funds in their accounts for multiple payments of specific nature.

What is the Significance of these Changes:

1. As multiple payments are allowed it is expected to improve the ease of making payments for online shopping and investments in securities.
2. It will be helpful in the purchasing government securities using the RBI's retail direct scheme.
3. With the new feature, the merchant can make multiple debits up to a permitted amount.

About the Implementation:

1. The National Payments Corporation of India (NPCI) will implement it and got Separate instructions for the enhancement of payment system.
2. RBI governor also announced an expansion in the scope of Bharat Bill Payment System (BBPS) to include all payments and collections.

What can be the Future scope for UPI:

1. More tech companies are able to use the power of UPI to expand the digital ecosystem, which will increase the financial inclusion.
2. UPI also clears path for more fintech applications and services like micro-pensions, subsidies, digital insurance products, and flexible loans etc.
3. It will help in having cashless economy.

Way Forward:

These solutions will first solve large social, business and financial problems in India and then become models for other countries to deploy in their countries.

5.3 RBI Launches e- Rupee

Why in News?

The Reserve Bank announces the launch of the 1st pilot (project) for retail digital Rupee on 1st December, also called Central Bank Digital Currency (CBDC).

- On 1st November 2022, the RBI launched the digital rupee for the wholesale segment.

What is e-rupee?

1. RBI defines the CBDC as the digital form of currency notes issued by a central bank.
2. It is an entirely independent currency issued by the central bank, in line with the country's monetary policy.
3. CBDC will be considered as a medium of payment and legal tender by all 3 parties i.e.,
 - Citizens
 - Government bodies
 - Enterprises
4. It can be freely converted to any commercial bank's money or notes.



5. RBI is **not in favour of e-rupee with interest**. Because people might **withdraw money from banks and convert it to digital rupee** causing bank failure.
6. The technology of **cryptocurrency (distributed ledger) can support parts of the digital rupee system**, but the **RBI has not decided on this, yet**.
7. However, **cryptocurrencies like bitcoin or Ethereum are 'private' in nature**. Digital rupee **on the other hand, will be issued and controlled by the RBI**.
8. **As of July 2022, 105 countries were exploring CBDC**.
9. **10 countries have launched CBDC:**
 - **1st was the Bahamian Sand Dollar in 2020**
 - **The latest was Jamaica's JAM-DEX**

RBI and Digital Currency:

1. RBI is exploring various **DLT (Distributed Ledger Technology) for better operation to launch Central Bank Digital Currency (CBDC)**.
 - **Blockchain is just one type of distributed ledger**.
2. **Central Bank Digital Currency will be a legal tender**.
3. CBDC also can be **converted and exchanged with similarly denominated (of same value) cash**.



What are the Types of e-Rupees?

1. RBI has demarcated the digital rupee into **2 broad categories**, based on its **usage and the functions performed**.
2. **Retail e-rupee is an electronic version of cash primarily meant for retail transactions**.
3. It will be **potentially available for use by all private sector, non-financial consumers and businesses and can provide access to safe money for payment and settlement** as it is a **direct liability of the central bank**.
4. It has the **potential to transform the settlement systems for financial transactions by banks in the government securities (G-Sec) segment, inter-bank market and capital market more efficient and secure in**

What are the Key Points about the Pilot Project?

1. The **1ST phase of a pilot project will cover select locations and banks in a closed user group (CUG) including customers and merchants**.
2. The **pilot will initially cover the 4 cities of Mumbai, New Delhi, Bengaluru, and Bhubaneswar**.
3. **Four banks will be involved in the controlled launch of the digital currency and those are State Bank of India, ICICI Bank, Yes Bank, and IDFC First Bank**.
4. According to the **central bank, the pilot will test the strength of the entire process of digital rupee creation, distribution and retail usage in real time**.

How will the Retail Digital Rupee Work?

1. The **e-Rupee would be in the form of a digital token that represents legal tender**.
2. It **will be issued in the same denominations as paper currency and coins**.
3. Digital currency will be **distributed through intermediaries, i.e., banks**.
4. Users will be able to **do transactions through digital wallet offered by the participating banks and stored on mobile phones and devices, according to the RBI**.
5. Transactions can be **both person to person (P2P) and person to merchant (P2M)**.
6. **Payments to merchants can be made using QR codes displayed at merchant locations**.
7. The e₹-R would offer **features of physical cash like trust, safety and settlement finality**.



- As in the case of cash, it will **not earn any interest and can be converted to other forms of money**, like deposits with banks.

What are the Advantages of e-rupee?

- Reduction in operational costs
- Better cash management
- Promoting financial inclusion
- Efficiency and innovation in the payments system
- Provide the public with uses that any private virtual currencies can provide

What are the issues related to CBDC in India?

- CBDC ecosystems may be at a similar risk of cyber-attacks that the current payment systems are facing.
- The CBDC is expected to generate huge sets of data in real time. Privacy of the Data, concerns related to its secrecy and its effective use will be a challenge.
- Digital divide and financial illiteracy are one major issue as National Family Health Survey (NFHS-5) says that Only 48.7% of rural males and 24.6% of the rural females have ever used the internet. So, CBDC may wide gender-based hurdle along with digital divide.

Way Forward:

To make CBDC a successful initiative and movement, RBI must address the demand side infrastructure and knowledge gap to increase its acceptance in rural areas for wide base also, RBI must proceed mindful of the various issues, the design and the implications surrounding the introduction of the digital currency.

5.4 Fertilisers Subsidy

Why in News?

High government subsidies are encouraging the excessive use of two fertilisers - Urea and Di-Ammonium Phosphate (DAP).

What is Fertiliser?

- A fertiliser is a natural or artificial substance containing chemical elements such as Nitrogen (N), Phosphorus (P) and Potassium (K).
- These chemicals are important to improve the growth and productiveness of plants.
- There are 3 basic fertilisers in India:
 - Urea
 - DAP
 - Muriate of Potash (MOP)

About Fertiliser Subsidy:

- The government pays a subsidy to fertiliser producers to allow farmers to buy fertilisers at below-market rates.
- The difference between the cost of production/import of a fertiliser and the actual amount paid by farmers is the subsidy portion borne by the government.



History of Pricing and subsidy Policies:

1. **1976- Fixed Subsidy**
- ↓
2. **1977- Retention Price Scheme** (basically for urea)
- ↓
3. **1991- Decontrol of Prices** (of N, P & K based fertilizers)
- ↓
4. **2003-New Pricing Scheme** (had revised prices)
- ↓
5. **2018- Nutrient Based Subsidy Scheme (NBS)**

<u>Subsidy on Urea:</u>	<u>Subsidy on Non-Urea Fertilisers:</u>
<ol style="list-style-type: none"> 1. In India, urea is the most produced, imported, consumed and regulated fertiliser of all. 2. It is subsidised only for agricultural uses. 3. The Centre pays a subsidy on urea to fertiliser manufacturers on the basis of cost of production at each plant. 4. The units are required to sell the fertiliser at the government set Maximum Retail Price (MRP). 5. The MRP of urea is currently fixed at Rs 5,628 per tonne. 	<ol style="list-style-type: none"> 1. The MRPs of non-urea fertilisers are fixed by the companies. 2. But recently, the government has brought these fertilisers under the control regime after the price surge of fertilizers post Russia-Ukraine war. 3. All Non-Urea based fertilisers are regulated under Nutrient Based Subsidy (NBS) Scheme. 4. Examples of non-urea fertilisers are DAP and MOP. 5. Companies do not sell DAP at more than Rs 27,000 per tonne.

Issues Related to Fertiliser Subsidy:

1. The high subsidy on urea and DAP makes them cheaper for farmers as compared to the other fertilisers, leading to their excessive use.
2. The prices of the other fertilizers which were deregulated have gone up, leading farmers to use more urea and DAP than before.
3. The use of N, P and K in the country has sharply diverged from the ideal NPK use ratio of 4:2:1, in recent years.
4. Urea and DAP contain, more than 30% of any single nutrient as Urea it has 46% N, while DAP has 46% P and also 18% N. The resulting nutrient imbalance could have implications for soil health, ultimately affecting crop yields.
5. Fertiliser subsidies are damaging the fiscal health of the economy, by putting pressure on government.
6. There are instances, where the subsidized urea is getting diverted to non-agricultural users such as plywood and animal feed makers.
7. It is also being smuggled to neighbouring countries like Bangladesh and Nepal.

What are the Related Initiatives for Fertilisers?

1. **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).
2. **New Urea Policy (NUP) 2015:** The Objectives of the policy are:
 - To maximize indigenous urea production.
 - To promote energy efficiency in the urea units.
 - To rationalize the subsidy burden on the Government of India.



3. Fertilizer companies marketing the compost are covered under the Direct Benefit Transfer (DBT) for Fertilizers.
4. Policy on Promotion of City Compost: Approved a policy on promotion of City Compost, notified by the Department of Fertilisers (DoF) in 2016 granting Market Development Assistance of Rs. 1500/- for scaling up production and consumption of city compost.
5. To increase sales volumes, compost manufacturers willing to market city compost were allowed to sell city compost in bulk directly to farmers.
6. Use of Space Technology in Fertilizer Sector: A 3-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).

Way Forward:

Considering the importance of N (nitrogen), P (phosphorus) and K (potassium) for the crop yields and quality of produce, the government must necessarily go for a uniform policy for all fertilisers. In the long run, NBS itself should be replaced by a flat per-acre cash subsidy that could be used to purchase any fertiliser. This subsidy must include value-added and customised products containing not just other nutrients but delivering even nitrogen more efficiently than urea.

Additional Information:

NBS Rates (Rs. per Kg)							
Sr. No.	Nutrients	2018-19	2019-20	2020-21	Kharif 2021-22	Rabi 2021-22	2022-23
1	'N' (Nitrogen)	18.901	18.901	18.789	18.789	18.789	91.96
2	'P' (Phosphate)	15.216	15.216	14.888	45.323	64.386	72.74
3	'K' (Potash)	11.124	11.124	10.116	10.110	10.110	25.31
4	'S' (Sulphur)	2.722	3.562	2.374	2.374	2.374	6.94

What is NBS Scheme?

1. Under the NBS scheme fertilizers are provided to the farmers at the subsidized rates.
2. The fertilizers based on the nutrients N, P, K & S are covered under this scheme.
3. Also, the fertilizers which are fortified (improved) with micronutrients such as molybdenum (Mo) and zinc are given additional subsidy.
4. The subsidy on P&K fertilizers is announced by the Government annually.
5. It is determined on a per kg basis and also take care of international and domestic prices of P&K fertilizers, exchange rate, inventory level in the country etc.
6. NBS policy aims to increase the consumption of P&K fertilizers to achieve the proper balance of NPK fertilization i.e., (N:P: K= 4:2:1).

5.5 Global Minimum Tax

Why in News?

Recently, EU members have agreed to implement a minimum tax rate of 15% on big businesses.

More about the News:



1. This is done in line with the Pillar 2 of the global tax agreement framed by the Organisation for Economic Cooperation and Development (OECD) in 2021.
2. In 2021, 136 countries including India had agreed on this plan.
3. It was done to redistribute tax rights across jurisdictions and enforce a minimum tax rate of 15% on large multinational corporations.

What is Global Minimum Tax?

1. A Global Minimum Tax (GMT) is a standard minimum tax rate that is applied to big corporates earning a certain income base worldwide.
2. The OECD developed a proposal featuring a corporate minimum tax of 15% on foreign profits of large multinationals, which would give countries new annual tax revenues of USD 150 billion.
3. It aims to discourage nations from tax competition through lower tax rates that result in corporate profit shifting and tax base erosion.

What are the Key Points of the Plan?

Pillar 1 of the Plan	Pillar 2 of the Plan
<ol style="list-style-type: none"> 1. It addresses any risk of double taxation by including dispute prevention and dispute resolution, but with an elective mechanism for some low-capacity countries. 2. 25% of profits of the largest and most profitable Multinational Enterprise (MNEs) above a set profit margin would be reallocated to the market jurisdictions where the MNE's users and customers are located. 3. It has simple approach to the application of the arm's length principle to in-country baseline marketing and distribution activities. 4. It comprises of removal and standstill of Digital Services Taxes (DST) and similar relevant measures, to prevent harmful trade disputes. 	<ol style="list-style-type: none"> 1. This will apply to multinational groups with annual revenue 750 million euros. 2. It provides a minimum 15% tax on corporate profit. 3. Governments across the world will impose additional taxes on the foreign profits of MNEs headquartered in their jurisdiction at least to the agreed minimum rate. 4. This means that if a company's earnings go untaxed in one of the tax havens, their home country would impose another tax that would bring the effective rate to 15%.

What are the Objectives of establishing Global Minimum Tax?

1. The minimum tax and other provisions aim to put an end to decades of tax competition between governments to attract foreign investment.
2. It aims to ensure that big businesses with global operations do not benefit by residing themselves in tax havens in order to save on taxes.

What is the Significance of the Move?

1. Increasingly, income from intangible sources such as drug patents, software, etc., has migrated to Tax Havens, allowing companies to avoid paying higher taxes in their traditional home countries.
2. It tries to put an end to the "race to the bottom" which has made it harder for governments to increase the revenues required for funding their programmes.



[A race to bottom is the competition between nations, states, or companies, where product quality is sacrificed in order to gain a competitive advantage in product manufacturing costs.]

3. [BEPS refers to tax avoidance strategies that exploit gaps and mismatches in tax rules to artificially shift profits to low or no-tax locations. OECD has issued 15 Action Items to address this.]
4. **The fiscal state of governments across the world has declined at variable degrees & minimum tax can be beneficial to counter the global inequalities by making it tougher for large businesses to pay low taxes by availing the services of tax havens.**

Way Forward:

After all, countries both within and outside the alliance **will have the motivation to boost investments and economic growth within their respective jurisdictions by offering lower tax rates to businesses.** This is a structural problem that will persist as long as the global tax lobbies continues to exist.

5.6 Crypto Awareness

Why in News?

The Investor Education and Protection Fund (IEPF) will launch a programme soon to create awareness of cryptocurrencies.

What is Cryptocurrency?

1. A **cryptocurrency is a digital asset stored on computerised databases.**
2. These **digital coins are recorded in digital ledgers using strong cryptography to keep them secure.**
3. The **ledgers are distributed globally, and each transaction made using cryptocurrencies are codified as blocks.**
4. **Multiple blocks linking each other forms a blockchain on the distributed ledger.**
5. There are **estimated to be more than 47 million cryptocurrency users around the world.**
6. These **cryptocurrencies are created through a process called mining.**

India and Cryptocurrency:

1. **2009: First cryptocurrency, Bitcoin launched in 2009 by Satoshi Nakamoto.**
2. **2018: RBI and other regulated agencies were banned from supporting cryptocurrency transactions.**
3. **2019: Inter-ministerial committee recommended ban on all private cryptocurrencies.**
4. **2020: Supreme Court stated it is unconstitutional to ban the operations of cryptocurrencies.**
5. **2021: Cryptocurrency and Regulation of Official Digital Currency Bill, 2021 was introduced.**

Hence, currently Cryptocurrencies are unregulated but not illegal in India.

What is the Outreach Programme?

1. The need for the outreach programme is based on the observation that **both crypto-assets and online gaming are still being promoted in a risky manner despite the recent turmoil in the sector.**
2. The **programme will help potential investors to thoroughly educate themselves before making any decision since cryptocurrency investing is a complex and risky endeavour.**



Concerns about cryptocurrency:

1. The **Reserve Bank of India (RBI)** has recommended framing **legislation on the sector** and want **cryptocurrencies to be prohibited**.
2. The **crypto dilemma** stems from concerns about the **unregulated currency** having a **destabilising effect** on the **monetary and fiscal stability** of a country.
3. **Cryptos** are investigated for their **alleged involvement** in **unlawful practices** such as **drug trafficking, money laundering, violating foreign exchange legislation and evasion of GST**.
4. **Cryptocurrency investing** can be a **complex and risky endeavour** as the category is **extremely volatile** and works round the clock.

Will this programme help?

1. Apart from the **outreach programme**, there has to be a **regulatory mechanism for the crypto sector**.
2. If the **government takes a heavy-handed approach** and starts saying things like **virtual currency is not legal in India** that will not be entirely true.

Present regulation in India:

1. **RBI has banned banks and other regulated entities** from supporting **crypto transactions**.
2. The **Government has confirmed** that **expenditure incurred in mining cryptocurrency** is considered **capital expenditure** and not a **cost of acquisition**.
3. **Cryptocurrency and Regulation of Official Digital Currency Bill, 2021** was introduced by the Centre.

Way forward:

1. **Crypto assets** are **borderless** and therefore, any **legislation** (for regulation or for banning) would require **international collaboration** to prevent **regulatory arbitrage**.
2. The **collaboration** must entail an **evaluation of risks and benefits** and the **evolution of common taxonomy and standards**.

5.7 Rabi Crops

Why in News?

Rabi crops are at risk due to weak western disturbances over northwest and central India.

- The region doesn't have enough rainfall and moisture, which is very important for growing wheat during the winter.

What are Rabi Crops?

1. The crops which are sown around the **Retreating Monsoon and Northeast monsoon season** are known as the **Rabi crops**.
2. **Rabi crops** begins in **October** and also called **winter crops**.
3. Rainfall has comparatively lesser effect on Rabi crops, or we can say these are not much dependent on rains.
4. The **harvest for these crops** happens typically during **April and May**, during the **summer season**.
5. **Wheat, gram, peas, barley etc.**, are some major examples of Rabi crops.
6. A **warm climate** is required for **seed germination** and **cold climate** for the **growth of crops**.



What are the other seasons of crops in India and what are the differences between them?

Season	Time	Examples	Features	States
Kharif	Sown in June-July, harvested in sept-oct	Rice, Maize, Jowar, Bajra, Tur, Moong, Urad, Cotton, Jute, Groundnut, Soyabean, tea and coffee	These require a lot of water, hence also called monsoon crops.	Assam, west Bengal, coastal regions of Odisha, Andhra Pradesh, Telangana, Tamil Nadu, Kerala, Maharashtra
Rabi	Sown in Oct-Dec, harvested in April June	Wheat, Barley, gram, peas, mustard	Need cold weather for growth hence called winter crops	Punjab, Haryana, Himachal Pradesh, J& k, Uttarakhand & UP
Zaid	Sown in March, harvested in July	Seasonal fruits vegetables, fodder crops	Require warm and dry weather for growth & a longer day length for flowering	North & North western states

What are the other possible factors causing risk to Rabi Crops?

1. Nonstop rainfall in the region in the 1st two weeks of October, 2022 have badly impacted the Rabi crops & contributed to the prevalent risk.
2. A possible impact of the continuing La Niña phenomenon in the equatorial Pacific Ocean and a warming Arctic region might also have contributed.
3. Also, the weak western disturbances (WD) in November, 2022, and the absence WD in December, 2022, is primarily responsible for the lack of rain since early October, 2022.

5.8 Horticulture Cluster Development Programme

Why in News?

Recently, a meeting was held by the Union Ministry of Agriculture and Farmers Welfare for the implementation of 'Horticulture Cluster Development Programme' (CDP).

1. Now, the overall development of the horticulture in the country will be focused with the help of the implementation of the CDP.
2. Horticulture is the branch of plant agriculture dealing with garden crops, generally fruits and vegetables.

So, What is the Horticulture Cluster Development Programme (CDP)?

1. It's a central sector programme aimed at growing and developing identified horticulture clusters to make them globally competitive.
2. Horticulture cluster is a regional/geographical concentration of targeted horticulture crops.



3. This programme is implemented by the National Horticulture Board (NHB) under the Ministry of Agriculture and Farmers' Welfare.
4. Now, the states of Arunachal Pradesh, Assam, West Bengal, Manipur, Mizoram, Jharkhand, Uttarakhand etc. will also be included in the list of 55 clusters. Earlier, in pilot phase, it was implemented in 12 clusters covering 11 States/UTs.
5. The CDP aims to improve exports of targeted crops by about 20%.
6. This programme will address all major issues related to the Indian horticulture sector including pre-production, production, post-harvest management, logistics, marketing and branding.
7. Another objective of the programme is to take benefit of geographical specialisation and to promote integrated and market-led development of horticulture clusters.

Significance of Cluster Development Programme (CDP): Cluster Development Programme has a great potential to transform the entire horticulture ecosystem by creating last-mile connectivity with the use of multimodal transport for efficient transportation of horticulture produce.

About the Status of the Horticulture Sector in India

1. India is the 2nd largest producer of horticulture crops globally.
2. India is a leader in producing fruits like Mango, Banana, Pomegranate, Sapota, Acid Lime etc.
3. In 2021-22, Uttar Pradesh followed by Madhya Pradesh and West Bengal were the top states in horticulture production.
4. West Bengal, Uttar Pradesh and Madhya Pradesh were the top States in vegetable production.
5. Maharashtra followed by Andhra Pradesh and Uttar Pradesh were the top states in fruit production.
6. The area under horticulture crops increased to 27.7 million hectares in 2021-22, and produced around 341.63 million tonnes.

Some Initiatives taken by the Government for the Horticulture are:

Mission for the Integrated Development of Horticulture (MIDH):

1. MIDH is a Centrally Sponsored Scheme for the holistic growth of the horticulture sector.
2. Under MIDH, Government of India (GOI) contributes 60% of the total fund for developmental programmes in all the states (except North Eastern and Himalayan states where GOI contributes 90%) & 40% is contributed by State governments.
3. It has 5 major components on horticulture:
 - a) National Horticulture Mission (NHM)
 - b) Horticulture Mission for North East and Himalayan States (HMNEH)
 - c) National Horticulture Board (NHB)
 - d) Coconut Development Board (CDB)
 - e) Central Institute of Horticulture (CIH)

5.9 India Development Report: World Bank

Why in News?

Recently, the World Bank (WB) released its India Development Report titled 'Navigating the Storm' and in this it upgraded its growth forecast for India's economy in 2022-23 to 6.9%.



In October 2022, the WB has cut India's GDP (Gross Domestic Product) growth forecast to 6.5 % from 7.5 % earlier.

Key Highlights of the Report are:

1. The World Bank (WB) predicted the Indian economy to grow at a slightly slower rate of 6.6% in 2023-24.
2. The reason given by WB for this reduction in India's growth is challenging external environment and low global growth.
3. WB also said that India's economy has been least affected due to this bad external environment, and reason it gave is strong macroeconomic fundamentals of India as compared to other emerging market economies.
4. India is having a strong private consumption and investment.
5. India has a large domestic market and is relatively less exposed to international trade flows
6. India witnessed continued robust growth of domestic demand at the start of Q3 (October to December quarter) of 2022-23.

Challenges for India are: The impact of a tightening global monetary policy cycle, slowing global growth, increased commodity prices (inflation) and rising borrowing costs will affect domestic demand, particularly private consumption in 2023-24. These factors mean that the Indian economy will experience lower growth in FY23 compared to FY22.

Suggestions of the report are:

1. The renewable energy and the green economy sectors can create a lot of jobs and can increase demand too.
2. India should increase its investment in Infrastructure.

About the World Bank

1. It was created in 1944, as the International Bank for Reconstruction and Development (IBRD) along with the International Monetary Fund (IMF). The IBRD later became the World Bank.
2. The World Bank Group is a unique global partnership of 5 institutions working for sustainable solutions to reduce poverty and build shared prosperity in developing countries.
3. **Members:**
 - a) It has 189 member countries.
 - b) India is also a member country.

5.10 RBI's Monetary Policy Review

Why in News

Recently, the Monetary Policy Committee (MPC) of the Reserve Bank of India (RBI) revealed its latest review of the Monetary Policy.

- RBI said "growth prospects across the world are reducing & the condition of Financial markets are fading due to high volatility and price swings."

Understanding GDPs:

1. Real GDP is a measurement of economic output that accounts for the effects of inflation or deflation.
2. The difference between nominal GDP and real GDP is the adjustment for inflation.
3. Since nominal GDP is calculated using current prices, it does not require any adjustments for inflation.



Important points from the review report:

1. The MPC reduced its Gross Domestic Product (GDP) growth estimate to 6.8% for the fiscal year 2022-23, from 7% earlier.
2. This comes a day after the World Bank raised its growth forecast to 6.9% for financial year 2022-23 from a revised 6.5% accounted in October 2022.
3. Real GDP growth estimated at 7.1% for Quarter 1 of 2023-24 and at 5.9% for Q2.
4. As the data shows, in September 2022, it cut the GDP forecast for the full year but raised the quarterly GDP forecast.
5. The MPC increased the repo rate to 6.25%, and the Standing Deposit Facility stands raised to 6%.

What are the Reasons for a Positive Outlook of the review:

1. Rural demand is likely to remain strong on good prospects of agriculture.
2. Urban demand for services is expected to strengthen with the substantial fall in Covid-19 cases and the spread of vaccination.
3. Consumer confidence is improving, and business expectations of manufacturing, services and infrastructure remain positive.
4. The fiscal stimulus under AtmaNirbhar 2.0 and 3.0 schemes of the government will increase public investment.
5. The Union Budget 2021-22, with its push on sectors such as health and well-being, infrastructure, innovation and research, etc. should help accelerate the growth momentum.

About Accommodative Stance (AS):

1. AS is a strategy used by central banks that is aimed at keeping interest rates low in order to infuse more cash into the economy to boost growth and maintain or reduce unemployment.
2. RBI has decided to continue with the accommodative stance as long as necessary to revive growth.
3. It is expected to mitigate the impact of Covid-19 on the economy, while ensuring that inflation remains within the target going forward.
4. These decisions are in harmony with the objective of achieving the medium-term target for Consumer Price Index (CPI) inflation of 4% within a band of +/- 2 %, while supporting growth.

About CPI:

1. The CPI calculates the difference in the price of commodities and services such as food, medical care, education, electronics etc, which Indian consumers buy for use.]
2. [The CPI has several sub-groups including food and beverages, fuel and light, housing and clothing, bedding and footwear.]

Additional Information:

Key Terms related to MPC:

Repo rate	It is the rate at which the central bank of a country (Reserve Bank of India in case of India) lends money to commercial banks in the event of any shortfall of funds.
Reverse repo rate	It is the rate at which the RBI borrows money from commercial banks within the country.
Liquidity Adjustment	It is a tool used in monetary policy by the RBI, that allows banks to borrow money through repurchase agreements (repos) or for banks to make loans to the RBI through reverse repo agreements.



Facility (LAF):	
Bank Rate:	It is the rate charged by the RBI for lending funds to commercial banks.
Marginal Standing Facility (MSF): MSF	It is a window for scheduled banks to borrow overnight from the RBI in an emergency situation when interbank liquidity dries up completely. Under interbank lending, banks lend funds to one another for a specified term.
Cash Reserve Ratio (CRR):	Banks are required to hold a certain proportion of their deposits in the form of cash. This minimum ratio is fixed by the RBI and is known as the CRR.

5.11 Plans to Raise Duty on Non-essential Goods

Why in News?

The government is planning to regulate imports of “non-essential items” through hikes in import duties because a slowdown in exports is being seen resulting into trade deficit.

About Non-Essential Goods:

1. Non-essential goods, are products that are not absolutely necessary.
2. Examples of non-essential items are dining out, jewellery, and electronics, etc.
3. During financially difficult times, consumers frequently cut spending on non-essential goods, eliminating them from their budget.

Trade Deficit of India:

1. Trade deficit for April-October 2022 has widened to USD 173.46 billion as against USD 94.16 billion in April-October 2021.
2. To reduce this trade deficit, the government’s policy options are to push exports or disincentive imports.
3. But a poor policy for global growth means India’s exports will suffer just like most other countries.
4. The other way is to hike duties on imports, particularly those that are not critical and are produced in India. This will keep the deficit down.

What is Import duty?

1. It is also known as customs duty, tariff, import tax, or import tariff.
2. It is levied when imported goods 1st enter the country.
3. Raise income for the local government and give a market advantage to locally grown or produced goods that are not subject to import duties.
4. Penalize a particular nation by charging high import duties on its product.

What is the Government doing to address this Trade Deficit:

1. There are various ministries, those works to shortlist the commodities for duty hikes.
2. The list will be restricted to only those commodities that have "enough manufacturing capacity" in the country.



3. The government is also looking for ways to separate commodities that come under the same Harmonized System of Nomenclature (HSN) code for imposing duties.
4. An HSN code includes a broad range of items.
5. All the items under one HSN code are taxed at the same rate.
6. Under the current discussions, the centre is likely to enforce duty only on a few items under a code and not all.

Harmonized System of Nomenclature (HSN) code

1. This was introduced for a systematic classification of goods both national and international.
2. It was introduced in 1988 by the World Customs Organization (WCO).

Main Objectives of these price hikes:

1. Over the last 5 years, import duties have been hiked many times on items such as on almonds, apples, and others.
2. Mobile phone parts and solar panels have seen the most regular hikes, in large part to protect and promote the domestic industry.

5.12 Growing FinTech Market

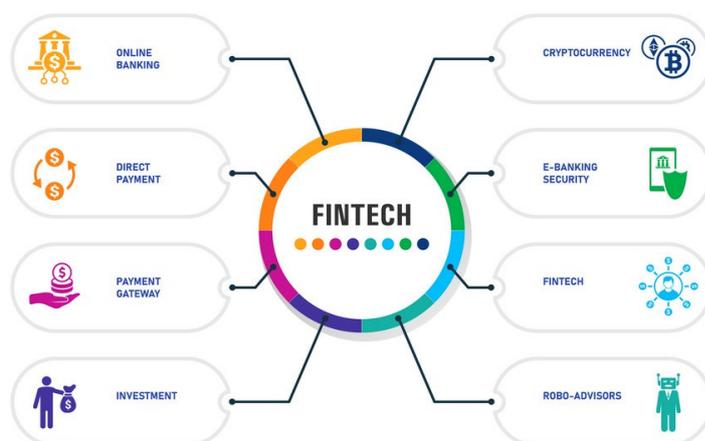
Over the last decade, the Fintech industry has seen high growth in India, with a fintech adoption rate of 87% against the global average of 64%. However, despite this growth, India still has the 2nd largest population without access to banking services with 190 million unbanked people. Therefore, there is a need to extend technology-based financial services across the length and breadth of the country in a secured manner.

What is Fintech?

1. It is name given to financial technology.
2. It is used to describe new tech to improve and program the delivery and use of financial services.
3. It includes any technological innovation in the financial sector like retail banking, investment and even crypto-currencies (Decentralised Finance (DeFi) that seeks to enhance financial literacy and education.

What are the Issues Associated with the Fintech Industry?

1. Regulation of Fintech Industry is a problem in the emerging world of cryptocurrencies. The Indian government is following a wait and watch policy towards cryptocurrencies.
2. Absence of regulatory authority is one major cause of concern which has led to increased chances of fraud threat to investor protection.
3. Fintech systems are vulnerable to hackers because of automation of processes and digitization of data.
4. Also, the lack of financial literacy in India is also a problem. As, only 27% of Indian adults and 24% of women meet the minimum level of financial literacy as defined by the Reserve Bank of India.





5. Due to the **diversity of offerings in FinTech** also, it is difficult to formulate a single approach to these problems.
6. During the **pandemic**, digital lending through mobile apps became popular, but many problems attended it.
7. It was found that more than half of these digital loan providers were operating **illegally**. Many apps used tactics to exploit the widespread lack of financial literacy, charging interest rates up to **500%**.

Significance of Fintech for India:

1. **Improved Customer Experience:** By providing convenience, personalisation, transparency, accessibility, and ease-of-use, Fintech are helping customers having better experiences of services.
2. **Welfare through financial service's Penetration:** The improved experiences have also improved the financial services penetration in India by leveraging big data, machine learning, and alternative data.
3. **Promoting Financial Inclusion:** The use of financial technologies can help close the gap left by traditional banking and finance models. As a large number of Indians were outside the formal financial system.
4. **Finance for Micro, Small and Medium Enterprises (MSME):** FinTech have helped in achieving ease of doing business too also with **several FinTech start-ups offering easier and quicker access to loans**, MSMEs are no longer required to go through the tedious process of documentation, paperwork and multiple visits to a bank.

Government Initiatives to drive FinTech:

1. **India Stack:** India Stack allows the governments, businesses, start-ups and developers to utilise a unique digital Infrastructure to solve India's hard problems towards presence-less, paperless, and cashless service delivery.
2. **Digital Rupee:** Recently, India has launched its **Central Bank Digital Currency (CBDC) or digital rupee or e-rupee** recently, which is an **electronic version of cash** and would help in growth of **FinTech market in India**.
3. **Jan Dhan Yojana:** It is **world's largest financial inclusion initiative**, "Jan Dhan Yojna", and enabling inclusion by **increasing accessibility of financial services applications such as remittances, credit, insurance, and pensions**.
4. **UPI (Unified Payments Interface):** It is a mobile app-based payment system to transfer funds between bank accounts developed by the National Payments Corporation of India in 2016.
5. **UPI**, has recorded more than **6.28 billion transactions in July 2022 worth 10.62 lakh crore**.

What Should be the Way Forward?

1. **Educating and training customers along with safeguarding technology** will also help in democratisation of technology and protecting against cyberattacks.
2. **Transparency and sound regulation** are also important to strengthen the fintech sector & boosting Indian economy's growth.
3. There is a **need for a more constructive approach towards recognizing the role Fin Techs play in India's financial inclusion agenda** and setting up financial targets that removes current ambiguities while allowing **Fin Techs sufficient flexibility to come up with new propositions**.
4. The **regulatory framework for Fintech companies to manage their data can be framed through joint collaboration between Ministries of Corporate Affairs and Electronics and Information technology**.
5. The **government should require Fintech companies to ensure that the data harvested from consumers will not be used for any purpose other than serving the consumer's interest**.



5.13 Right to Repair

Why in News?

The Food and Consumer Affairs Minister introduced some new initiatives, including a right to repair portal.

What is Right to Repair?

1. It refers to proposed government legislation that would allow consumers the ability to repair and modify their own consumer products (e.g., electronic, automotive devices).
2. The idea behind “right to repair” is in the name means, if you own something, you should be able to repair it yourself or take it to a technician of your choice.
3. People usually exercise this right in case of cars and appliances, but the modern tech, especially anything with a computer chip inside, is rarely repairable.

Right to Repair portal:

1. It is an online portal, where manufacturers would share the manual of product details with customers.
2. Customers can use this portal to either repair by self, by 3rd parties, rather than depend on original manufacturers.
3. Initially, mobile phones, electronics, consumer durables, automobile and farming equipment would be covered under the portal.

The Right to Repair movement aims for:

1. The device should be constructed and designed in a manner that allows easy repairs.
2. End users and repair providers should be able to have access to original spare parts and tools (software as well as physical tools) needed to repair the device at fair market conditions.
3. Repairs should be by design in a way that is not delayed by software programming.
4. The repairability of a device should be clearly specified and mentioned by the manufacturer.

How did it come to existence?

1. The average consumer purchases an electronic gadget, knowing that it will very quickly become outdated as its manufacturer releases newer version.
2. As your device grows older, smartphone may slow down to a point where it is almost unusable, or your gaming may require one too many hard resets.
3. When this happens, you are left at the mercy of manufacturers who make repairs inaccessible and an inordinately expensive affair.

Why is such right significant?

1. **Lifespan enhancement:** The goal of the movement is to increase the lifespan of products and to keep them working.
2. **Excessive repair price:** Often, manufacturers reduce the durability of the product, compelling consumers to either repurchase the product or get it repaired at high prices fixed by the manufacturers.
3. **Against planned uselessness:** The electronic manufacturers are encouraging such culture so that devices are designed specifically to last a limited amount of time and to be replaced.



4. **Scarcity of natural resources:** Uselessness leads to immense pressure on the environment and wasted natural resources.
5. **Boost to repair economy:** Right to repair advocates also argue that this will help boost business for small repair shops, which are an important part of local economies.
6. **Mitigating climate change:** Manufacturing an electronic device is a highly polluting process. It makes use of polluting sources of energy, such as fossil fuel.

Issues with old devices:

1. **Unfair trade practice:** For manufacturers, either of these options is a win-win case, because high-priced repairs, as well as new sales, mean more profits.
2. **Recyclability:** Up to 95% of raw materials used to produce electronic devices can be recycled, while the vast majority of newly produced devices use little to none recycled material due to the higher cost.
3. **High cost to consumers:** This often led to higher consumer costs or drive consumers to replace devices instead of repairing them.
4. **Generation of E-waste:** The global community is concerned over the continuously growing size of the e-waste stream.

Right to Repair in India:

The 'right to repair' is not recognised as a statutory right in India, but certain pronouncements have recognized the right.

4. **Necessary consumer right:** The Consumer Protection Act, 2019 has recognized the monopoly on repair processes infringes the customer's "right to choose".
5. **Acknowledgment by agencies:** Consumer disputes jurisprudence in the country has also partially acknowledged the right to repair.
6. **Part of consumer welfare:** The Competition Commission of India (CCI) has observed that the practice was detrimental to consumer welfare.
7. **Laws for recycle:** The e-waste (management and handling) rules addresses not only to handle the waste in an environmentally friendly manner, but also have rules about its transportation, storage and recycling.

Way forward:

1. **Making available the repair manual:** Making repair manuals available to certified business owners could go a long way which will balance the rights of consumers and manufacturers.
2. **Sign a non-disclosure agreement to protect IP rights:** Manufacturers can sign a non-disclosure agreement to protect the IP with certified repairers/businesses.
3. **Alloting certification/license:** Further, the lack of licensing of repair workers is seen as a reflection of their lack of skills.
4. **Insert right to repair in Consumer protection Act:** The 'right to repair' can be said to be implicit in Section 2(9) of the Consumer Protection Act, 2019, to increase its implementations.

5.14 AVGC-Extended Reality Mission for Gaming Sector

The Animation, Visual Effects, Gaming and Comics (AVGC) Promotion Task Force report has proposed a national AVGC-Extended Reality Mission with a budget outlay to be created for integrated promotion and growth of the sector.



What is AVGC?

1. It is all about **Animation, Visual Effects, Gaming and Comics**.
2. AVGC, an **all-encompassing term** is an umbrella for all the sub-sectors that are **contributing to India's digital economy**.
3. The **sector saw immense growth with technological adoption as is, but it witnessed steep uptake with the onset of the pandemic**.
4. The **sector includes:**
 - Animation Studios
 - VFX Studios
 - Game Development Studios
 - Platforms
 - Hardware Manufacturers
 - Software developers
 - Virtual Production Studios and many more entities

Why focus on the AVGC sector?

1. **Emerging sector:** The **global AVGC industry is of worth \$800 billion**, and the **Indian AVGC sector is emerging with 5% of the global share (\$40 billion)**.
2. **India's IT prowess:** India today contributes about **\$2.5-3 billion** of the estimated **\$260-275 billion worldwide AVGC market**.
3. **Skilled workforce availability:** According to industry experts, the Indian market which currently employs about **1.85 lakh AVGC professionals**, can witness a **growth of 14-16% in the next decade**.
4. **Employment generation:** **Not only does the sector contribute significantly to the economy, it also creates an abundance of employment opportunities for several skilled sectors**, with over **160,000 jobs** that it could provide yearly.

The report has also recommended:

1. **Establishment of AVGC accelerators and innovation hubs in academic institutions.**
2. **Democratizing AVGC technologies by promoting subscription-based pricing models for MSME, Start-ups and institutions "Create in India" campaign with an exclusive focus on content creation.**
3. **Indigenous technology development through incentive schemes and Intellectual Property creation.**
4. **Setting up a dedicated production fund for domestic content creation from across India to promote the country's culture and heritage globally.**
5. **Memorandum of Cooperation with developed global AVGC markets — U.S., Japan, South Korea, Germany etc.**

What can be done?

1. **Policy vision:** The wide range of sub-sectors under AVGC's wide umbrella, **need for a broad vision to help further incubate this industry.**
2. **Up-skilling:** There is a requirement for **not only financing, but also education and talent development.**



3. **Collaboration: Gaming, VFX, and animation markets in the countries like US or South Korea, has been heavily raised, and are thus at the top of the global scale today.**

Way Forward:

If it gets the correct atmosphere to grow in, especially one that covers all the bases under it, the Indian AVGC sector has the capacity to become the zenith of Digital India and the hallmark of the 'Brand India' dream that PM envisages.

5.15 GDP and GVA

Why in News?

Recently, the Ministry of Statistics and Programme Implementation (MoSPI) released India's economic growth data for the 2nd quarter of the current financial year (2022-23 or FY23).

1. As per the data, India's Gross Domestic Product (GDP) grew by 6.3% in Q2 and Gross Value Added (GVA) in Q2 grew by 5.6%.
2. India remained the fastest-growing major economy of the world as China registered an economic growth of 3.9% in July-September 2022.
3. GDP and GVA are the 2 main ways to ascertain the country's economic performance.

About the GDP

1. The GDP measures the **monetary measure of all "final" goods and services**— those that are bought by the final user— produced in a country in a given period.
2. **4 Key "Components of GDP are":**
 - i) All the money Indians spent for their private consumption (that is, Private Final Consumption Expenditure).
 - ii) All the money the **government spent on its current consumption**, such as salaries [Government Final Consumption Expenditure].
 - iii) All the money **spent towards investments to boost the productive capacity of the economy**. This includes business firms investing in factories or the governments building roads and bridges [Gross Fixed Capital Expenditure].
 - iv) The **net effect of exports** (what foreigners spent on our goods) and imports (what Indians spent on foreign goods).
3. **Method of Calculation:** $GDP = \text{private consumption} + \text{gross investment} + \text{government investment} + \text{government spending} + (\text{exports} - \text{imports})$

About the GVA

1. The **GVA calculates the same national income from the supply side**.
2. It does so by adding up all the value added across different sectors.
3. According to the RBI, the **GVA of a sector is defined as the value of output minus the value of its intermediary inputs**. This "value added" is shared among the primary factors of production like land, labour, capital and entrepreneur.
4. By looking at the GVA growth **one can understand which sector of the economy is doing well and which is struggling**.

So, How are the GDP and GVA Related?

1. The GDP is **derived by looking at the GVA data**.



2. The **GDP and GVA are related by the following equation: $GDP = (GVA) + (\text{Taxe earned by the government}) - (\text{Subsidies provided by the government})$.**
3. **So, the GDP data is more useful when looking at annual economic growth and when one wants to compare the economic growth of a country either with its own growth in the past or with another country.**

What is Potential GDP?

1. **Potential GDP** is one of the theoretical aspects of national income accounting which assumes that an economy has achieved full employment and that aggregate demand does not exceed aggregate supply.
2. **GDP achieved through the deployment of labour and capital at their sustainable manner so that in the economy stable growth and inflation maintained, called as Potential GDP.**

Factors restricting India from achieving Potential GDP are:

1. **Low productivity:** High employment generation in an economy will show the potential GDP to be high but it will not be achieved due to low productivity.
2. **Currency depreciation:** GDP is calculated using American dollars after converting it from Indian rupees. **The depreciation of Indian rupees vis a vis America dollars will reduce GDP value and will show less Potential GDP**
3. **Decrease in foreign capital:** The inflow of foreign capital may decrease over a period of time due to various factors. This will result in economy not able to calculate the exact Potential GDP.
4. **Lack of Political Stability:** Political instability is one of the biggest reason that is restricting India from achieving its Potential GDP as unstability leads to policy paralysis and reduce the confidence of investors.



6. ENVIRONMENT

6.1 Binturong

Why in News?

The forest officials in Manipur's Ukhrul town have been scanning "gambling dens" following reports of wild animals such as Binturong.

- Different types of birds such as the grey-sided thrush and tragopans (often called horned pheasants) have also been spotted.
- Blyth's tragopan is the State bird of Nagaland.

What are the Key Facts about Binturong?

1. Its scientific name is *Arctictis binturong*.
2. They are also called bear cat or cat bear.
3. These catlike omnivores of the civet family (*Viverridae*), found in dense forests of Southeast Asia.
4. It has long shaggy hair, tufted ears, and a long, bushy, prehensile tail. The colour generally is black with a sprinkling of whitish hairs.
5. The binturong is principally nocturnal and crepuscular (active during twilight).
6. It is found among the trees, using its greedy tail as an aid in climbing.
7. It feeds mainly on fruit, such as figs, but it also takes eggs and small animals.
8. In some areas binturongs are tamed and have been reported as being affectionate pets.
9. Its range extends from Nepal, India, and Bhutan southward to the Indonesian islands of Sumatra and Java and eastward to Borneo.
10. They are listed as Vulnerable under IUCN Red list.
11. These are protected under Appendix III of CITES listing.
12. Also, these comes under Schedule I Indian Wildlife Protection Act, 1972



Additional Information:

About Blyth's Tragopan:

1. Found in Bhutan, China, India, Myanma.
2. IUCN Red List: Vulnerable
3. CITES listing: Appendix I
4. Indian Wildlife Protection Act, 1972: Schedule I



6.2 Climate Finance

Why in News?

Recently, at the United Nations Framework Convention on Climate Change Conference (UNFCCC) of Parties 27 in Sharm el-Sheikh (Egypt), countries agreed that a complete transformation of the international financial system was needed to increase resources for Climate Action.

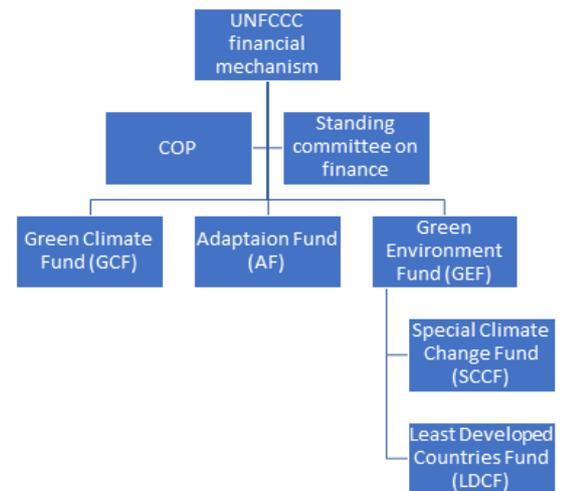
What is Climate Finance?



1. It is the **financing to support mitigation and adaptation** actions that will address **climate change**.
[Mitigation is reducing greenhouse gas emissions or adaptation is modifying practices to shield against climate change impacts.]
2. It is **local, national, or transnational financing from public, private and alternative sources of financing**.
3. The **UNFCCC, Kyoto Protocol, and the Paris Agreement** call for **financial assistance from Parties** with more financial resources to those who are **poor and vulnerable**.
4. This is in line with the principle of “**Common but Differentiated Responsibility and Respective Capabilities**” (CBDR).
[CBDR is a principle which acknowledge different capabilities and differing responsibilities of individual countries in addressing climate change.]

How much Fund is Needed for Climate Action?

1. There is **requirement of about USD 4-6 trillion every year till 2050** for global transition to a **low-carbon economy**.
2. **USD 4 trillion** are needed in **renewable energy sector till 2030** if the **net-zero emissions targets** were to be achieved.
3. Also, **at least 5% of the global Gross Domestic Product (GDP)** would need to be directed into **climate action every year**.
4. Just a **few years ago, the estimated requirements ranged between 1 and 1.5% of global GDP**.
5. The **developed countries** have promised to **mobilise USD 100 billion every year**, but this has **not yet been fully realised**.
6. **Developed countries say they would reach this target by 2023** and currently the contribution is **about USD 50-80 billion every year**.



What are the Challenges in Mobilization of Climate Fund?

1. **Even if developed countries increase their contributions, it will likely result in only a marginal increase** in the overall contributions.
2. The **more significant jump would come from businesses and corporations investing money into green projects**.
3. In **climate finance, private investments are lesser than public money** as, only **30% of current financial flows are coming from private sources**.
4. The **current rules and regulations of the global financial system** make it **extremely difficult for large numbers of countries to access international finance**, particularly those with political instabilities, or weaker institutional and governance structures.
5. Climate finance flows through various channels like **bilateral, regional, multilateral**, in the **form of grants, concessionary loans, debt, equity, carbon credits, etc.**, hence, **there is always differences, whether a particular money is actually climate-related or not**.
6. There are **widely differing assessments of the quantum of climate finance currently being mobilised**.

Taxes for the Climate Fund?

1. The **additional financial resources for climate** come from the **pockets of the common citizen, in the form of taxes**.
2. The **use of petrol and diesel, and other fossil fuels** can be taxed and used for climate finance.
3. The **coal is already being taxed for several years in India**, and it has been **generating valuable resources for the government**.



4. These funds **have also been utilised for works in the Clean Ganga Mission** and during the **Covid-19 pandemic**.
5. Newer forms of **Carbon Tax** are also helpful that are imposed on businesses as well.
6. These would **filter down to the common person of the country**.

What are India's Related Initiatives?

1. National Adaptation Fund for Climate Change (NAFCC) (2015):

- It is to meet the cost of adaptation to climate change for the State and Union Territories of India that are particularly vulnerable to the adverse effects of climate change.

2. National Clean Energy Fund:

- The Fund was created to promote clean energy, and funded through an initial carbon tax on the use of coal by industries.
- It is governed by an Inter-Ministerial Group with the Finance Secretary as the Chairman.
- Its mandate is to fund research and development of innovative clean energy technology in the fossil and non-fossil fuel-based sectors.

1. National Adaptation Fund:

- The fund was established in 2014 with a corpus of Rs. 100 crores with the aim of bridging the gap between the need and the available funds.
- The fund is operated under the Ministry of Environment, Forests, and Climate Change (MoEF&CC).

Way Forward:

There is a need to sustain a political commitment to raising new finance, besides, ensuring that finance is better targeted at reducing emissions and vulnerability, also it is important to learn from recent experiences.

6.3 Perennial Rice (PR23)

Why in News?

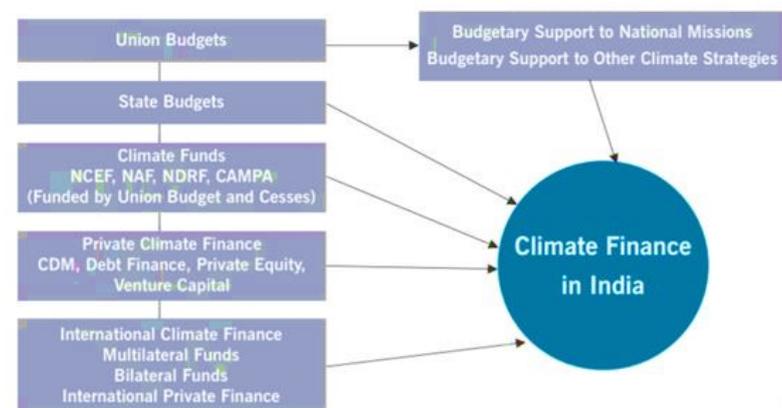
Recently, researchers at the Yunnan University (China) have developed a variety of perennial rice named 'PR23' by crossbreeding regular annual rice 'Oryza sativa' with a wild perennial variety from Africa.

Background

1. Rice is a staple crop that feeds an estimated 4 billion people around the world.
2. Work on perennial rice began in early 1990s at the Yunnan Academy after a failed attempt in the 1970s.
3. The 1st variety was released for Chinese farmers in 2018.

So, What is the perennial variety of crops/ rice?

Climate Finance Architecture in India





1. **Perennial crops** are typically considered as those that are more permanent, requiring a few growth cycles before fruit is produced.
2. **Perennial rice** are the varieties of rice that are capable of re-growing season after season without re-seeding.
3. It reduces the requirement of annual trans-plantation which is a tough task and generate savings on seeds and other inputs.

Issues with the Current Techniques of Growing Rice

1. **Labour intensive:** The current production methods are **labour-intensive and expensive**.
2. **Environmental effects:** Rice is grown in flooded fields that are habitat for methane-producing microbes. Rice production currently releases an estimated 34 million tons of methane per year.

PERENNIAL

The same plant returns year after year

Often "woody" to remain hardy over winter, unless in tropical climate



ANNUAL

Produces seeds each year before dying, must be replanted every year

Requires more tilling, leading to more soil degradation



Issues with Perennial Rice

1. **Drop in yield:** Their **yields start declining in the 5th year**, suggesting that farmers will need to replant.
2. **Methane emissions:** Researchers also **don't know if the perennial plants emit less methane than the conventional ones or not**.
3. **Difficult task:** Since the plant roots are deeper and larger, farmers have to **work hard when they replant the perennials**.
4. **Issue of weeds:** Because farmers don't till and plough as frequently with perennial rice so, **fungi and pathogens may build up in the soil, and weeds and insects can prosper in the fields**.
5. **Herbicide treatment:** Farmers has to **spray herbicide treatments more often on fields planted with Perennial Rice**.

About the Significance of the Perennial crops/ rice

1. This variety of rice does not need to be planted every year. Unlike regular rice, which is planted every season, PR23 can yield 8 consecutive harvests across 4 years as these plants with stronger roots grow back fastly after each harvest.
2. **Productivity:** Farmer profits from perennial rice ranged from 17% to 161% above annual rice.
3. **Environmental benefits:** Perennials reduce soil erosion as they reduce soil disturbances because plants are left in place to grow for multiple years, thus there is less mechanical disturbance by farm equipment.
4. **Low labour and input costs:** The perennial varieties are preferred by farmers since it save almost 58% in labour and 49% in other input costs, over each regrowth cycle.
5. **It can transform farming:** The researchers claim that it can transform farming by improving livelihoods, enhancing soil quality and by inspiring research on other grains.

About Paddy in India

1. **India is the world's 2nd largest rice producer after China** and the **largest exporter with a 40% share in global trade**.



2. **Production has increased from 53.6 million tons in FY 1980 to 120 million tons in FY2020-21.**
3. **India has the largest area under rice cultivation.**
4. **India is the leading exporter of the Basmati Rice to the global market.**
5. **West Bengal has the highest production of rice in India.**

6.4 Global Water Resources Report 2021- WMO

Why in News?

Recently, **WMO (World Meteorological Organization)** has released its **1st annual State of Global Water Resources Report 2021.**

About the Report:

1. The aim of this annual report is to **support monitoring and management of global freshwater resources.**
2. **in an era of growing demand and limited supplies.**
3. The report focuses on **3 major areas:**
 - **Streamflow**, (volume of water flowing through a river channel at any given time)
 - **Terrestrial water storage (TWS)** (all water on the land surface and in the sub-surface)
 - **The cryosphere** (frozen water)

What are the Findings of the Report?

4. UN-Water has reported that **74% of all natural disasters were water-related, Between 2001 and 2018,**
5. The recent UN climate change conference, **COP27, in Egypt, urged governments to further integrate water into adaptation efforts.**
6. The **1st time water has been given recognition of its critical importance at COP.**
7. **3.6 billion people have lack of access to water at least one month per year and this is expected to increase to more than 5 billion by 2050.**
8. **Large areas of the globe recorded drier-than-normal conditions in 2021.**
9. The area with below-average streamflow was approximately **2 times larger than the above-average area, in comparison to the 30-year hydrological average.**

Drought:

Areas that were unusually dry included South America's Rio de la Plata area, where a persistent drought has affected the region since 2019.

Below Normal	Above Normal
In Africa, major rivers such as the Niger, Volta, Nile and Congo had below-average water flow in 2021. The same trend was observed in rivers in parts of Russia, West Siberia and in Central Asia.	On the other hand, there were above-normal river volumes in some North American basins, the North Amazon and South Africa, as well as in China's Amur River basin, and northern India.



Terrestrial Cover:

Below Normal:	Above Normal:
Overall terrestrial water storage was classified as below normal on the west coast of the United States, in central South America and Patagonia, North Africa and Madagascar, Central Asia and the Middle East, Pakistan and North India.	It was above normal in Central Africa, northern South America – specifically the Amazon Basin – and northern China.

Cryosphere:

1. Mountains are often called natural “water towers” because they are the source of rivers and freshwater supplies.
2. Changes to cryosphere water resources affect food security, human health, ecosystem integrity and maintenance, and lead to significant impacts on economic and social development.

What is the Scenario of India?

1. There is more worsening impact of global warming on the Indo-Gangetic Plain (IGP) that includes eastern Pakistan, northern India, southern Nepal and the whole of Bangladesh.
2. The Ganga-Brahmaputra and Indus basins that form the Plain, recorded more water flowing in the river channels due to glacial melt even as their total water storage declined in 2021.
3. This will be extremely worrying news since the IGP supports nearly 1/2 a billion people across the 4 countries.

What are the Recommendations?

1. There is a need to fill the knowledge gap about the water quality and quantity and provide a concise overview of water availability in different parts of the world.
2. There is a need for the development of end-to-end drought and flood early warning systems.
3. The long-term projections of glacier run-off and the timing of peak water, should be key inputs to long-term adaptation decisions.
4. There is a need to accelerate the availability and sharing of hydrological data, including river discharge and transboundary river basin information.

6.5 Green Cooling Solutions in India by 2040

Why in News?

Recently, the report named ‘Climate Investment Opportunities in India’s Cooling Sector’ is released by the World Bank Group which says that investment opportunities in India’s cooling sector through less carbon-intensive technologies could add up to USD 1.6 trillion.

Highlights of the Report are:

1. The report analysed India’s Cooling Action Plan (ICAP) launched in 2019 and came up with suggestions for prioritizing the government’s investment in the cooling sector.
2. Investment opportunities across 3 different sectors — Construction, Cold Chains and Refrigerants — have the potential to reduce greenhouse gas (GHG) emissions significantly and can also create nearly 3.7 million jobs.



3. Almost 34 million people in the country can lose their jobs because of heat stress and subsequent decline in productivity.
4. The report does not focus on air conditioning because as per the prediction of the report only 40% of Indians will have air conditioning by 2040, which is currently around 8%.
5. The world is already on a path where there can be many more intense heat waves like the one India witnessed in 2022.
6. Heat stress will increase drastically after an increase of 2 to 3 degree temperatures.

So, What are the Recommendations of the Report?

1. Focus on Sustainable Cooling:

- a) Sustainable cooling solutions may reduce annual GHG emissions by 213 metric tonnes of carbon dioxide equivalent by 2040.
- b) This can be achieved by increasing the efficiency of cooling technologies — air conditioners, ceiling fans and chillers — which can save 30% energy by 2037-38.

2. Have to work towards Innovative Cooling Strategies:

- a) Innovative cooling strategies for buildings in cities can reduce energy usage by 20-30% by 2038.
- b) A drop in the temperature of a building by even 1 degree Celsius can lower peak electricity demand for cooling by 2 to 4 per cent.

3. Thermal Comfort:

- a) Thermal Comfort is the condition of mind which expresses satisfaction with the thermal environment. ', i.e. the condition when someone is not feeling either too hot or too cold.
- b) Government should include a thermal comfort programme in its affordable housing Programme, Pradhan Mantri Awas Yojana (PMAY).
- c) Thermal comfort through passive cooling technologies or the ways like planting more trees nearby households can benefit over 11 million urban households and 29 million households in rural areas that the government wants to construct.

About India's Cooling Action Plan (ICAP)?

1. It promotes research on "cooling and related areas".
2. It is part of India's national strategy for cooling, whose objective is to reduce country-wide demand for cooling upto 25 % by 2037-2038.
3. It also aims to reduce cooling energy requirements by 25% to 40% by 2037-38.
4. Also aims to prepare 1,00,000 servicing sector technicians by 2022-23.
5. It also has provisions of cooling for Economically Weaker Section (EWS) and Low-Income Group (LIG) housing.
6. In line with the Montreal Protocol, the plan emphasizes cutting those elements that deplete the ozone layer.
7. Its goal is to provide sustainable cooling and thermal comfort for all while securing environmental and socio-economic benefits for the society.

6.6 Coastal Red Sand Dunes

Why in News?

Recently, geologists have suggested to protect the site of Coastal Red Sand Dunes, of Visakhapatnam, Andhra Pradesh.





About the Coastal Red Sand Dunes?

1. The Coastal Red Sand Dunes is also known as 'Erra Matti Dibbalu'.
2. It is one of the many sites of Visakhapatnam, which have geological importance.
3. The site is located along the coast and is about 20 km north-east of Visakhapatnam city and about 4 km south-west of Bheemunipatnam.
4. This site is a geo-heritage site declared by the Geological Survey of India (GSI) in 2014.
5. Andhra Pradesh government has listed it under the category of 'protected sites' in 2016.
6. Such sand deposits are rare and have been reported only from 3 places & that are:
Tropical regions in south Asia such as Teri Sands in Tamil Nadu
Erra Matti Dibbalu in Visakhapatnam
One more site in Sri Lanka
7. They do not occur in equatorial regions or temperate regions due to many scientific reasons.

Features of Red sand dune Sediments?

1. The red sediments are a part of the continuous evolution of the earth and hence represent the late quaternary geologic age.
[Quaternary Period on Geologic Time Scale is known to measure the spread of humanity and climate change.]
2. With a height of up to 30 m, they show badland topography with different geomorphic landforms and features & include gullies, sand dunes, buried channels, beach ridges, paired terraces, the valley in the valley and waterfalls etc.
[Badland topography is a dry region where softer & clay-rich soils have been eroded by wind and water.]
3. The top light-yellow sand portion could not attain the red colouration even after 3000 years as the sediments were "geochemically unaltered".
4. These sediments are unfossiliferous (not containing fossils) and deposited over the khondalite basement.
5. [Khondalite is a regional rock It was named after the Khond tribe of Odisha.]

Benefits of Protecting this Site?

1. Study of these dunes can help in understanding the impact of climate change, as Erra Matti Dibbalu is very old and has seen both the glacial (ice age) and the warm periods.
2. It is a scientific evolution site, which shows the real-time effects of climate change.
3. The site is archaeologically important, as studies indicate an Upper Palaeolithic horizon refers to Late Pleistocene epoch, which is 20,000 BC.
4. The site was home to the pre-historic man as the excavations reveals stone tools of three distinctive periods and also the pottery of the Neolithic man.

6.7 Issue of Stubble Burning

Why in News?

As per the data of Commission for Air Quality Management (CAQM), Stubble Burning incidents in Delhi and the NCR (National Capital Region) has reduced by 31.5% in 2022 as compared to 2021.

Basically, Stubble burning decreased in Punjab, Haryana, and Uttar Pradesh by 30%, 48%, and 21% respectively in 2022 as compared to 2021. The data of CAQM is based



on the observations of NASA (National Aeronautics and Space Administration) Satellites.

So, What is Stubble Burning?

1. **Stubble (parali) burning is a method of burning paddy crop residues from the field to sow wheat from the last week of September to November.**
2. **It is usually required in areas that use machines for harvesting which leaves crop residue behind.**
3. **It is a common practice in October and November across North West India, but primarily in Punjab, Haryana, and western Uttar Pradesh.**

About the Effects of Stubble Burning:

1. Cause Huge Pollution:

- a) **This burning emits large amounts of toxic pollutants in the atmosphere which contain harmful gases like methane (CH₄), Carbon Monoxide (CO), Volatile Organic compounds (VOC) and carcinogenic polycyclic aromatic hydrocarbons.**
- b) **These pollutants disperse in the surroundings, may undergo a physical and chemical transformation and adversely affect human health by causing a thick blanket of smog.**

2. Reduces Soil Fertility:

- a) **Burning husk on the ground destroys the nutrients in the soil, making it less fertile.**
 - b) **The heat generated by stubble burning penetrates into the soil, leading to the loss of moisture and useful microbes.**
- 3. Alternatives to Stubble Burning: Use of Technology-** For example Turbo Happy Seeder (THS) machine, which can uproot the stubble and also sow seeds in the area cleared. The stubble can then be used for other purposes.

About the Causes that lead to Reduction in Stubble Burning are:

1. **State governments went for both in-situ and ex-situ management of paddy straws and a special campaign was started to honour the farmers who did not burn stubble.**
2. **In-Situ (On-site) Treatment of Stubble:** For example, crop residue management by zero-tiller machine and Use of bio-decomposers (e.g., Pusa bio-decomposer).
3. **Ex-Situ (off-site) Treatment:** For example, Use of rice straw as cattle fodder, for making bio-fuels etc.
4. **Almost, 10 million tonnes of straw had been managed through in-situ management, which is about 25% more than last year in Punjab.**
5. **Similarly, 1.8 million tonnes of straw had been managed through the ex-situ method, which is more than 33% over the previous year in Punjab.**

Other Related Initiative

The State Government of Punjab and the National Capital Region (NCR) states have developed detailed monitorable action plans based on the framework by the CAQM to tackle the problem of air pollution.

Conclusion and Way Forward

1. **Burning the stubble destroys a helpful raw material, pollutes the air, causes respiratory diseases and worsens greenhouse gas emissions. Therefore, the need of the hour is to make use of stubble as animal feed, for making bio-fuels etc and further utilise technology by enabling various alternatives like Turbo-Happy Seeder Machine and Bio-Decomposer etc.**



2. Stubble can be **recycled to make products including paper, cardboard etc.**
3. **It can be used as a manure.** For example, in Palla village outside Delhi, the Nandi Foundation purchased almost 800 MT of paddy residue from farmers to turn it into manure.
4. Crop residue can also be used for various purposes like **power generation, as industrial raw material** for production of bio-ethanol etc.

6.8 Soil Health & Fertility

Why in News?

Recently, 'World Soil Day' was celebrated to raise awareness about the importance of healthy soils and soil fertility.

More about the news:

1. World Soil Day (WSD) is **celebrated annually on December 5th.**
2. WSD 2022 had a theme named 'Soils: Where food begins'.
3. It is **celebrated to raise awareness** on the importance of maintaining healthy soils, ecosystems and human well-being.
4. Soil day also calls to address the growing challenges in soil management, encouraging societies to improve soil health, and advocating the sustainable management of soil.

Significance of healthy soil:

1. Healthy soils are essential for our survival. They support healthy plant growth to enhance both our nutrition and water filtration to maintain groundwater levels.
2. Soils help to regulate the planet's climate by storing carbon and are the second largest carbon sink after the oceans.
3. They help maintain a landscape that is more resilient to the impacts of droughts and floods.
4. As soil is the basis of food systems, it is no surprise that soil health is critical for healthy food production.

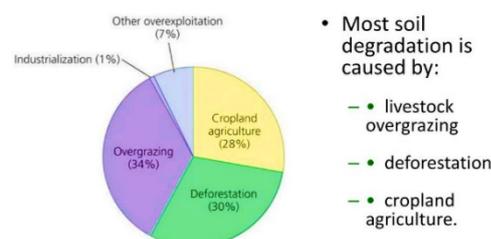
Degradation of soil:

1. Nutrient loss and pollution significantly threaten soils, and weaken nutrition and food security globally.
2. The reasons behind soil nutrient loss range from soil erosion, runoff, leaching and the burning of crop residues.
3. The main drivers contributing to soil degradation are industrial activities, mining, waste treatment, agriculture, fossil fuel extraction and processing and transport emissions.
4. Further, **excessive use of fertilizers and pesticides, and irrigation with contaminated wastewater** are also polluting soils.

Consequences:

1. Soil degradation in **some form or another affects around 29% of India's total land area.**
2. This disturbs agricultural productivity, in-situ biodiversity conservation, water quality and the socio-economic well-being of land dependent communities.

Causes of soil degradation





3. Nearly **3.7 million hectares suffer from nutrient loss in soil** (depletion of soil organic matter (SOM))
4. Impacts of soil degradation are **far-reaching** and can have **irreparable consequences** on **human and ecosystem health**.

India's conservation initiatives

The **Government of India is implementing a 5 layered strategy for soil conservation. This includes**

1. Making soil chemical-free
2. Saving soil biodiversity
3. Enhancing & Maintaining soil moisture
4. Mitigating soil degradation and
5. Preventing soil erosion

More Initiatives by Indian Government for Soil Conservation:

Soil Health Card (SHC) scheme:	<ol style="list-style-type: none"> 1. The Government of India launched the Soil Health Card (SHC) scheme in 2015. 2. The SHC is used to assess the current status of soil health, and when used over time, to determine changes in soil health. 3. This will give farmers information relating to soil type, soil deficiency and soil moisture content. 4. The SHC displays soil health indicators and associated descriptive terms, which guide farmers to make necessary soil amendments.
<u>Pradhan Mantri Krishi Sinchayee Yojana:</u>	<ol style="list-style-type: none"> 1. Prevent soil erosion 2. Regeneration of natural vegetation 3. Rainwater harvesting 4. Recharging of the groundwater table
National Mission for Sustainable Agriculture (NMSA):	<ol style="list-style-type: none"> 1. The National Mission for Sustainable Agriculture (NMSA) has schemes promoting traditional indigenous practices such as organic farming and natural farming. 2. It will reduce dependency on chemicals and other Agri-inputs, and decreasing the monetary burden on smallholder farmers.
FAO's steps for Rainfed areas:	<ol style="list-style-type: none"> 1. The FAO is collaborating with the National Rainfed Area Authority and the Ministry of Agriculture and Farmers' Welfare (MoA&FW). 2. It will develop forecasting tools using data analytics that will help vulnerable farmers in making informed decisions on crop choices, particularly in rainfed areas.



<p>Supporting Deen Dayal Antyodaya Yojana-National Rural Livelihoods Mission's (DAY-NRLM):</p>	<ol style="list-style-type: none"> 1. The FAO, in association with the Ministry of Rural Development, supports the Deen Dayal Antyodaya Yojana-National Rural Livelihoods Mission. 2. It aims to increase their capacities towards supporting on-farm livelihoods for the adoption of sustainable and resilient practices etc.
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6.9 Issue of Pharmaceutical Pollution

Why in News?

As per a recently published research paper, **Pharmaceutical Pollution** is an overlooked but urgent issue that needs coordinated action from across the pharmaceutical, healthcare and environmental sectors.

1. **Almost 43% of the world's rivers are contaminated** with Active Pharmaceutical Ingredients (API) that can have disastrous impact on health.
2. **Active Pharmaceutical Ingredients (APIs)**, also called **bulk drugs**, are significant ingredients in the manufacture of drugs. The **Hubei province of China** is the hub of the API manufacturing industry.

So, What is Pharmaceutical Pollution?

1. **Pharmaceutical producing facilities** are often incapable of filtering out all the **chemical compounds used in their manufacturing process** and then these chemicals enter into the **surrounding freshwater systems** and eventually into the **oceans, lakes, streams, rivers etc.**
2. **Sometimes, Wastewater** from the pharmaceutical manufacturing is also **discharged into the open fields and nearby water bodies**, thereby **increasing the pharmaceutical waste** or their **by-product load in the environment, landfills, or dumping areas**. All this is basically known as **Pharmaceutical Pollution**.

Effects of Pharmaceutical Pollution:

1. **On Fish and Aquatic Life:** A number of studies have indicated that **estrogen found in birth control pills and post-menopausal hormone treatments**, have a **feminizing effect on male fish and can alter female-to-male ratios in fishes**.
2. **Add Disruption to Sewage Treatment Process:** **Antibiotics** present in the sewage treatment systems can kill the **sewage bacteria**, and therefore seriously **affect the organic matter decomposition**.
3. **Bad Effect on Drinking Water:** The chemicals present in these pharmaceuticals, **find a way into waterways, after being excreted** from the body or after being flushed down the toilet. Most municipal sewage **treatment facilities can't remove these** pharmaceutical compounds from drinking water and people end up **consuming the same compounds**.
4. **Long-term Effects on the Environment:** Some pharmaceutical compounds can remain **for long period in the environment and in water supplies**.

What can be the Solution?

1. **Need to work on increasing awareness regarding proper disposal of Drugs waste.**



2. **Tough Regulations should be made** to limit large-scale medicine flushing in hospitals, nursing homes and other healthcare institutions.
3. **Additional research** is required to **assess the potential effects** of pharmaceutical pollution on Humans.
4. **Limiting bulk purchases will ensure only the required amount is supplied.**

Status of Pharmaceutical Pollution in India

1. India is the world's 3rd largest producer of pharmaceuticals, in which about **3000 drug companies and about 10500 manufacturing units are involved**. Pharmaceuticals production has been considered **one of the most polluting industries in various parts of India**.
2. In India, the dominant pharma industries are located in the **city of Hyderabad (known as the 'Bulk Drug Capital of India')**. It accounts for **more than about 800 pharma/biotech units**. According to the survey, local people argue that the **groundwater is highly contaminated in the regions where industries are situated**.
3. It has been estimated that almost **60,000 new born die annually in India because of multidrug-resistance infections**, where pharmaceutical water pollution with antimicrobial drugs is responsible for that.

Some Related Government Initiatives are:

1. **National Action Plan for Antimicrobial Resistance 2017:** It was formed to tackle the problem related to limits on antibiotics in industrial waste.
2. **Zero Liquid Discharge Policy:** Central Pollution Control Board (CPCB) has introduced **guidelines to various pharma industries to achieve zero liquid discharge**. Around **86 of the 220 bulk drug makers in Hyderabad have zero liquid discharge facilities**, which showed that they could recycle almost all the liquid discharge.
3. **Continuous Monitoring of Effluents:** The **Ministry of Environment, Forest, and Climate Change (MoEFCC)** has also announced that industries must install devices to monitor the discharge continuously.

6.10 India's Renewable Power Capacity: IEA Report

Recently, a report released by the International Energy Agency (IEA) stated that India will almost double its renewable power capacity in the next 5 years.

What is Renewable Energy?

Renewable energy is **energy derived from natural sources that are replenished (produced) at a higher rate than they are consumed**. Sunlight and wind are the examples of Renewable Energy.

Key Points of the Report are:

1. **Renewable energy will comprise 90 percent of global electricity capacity expansion in the next 5 years and much of it will be in India.**
2. **In the world, Renewable energy's installed power capacity addition will grow to 2,400 gigawatts (GW) between 2022 and 2027.**
3. **This expansion will be 85 percent faster than the previous 5 years.**
4. **In India, with the addition of 145 gigawatt (GW) of renewable energy, India will almost double its renewable power capacity over 2022-2027.** Solar photovoltaic (PV) will account for 75% of this growth, followed by onshore wind with 15 percent and hydropower providing almost all the rest.



- China, the European Union and the United States will be the other 3 contributing majorly to this upward trend of renewable energy besides India.

Renewable Energy in India

- India has announced a target of **500 GW of renewable energy by 2030** through sources such as **solar photovoltaic (PV) energy, wind and hydropower**. Currently, projects worth almost \$197 billion are underway in India.
- As part of its international climate commitments, **India has said that it will source roughly half its energy needs from non-fossil fuel sources by 2030**.
- In 2021, after India **increased its subsidy on solar PV installations**, the country’s rooftop PV market has shown a record high.
- Recently, India extended its **national solar production programme**, which provides incentives to domestic and international companies for setting up battery manufacturing plants.

Initiatives Taken by Indian Government in this regard are:	
PM-KUSUM	<ul style="list-style-type: none"> It was launched by the Ministry of New and Renewable Energy (MNRE) to support installation of off-grid solar pumps in rural areas and reduce dependence on grid, in grid-connected areas.
Production Linked Incentive (PLI) Scheme	<ul style="list-style-type: none"> It is to support and promote manufacturing of high efficiency solar PV modules, including the upstage vertical components like cells, wafers, ingots and polysilicon in India and thus reduce the import dependence in Solar PhotoVoltaic (PV) sector.
Solar Parks Scheme	<ul style="list-style-type: none"> To facilitate large scale grid connected solar power projects, a scheme for “Development of Solar Parks and Ultra Mega Solar Power Projects” is under implementation with a target capacity of 40 GW capacity by March 2022.

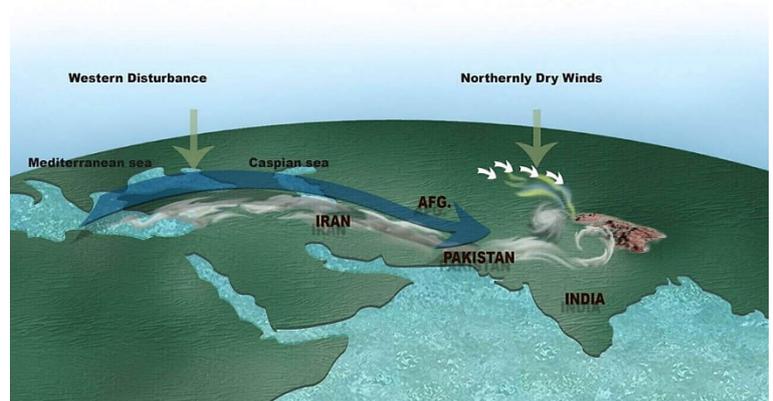
6.11 Western Disturbance

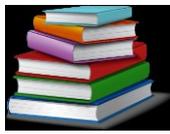
Why in News?

The **daytime temperatures in Delhi were above normal in December 2022** because of **weak western disturbances (WD)**.

About Western Disturbances:

- Western disturbances are storms that **originating in the Caspian or Mediterranean Sea, & flow eastward**.





2. It is an extra-tropical storm originating from an area of low pressure that brings sudden showers, snow and fog in northwest India.
3. The disturbance travels from the “western” to the eastern direction.
4. Winds move eastward along the path of high-altitude westerly jet streams. [Westerly Jet Streams are the massive ribbons of fast winds navigating the earth from west to east.]
5. They gradually travel across the middle-east from Iran, Afghanistan and Pakistan & then enter Indian sub-continent.

Geographical Impact of WD on winters:

In winter, WD brings rain and snow over the hills, and more moisture to the plains. The cloud cover results in higher minimum temperatures at night and lower day-time or maximum temperatures.

The recent Impact of WD:

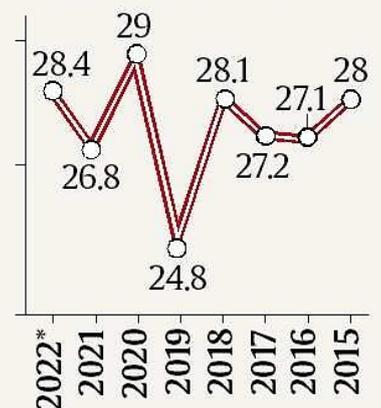
1. In November 2021 there was no rainfall but excess rainfall was recorded in January and February 2022.
2. March 2022 has also seen the absence of cloud cover and rain & allowed temperatures to remain high.
3. The summers had started earlier with heat waves setting in at the end of March 2022.
4. Multiple western disturbances that brought cloud cover had also kept the maximum temperature low in February 2022.
5. The warmest February was recorded in last 19 years.
6. Though the western disturbance were frequent but not the precipitation associated with them, because of dry & warming atmosphere (Global Warming).
7. In 2021, western disturbances brought rain to Delhi in the 1st week of December.

Overall Impact of WD on India:

1. A WD is associated with rainfall, snowfall and fog in northern India.
2. The moisture which WDs carry with them comes from the Mediterranean Sea and/or from the Atlantic Ocean.
3. WD brings winter and pre-monsoon rain which is very important for the development of the Rabi crop in the Northern subcontinent.
4. Sometimes WDs brings extreme weather events like floods, flash floods, landslides, hail storms and cold waves & and in more severe conditions can kill people by destroying infrastructure and impacting livelihoods.
5. In April and May, they move across North India & help in the activation of monsoon in certain parts of northwest India.
6. During the monsoon season, western disturbances cause dense clouding and heavy precipitation.
7. Strong western disturbances can help in fighting the problem of water scarcity.
8. Weak western disturbances can result into crop failure and water problems across north India.

HIGHEST MAX TEMP IN DECEMBER

In degrees Celsius (°C)



(till Dec 12)

6.12 World Bank Report on Air Pollution

Why in News?

Recently, the World Bank released a report titled 'Striving for Clean Air: Air Pollution and Public Health in South Asia'.



Highlights of the Report are:

1. **Airsheds:** As per the report, 6 large airsheds exists in South Asia, where the air quality in one can affect the air quality in another. Airshed is a common geographic area where pollutants get trapped, creating similar air quality for everyone. They are:
 - a) **West/Central Indo-Gangetic Plain (IGP)** that included Punjab (Pakistan), Punjab (India), Haryana, part of Rajasthan, Chandigarh, Delhi, Uttar Pradesh.
 - b) **Central/Eastern IGP:** Bihar, West Bengal, Jharkhand and Bangladesh
 - c) **Middle India:** Odisha/Chhattisgarh
 - d) **Middle India:** Eastern Gujarat/ Maharashtra
 - e) **Northern/Central Indus River Plain:** Pakistan and parts of Afghanistan
 - f) **Southern Indus Plain and further west:** South Pakistan, Western Afghanistan extending into Eastern Iran.

So, When the wind direction remain predominantly northwest to the southeast, 30% of the air pollution in Indian Punjab came from the Punjab Province of Pakistan and, on average, 30% of the air pollution in the largest cities of Bangladesh (Dhaka, Chittagong, and Khulna) originated in India.

2. Huge Exposure to PM 2.5:

- a) Currently over 60% of South Asians are exposed to an average 35 $\mu\text{g}/\text{m}^3$ of PM 2.5 annually.
- b) In some parts of the Indo-Gangetic Plans (IGPs), it spiked to as much as 100 $\mu\text{g}/\text{m}^3$ – nearly 20 times the upper limit of 5 $\mu\text{g}/\text{m}^3$ recommended by the World Health Organisation (WHO).

3. Dominant Sources of Air Pollution:

- a) Large industries, power plants and vehicles are dominant sources of air pollution around the world, but in South Asia, other sources make substantial additional contributions.
- b) These include combustion of solid fuels for cooking and heating, emissions from small industries such as brick kilns, burning of municipal and agricultural waste, cremation etc.

Suggestions of the Report are:

1. Need to focus on Reducing Airsheds:

- a) Governmental measures can reduce particulate matter, **but significant reductions in airsheds require coordinated policies across the airsheds.**
- b) Example: If Delhi starts implementing all air pollution control measures by 2030, while other parts of South Asia continued to follow current policies, it wouldn't keep pollution exposure below 35 $\mu\text{g}/\text{m}^3$.
- c) However, if other parts of South Asia also adopted all feasible measures it will bring pollution below that number.

2. **Should Change Approach:** South Asian countries including India **needs to change their approach in order to improve air quality and reduce pollutants to levels considered acceptable by the WHO.**

3. Close Coordination Required:

- a) Curbing air pollution requires not only tackling its specific sources, but also close coordination across local and national boundaries.
- b) Regional cooperation can help in implementing cost-effective joint strategies.

Initiatives taken by India in this Direction are:

1. National Clean Air Programme (NCAP)



- It was **launched by the Ministry of Environment, Forest and Climate Change (MoEFCC) in January 2019.**
- It is the **first-ever effort in the country to frame a national framework** for air quality management with a time-bound reduction target.
- It **seeks to cut the concentration of coarse (particulate matter of diameter 10 micrometer or less, or PM10) and fine particles (particulate matter of diameter 2.5 micrometer or less, or PM2.5) by at least 20% in the next 5 years, with 2017 as the base year for comparison.**
- It covers a total of **132 non-attainment cities** which were identified by the **Central Pollution Control Board (CPCB)**. **Non-attainment cities** are those that have fallen short of the **National Ambient Air Quality Standards (NAAQS)** for over 5 years.

6.13 'Kunming-Montreal Global Biodiversity Framework' adopted at COP 15

Why in News?

Recently, at the 15th Conference of Parties (COP15) to the UN Convention on Biological Diversity "Kunming-Montreal Global Biodiversity Framework" (GBF) was adopted.

1. 'Kunming-Montreal GBF' includes 4 goals and 23 targets for achievement by 2030.
2. The first part of COP 15 took place in Kunming (China), where it was agreed to address the biodiversity crisis together and this Kunming Declaration was adopted by over 100 countries. This conference concluded in Canada's Montreal.

Some Key Targets of the GBF are:

1. **Focus on Nature Based Solutions: Tackle climate change through Nature-Based Solutions (NBS).** NBS refers to the management and use of nature to tackle socio-environmental challenges like disaster risk reduction, climate change etc.
2. **Stop Extinction: Another target is to stop the extinction of known species, and by 2050 reduce the extinction risk and rate of all species (including unknown species).**
3. **Achieve 30% by 2030:**
 - a) **Restore 30% degraded ecosystems globally (on land and sea) by 2030.**
 - b) **Conserve and manage 30% areas (terrestrial, inland water, coastal and marine) by 2030.**
4. **Pesticide Risk: Target is to reduce the risk from pesticides by at least 50% as compare to 2022 by 2030.**
5. **Reduce pollution Risks: Reduce negative impacts of pollution from all sources by 2030 and to take it to the levels that are not harmful to the biodiversity and ecosystem functions.**
6. **Reduce Footprint: Reduce global footprint of consumption by 2030, including through significantly reducing overconsumption, waste generation and reducing food waste.**
7. **Invasive Alien Species: Reduce the rate of introduction and establishment of invasive alien species by at least 50% by 2030. Invasive alien species are those species that are not local to a particular area and can cause a threat to local species as they are highly adaptive.**
8. **Wildlife Trade: Another target is to secure the safe, legal and sustainable use and trade of wild species by 2030.**

Some other Major Outcomes of COP15 are:



1. **Signatories aimed to collect almost USD200 billion per year for conservation initiatives from public and private sources.**
2. **Wealthier countries also agreed to contribute at least USD20 billion of this every year by 2025, and at least USD30 billion a year by 2030.**
3. **It is also suggested that companies should analyse and report how their operations affect and are affected by biodiversity issues.**
4. **The countries also committed to identify subsidies that deplete biodiversity by 2025, and then eliminate, phase out or reform them. They agreed to reduce these incentives by at least USD500 billion a year by 2030 and increase incentives that are positive for conservation.**
5. **It is also agreed that national action plans will be set and reviewed, following a similar format used for greenhouse gas emissions under U.N.-led efforts to curb climate change.**

How India Presented its Demands at the Conference?

1. **India called for an urgent need to create a new and dedicated fund to help developing countries successfully implement a post-2020 global framework to stop and reverse biodiversity loss.**
2. **India also said that conservation of biodiversity must also be based on 'Common but Differentiated Responsibilities and Respective Capabilities' (CBDR) as climate change also impacts nature.**
3. **According to India, developing countries bear most of the burden of implementing the targets for conserving biodiversity and, therefore, require adequate funding and technology transfer.**

6.14 Kerala government publishes map for people to seek exemption from ESZ

Why in News?

Recently, the Kerala government has published a forest department map having plot-wise details of localities that could fall under the Supreme Court-suggested 1 km ecologically sensitive buffer zone (ESZ) around forests if imposed.

What are the Eco-sensitive Zones (ESZs)?

1. **Eco-Sensitive Zones (ESZs) are Ecologically Fragile or weak Areas.**
2. **These are areas notified by the MoEFCC around Protected Areas, National Parks and Wildlife Sanctuaries.**
3. **ESZs work as “shock absorbers” to the protected areas by regulating and managing the activities around such areas.**
4. **They also act as a transition zone from areas of high protection to areas involving lesser protection.**

How are ESZs defined?

1. **The Environment (Protection) Act, 1986 does not mention the word “Eco-Sensitive Zones”.**
2. **However, Act says that Central Government can restrict areas in which any industries, operations or processes shall be carried out or shall not.**
3. **Environment (Protection) Rules, 1986 states that central government can prohibit or restrict the industries and certain operations or processes on the basis of certain considerations.**
4. **The same criteria have been used by the government to declare No Development Zones (NDZs).**



Defining the boundaries of ESZs:

1. An ESZ could go up to 10 kilometres around a protected area as provided in the Wildlife Conservation Strategy, 2002.
2. Moreover, in the case where sensitive corridors, connectivity and ecologically important patches, crucial for landscape linkage, are beyond 10 km width, these should be included in the ESZs.
3. Further, even in the context of a particular Protected Area, the distribution of an area of ESZ and the extent of regulation may not be uniform all around and it could be of variable width and extent.

Activities Permitted and Prohibited:

Permitted:	Prohibited:	Under regulation:
<ul style="list-style-type: none"> ▪ Ongoing agricultural or horticultural practices ▪ Rainwater harvesting Organic farming ▪ Use of renewable energy sources ▪ Adoption of green technology for all activities. 	<ul style="list-style-type: none"> ▪ Commercial mining ▪ Saw mills ▪ Industries causing pollution (air, water, soil, noise etc) ▪ The establishment of major hydroelectric projects (HEP) Commercial use of wood ▪ Tourism activities like hot-air balloons over the National Park ▪ Discharge of effluents or solid waste or production of hazardous substances. 	<ul style="list-style-type: none"> ▪ Felling of trees ▪ The establishment of hotels and resorts Commercial use of natural water, ▪ Electrical cables ▪ Drastic change of agriculture system e.g., adoption of heavy technology, pesticides etc, widening of roads.

About the SC judgment that has caused a disturbance in Kerala:

1. A 3-judge bench of the Supreme Court heard a PIL about the protection of forest lands in the Nilgiris in Tamil Nadu, but was later expanded to cover the entire country.
2. In its judgment, the court has referred to these guidelines as reasonable “reasonable”, directed all states to have a mandatory 1-km ESZ from the demarcated boundaries of every protected area.
3. It also stated that no new permanent structure or mining will be permitted within the ESZ.
4. If the existing ESZ goes beyond 1-km buffer zone or if any statutory instrument prescribes a higher limit, then such extended boundary shall prevail, the court, as per the Live Law report.

Why are people protesting against it?

1. There is a high density of human population near the notified protected areas.
2. Farmer’s groups and political parties have been demanding that all human settlements be exempt from the ESZ ruling.
3. The total extent of the wildlife sanctuaries in Kerala is eight lakh acres.
4. If one-km of ESZ is demarcated from their boundaries, around 4 lakh acres of human settlements, including farmlands, would come within that purview.

6.15 Cryomesh & Frozen Corals

Why in News?

Recently, Scientists used the cryomesh to freeze coral larvae at the Australian Institute of Marine Sciences (AIMS).



What are corals?

1. Corals are animals which live in a symbiotic relationship with microscopic algae called **zooxanthellae** (which live within the coral tissue).
2. The **zooxanthellae convert sunlight into food**, providing corals with up to **90 per cent of their energy needs**. They also give corals much of their colour.

What is the Need for Freezing Coral?

1. Rising ocean temperatures are disturbing the fragile ecosystems of Coral, therefore scientists are working to protect coral reefs.
2. The **Great Barrier Reef has suffered 4 bleaching events in the last 7 years**, and the **1st ever bleach was during a La Niña phenomenon**, which typically brings cooler temperatures.
3. Scientists used the **cryomesh to freeze coral larvae at the Australian Institute of Marine Sciences (AIMS)**.

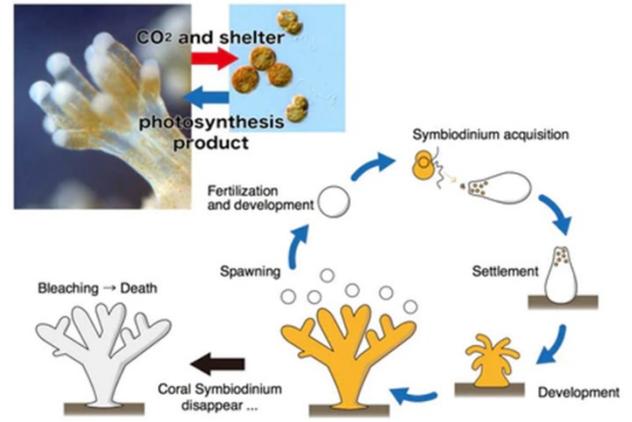


Figure 2. A symbiotic relationship between corals and Symbiodinium

How does Cryomesh Freeze Corals?

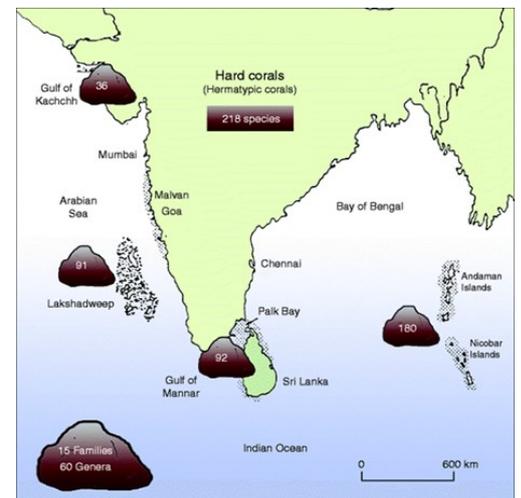
1. Cryomesh was planned by a team from the **University of Minnesota’s College of Science and Engineering**.
2. This is **lightweight and can be manufactured cheaply**.
3. It has the properties of cryoplates and conserves the corals.
4. The mesh technology will help store coral larvae at **-196°C (-320.8°F)**.

Significance of the Freezing Corals:

This cryogenically frozen coral can be stored and later reintroduced to the wild.

What are Coral Reefs?

1. Corals are marine invertebrates, in scientific classification, corals fall under the phylum **Cnidaria** and the class **Anthozoa**.
[Invertebrates are animals which do not possess a spine.]
2. Coral is made up of **genetically identical organisms called polyps**. These polyps have microscopic algae called **zooxanthellae** living within their tissues.
3. The corals and algae have a **symbiotic (mutualistic) relationship**.
4. The coral provides the **zooxanthellae with the compounds necessary for photosynthesis & zooxanthellae supply the coral with organic products of photosynthesis, like carbohydrates, which are utilized by the coral polyps for synthesis of their calcium carbonate skeletons**.
5. In addition to providing corals with **essential nutrients, zooxanthellae are responsible for the unique and beautiful colours of corals**.
6. They are also called the **“rainforests of the seas”**.



Further, they are of 2 types:

Hard corals:	Soft Corals:
1. They extract calcium carbonate from seawater to build hard, white coral skeletons .	1. Soft coral does not produce a rigid calcium carbonate skeleton .



2. Hard corals produce a rigid skeleton made of calcium carbonate (CaCO₃) in a crystal form called aragonite.
3. They are the primary reef-building corals. Hard corals that form reefs are called "hermatypic corals".

2. Soft corals do not form reefs, though they are present in a reef ecosystem.
3. These appears to be a single large organism but actually a colony of individual polyps combined to form a larger structure.
4. Visually, soft coral colonies tend to resemble trees, bushes, fans, whips, and grasses.

6.16 Regenerative Agriculture

Why in News?

In the Intergovernmental Panel on Climate Change (IPCC) report on "Climate Change and Land" the importance of regenerative agriculture was emphasised.

What is Regenerative Agriculture (RA)?

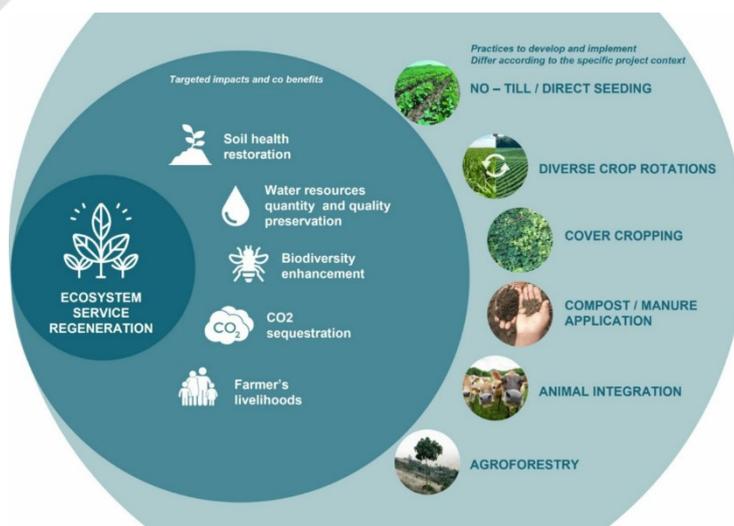
1. It is a 'sustainable land management practice' that can be helpful in building the flexibility of agroecosystems (environment friendly agriculture).
2. RA is a farming system that focuses on soil health, water quality, food quality, biodiversity improvement, and air quality.
3. It uses methods such as reducing the use of chemical fertilisers and pesticides, reducing tillage, integrating livestock and using cover crops.
4. It reduces the soil distribution through conservation tillage.
5. It also diversifies crops to fill nutrients and destroy pest and disease lifecycles.
6. In the RA the soil cover is retained using cover crops.
7. Integrate livestock is also used to adds manure to the soil and serves as a source of carbon sinks.

What is the Need of Regenerative Agriculture?

1. The current intensive agriculture system results in soil degradation hence there was a need of an environment friendly alternative.
2. According to international scientists, there may not be enough soil to feed the world in next 50 years,

Benefits of Regenerative practices:

3. Regenerative agriculture improves soil health through practices that increase soil organic matter, biota and biodiversity.
4. Regenerative Agriculture aims at enhancing water-holding capacity and carbon sequestration.
5. It facilitates soil aggregation, water infiltration, retention and nutrient cycling.
6. RA reduces erosion, provides habitat and food for different species and is sustainable.
7. Most importantly, regenerative agriculture practices also help fight the climate crisis by pulling carbon from the atmosphere and sequestering it in the ground.





6.17 Global Status of Black Soils

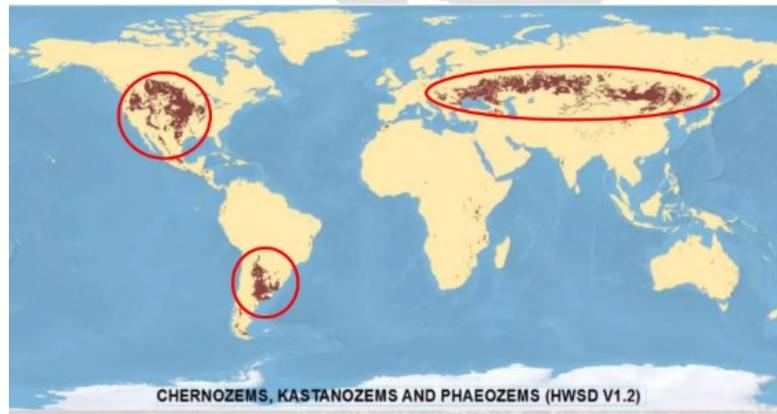
Why in News?

The Food and Agriculture Organization (FAO) launches its 1st Global Status on Black Soils.

- **Black Soils** are at greater risk due to the climate crisis, biodiversity loss and land use change.

What is World Soil Day (WSD)?

1. It was recommended by the International Union of Soil Sciences (IUSS) in 2002.
2. The FAO has supported the formal establishment of WSD as a global awareness-raising platform.
3. 5th December 2014 was designated as the 1st official WSD by the UN General Assembly (UNGA).
4. World Soil Day ask individuals to consider sustainably managing soil resources.
5. The main goal of the day is to increase public awareness of the significant environmental issues that soil degradation can lead to, such as erosion, the loss of organic matter, and a drop in soil fertility.
6. The theme for World Soil Day 2022 is "Soils, where food begins".



About Black Soil:

1. Black soils are thick, dark-coloured soil horizon rich in organic matter.
2. They are found in Russia (327 million hectares), Kazakhstan (108 M ha), China (50 M ha), Argentina, Mongolia, Ukraine etc.
3. Black soils are extremely fertile and can produce high agricultural yields due to their elevated moisture storage capacity.
4. Black soils are rich in iron, lime, calcium, potassium, aluminium and magnesium but deficient in nitrogen, phosphorous.
5. They constitute 5.6 % of global soils and contain 8.2 % of the world's SOC stocks, approximately 56 billion tonnes of carbon.

What are the Findings?

1. The carbon sequestration has been proposed as an important solution to mitigate human-induced climate change.
[The ability of the soils to remove carbon from the atmosphere and lock it up in soil organic matter]
2. The inherent fertility of the soils makes them the food basket for many countries and are considered essential to the global food supply.
3. Black soils have the potential to provide 10% of the total Soil Organic Carbon (SOC) sequestration globally if they receive proper attention.
4. Europe and Eurasia have the highest potential, i.e., more than 65%.





5. **Black soils were home to 2.86% of the global population and had 17.36% of agricultural land.**
6. **Even after representing a small portion of the world's soils, black soils were key for food security and the global economy.**
7. **Globally in 2010, 66% of sunflower seeds, 51% of small millet, 42% of sugar beet, 30% of wheat and 26% of potatoes were harvested from black soils.**
8. **They have lost 20 to 50% of their original stock, with the carbon being released into the atmosphere mostly as carbon dioxide, exacerbating global warming.**

Causes of Losses in Black Soil:

1. **Land-use change, unsustainable management practices and excessive use of agrochemicals are to blame.**
2. **Most of the black soils suffered from moderate to severe erosion processes, as well as nutrient imbalances, acidification and biodiversity loss.**

Suggestions for Preservation of Black Soil:

1. **Preserving natural vegetation on black soils such as grasslands, forests and wetlands and adopting sustainable soil management approaches on cropped black soils are needed.**
2. **There is a need to work together to produce safe, nutritious and micronutrient-rich food that avoids soil degradation and decreases agrifood systems pollution."**

What are the Initiatives to Improve Soil Health?

- | | |
|--|---|
| 1. Soil Health Card Scheme | 5. Digital Agriculture |
| 2. Organic Farming | 6. Carbon Farming |
| 3. Paramparagat Krishi Vikas Yojana | 7. The Nutrient Based Subsidy (NBS) Scheme |
| 4. Fertilizer Self-Sufficiency | |

6.18 Fog Formation

Why in News?

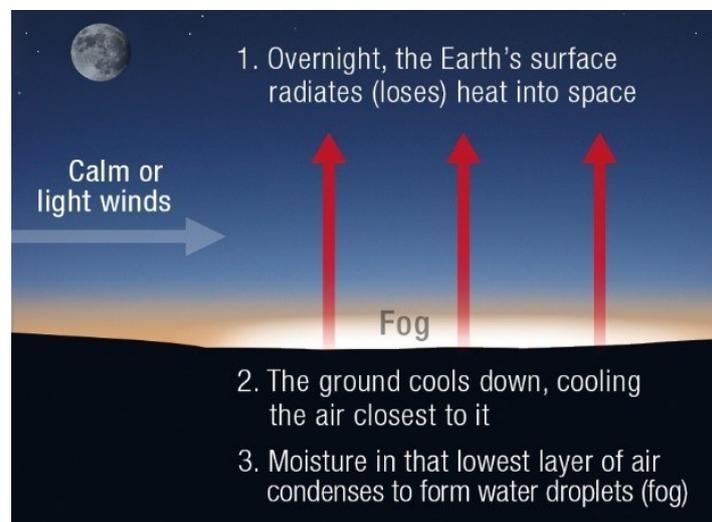
Recently, **dense fog** has emerged over north-western India, including **Delhi, Punjab, Haryana, parts of Uttar Pradesh, and parts of Rajasthan.**

- **The fog is likely to remain over Indo Gangetic Plain for the next 3 days, keeping the visibility poor in the before and after daybreak.**

How does fog get Formed:

1. **Fog forms when water vapour condenses, like the clouds formed.**
2. **With the land surface cooling down at night, the air close to the surface also cools down.**
3. **Since cooler air cannot hold as much moisture as warm air, the water vapour in the air condenses to form fog.**
4. **Fog begins to form in the early hours of the morning, when the temperature is at its lowest.**

Favourable Conditions for fog formation:





1. The **presence of moisture and low temperature** are important factors for the **formation of fog**.
2. Fog can have **“high spatial variability”**, and its intensity can depend on factors like **humidity, wind, and temperature**.
3. **Areas near water bodies**, for instance, may see **denser fog** because of the higher humidity.
4. The **Indo Gangetic Plain** is most vulnerable to fog occurrences, with major, weeks-long spells of dense fog in the months of **December and January**.

Types of Fog

Radiation Fog (or ground fog):	Advection Fog:	Valley Fog:	Freezing Fog:
These last for a few mornings, while winds are calm. Once the temperature increases during the day, the fog dissolves.	These are larger both in terms of the area covered and duration. These forms when warm, moist air passes over a cool surface, causing water vapour to condense.	It is the result of mountains preventing dense air from escaping. The fog is trapped in the bowl of the valley and can last for several days.	It is the result of liquid droplets freezing on solid surfaces. These are seen over cloud-covered mountaintops. These are not applicable to the Indo Gangetic Plain.

Conditions Favouring Fog over North-western India

1. **Decreasing Temperature:** Cold wave conditions, in which the minimum temperature is significantly lower than normal, have been recorded recently over Punjab, Haryana, and parts of Rajasthan.
Recently, Delhi recorded the lowest minimum temperature of the season so far 6 degrees Celsius.
2. **Dense Fog:** The fall in temperature along with moisture and light winds over the Indo Gangetic Plain has resulted in dense fog over the region.
3. **Effect of Western disturbances:** Western disturbances, bring moisture-bearing winds to northwest India. This can result in increased moisture levels over the region.
4. In the absence of western disturbances, local moisture sources like water vapor from rivers and soil moisture can also cause fog.

Characteristics of the fog over Delhi

1. Delhi saw a warmer start to the winter this year due to a lower number of western disturbances, means that north westerly winds did not bring much moisture and did not lead to any significant fog formation until mid-December.
2. An update from the SAFAR forecasting system categorised the recent fog episode in Delhi as “radiation fog”.
3. It shows very high variability Season to season with extreme fog of 25 to 35 days of dense fog” like in 2017-18. Whereas, in December 2021, Delhi hardly sees any dense fog events.

Link between Pollution Levels and Fog

1. According to the India Meteorological Department (IMD), Delhi being more polluted, records more fog days compared to others.
2. Fog increases Pollution, as temperature declines, local wind speed also falls. The inversion layer comes down and vertical mixing reduces.



3. This results in fog formation and particulate matter hangs on the boundary layer, increasing pollution levels.
4. Advection fog episodes last longer and secondary particulate formation then begins leading to rapid build-up of pollutants.

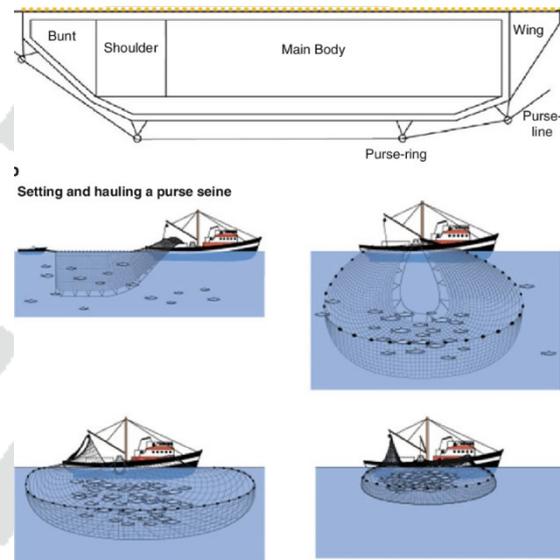
6.19 Purse Seine Fishing

Why in News?

Recently, the Centre has told the Supreme Court that a ban imposed by certain coastal States on purse seine fishing, which is known to disadvantage endangered species, is not justified.

About the Purse Seine fishing:

1. It is a method of fishing.
2. In this method the fisherman uses a large vertical net to surround dense shoals of oceanic or midwater fish in the open ocean.
3. Then draws the edges inward like tightening the cords of a drawstring purse.
4. A vertical net 'curtain' is used to surround the school of fish, the bottom of which is then drawn together to enclose the fish, rather like tightening the cords of a drawstring purse.
5. It is deployed widely on India's western coasts.



What are the Advantages of Purse Seine Fishing?

1. It is an efficient form of fishing in open water system.
2. It has no contact with the seabed and can have low levels of by catch.
3. It can also be used to catch fish gathering around fish collecting devices.
4. It is able to target dense schools of single-species oceanic (midwater) fish like tuna and mackerel.

What is the issue?

1. This mode of fishing is prohibited by Tamil Nadu, Kerala, Puducherry, Odisha, Dadra and Nagar Haveli and Daman and Diu Andaman and Nicobar Islands in their respective territorial waters of up to 12 nautical miles.
2. However, states like Gujarat, Andhra Pradesh, Goa, Karnataka, and West Bengal have not imposed any such ban on purse seine fishing.

Why states are divided over this?

1. In some States, it is linked to concerns about the decreasing stock of small, oceanic fishes such as sardines, mackerel, anchovies and trevally on the western coasts.
2. The scientific community argues that climatic conditions, including the El Nino phenomenon, are responsible for the declining catch of such fish in the last 10 years.
3. Fishermen using traditional methods have blamed directly the rise of purse seine fishing.
4. They fear a further fall in the availability of these small fish if the ban is lifted.



How does the Centre see this plan?

1. The Fisheries Department of the Union government has recommended the lifting of the ban on purse seine fishing.
2. The expert panel has said that this mode of fishing has “per se has not resulted in any serious resource depletion so far, given the available evidence”.
3. It recommended purse seiners to fish in territorial waters and the Indian Exclusive Indian Exclusive Economic Zone (EEZ) subject to certain conditions.

What is the Union Government's Argument Against Ban?

1. The Union Ministry of Fisheries, Animal Husbandry and Dairying has recommended the lifting of the ban on purse seine fishing on a report submitted by an expert committee.
2. The expert panel has recommended purse seiners to fish in territorial waters and the Indian Exclusive Indian Exclusive Economic Zone (EEZ) subject to certain conditions.
3. The committee has also suggested the framing of a “national management plan on purse seine fisheries.

What is the Jurisdiction of Fishing?

4. Fishing is a state subject and the management plan for marine fisheries in territorial waters is the job of the State.
5. The states under normal circumstances have exclusive power to make laws on subjects mentioned in the State List.
6. State subject consists of 61 subjects (originally 66 subjects).
7. These are of local importance such as, local government, public order and police, agriculture, forest, public health and sanitation, fisheries, education, State taxes and duties.

Way ahead: There should be a national management plan on purse seine fisheries. Partial ban in some states may put fishermen at disadvantage in other states.

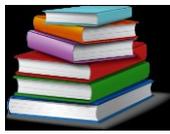
6.20 SC sends notice to the Centre regarding the 'Project Great Indian Bustard'

Recently, the Supreme Court (SC) asked the Centre's review on the idea of 'Project Great Indian Bustard (GIB)' to save this endangered bird.

About the Issue:

1. The Supreme Court has set up a 3-member committee to assess the feasibility of laying high-voltage underground power cables.
2. SC directed the committee to submit an updated status report on steps to safeguard the GIB.
3. Project GIB is on the lines of 'Project Tiger', which was started in 1973 to save the tigers.
4. SC also asked for the reports from the chief secretaries of Rajasthan and Gujarat on:
 - a) Installation of bird diverters in priority areas.
 - b) All bird diverters shall be as per the quality required by the committee appointed by this court.
 - c) Assess the total length of transmission lines in these 2 states where under-grounding of electric wires have to be done to ensure the birds do not die of electrocution.

About Great Indian Bustard (GIB)



1. **Scientific name of GIB is “Ardeotis nigriceps”.**
2. It is the **State bird of Rajasthan** and considered as **India’s most critically endangered bird.**
3. It is the **flagship grassland species** representing the health of the grassland ecology.
 - [Flagship species is a **species chosen to raise support for biodiversity conservation in a given place.** For example, **Bengal Tiger, Asian Elephant, African Elephant, and Giant Panda** are a few flagship species used by the **World Wildlife Fund.**]
4. **GIB is one of the heaviest flying birds endemic** (native or belong to certain place only) **to the Indian subcontinent.**
5. Its **population is limited to Rajasthan and Gujarat, mostly.**
6. However, small populations also occur in **Maharashtra, Karnataka and Andhra Pradesh.**
7. **GIB is listed as critically Endangered** under IUCN red list.
8. It is Listed in **Wildlife Protection Act’s Schedule 1.**
9. The **bird is under constant threats due to:**
 - **Collision/electrocution with power transmission lines**
 - **Hunting** (still prevalent in Pakistan)
 - **Habitat loss and alteration of Habitat** due to **agricultural expansion, etc.**



Measures taken to protect GIB:

1. **Project Great Indian Bustard:** It has been **launched by the Rajasthan government**, aims at **developing infrastructure to reduce human pressure on the habitats of GIBs.**
2. **Species Recovery Programme:** GIB comes under the **species recovery programme named Integrated development of Wildlife Habitats** of the Ministry of Environment, Forests and Climate Change (MoEFCC).
3. **National Bustard Recovery Plans:** It is currently being **implemented by conservation agencies to increase the conservation efforts for GIBs.**
4. **Conservation Breeding Facility:** It is a **conservation breeding facility established jointly by MoEF&CC, Rajasthan government and Wildlife Institute of India (WII)** in **Desert National Park at Jaisalmer** in **June 2019**, to **increase population of GIB.**
5. **Eco-Friendly Measures:** There is a **Task Force, suggesting eco-friendly measures to lessen impacts of power transmission lines on wildlife including the GIBs.**



7. SECURITY

7.1 Agni 5 Ballistic Missile

Why in News?

Recently, India successfully carried out the night trials of the Agni-5 nuclear-capable ballistic missile.

What are Agni Missiles?

1. The Agni missile class is the backbone of India's nuclear launch capability.
2. These have strengthened India's Defence ecosystem just like Prithvi short-range ballistic missiles, submarine-launched ballistic missiles, and fighter aircraft.
3. All Agni-1 to 5 missiles is designed & developed by Defence Research and Development Organisation (DRDO).

What are the Features of the Missile?

1. Agni-5 is an ingeniously built advanced surface-to-surface ballistic missile.
2. It is developed under the Integrated Guided Missile Development Programme (IGMDP).
3. It is a fire-and-forget missile, & to stop it an interceptor missile is needed.
4. The missile has the capability of hitting targets beyond the range of 5000 km and is crucial for India's self-defence systems.

What are the other Ranges of Agni Missiles?

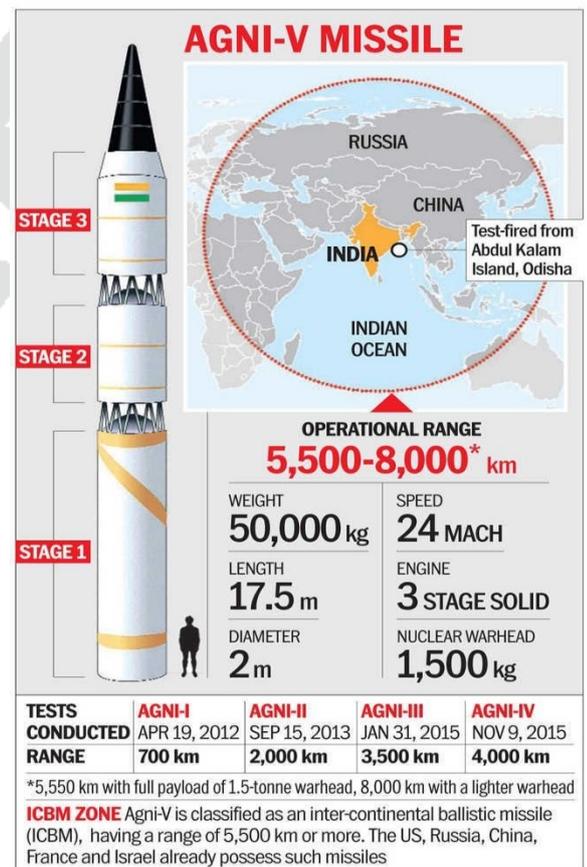
1. Agni I: Range of 700-800 km.
2. Agni II: Range more than 2000 km.
3. Agni III: Range of more than 2,500 Km
4. Agni IV: Range is more than 3,500 km and can fire from a road mobile launcher.
5. Agni-V: The longest of the Agni series, an Inter-Continental Ballistic Missile (ICBM) with a range of over 5,000 km.

What is the Integrated Guided Missile Development Programme?

1. IGMDP was the idea of renowned scientist Dr. APJ Abdul Kalam.
2. Its aims to make India self-sufficient in the field of missile technology.
3. Depending upon the various types of requirements by the defence forces, the program recognized the need to develop 5 missile systems.
4. The IGMDP formally got the approval of the Indian government in 1983.
5. IGMDP has brought together the country's scientific community, academic institutions, R&D laboratories, industries and the three defence services in giving shape to the strategic, indigenous missile systems.

The missiles developed under IGMDP are:

1. Short-range surface-to-surface ballistic missile – Prithvi
2. Intermediate-range surface-to-surface ballistic missile – Agni
3. Short-range low-level surface-to-air missile – Trishul
4. Medium-range surface-to-air missile – Akash





5. Third generation anti-tank missile – Nag

Additional Information:

Missile	Features
Agni I	<ol style="list-style-type: none"> 1. Single stage, solid fuel, Medium Range Ballistic Missile (MRBM). 2. Using solid propulsion booster and a liquid propulsion upper stage. 3. Range of 700-800 km.
Agni II	<ol style="list-style-type: none"> 1. Intermediate-Range Ballistic Missile (IRBM). 2. Range more than 2000 km.
Agni III	<ol style="list-style-type: none"> 1. Two stage IRBM 2. Support a wide range of warhead configurations. 3. Strike range of more than 2,500 Km
Agni IV	<ol style="list-style-type: none"> 1. Two stage missiles powered by solid propellant. 2. Can fire from a road mobile launcher. 3. Range is more than 3,500 km. 4. Equipped with indigenously developed ring laser gyro and composite rocket motor.
Agni V	<ol style="list-style-type: none"> 1. 3-stage solid fuelled, indigenous Inter-Continental Ballistic Missile (ICBM). 2. Capable of carrying 1.5 tonnes of nuclear warheads. 3. Latest and most advanced variant in terms of navigation and guidance, warhead and engine. 4. Range is more than 5,000 km.
Agni P	<ol style="list-style-type: none"> 1. Range capability between 1,000 and 2,000 km. 2. Many advanced technologies including composites, propulsion systems, innovative guidance and control mechanisms and state-of-the-art navigation systems have been introduced.

7.2 iDEX Defence Start-up Challenge

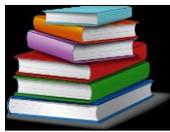
Why in News?

Recently, the flagship initiative of Department of Defence Production, Ministry of Defence named Innovations for Defence Excellence (iDEX), has signed its 150th contract & reached to a milestone.

- The contract relates to an Indian Navy project of the Defence India Start-up Challenge (DISC 7) SPRINT edition.

About the iDEX:





1. It provides grants to Micro Small and Medium Enterprises (MSMEs), start-ups, individual innovators, R&D institutes and academia to carry out research and development.
2. iDEX, launched in 2018, is an ecosystem to foster innovation & technology development in Defence and Aerospace by engaging innovators & entrepreneurs to deliver technologically advanced solutions for modernizing the Indian Military.
3. iDEX is funded and managed by “Defence Innovation Organisation (DIO)”.
4. iDEX has been awarded the important Prime Minister Award for Public Policy in Innovation Category for the year 2021.
5. It aims to support projects requiring support beyond Rs 1.5 crore up to Rs 10 crore, to help ever-growing start-ups in the defence sector.
6. iDEX portal was launched to give better publicity and improved visibility of iDEX activities.
7. It would enable more efficiency in future challenges through better information management.

Core Objectives of iDEX:

1. Its objective is the Indigenization of defence sector through Rapid development of new, indigenized and innovative technology.
2. It creates a culture of engagement with innovative start-ups to encourage co-creation.

What is DIO?

1. It is a not-for-profit organisation & it was formed under section 8 of the Companies Act 2013.
2. The funding to DIO is done by Hindustan Aeronautics Limited (HAL) and Bharat Electronics Limited (BEL).
3. It provides high-level policy guidance to iDEX.

What is DISC?

1. The First DISC was launched in 2018 at Bengaluru.
2. DISC aims at supporting Start-ups to create prototypes and to promote & commercialize products in National Defence and Security.
3. It was launched by the Ministry of Defence in partnership with Atal Innovation Mission (AIM).
[AIM is Government of India’s flagship initiative to create and promote a culture of innovation and entrepreneurship across the country.]
4. Under the program, the start-ups, Indian companies and individual innovators (including research & academic institutions) can participate.
5. DISC 7 has been launched with 69 Problem Statements (PS) from Indian Navy for resolution by start-ups & innovators.

Government Initiatives for Indigenisation:

- First Negative Indigenisation
- Positive Indigenisation List
- New FDI Policy in Defence Sector
- Defence Acquisition Procedure 2020
- Defence Industrial Corridors

7.3 PAC Report on Procurement Facilities of Soldiers

Why in News?

Recently, the Public Accounts Committee (PAC) has released its 55th report on “Provisioning, procurement and issue of High-Altitude Clothing, Equipment, Ration and Housing”.



- The report is based on the Comptroller and Auditor General's (CAG) findings in 2019.

What were the observations of PAC?

1. According to committee, even without the need a huge quantity of essential items under Special Clothing and Mountaineering Equipment (SCME) Category-II were procured.
2. Also, there was widespread shortfall in the receipt of stores from artillery factories in period 2015-18 in the case of "SCME/Extreme Cold Climate Clothing and Equipment" items.
3. Only 50% items or even less than that are being supplied from the factories.
4. The PAC noted that, in the meanwhile, the factories had been corporatized and restructured into government companies.

What does the Report Suggests?

1. The report suggests that government should put efforts to implement Phase III of the Central Inventory Control Group (CICG) for effective management of inventory.
2. The PAC recommended an overhaul of the contracting process between the Defence Ministry and vendors. This would also aid in reduction of procurement timelines.
3. The procurement processes could be accelerated through hand-holding of new Defence Public Sector Undertakings (erstwhile ordnance factories) by the Ministry.
4. The committee said the Ministry should collaborate with friendly countries with similar geographical conditions and learn from their experiences for technical specifications.
5. Ministry should periodically take reviews from troops deployed in high altitude areas in terms of taste, quality and hygienic conditions of rations.
6. Ministry may fulfil assurance that there is no shortfall of High-Altitude Clothing & Equipment in Indian Army.
7. Sufficient technical expertise could be deployed for projects in harsh terrains.

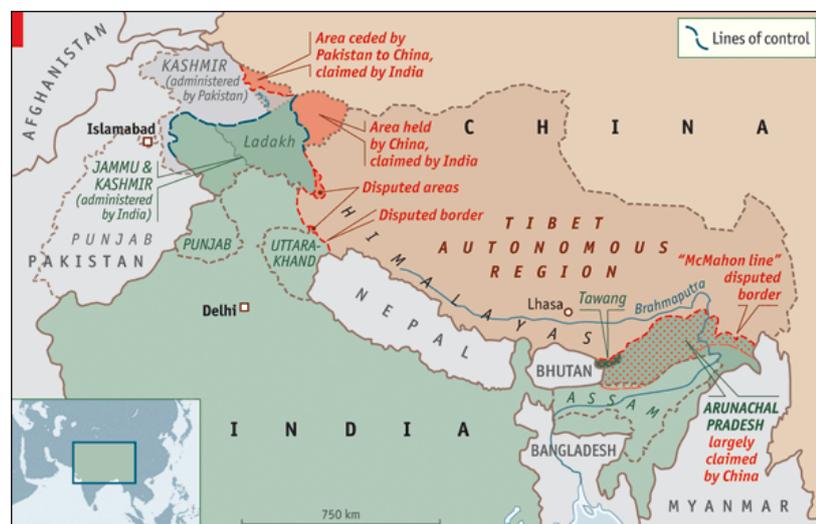
7.4 Indian and Chinese Troops Clash in Arunachal Pradesh

Why in News?

Recently, Indian and Chinese troops clashed along the Yangste river in Tawang sector in Arunachal Pradesh.

Background:

1. This is the 1st such violent incident involving the Indian soldiers and Chinese PLA troops since the Galwan Valley incident in 2020.
2. According to the India Army, there are certain areas along the Line of Actual Control (LAC) in the Tawang Sector that are areas of differing perception.
3. The incident came days after China expressed objection to 'Operation Yudhabhyas', an India-US joint military exercise held in Auli (Uttarakhand).





What is Line of Actual Control (LAC) ?

1. It's a **imaginary line that separates Indian-controlled territory from the Chinese-controlled territory.**
2. LAC is different from the **Line of Control (LoC) with Pakistan:**
3. The **LoC was agreed in 1972** after the **Shimla Agreement between India and Pakistan. It is delineated(drawn) on the map.**
4. The **LAC on the other hand is only a concept. It is not agreed upon by the 2 countries, neither delineated on a map or demarcated(divided) on the ground.**
5. India considers the length of LAC to be **3,488 km** long, while the China consider it to be only around **2,000 km.**
6. **LAC is divided into 3 sectors and these are:**
 - i) **Eastern Sector:** It goes from Arunachal Pradesh to Sikkim (1346 km).
 - ii) **Middle Sector :** It goes from Uttarakhand to Himachal Pradesh (545 km)
 - iii) **Western Sector:** It runs after Himachal Pradesh till Ladakh (1597 km).
7. The LAC in the eastern sector is as per the **McMahon Line (1914).**
8. The **McMohan line was drawn to separate the British India with Tibet.**
9. The **middle sector of the LAC is the least disputed sector, while the western sector witness the highest disputes between the 2 countries.**

Why do such aggressive incidents keep happening over the LAC?

1. The biggest reason is that **LAC is not fully demarcated(divided)** and there are **differences in understanding** due to which such incidents keep happening.
2. To maintain peace and stability along the LAC, the **2 sides are regularly holding talks at various levels.**
3. Since the aggression began in **eastern Ladakh in May 2020**, both sides have deployed air assets along the LAC and also increased air defence.

What is the Importance of Arunachal Pradesh from an Indian/Chinese Perspective?

1. **Arunachal Pradesh which was known as the Northeast Frontier Agency (NEFA) until 1972, is the largest state in the Northeast India and shares international borders with Tibet to the north and northwest, Bhutan towards the west and Myanmar to the east.**
2. The state is like a **protective shield in the Northeast India.** However, **China claims Arunachal Pradesh as a part of southern Tibet.**
3. While **China may lay claim to the entire state, its main interest lies in the district of Tawang**, which is in the north-western region of Arunachal and borders Bhutan and Tibet.
4. Taking control of Arunachal will mean that **Bhutan will have Chinese neighbours on both its western and eastern borders if china gained control. On the western side of Bhutan, China has already begun building motorable roads linking strategic points.**
5. **China has control over India's water supply to the northeastern region.** It has constructed several dams and **can use water as a geo-strategic weapon against India by causing flooding or drought in the region.**
6. The **'Tsangpo' river, which originates in Tibet flows into India** and is called **'Siang' in Arunachal Pradesh** before it becomes the **Brahmaputra.**
7. **In 2000, a dam breach in Tibet caused floods** that has done a lot of destruction in Northeast India claiming 30 lives and leaving more than 100 missing.

So, Why is China Interested in the Tawang Sector?



1. China's interest in Tawang could be for tactical reasons as it provides a strategic entry into India's northeastern region.
2. Tawang is a critical point in the corridor between Tibet and Brahmaputra Valley.
3. Tawang, which also borders Bhutan hosts the 'Galden Namgye Lhatse', the world's 2nd largest monastery of Tibetan Buddhism, the largest being the 'Potala Palace' in Lhasa.
4. China claims that the monastery is the evidence that the Tawang once belonged to Tibet. They argue regarding the historical ties between the Tawang monastery and the Lhasa monastery in Tibet to support their claim over Arunachal.
5. Tawang is also an important center of Tibetan Buddhism and there are some tribes in the upper Arunachal region which have cultural connections to the people of Tibet. The Monpa tribal population practices Tibetan Buddhism and are also found in some areas of Tibet too.
6. According to some experts, China fears that the presence of these ethnic groups in Arunachal could at some stage give rise to a pro-democracy Tibetan movement against the China.
7. When Dalai Lama escaped Tibet in 1959, he entered India through Tawang and stayed in the Tawang monastery for some time.

Way Forward

1. India needs to be active enough for any new development in China near its border to protect its interests efficiently.
2. Further, it needs to build robust infrastructure in difficult border areas in its territory to ensure movement of personnel and other logistical supplies in an efficient manner.
3. Border troops should continue their dialogue, maintain proper distance to ease tensions.
4. The 2 sides should follow all the existing agreements and protocols on China-India boundary affairs and avoid any action that could escalate matters

7.5 Issue of Left-Wing Extremism

Why In News?

Recently, the Minister of State for Home Affairs gave a reply in the Parliament to a Question on 'Eradication of Left-Wing Extremism'.

Key Data Facts About Naxalism in India

1. The incidents of Naxal violence in the country have dropped by 77 % between 2009 and 2021, and the deaths of security force personnel due to Maoist violence have more than doubled in Chhattisgarh in the past 3 years.
2. Similarly, the resultant deaths (civilians + security forces) have reduced by 85 % from an all-time high of 1,005 in 2010 to 147 in 2021.
3. In states, Chhattisgarh tops the countrywide figure for deaths of security personnel, as it accounted for 90% of all security personnel deaths in the country, followed by Jharkhand which recorded 5 personnel deaths.
4. There has been a decrease in the geographical spread of violence as only 46 districts reported LWE-related violence in 2021, compared to 96 districts in 2010.
5. Due to this, there has been a reduction in the number of districts covered under the Security Related Expenditure (SRE) Scheme from 126 to 90 in 2018 and further to 70 in 2021.

So, What is Left-wing Extremism?



1. **LWE organizations** are the groups that try to **bring change through violent revolution**. They are against democratic institutions and use violence to suppress the democratic processes at the ground level.
2. **These groups prevent the developmental processes in the least developed regions of the country & try to misguide the people by keeping them ignorant of current happenings.**
3. **The term 'Naxal' derives from the name of the village Naxalbari in West Bengal,** where the movement has its origin.
4. The Naxals are considered **far-left radical communists, supportive of Maoist political sentiment and ideology.**
5. **Their origin can be traced to the split of 1967 in the Communist Party of India (Marxist),** leading to the formation of the Communist Party of India (Marxist–Leninist).
6. Initially the movement has its **centre in West Bengal but in later years, it spreaded into less developed areas of rural southern and eastern India** such as Chhattisgarh, Jharkhand, Bihar, Odisha and Andhra Pradesh through the activities of underground groups like the Communist Party of India (Maoist).
7. **Globally** it all started with the communist political and economic thought put forward by **Karl Marx**.

Reasons for the Emergence of Naxalism in India

1. High Tribal Discontent:

- a) The **Forest (Conservation) Act, 1980** deprived tribals, who depend on forest produce for their living, from even cutting a bark.
 - b) Massive displacement of tribal population in the naxalism-affected states due to development projects, mining operations and other reasons.
- #### 2. Easy Target for Maoists:
- Such people who do not have any source of living are taken into Naxalism by Maoists and provide arms, ammunitions and money to rebel.
- #### 3. Huge Gaps in the Socio-economic System of the Country.
- a) Government measures its success on the basis of number of violent attacks rather than the development done in the naxal-affected areas.
 - b) **Absence of strong technical intelligence** to fight with the Naxalites.
 - c) Infrastructural problems, for instance, some villages are not yet connected properly with any communication network.
- #### 4. No Follow-Up from administration:
- It is seen that even after police takes hold of a region, administration fails to provide essential services to the people of that region and that creates anger in the people.
- #### 5. Confusion: There is no consensus in India on taking naxalism
- as a social issue or as a security threat.
- #### 6. No Steps by State Governments:
- Considering Naxalism as the central government's issue and thus are not taking any initiatives to fight it.

What are the Government Initiatives to control LWE?

1. **SAMADHAN doctrine:** It is the **one-stop solution for the LWE problem**. It mentions the entire strategy of government from short-term policy to long-term policy formulated at different levels. SAMADHAN stands for-

S- Smart Leadership

A- Aggressive Strategy

M- Motivation and Training

A- Actionable Intelligence

D- Dashboard Based KPIs (Key Performance Indicators) and KRAs (Key Result Areas)

H- Harnessing Technology

A- Action plan for each Theatre



N- No access to Financing

- 2. The 'National Strategy to Counter LWE':** It was formed in **2015** as a multipronged approach to combat LWE. Its main aim was to ensure participatory governance and protection of the rights of local tribals.
- 3. Intelligence:** Intelligence sharing and raising of a separate 66 Indian Reserved Battalion (IRBs) was done by the government to tackle the LWE organizations.
- 4. Improving infrastructure:** More than 11,600 km roads have been constructed in LWE affected areas in the last few years.

Conclusion and Way Forward

- 1. The government needs innovative solutions for deploying armed groups in the thick forests of the naxalism-affected regions.**
- 2. Local Police know the language and topography of a region well, so, they can fight naxalism better than the armed forces if trained and equipped well.**

7.6 12th Edition of Exercise Agni Warrior

Why in News?

Recently, the 12th Edition of Exercise Agni Warrior was held at Field Firing Range, Maharashtra.

About the Exercise Agni Warrior

- 1. It's a bilateral military exercise between Singapore & India.**
- 2. Exercise Agni Warrior, involved showcasing joint firepower planning, execution and use of new generation equipment by the artillery arm of both armies.**
- 3. Exercise also included participation of both sides in a joint computer war-game as part of joint planning process.**
- 4. Expert academic discussions were held on modern trends in Artillery.**
- 5. The exercise achieved its aim of enhancing mutual understanding of drills & procedures and improving cooperation between the 2 armies.**
- 6. India was among the first countries to set up diplomatic relations with Singapore after the independence of Singapore on 24 August 1965.**
- 7. The close relationship shared by India and Singapore is based on cultural, economic and political interests.**
- 8. Singapore is one of the highest FDI investor in India.**

7.7 INS Vagir

Why in News?

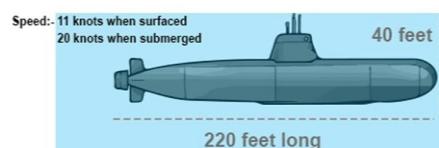
Recently, the 5th Scorpene class submarine of Project-75 named INS 'Vagir' has been delivered to the Indian Navy today.

- It is a **Kalvari class diesel-electric attack submarine, Yard 11879, which when commissioned will be launched as INS Vagir.**

fifth Scorpene class submarine of Project-75

diesel-electric attack submarines

Indian Navy collaboration French DCNS (Direction des Constructions Navales)



6 Scorpene class attack submarines

US \$3.75 Billion deal

*signed in Oct 2005

INS Kalvari (2017)

INS Khanderi (2019)

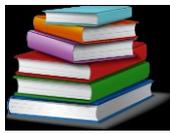
INS Vagir (2020)

(undergoing sea trial) INS Karanj

(undergoing sea trial) INS Vela

(under construction) INS Vagsheer

About INS Vagir:



1. The **1st Vagir**, a submarine from Russia, was commissioned into the Indian Navy on **3rd December 1973** and was decommissioned on **7th June 2001** after almost three decades of service to the nation.
2. **Public ship builder Mazagon Dock Ltd (MDL)** gave a new incarnation to the submarine with the same name.
3. It is named after the **Sand Fish**.
[Sand Fish is a deadly deep-sea predator of the Indian Ocean]
4. It is a part of the **6 Kalvari-class submarines** being built in India.
5. The **Kalvari-class submarines** have the capability of operating in a wide range of **Naval combat** including anti-warship and anti-submarine operations, intelligence gathering and surveillance etc.
6. The **state-of-art technology** used in the submarine has ensured **strong features** such as **advanced acoustic absorption techniques**, **low radiated noise levels**, and **hydro-dynamically optimised shape**.
7. It has the **ability to attack the enemy** using precision guided weapons.

Features of the INS Vagir:

1. It can launch attacks with both torpedoes and tube launched anti-ship missiles, both underwater or on surface.
2. It is designed in a way to enable it to operate in all theatres, showcasing interoperability with other components of a Naval Task Force.
3. It can start diverse types of missions such as Anti-Surface warfare, Anti-Submarine warfare, Intelligence gathering, Mine Laying, Area Surveillance, etc.

Significance of these Submarines:

1. **Construction of these submarines in an Indian yard is another step towards 'Aatmanirbhar Bharat'.**
2. **These Submarines will boost self-confidence of Navy.**
[It is notable that this is the 3rd submarine delivered to the Indian Navy in a span of 24 months.]

Additional Information:

What is Project-75?

1. It is a project by the Indian Navy.
2. It aims to build **6 Scorpene Class attack submarines**.
3. Scorpene is a **conventional powered submarine** having weight approx. **1,500 tonnes** and can go up to **300m deep**.
4. The **Mazagon Dock Shipbuilders Limited (MDL)** is manufacturing **6 Scorpene submarines with technology assistance from Naval Group of France** under a **USD 3.75 bn deal signed in October 2005**.
5. **Project 75** includes the native construction of **6 submarines**.

Other submarines Under Project-75:

1. The **1st submarine INS Kalvari** was commissioned into Indian Navy **December 2017**.
2. **2nd submarine INS Khanderi** in **September 2019**.
3. **3rd one is INS Karanj** in **March 2021**.
4. The **4th one is INS Vela** joined service in **November 2021**.
5. The **6th and last submarine, Vagsheer**, is expected to be delivered to the Navy by **end 2023**.



8.

CULTURE

8.1 Dokra Metalcraft

Why in News?

The West Bengal's Lalbazaar is not just an art hub, but it is also becoming a center for 'Dokra', a popular metalcraft.

In 2018, Dokra craft from West Bengal was presented with the Geographical Indication (GI) tag.



So, What is Dokra?

1. Dokra is a form of ancient bell metal craft practiced by the Ojha metalsmiths living in the states like Jharkhand, Chhattisgarh, Odisha, West Bengal and Telangana.
2. However, the style and also the workmanship of this artisan community varies in different states.
3. Dhokra or Dokra, is also known as bell metal craft.
4. The Dhokra artistes first make a clay model out of wax, which is then replaced with molten metal, either brass or bronze, through a lost-wax metal cast.
5. The name 'Dhokra' comes from the Dhokra Damar tribes, who are the traditional metal smiths of West Bengal.
6. Their technique of lost wax casting is named after their tribe, hence Dhokra metal casting.
7. The Dokra figurine are made in brass and are unique in that the pieces do not have any joints.
8. The tribe extends from Jharkhand to Orissa to as far ahead to Chhattisgarh, Rajasthan and even Kerala.
9. Each figurine takes almost a month to complete.
10. Dokra Art is still used to craft figurines, accessories, utensils and jewellery.
11. The dancing girl from Mohenjo-Daro (c. 2300 – 1750 BCE) is not just the most famous piece of art from the Harappan Civilisation, it is also one of the finest examples of metal art from that period.
12. This world-famous figurine is also the oldest example of a unique metal casting tradition called Dhokra that survives to this day.

Symbolism of Dhokra

1. With its roots in ancient civilisations, Dhokra represents a primitive lifestyle and the beliefs of people, going back to the age of hunting.
2. This is why figures of elephants, owls, horses and tortoises are commonly seen in Dhokra art.
3. The elephant symbolises wisdom and masculinity; the horse motion; owl prosperity and death; and the tortoise femininity.
4. In Hindu mythology, these iconic symbols also have stories behind them.
5. The world is imagined to rest on 4 elephants, standing on the shell of a tortoise.
6. The tortoise, considered as an avatar of Lord Vishnu, carries the world on his back, holding up the earth and the sea.



8.2 3 Indian Sites in Tentative List of World Heritage Sites

Why in News?

Recently, 3 Indian sites- Gujarat's Vadnagar town, the iconic Sun Temple of Modhera, and the Rock-cut Sculptures of Unakoti in Tripura have been added to the tentative list of 'United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Sites'.

About these 3 Sites:

1. Vadnagar:

- a) It is located in the Mehsana district of Gujarat.
- b) Vadnagar is also called as Chamatkarpur, Anandpur, Snehpur and Vimalpur, the town of Vadnagar was mentioned in the Puranas as well.
- c) It is home to many of archaeological treasures and is famous for its torans, a pair of 12th century Solanki-era columns which are 40 feet tall and built in red and yellow sandstone to celebrate a war victory.
- d) In 640 AD, Chinese Buddhist traveller, Hiuen Tsang visited the city, and is said to have mentioned it in his travelogue.
- e) During excavations in 2008-09, ruins of a Buddhist monastery were also found in Vadnagar.
- f) Vadnagar is home to 'Tanariri Performing Arts College' and it is named to honour the bravery of 2 sisters named Tana and Riri, who had sacrificed their lives when asked by Akbar to sing in his court, which was against their custom.



Modhera Sun Temple:

- g) The Sun Temple at Modhera is located on the left bank of the river Pushpavati, a tributary of river Rupan in Becharaji taluka of Mehsana district.
- h) This east-facing temple is built with bright yellow sandstone.
- i) The temple description states that it is built in Maru-gurjara architectural style, consists of the main temple shrine (garbhagriha), a hall (gadhamandapa), an outer hall or assembly hall (Sabhamandapa or rangamandapa) and a sacred pool (Surya Kunda), which is now called as 'Ramakunda'.
- j) Every year, at the time of the equinoxes (around 21st March and 22 September), the sun shines directly into the central shrine of the temple.



2. Rock-cut Sculptures of Unakoti:

- a) It is a Shaivite pilgrimage (belongs to Shiva) and dates back to 7th to 9th century AD.
- b) Unakoti means 1 less than a crore and it is said that these many rock cut carvings are available here.
- c) As per the Hindu mythology, when Lord Shiva was going to Kashi along with 1 crore gods and goddesses, he made a night halt at this location.
- d) He asked all the gods and goddesses to wake up before sun rise and proceed for Kashi.
- e) It is said that in the morning, except Shiva himself, no one else could get up so Lord Shiva set out for Kashi himself cursing the others to become stone images.
- f) As a result, it is believed that there are 1 less than a crore stone images and carvings at Unakoti.





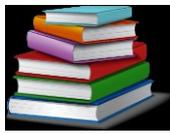
- g)** The images found at Unakoti are of 2 types, namely rock-carved figures and stone images.
- h)** Among the rock cut carvings, the central Shiva head and gigantic Ganesha figures deserve special mention.
- i)** The central Shiva head is known as 'Unakotiswara Kal Bhairava'.
- j)** On each side of the head-dress of the central Shiva, there are 2 full size female figures – 1 of Durga standing on a lion and another female figure on the other side.
- k)** In addition, 3 enormous images of Nandi Bull are found here with half buried in the ground.
- l)** Every year a big fair popularly known as 'Ashokastami Mela' is held in the month of April which is visited by thousands of pilgrims.

About UNESCO

1. **United Nations Educational, Scientific and Cultural Organization (UNESCO)** is a specialized agency of the United Nations (UN).
2. It aims to **build peace through international cooperation in Education, the Sciences and the Culture.**
3. It is also a member of the **United Nations Sustainable Development Group (UNSDG)**, a coalition of UN agencies and organizations aimed at fulfilling the **Sustainable Development Goals (SDGs).**
4. UNESCO's **Headquarter** is located in **Paris** and the **Organization has more than 50 field offices around the world.**
5. It has a total of **193 Members and 11 Associate Members** and is **governed by the General Conference and the Executive Board.**
6. **3 UNESCO member states are not UN members: Cook Islands, Niue, and Palestine.**
7. **While 3 UN member states (Israel, Liechtenstein and the United States) are not the members of UNESCO.**

What are UNESCO's World Heritage Sites?

1. A **World Heritage Site** is a place that is **listed by UNESCO for its special cultural or physical significance.**
2. **List of World Heritage Sites** are maintained by the international 'World Heritage Programme', administered by the **UNESCO World Heritage Committee.**
3. **Presently, there are almost 1,100 UNESCO listed sites across its 167 member countries.**
4. In **2021, 'Liverpool — Maritime Mercantile City' in the UK was deleted from the World Heritage List** due to "the irreversible loss in the site".



9.

MISCELLANEOUS

9.1 World AIDS Day

Why in News?

World AIDS Day is observed on 1st December every year all over the world.

- Its aim is to spread awareness about the disease and remember all those who lost their lives to it.

Why is World AIDS Day Celebrated?

- It was founded in 1988 by the World Health Organization (WHO).
- It was the 1st ever global health day with a motto of raising public awareness about acquired immunodeficiency syndrome (AIDS).
- Theme for 2022 is 'Equalize'.
- It encourages people to unite globally to eliminate the inequities that create barriers to HIV testing, prevention, and access to HIV care.

Significance of the AIDS Day:

- The very day reminds the public and government that HIV has not gone away and there is still a vital need to raise money, increase awareness, fight prejudice and improve education.
- It is an opportunity to show solidarity with the millions of people living with HIV worldwide.

What is AIDS Disease?

- AIDS is a chronic, potentially life-threatening health condition caused by the human immunodeficiency virus (HIV).
- AIDS interferes with the body's ability to fight infections.
- HIV attacks CD4, which is a White Blood Cell (T cells) in the body's immune system.
- T cells move around the body detecting anomalies and infections in cells.
- HIV multiplies itself and destroys CD4 cells, thus severely damaging the human immune system.
- Once this virus enters the body, it can never be removed.
- CD4 count is between 500- 1600, but in an infected body, it can go as low as 200.

Transmission of HIV:

- HIV can spread through multiple sources, by coming in direct contact with certain body fluids from a person infected with HIV, who has a detectable viral load.
- It can be blood, semen, rectal fluid, vaginal fluid or breast milk.

Symptoms of AIDS:

Once HIV converts into AIDS then it may present in initial symptoms like

HIV 101

Without treatment, HIV (human immunodeficiency virus) can make a person very sick and even cause death. Learning the basics about HIV can keep you healthy and prevent transmission.

HIV Can Be Transmitted By



Sexual Contact



Sharing Needles to Inject Drugs



Mother to Baby during pregnancy, birth, or breastfeeding

HIV Is NOT Transmitted By



Air or Water



Saliva, Sweat, Tears, or Closed-Mouth Kissing



Insects or Pets



Sharing Toilets, Food, or Drinks



unexplained fatigue, fever, sores around genitals or neck, pneumonia etc.

Prevention:

1. Make sure to use protective techniques.
2. Make sure to avoid using contaminated needles.
3. Prevent mother to child transmission.
4. If someone is aware of the infection in their body, make sure they are on the right treatment path.
5. Opt for the set of pre-marital tests before marriage which includes an HIV test and helps to ensure safety from other Sexually Transmitted Diseases as well.

What is the Global & National Status of AIDS?

Global:	National:
<ol style="list-style-type: none"> 1. According to the Joint United Nations Programme on HIV/AIDS (UNAIDS), as of 2021, 38.4 million people were living with HIV, out of which 1.7 million were children. 2. 54% of all people living with HIV were women and girls. 3. 85% of all people living with HIV knew their HIV status in 2021. 4. In 2021, 6,50,000 people died of AIDS-related diseases. 	<ol style="list-style-type: none"> 1. According to UNAIDS, an estimated 2.4 million people were living with HIV in India in 2021 (including 70,000 children). 2. Maharashtra had the maximum numbers followed by Andhra Pradesh and Karnataka.

What are India's Initiatives to Curb AIDS Disease?

1. **HIV and AIDS (Prevention and Control) Act, 2017:** Under this the **central and state governments shall take measures to prevent the spread of HIV or AIDS**.
2. **Access to ART:** India has made **Antiretroviral Therapy (ART) affordable and accessible to over 90 % of people living with HIV in the world**.
3. **Memorandum of Understanding (MoU):** To enhanced **HIV/AIDS** outreach and to **reduce the incidence of social stigma and discrimination against victims of drug abuse and Children and People Living with HIV/AIDS**.
[The MoU was signed between Ministry of Health and Family Welfare with the Ministry of Social Justice and Empowerment in 2019]
4. **Project Sunrise:** **Project Sunrise** was launched by the **Ministry of Health and Family Welfare in 2016**, to **tackle the rising HIV prevalence in north-eastern states in India**, especially among people injecting drugs.

9.2 Indian Navy Day

Why in News?

Recently, The **Indian Navy celebrated Navy Day for the 1st time outside Delhi, in Visakhapatnam**.

About Navy Day

1. The **Navy Day is celebrated each year on December 4**.
2. It is **celebrated to acknowledge the role of the service and to also honour the navy's achievements in 'Operation Trident' during the Indo-Pak war of 1971**.



About Indian Navy

1. On October 2, 1934, the naval service was renamed Royal Indian Navy (RIN).
2. On January 26, 1950, when India became a Republic, the prefix 'Royal' was removed, and it was renamed as the Indian Navy.
3. It is a well-balanced and cohesive three-dimensional force.
4. Indian Navy is capable of operating "above, on, and under" the surface of the oceans, for safeguarding our national interests.
5. The Chief of the Naval Staff (CNS) have operational and administrative control of the Indian Navy from the Integrated Headquarters of the Ministry of Defence (Navy).

DID YOU KNOW?
Maratha king Chhatrapati Shivaji Maharaj is known as the Father of Indian Navy

He was the first Indian king to have established a navy in the modern era



1612	East India Company founded Marine to protect merchant ships
1830	Title changed to His Majesty's Indian Navy
1892	Royal Indian Marine (RIM) constituted
1934	RIM's name changed to Royal Indian Navy (RIN)
1941	Naval Headquarters transferred from Bombay to New Delhi
1947	Divided into the Royal Indian Navy and the Royal Pakistan Navy
15 Aug, 1947	Rear Admiral JTS Hall appointed as India's first Flag Officer Commanding RIN
26 Jan, 1950	Prefix 'Royal' dropped; Ashoka Lion Motif becomes Indian Navy's Emblem
1972	First Navy Day celebrated on 4 December

Source: News reports 2018

Why do we need the Navy?

1. India's coastline is about 7,500 km and hence, we need Indian Navy to protect India's maritime interests.
2. Over 97% of India's national trade is carried by sea routes.
3. Indian Navy is very crucial for rescue and relief operations, in times of distress and natural disasters.

Significance of the Navy Day celebrations:

1. Achieving greater outreach
2. Renewing maritime consciousness amongst our citizens
3. Highlights the Navy's contributions towards national security

9.3 Vizhinjam Port Project

Why in News?

Recently, Adani Group approached the Kerala High Court for security cover of its port construction site in Vizhinjam (Kerala).

- Vizhinjam Port Project was disturbed due to violent protests by the Fishermen.

About the Vizhinjam Port Project:

1. It is a port being built under a Public Private Partnership (PPP) model with Adani Ports Private Limited.
2. It is located at Vizhinjam near Thiruvananthapuram, Kerala.
3. It was started back in December 2015 & has not yet been completed till yet & missed its deadline date of completion.

PORT MASTER PLAN





4. The port will have 30 berths, and will be able to handle huge “megamax” container ships.

Significance of the Project:

1. It is expected to boost India’s economy due to its strategic importance, as it is an ultramodern port and also located close to major international shipping routes.
2. The port would be capable of competing with Colombo, Singapore, and Dubai for a share of trans-shipment traffic, facilitating better trade.
3. The major advantages of the port are:
 - Availability of a 20m contour within one nautical mile from the coast.
 - Very less coastal drift along the coast
 - Hardly any maintenance required
 - Links to national/regional road
 - Efficient Rail network
 - Closeness to international shipping routes

Why are Fishermen Protesting?

1. Fisherfolk have been protesting against the project for the past 4 months.
2. Fisherfolks are saying that its construction is causing sea erosion, taking away their livelihood and houses.
3. They want an impact study to be conducted and the project to remain suspended until the study report comes out.
4. The fishing community has also put forward 6 other demands.

What are the 6 demands of Fishing Community?

1. Rehabilitation of families who lost their homes to sea erosion
2. Effective steps to mitigate coastal erosion
3. Financial assistance to fisherfolk on days weather warnings are issued
4. Compensation to families of those who lose their lives in fishing accidents
5. Subsidised kerosene
6. A mechanism to dredge the Muthalappozhi fishing harbour in Anchuthengu in Thiruvananthapuram district.
7. The kerosene subsidy has been demanded by claiming that because of the project, fishermen have to venture deeper into the ocean for catch, increasing the fuel cost burden.

9.4 National Bamboo Mission

Why in News?

Recently, the Ministry of Agriculture has formed an Advisory Group for streamlining the development of the Bamboo sector under the efficient National Bamboo Mission (NBM).

What is the National Bamboo Mission?

1. The restructured National Bamboo Mission (NBM) was launched during 2018-19 as a Centrally Sponsored Scheme (CSS).
2. It mainly focuses on the development of the complete value chain of Bamboo sector by linking growers with consumers.
3. Supply chain will include planting material, plantation, creation of facilities for collection, aggregation, processing, marketing, micro, small & medium





enterprises, skilled manpower and brand building initiative in a cluster approach mode.

Objectives of National Bamboo Mission:

1. To increase the area under bamboo plantation in non-forest Government and private lands.
2. To supplement farm income and contribute towards climate targets.
3. Connecting farmers to markets so as to enable farmer producers to get a ready market for the bamboo grown.
4. To increase the supply of appropriate raw material to the domestic industry.
5. It aims to upgrade skills of traditional bamboo craftsmen as per the requirement of contemporary markets with a tie-up with enterprises and premier institutes.
6. The Ministry of Agriculture & Farmers Welfare is the nodal agency for National Bamboo Mission.

What is the Potential of Bamboo?

1. The bamboo industry is witnessing a phase change by the opening of multiple avenues of resource utilization.
2. Bamboo is a multipurpose group of plants which is capable of providing ecological, economic and livelihood security to the people.
3. Recently, the Prime Minister inaugurated the new terminal of the Bengaluru (Kempagowda) Airport in which the versatility of bamboo as an architectural and structural material has been proved and the destiny of this green resource defined as the 'green steel'.
4. Apart from using in the construction sector as design and structural element, the potential of bamboo is multifaceted.
5. Ecofriendly parts from bamboo can replace the use of plastic.
6. Bamboo is a reliable source for the ethanol and bio-energy production due to its fast rate of growth and abundance.
7. The market of Bamboo based lifestyle products, cutleries, home decors, handicrafts and cosmetics also is in a growth path.

Status of Bamboo Production in India:

1. India has the highest area (13.96 million ha) under bamboo in the world.
2. It is 2nd richest country, after China, in terms of bamboo diversity.
3. [India has 136 species (125 indigenous and 11 exotic)].

What are the Initiatives to Promote Bamboo?

1. The Union Minister for Agriculture and Farmers' Welfare has virtually inaugurated 22 bamboo clusters in 9 states viz. Gujarat, Madhya Pradesh, Maharashtra, Odisha, Assam, Nagaland, Tripura, Uttarakhand and Karnataka.
2. Central government has revised the Minimum Support Price (MSP) for Minor Forest Produce (MFP).
3. MFP includes all non-timber forest produce of plant origin and includes bamboo, canes, fodder, leaves, waxes, resins and many forms of food including nuts, wild fruits, lac, tusser etc.
4. The Indian Forest Act 1927 was amended in 2017 to remove bamboo for the category of trees, allowing anyone to do cultivation and business in bamboo and its product without the transit permissions.
5. 10,000 new Farmers Producing Organisations (FPOs) will be formed in 5 years. [FPOs provide a range of assistance to farmers like imparting better farm practices, collectivisation of input purchases, transportation, linkage with markets, and better price realisation as they do away with the intermediaries.]

Way Forward:



With the abundance of bamboo and its rapidly growing industry, India should aim to establish herself in global markets for both engineered and handcrafted products by increasing the exports even further.

9.5 3 Himalayan Medicinal Plants Add IUCN Red List

Why in News?

Recently, 3 medicinal plant species, Meizotropis pellita, Fritillaria cirrhosa, and Dactylorhiza hatagirea found in the Himalayas, have been added to the IUCN Red List of Threatened Species.

More about the News:

1. This addition is done after an assessment in the Himalayan region which shows deforestation, habitat loss, forest fires, illegal trade and climate change are causing a serious threat to the species.
2. The fresh data is expected to aid conservation efforts in the region.

What are the Key Highlights of these Species?

<u>Species</u>	<u>Discription</u>
Meizotropis pellita: 	<ol style="list-style-type: none"> 1. It is commonly known as Patwa. 2. It is a perennial shrub & is endemic to Uttarakhand. 3. The species is listed as 'critically endangered' based on its limited area of occupancy (less than 10 sq. km). 4. The species is threatened by deforestation, habitat fragmentation and forest fires. 5. The essential oil extracted from the leaves of the species has strong antioxidants and can be a promising natural substitute for synthetic antioxidants in pharmaceutical industries.
Fritillaria cirrhosa: 	<ol style="list-style-type: none"> 1. It is perennial bulbous herb & commonly known as Himalayan fritillary. 2. Considering the rate of decline, high trade value, extensive harvesting pressure and illegal trade, the species is listed as 'vulnerable'. 3. The species is used for the treatment of bronchial disorders and pneumonia, in China. 4. The plant can be used to cure cough and a source of medicine drugs in traditional Chinese medicine.
Dactylorhiza hatagirea: 	<ol style="list-style-type: none"> 1. It is commonly known as Salampanja. 2. It is a perennial species endemic to the Hindu Kush and Himalayan ranges of Afghanistan, Bhutan, China, India, Nepal, and Pakistan. 3. It is threatened by habitat loss, livestock grazing, deforestation, and climate change, the species is listed as 'endangered'. 4. It is extensively used in Ayurveda, Siddha, Unani and other alternative systems of medicine. 5. It is used to cure gastritis, chronic fever, cough and stomach aches.



9.6 Okavango Delta (Inland Delta)

Why in News?

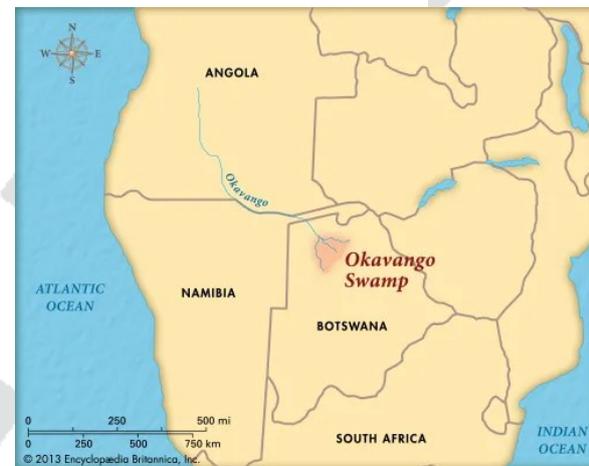
Recently, Oil companies are reported threatening Africa's iconic biodiversity hotspots like the Okavango delta in an effort to drill for oil.

What is Delta?

It is an area of flat land shaped like a triangle where a river divides into smaller rivers as it goes into the sea.

The characteristic features of the Okavango Delta:

1. The Okavango Delta is one of a very few large inland delta systems without an outlet to the sea, known as an endorheic delta.
2. As there is no outlet to the sea, its water drains into the desert sands of the Kalahari Basin.
3. One of the unique characteristics of the site is that the annual flooding from the river Okavango occurs during the dry season, with the result that the native plants and animals have synchronized their biological cycles with these seasonal rains and floods.
4. It is one of its types as example of the interaction between climatic, hydrological and biological processes.



More about the Okavango delta

1. This delta is located in north-west Botswana of Africa.
2. It includes permanent marshlands and seasonally flooded plains.
3. The Okavango delta is formed by the Okavango River originating from the highlands of Angola.
4. The Okavango delta is a UNESCO World Heritage Site in southern Africa.
5. The delta was also named as one of the Seven Natural Wonders of Africa.

Inhabitants of the Delta:

1. The delta is home to Africa's Big 5 wildlife species, Savanna elephants, Cape buffaloes, rhinos, lions and leopards.
2. There are also giraffes, zebras, antelopes, pangolins, 400 bird species and over 1,000 plant species.
3. The delta is home for the indigenous people like the San.

9.7 Beypore Uru

Why in News?

Recently, the District Tourism Promotion Council of Kozhikode has applied for a Geographical Indication (GI) tag for the famous Beypore Uru (Boat).

What is Beypore Uru?

1. The Beypore Urus are a symbol of Kerala's trade relations and friendship with the Gulf countries.



2. It is a **wooden dhow (ship / sailing boat / sailing vessel)** handcrafted by skilled **artisans** and **carpenters in Beypore, Kerala**.
3. The Beypore Uru are purely **made of premium wood, without using any modern techniques**.
4. The **wood used to build the Uru is still sawed in the traditional way which requires immense expertise**.
5. It **takes anywhere between 1-4 years to build 1 Uru and the entire process is done manually**.
6. This traditional handicraft **has been in existence from last almost 2000 years**.
7. **The prominent people associated with Uru-making are Odayis and Khalasis**.
8. **Odayis:**

9. Khalasis:

- a) They are **also referred to as Mappila Khalasis** as majority of them are **Mappila Muslims**.
- b) They are **world-famous for their skill and expertise in launching the completed Uru into the water by using only traditional methods**.

9.8 System for Pension Administration Raksha

Why in News?

Recently, the Ministry of Defence has requested the stakeholders of System for Pension Administration Raksha (SPARSH) to make it more user friendly.

About SPARSH?

1. It is a **web-based system which handles the pension claims & also credits pension, directly into the bank accounts of defence pensioners**.
2. **It does not depend upon any external intermediary or external body**.
3. It is an **integrated system for applying sanctions and disbursing defence pension**.
4. It comprises a **Pensioner Portal for pensioners to view their pension related information, access services and register their complaints**.

What are the objectives of SPARSH?

1. SPARSH calls for the **establishment of Service Centres to provide better connectivity to pensioners who may be unable to directly access the SPARSH portal**.
2. **SPARSH has been designed, keeping defence pensioners at the centre, who will be given a completely transparent view of their pension account, through an online portal**.
3. It aims to **address the current challenges in the pension sanctioning and disbursement process** such as:
 - **Decentralised solution (faster processing of pension claims, avoid hierarchical delays in file movement)**
 - **Manual interference in processing**
 - **Lack of Centralised information for addressing pensioner queries etc.**

What are the Benefits of SPARSH:

1. It gives **options to the pensioner to use enabled services for quicker processing of his requests making his experience a truly paperless and hassle free one**.
2. It works as a **repository and maintains a complete history of events and entitlements of the pensioner, right from the date of commencement of pension to the date of cessation of pension due to the last eligible beneficiary**.



9.9 Kerala's 5 Agricultural Products got GI Status

Why in News?

Recently, 5 agricultural products of Kerala named Attappady Attukombu Avara, Attappady Thuvara, Onattukara Ellu, Kanthalloor-Vattavada Veluthulli, and Kodungalloor Pottuvellari have been granted Geographical Indication (GI) status.

Key Facts about the Latest GIs:

1. Attappady Attukombu Avara (Beans):

- a) It is **curved like a goat's horn** as its name indicates.
- b) It's **higher anthocyanin content** as compared to other beans **gives it a violet colour in the stem and fruits**.
- c) Anthocyanin is **helpful against cardiovascular diseases too** along with its **anti-diabetic properties**.
- d) The **higher phenolic content** of Attappady Attukombu Avara gives it **resistance against pest and diseases, making the crop suitable for organic cultivation**.



2. Attappady Thuvara (Red Gram):

- a) It's having **seeds with white coat**.
- b) As compared to other red grams, Attappady Thuvara **seeds are bigger and have higher seed weight**.



3. Onattukara Ellu (Sesame):

- a) Onattukara Ellu and **its oil are famous for its unique health benefits**.
- b) It **has relatively higher antioxidant content** that helps in **fighting the free radicals, which destroy the body cells**.
- c) Also, the **high content of unsaturated fat** makes it **beneficial for heart patients**.



4. Kanthalloor-Vattavada Veluthulli (Garlic):

- a) As compared to the garlic produced in other areas, **this garlic contains higher amounts of sulphides, flavonoids, proteins and also rich in essential oils**.
- b) It is **rich in allicin**, which is **effective against microbial infections, blood sugar, cancer, etc.**



5. Kodungalloor Pottuvellari (Snapmelon):

- a) This snapmelon, which is **harvested in summer**, contains **high amount of Vitamin C**.
- b) As compared to other snapmelon, nutrients such as **calcium, magnesium, fibre and fat content are also high** in Kodungalloor Pottuvellari.





9.10 Water Worlds (Types of Planets)

Why in News?

According to a new study, a team of astronomers have found **water worlds, two exoplanets orbiting a red dwarf (small) star.**

What Are Water worlds?

1. Water world can be defined as a planet having more than half of its total mass as **water.**
2. Water is an important constituent of all life forms on the earth. Hence, it is called water world. But **Earth is not the only one water world in the universe.**

What are exoplanets?

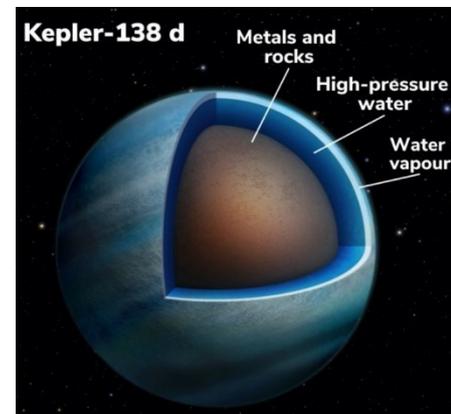
1. Exoplanets are the planets that orbit around other stars located outside our solar system.
2. Exoplanets are also called extrasolar planets.
3. All the stars have at least 1 planet revolving around them.
4. Most of the exoplanets discovered so far are located in the Milky way galaxy.
5. Approximately 4,000 exoplanets have been confirmed.
6. The closest exoplanet is a planet orbiting the closest star to the Sun, named Proxima Centauri.

About New Exoplanets:

1. These exoplanets are Kepler-138c and Kepler-138d.
2. It is the 1st time planets which are confidently identified as water worlds. [Water worlds are type of planet that was theorized by astronomers to exist for a long time.]
3. These were observed using NASA's Hubble and retired Spitzer space telescope.
4. These are located in a planetary system that is 218 light years away in the constellation Lyra.
5. The new planet takes 38 days to complete an orbit.
6. These are one of their kind and not like any planets in our solar system.

Key Findings of the study:

1. Kepler- 138c and d are made up of elements lighter than rock but heavier than hydrogen or helium (gas-giant planets like Jupiter).
2. This indicates the presence of water & almost half of the mass of the twin worlds should be water.
3. The volume of the two exoplanets are three times that of Earth and the mass is twice of earth.
4. They are also considered as larger-scale versions of Enceladus (Saturn's moon) and Europa (Jupiter's moon). [The density of the twin exoplanets is lower than Earth but comparable to Enceladus and Europa.]
5. These twin planets of the same size and mass are more massive than Earth but lighter than big icy planets named Uranus and Neptune.



What is the Significance of these exoplanets?



1. It can help researchers address the knowledge gap in the planet ecosystems and find more water worlds in the future.
2. It will give us critical information enabling us to compare the composition of the icy moons of the solar system with that of their larger and heavier extrasolar counterparts.

9.11 Tal Chhappar Sanctuary

Why in News?

The famous Tal Chhappar Blackbuck Sanctuary in Churu, Rajasthan has received a protecting cover against a proposed move of the State government to reduce the size of its Eco Sensitive Zone (ESZ).

More About the News:

The World Wildlife Fund for Nature (WWF) has also taken up a major project for the conservation of raptors in the sanctuary, spread in the same area of Rajasthan measuring 7.19 sq. Km.



What are the Key Facts about Tal Chhappar Sanctuary (TCS)?

1. It is situated on the border of the Great Indian Thar Desert.
2. Tal Chhappar is shelter of the most graceful Antelope seen in India, “the Blackbuck”.
3. It was given the status of a sanctuary in 1966.
4. Tal Chhappar was a hunting reserve of the erstwhile royal family of Bikaner.
5. The “Tal” word is Rajasthani word means plane land.
6. This Sanctuary has nearly flat territory and combined thin low-lying region. It has got open and wide grasslands with spread Acacia and Prosopis plants that offer it a look of a characteristic Savanna.
7. Tal Chhappar is an ideal place to see Blackbucks which are more than a thousand in number here. It is a good place to see the desert animals and reptile species.
8. The sanctuary is host to about 4,000 blackbucks, over 40 species of raptors and more than 300 species of resident and migratory birds.
9. Migratory birds in the sanctuary are harriers, eastern imperial eagle, tawny eagle, short-toed eagle, sparrow, and little green bee-eaters, black ibis and demoiselle cranes.
10. Other than that, skylarks, crested larks, ring doves, and brown doves can be seen throughout the year.

What are Blackbucks?

1. The Blackbuck (*Antelope cervicapra*), or the Indian Antelope, is a species of antelope native to India and Nepal.
2. It is found abundantly in Rajasthan, Gujarat, Madhya Pradesh, Tamil Nadu, Odisha, and other areas throughout peninsular India.
3. It is looked upon as addition to the personification (image) of grassland.





4. The **blackbuck is a daytime antelope** (active mainly during the day).
5. It has been declared as the **State Animal** of Punjab, Haryana, and Andhra Pradesh.
6. It is a **symbol of purity for Hinduism** as its skin and horns are considered as a **sacred object**.
7. It is a symbol of **good luck, for Buddhism**.
8. These are **protected under CITES in Appendix III**.
9. These are **protected under Wildlife Protection Act 1972 in Schedule I**
10. **IUCN Status of Black Buck is Least Concern**
11. **Threats to Black Buck are: Habitat Fragmentation, Deforestation, Natural Calamities, Illegal Hunting.**

Other protected areas for Black Buck Conservation:

1. **Point Calimere Wildlife Sanctuary, Tamil Nadu**
2. **Velavadar Blackbuck Sanctuary Gujarat**
3. **In 2017, the Uttar Pradesh State Government approved the plan of setting up the Blackbuck Conservation Reserve in the trans-Yamuna belt near Prayagraj, which would be the first conservation reserve dedicated to the blackbuck.**

Additional Information:

What are Eco-Sensitive Zones (ESZs)?

1. ESZs are **ecologically sensitive areas declared to regulate certain activities around National Parks and Wildlife Sanctuaries**.
2. These are notified by the **Ministry of Environment, Forest, and Climate Change (CC)**, under the **Environment Protection Act, 1986**.
3. The **basic aim of ESZs is to minimise the negative impacts of human activities on the weak ecosystem surrounding the protected areas**.
4. **Supreme Court, in 2022 has directed that every protected forest, national park and wildlife sanctuary across the country should have a mandatory eco-sensitive zone (ESZ) of a minimum 1 km starting from their marked boundaries.**

9.12 National Mathematics Day

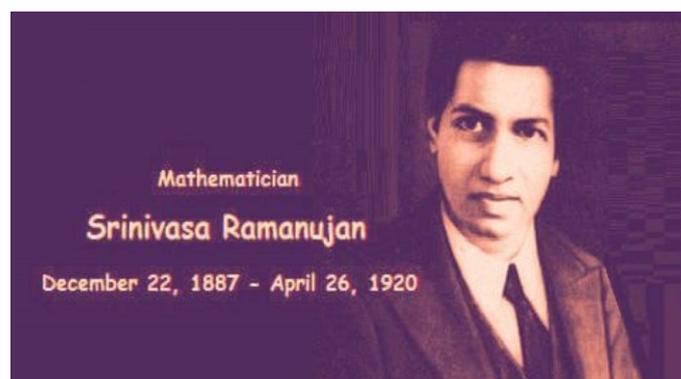
Why in News?

National Mathematics Day (NMD) has been celebrated every year on **22nd December** to mark the birth anniversary of **Srinivasa Ramanujan**.

1. **On the 125th birth anniversary of Ramanujan, National Mathematics Day (NMD) was announced by the then-Indian Prime Minister Manmohan Singh in 2012.**
2. The day is celebrated annually with the aim to **make people aware of the importance of mathematics and advancements and developments made in the field.**

So, Who was Srinivasa Ramanujan?

1. He was born on **22nd December 1887** in the **village Erode** (400 km from Chennai, then known as Madras).
2. The famous **British mathematician Godfrey Harold Hardy recognised his talent** in 1913 and then he went to Cambridge, on Godfrey Harold Hardy's invitation.
3. Ramanujan made significant **contributions in the analytical theory of numbers** and also **worked on elliptic functions**.





4. He also worked on the partition of the whole number, hypergeometric series and Euler's constant.
5. His papers were published in English and the European journals, and in 1918 he was elected to the 'Royal Society of London'.
6. He died on April 26th, 1920, at the age of 32, just after returning to India after a long illness.
7. In India, 22nd December is celebrated as 'National Mathematics Day' in the memory of Srinivasa Ramanujan.

Some more Contributions of Ramanujan are:

1. Game Theory:

- a) He discovered a long list of new ideas to solve many challenging mathematical problems, which have a significant contribution in the development of game theory.
- b) His contribution to game theory is purely based on intuition and natural talent and remains unrivalled to this day.

2. Formulas and Equations:

- a) Ramanujan compiled around 3,900 results consisting of equations and identities. One of his most important findings was his infinite series for 'Pi'.
- b) He gave several formulas to calculate the digits of Pi in many unconventional ways.

3. Ramanujan's Book: One of Ramanujan's 'notebook' was discovered by George Andrews in 1976 in the library at Trinity College. Later, the contents of that notebook were published as a book.

4. Ramanujan number:

- a) '1729' is known as the Ramanujan's number.
- b) It is the smallest number which can be expressed as the sum of two different cubes in two different ways.
- c) 1729 is the sum of the cubes of 10 and 9 - cube of 10 is 1000 and cube of 9 is 729 adding the two numbers results in 1729.
- d) 1729 is also the sum of cubes of 12 and 1, cube of 12 is 1728 and cube of 1 is 1 adding the two results in 1729.

9.13 National Sports and Adventure Awards 2022

Why in News?

Recently, the Table tennis legend Achanta Sharath Kamal was awarded with the 'Major Dhyan Chand Khel Ratna Award' for his outstanding performance in the Commonwealth Games, 2022 by the President as part of the National Sports and Adventure Awards 2022.

Other awards given include the Dronacharya Award, Dhyan Chand Award for Lifetime Achievement in Sports and Games, the Rashtriya Khel Protsahan Puruskar, the Maulana Abul Kalam Azad trophy as well as the Tenzing Norgay National Adventure Award.

About the Awards

1. Major Dhyan Chand Khel Ratna Award:



- a) Earlier it was known as the 'Rajiv Gandhi Khel Ratna Award' and it is the highest sporting award given by the Ministry of Youth Affairs and Sports for the most outstanding performance in the field of sports by a sports person over a period of 4 years.
- b) It carries a cash prize of Rs 25 lakh, a medal and a scroll of honour.
- c) The Khel Ratna award was started in 1991-1992 and the 1st recipient of it was Chess legend Viswanathan Anand.

2. Arjuna Award:

- a) It was started in 1961 by the Government of India to recognise outstanding achievement in national sports events.
- b) It is given for good performance over a period of previous 4 years and showing qualities of leadership, sportsmanship and a sense of discipline.
- c) The award carries a cash prize of Rs 15 lakh, a bronze statue of Arjuna and a scroll of honour.

3. Dronacharya Award:

- a) It was started in 1985 by the Government of India to recognise excellence in sports coaching.
- b) It is given to coaches for doing outstanding and meritorious work on a consistent basis and enabling sports persons to excel in international events.
- c) It carries a cash prize of Rs 15 lakh, a bronze statue of Dronacharya and a scroll of honour.

4. Dhyan Chand Award:

- a) It was started in the year 2002 and comprises a Dhyan Chand statue, a cash prize of Rs 10 lakh, a certificate and a ceremonial dress.
- b) It is given to honour sports persons who have contributed to sports by their performance and continue to contribute to promotion of sports events after their retirement.

5. Maulana Abul Kalam Azad Trophy:

- a) It was started in the year 1956-1957.
- b) It is for university-level sports performances.
- c) It is given to a university for "top performance in the inter-university tournaments" over the period of the last 1 year.

6. Rashtriya Khel Protsahan Puruskar:

- a) It was started in the year 2009.
- b) It is given to corporate entities (both in private and public sector), sports control boards, NGOs including sports bodies at the State and National level who have played a visible role in the area of sports promotion and development.

7. Tenzing Norgay National Adventure Awards:

- a) Started in 1993.
- b) The awards are given every year to recognize the achievements of persons in the fields of adventure, to encourage young people to develop the spirit of endurance, risk-taking and cooperative teamwork.

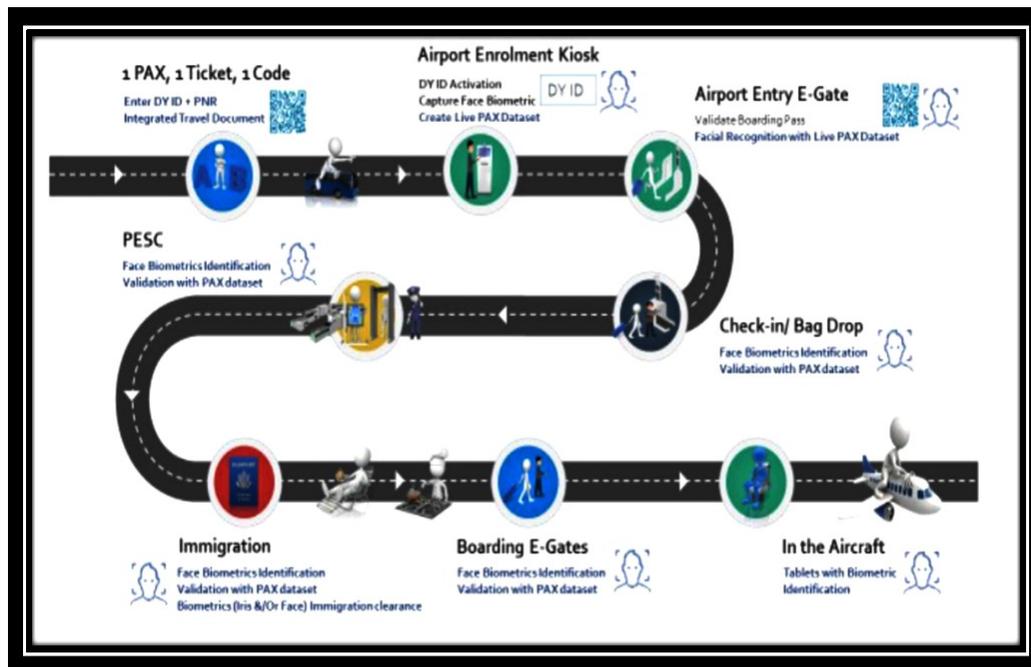
9.14 DigiYatra

Why in News?

Recently, the government has introduced paperless entry at selective airports to make air travel hassle-free.

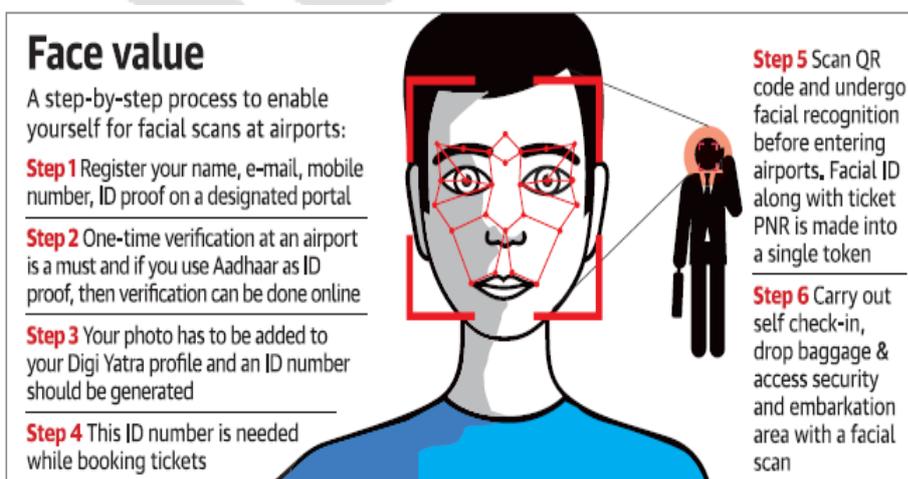


1. In the 1st phase, the initiative will be launched at 7 airports, starting with 3 — Delhi, Bengaluru, and Varanasi, followed by 4 airports namely Hyderabad, Kolkata, Pune, and Vijayawada by March 2023.
2. Later, the technology will be implemented across the country.



So, What is DigiYatra?

1. DigiYatra initiative will enable the travellers to pass through various checkpoints at the airport through paperless and contactless processing, using facial features to establish their identity, which will be linked to the boarding pass.
2. With this technology, the entry of passengers can be automatically processed based on the facial recognition system at all checkpoints – including entry into the airport, security check areas, aircraft boarding, etc.
3. The project is being implemented by the 'DigiYatra Foundation' under the Ministry of Civil Aviation.
4. DigiYatra Foundation is a joint-venture company whose shareholders are the Airports Authority of India, Bengaluru Airport, Delhi Airport, Hyderabad Airport, Mumbai Airport and Cochin International Airport.



Significance of DigiYatra:



1. Facial recognition technology is **beneficial** as it makes flying more convenient and **reduces congestion** at airports.
2. The **facial recognition system** at various airports across the globe including Dubai, Singapore, Atlanta etc have helped in bringing efficiency.
3. It can reduce the **cost of operations**.
4. It will enhance security standards and can **improve current system**.
5. It will help in saving the Paper too.

9.15 Dr. Rajendra Prasad

Why in News?

Recently on 3rd December 2022, the President of India paid tribute to Dr. Rajendra Prasad, the 1st President of India, on his birth anniversary at Rashtrapati Bhavan.

So, Who was Dr. Rajendra Prasad?

1. He was born in **Siwan, Bihar** on 3rd December 1884.
2. He joined the **Calcutta Presidency College** in 1902.
3. In 1915, he passed the **master's in law** from the **University of Calcutta** and won a gold medal too.
4. In 1916, he started his legal career in the **Patna High Court**. He completed his **Doctorate in Law** from **Allahabad University** in 1937.



His Role in Fight for Freedom:

1. **Association with Gandhiji:**
 - a) When **Gandhiji visited Champaran district of Bihar** to address the concerns of local peasants, he called on **Dr. Rajendra Prasad to come to Champaran with volunteers**.
 - b) Gandhiji was having a very big influence on **his views**, most importantly on issues related to **caste and untouchability**.
 - c) The **Champaran Satyagraha** not only made him closer to the **Mahatma Gandhi**, but also changed the entire path of his life.
2. **Role in Non-cooperation Movement:** He gave a call for **non-cooperation** in Bihar as part of **Gandhiji's non-cooperation movement**.
3. **Opened National College:** In 1921, he gave up his law practice and started a **National College near Patna**.
4. **Salt Satyagraha:**
 - a) In **March 1930**, Gandhiji launched the **Salt Satyagraha**. Under the guidance of **Dr. Prasad**, a salt **Satyagraha** was launched in **Nakhas Pond, Bihar**.
 - b) Batch after batch of volunteers were arrested while making salt. He called for more volunteers.
 - c) **Public opinion forced the Government to withdraw the police and allow the volunteers to make salt**.
 - d) He then sold the manufactured salt to raise funds. He was **sentenced to 6 months imprisonment**.
5. **Dr. Prasad & Indian National Congress:**
 - a) He officially joined the **Indian National Congress** in 1911, during its annual session held in **Calcutta**.
 - b) He **presided over the Bombay session of the Indian National Congress** in **October 1934**.



- c) After the **resignation of Subhash Chandra Bose as the President of the Congress in April 1939**, he was elected as the **President of INC for the 2nd time**.
- d) In **1946**, he joined the **Interim Government of Pandit Jawaharlal Nehru** as the **Minister of Food & Agriculture** and gave the slogan of **“Grow More Food”**.

6. Dr. Prasad & Constituent Assembly:

- a) In **July 1946**, when the **Constituent Assembly** was established to frame the **Constitution of India**, he was elected as its **President**.
- b) **Committees of Constituent Assembly under the chairmanship of Dr. Prasad includes:**
 - i) Ad hoc Committee on the National flag
 - ii) Committee on the Rules of Procedure
 - iii) Finance and Staff Committee
 - iv) Steering Committee
- c) **After almost two and a half years of independence, on 26th January 1950**, the **Constitution of independent India was ratified** and he got elected as **India's 1st President**.

Awards & Recognition:

1. In **1962**, after **12 years as President**, **Dr. Prasad retired** was awarded the **Bharat Ratna**, **India's highest civilian award**.
2. Dr. Prasad recorded his life in many books, which includes:
 - i) Satyagraha at Champaran
 - ii) India Divided
 - iii) His autobiography “Atmakatha”
 - iv) Mahatma Gandhi and Bihar
 - v) Babu ke Kadmon Mein

3. Death Dr. Rajendra Prasad spent the last few months of his life in retirement at the **Sadaqat Ashram in Patna**. He died on **28th February 1963**.

9.16 Maha-Pari-Nirvan Diwas

Why in News?

Recently, the Prime Minister has paid tributes to **Babasaheb Dr. Bhimrao Ambedkar** on his **Mahaparinirvan Diwas (6th December)**.



About Mahaparinirvan Diwas:

1. **Parinirvana is a Sanskrit term** and is regarded as one of the major principle as well as goal of Buddhism, which means **release or freedom after death**.
2. As per the Buddhist text ‘**Mahaparinirvana Sutta**’, the death of **Lord Buddha** at the age of **80** is considered as the original **Mahaparinirvana**.
3. **6th December** is observed to commemorate the contributions of **Dr. Bhimrao Ambedkar** towards the society. Due to **Ambedkar's status as a Buddhist leader**, his death anniversary is referred to as ‘**Mahaparinirvana Diwas**’.

About Babasaheb Dr. Bhimrao Ambedkar

1. He was born on **14th April 1891** in **Mhow** located in **Central Province (now Madhya Pradesh)**.
2. Dr. Ambedkar was a **social reformer, jurist, economist, author, and a scholar of comparative religions** too.



3. In **1916**, he received a **doctorate degree from Columbia University**, becoming the **1st Indian to do so**.
4. He is also known as the '**Father of the Indian Constitution**' and was **India's 1st law minister**.

About the Works of Dr. Ambedkar

1. He established a fortnightly newspaper (after every 2 weeks) "**Mooknayak**" in **1920** which laid the foundation for an organised Dalit politics.
2. He founded '**Bahishkrit Hitkarini Sabha**' (**1923**) which was devoted towards spreading education and culture amongst the dalits.
4. He led the '**Mahad Satyagraha**' in **March 1927** to challenge the regressive customs of the Hindus.
5. The '**Kalaram Temple Movement of 1930**' played an important role in the Dalit movement in India in which Dr. Ambedkar led a protest outside the Kalaram temple (located in Nashik, Maharashtra) which did not allow Dalits to enter the temple premises.
6. He participated in all **3 round-table conferences**.
7. In **1932**, he signed the '**Poona pact**' with Mahatma Gandhi, which abandoned the idea of separate electorates for the depressed classes. However, the seats reserved for the depressed classes were increased from 71 to 147 in provincial legislatures and to 18% of the total in the Central Legislature.
8. In **1936**, he got elected to the **Bombay Legislative Assembly** as a legislator (MLA).
9. In **1947**, he was appointed as the **Chairman of the Drafting Committee** for the new Constitution.
10. He accepted Prime Minister Nehru's invitation to become **Minister of Law** in the **1st Cabinet of independent India**.
11. He resigned from the Cabinet in **1951**, over differences on the **Hindu Code Bill** (aimed at reforming Hindu society).
12. In **1956**, he converted to **Buddhism** with a huge crowd.
13. He passed away on **6th December 1956**.
14. He was conferred **Bharat Ratna** in **1990**.
15. '**Chaitya Bhoomi**' is a memorial of Dr. **B.R. Ambedkar** which is located in **Dadar, Mumbai**.
16. His other Important Works are: **The Annihilation of Caste (1936)**; **The Untouchables (1948)**; **Buddha or Karl Marx (1956)**, **The Buddha and His Dhamma (1956)**, etc.

Additional Information

About Gautam Buddha

1. Born in **6th century** at **Lumbini** which is presently located in **Nepal**.
2. He belongs to **Shakya tribe** and his father was the head of this tribe.
3. Leaved home (this incident in buddhism is known as **Maha-nishi-kraman**) at a very early age in search of truth and got **Enlightenment (gyan)** at the age of almost 35 in **Bodhgaya** (Bihar).
4. He died (known as **Maha-pari-nirvana** in buddhism) in **Kushinagar(UP)**.

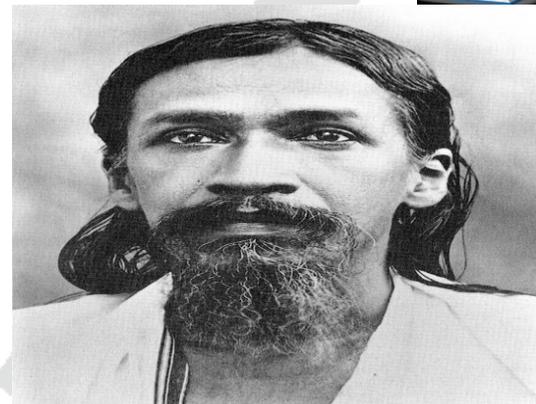


9.17 Sri Aurobindo: The Prophet of Indian Nationalism

Why in News?

Recently, the Indian Prime Minister has participated in a programme commemorating Sri Aurobindo's 150th birth anniversary in Puducherry, under the aegis of 'Azadi ka Amrit Mahotsav'.

On this occasion, the PM has released a commemorative coin and a postal stamp in honour of Sri Aurobindo.



So, Who Was Sri Aurobindo?

1. He was born in Calcutta in 1872. He was a Yogi, Philosopher, Poet, and a Indian nationalist who propagated the philosophy of 'divine life on earth through spiritual evolution'.
2. His father Krishna Dhun Ghose was a surgeon in Rangpur, Bengal and had sought to provide his 5 children English education considering British culture to be superior to Indian culture.
3. His education began in a Christian convent school in Darjeeling.
4. In 1879, the whole family moved to England as Krishna Dhun Ghose wanted his sons to pursue the Indian Civil Service (ICS). There, Aurobindo was taught History, French, Latin, Arithmetic and Geography.
5. He passed the ICS examination securing the 11th rank out of 250 candidates. He joined King's College for the training but had himself disqualified for an exam by arriving deliberately late as he had no interest in the ICS.
6. In 1892 he returned to India and held various administrative posts in Baroda (Vadodara) and Calcutta (Kolkata).
7. He began the study of Yoga and Indian languages, including classical Sanskrit.
8. From 1902 to 1910 he took part in the struggle to free India from the British.
9. He was much influenced by the American Revolution, revolts in Italy and the French revolts against England.
10. He helped in establishing the Anushilan Samiti in Calcutta in 1902.
11. He and his brother revolutionary Barin Ghose (Barindra Kumar Ghosh) contributed articles to the magazine **Jugantar** which inspired many young people to take up revolutionary work.
12. The partition of Bengal in 1905 provoked Aurobindo to leave his job in Baroda and he jumped into the nationalist movement.
13. He edited the patriotic journal 'Bande Mataram' to propagate radical methods and revolutionary tactics.
14. He was arrested thrice by the British — twice for sedition and once for conspiring to "war".
15. He was imprisoned in 1908 (Alipore Bomb case).
16. Two years later he fled from the jail and found refuge in the French colony of Pondichéry (Puducherry) and gave up active political activities and got engaged in spirituality.
17. He met Mirra Alfassa in Pondicherry, and their spiritual collaboration led to "Integral Yoga". Integral Yoga, is a yoga of self-transformation. The aim of this yoga



is not an escape from life or leaving of worldly existence, but a radical change in our life even while living it.

18. In Pondichéry, he founded a community of spiritual seekers, which took shape as the 'Sri Aurobindo Ashram' in 1926.

His Major Literary Works are:

- | | |
|--|-----------------------------------|
| 1. An English newspaper called Bande Mataram | 4. The Future Evolution of Man |
| 2. Bases of Yoga | 5. Rebirth and Karma |
| 3. Bhagavad Gita and Its Message | 6. Savitri: A Legend and a Symbol |
| | 7. Hour of God |

Additional Information

What is Azadi Ka Amrit Mahotsav?

1. It's an initiative of the Government of India to celebrate 75 years of India's Independence and to remember the sacrifices of our Freedom Fighter's.
2. This Mahotsav is dedicated to the people of India who have taken India this far and are continuously working towards PM's vision of India 2.0 (making India Aatam-nirbhar in every area possible).
3. Azadi ka Amrit Mahotsav program was started on 12th March 2021 which started a 75-week countdown to our 75th anniversary of independence and will end on 15th August 2023.

9.18 AYURSWASTHYA Yojana

About the AYURSWASTHYA Yojana

1. It's a central sector scheme of AYUSH Ministry launched in 2021.
2. It has 2 components:
 - a) **AYUSH and Public Health:** To promote AYUSH (Ayurveda, Unnani, Siddha and Homeopathy and Naturopathy) for community health care.
 - b) **Up-gradation of facilities to Centre of Excellence:** To support establishment of advanced/ specialized AYUSH medical health units in reputed AYUSH and Allopathic institutions both in Government and Non-Government sector.
3. Under the Centre of Excellence component of AYURSWASTHYA Yojana, financial assistance is provided to eligible individual organizations/institutes for establishing and upgrading their functions & facilities and/or for research & development activities in AYUSH.
4. The maximum admissible financial assistance under the Centre of Excellence component of AYURSWASTHYA Yojana, to an organization/institute is Rs.10.00 crores for a maximum period of 3 years.

Other Schemes Related to AYUSH are:

1. **National Ayush Mission**
 - a) It is a centrally sponsored scheme.
 - b) It was introduced in 2014.
 - c) Objective is to provide good AYUSH services, with universal access by upgrading AYUSH hospitals and dispensaries, co-location of AYUSH facilities at Primary Health Centres, community health centres, and district hospitals.
2. **Mission Madhumeha**
 - a) It was launched in 2016.



- b) The aim is to provide cost-effective treatment and control of non-communicable disease of Diabetes.
3. **Swasthya Raksha Programme**
- a) It spreads awareness about the cleanliness of domestic surroundings and environment
- b) In this program, mass campaigning through rallies, Nukkad Nataks focusing on personal, environmental and social hygiene are being undertaken for creating awareness about hygiene and health
4. **Scheme for Promoting Pharmacovigilance of AYUSH Drugs**
- a) It aims to develop the culture of documenting adverse impacts and undertake safety monitoring of AYUSH drugs.
- b) Surveillance of advertisements appearing in the print or electronic media which are misleading in nature.
- c) All India Institute of Ayurveda, New Delhi, an autonomous body under the Ministry of AYUSH has been designated as National Pharmacovigilance Centre for coordinating various activities of this initiative.
- d) It will facilitate the detection of potentially unsafe AYUSH medicines.
5. **AYUSH Entrepreneurship Programme:** It was jointly organized by the Ministry of AYUSH and Ministry of Micro, Small and Medium Enterprises (MSME) for promoting the AYUSH sector in the country under different Schemes of the Ministry of MSMEs.
6. **Ayush Wellness Centers:** AWC are launched to establish a holistic wellness model based on AYUSH principles and practices focusing on preventive, promotive, curative and rehabilitative healthcare by integration with the existing public health care system.

Additional Information

About Traditional Knowledge Digital Library (TKDL)

1. The TKDL contains digital documents of publicly available traditional knowledge (TK) that relates to Ayurveda, Unani, Siddha and Yoga (AYUSH).
2. It is available in 5 languages: 1) English 2) German 3) French 4) Japanese 5) Spanish.
3. It was established in 2001 by the Council for Scientific and Industrial research (CSIR) and the Ministry of AYUSH.
4. Aim of TKDL: It aims to promote India's traditional knowledge in front of entire world, so that it can be useful for everyone.

9.19 SAMARTH Scheme

Why in News?

Recently, the government has claimed that it has trained almost 13,235 artisans under the SAMARTH Scheme in the last 3 years.

About SAMARTH Scheme

1. SAMARTH (Scheme for Capacity Building in Textile Sector) is a flagship skill development scheme.
2. It was launched by the Ministry of Textiles in 2017.
3. The 'Office of the Development Commissioner (Handicrafts)' is implementing the SAMARTH scheme to provide skill training to the handicraft artisans.



Objectives of the Samarth Scheme

1. It aims to provide skill training to over 10 lakh persons.
2. The skilling programmes offered under Samarth Scheme aim to incentivize and supplement the efforts of the Textile industry.
3. The scheme aims to create more jobs in the textile and related sectors that will cover the entire value chain of the textile but will exclude spinning and weaving.
4. Traditional sectors of handlooms, handicrafts, sericulture and jute will be upgraded through skilling and skill upgradation.
5. Through skill upgradation of lakhs of persons, it aims to promote self-employment capabilities among youth and others.
6. It further aims to promote sustainable livelihood to all the sections of society.

About the Status of the Textile Sector in India

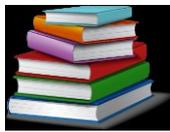
1. Textiles & Garments industry is a labour-intensive sector that employs more than 45 million people in India and is 2nd only to the agriculture sector in terms of employment.
2. India's textiles sector is one of the oldest industries in the Indian economy, and is a storehouse of traditional skills, heritage and culture.
3. It can be divided into 2 segments:
 - a) The unorganised sector which works on small scale and uses traditional tools and methods. It consists of handloom, handicrafts and sericulture (Production of silk).
 - b) While, the organised sector uses modern machinery and techniques and consists of the spinning, apparel and garments segment.

About the Significance of the Textiles Sector:

1. It contributes almost 2.3% to the Indian GDP, 7% to Industrial Output, 12% to the export earnings of India and employs more than 21% of total employment.
2. India is the 6th largest producer of Technical Textiles with 6% Global Share. India is the largest producer of cotton & jute in the world.
3. Technical textiles are functional fabrics that have applications across various industries including automobiles, civil engineering and construction, agriculture, healthcare, industrial safety, personal protection etc.
4. India is also the 2nd largest producer of silk in the world and 95% of the world's hand-woven fabric comes from India.

Challenges in front of Indian Textiles Sector are:

1. The Indian textile industry is highly fragmented and is being dominated by the unorganized sector and small and medium industries.
2. The Indian textile industry has its limitations of access to the latest technology (especially in small-scale industries) and failures to meet global standards in the highly competitive market.
3. Latest tax structure like GST (Goods and Service Tax) has made the garments expensive and uncompetitive in domestic as well as international markets. Another threat is rising labour wages and workers' salaries.
4. The export from the sector has been stagnating and remained at the USD 40 billion level from the last 6 years.
5. The textile units in India have an average size of 100 machines which is very less in comparison with Bangladesh, which has on an average of at least 500 machines per factory.



6. Due to the challenges mentioned above, the foreign investors are not very enthusiastic about investing in the Indian textile sector which is also one of the areas of concern. Though the sector has witnessed a good amount of investment during the last 5 years, the industry attracted Foreign Direct Investment (FDI) of only USD 3.41 billion from April 2000 to December 2019.

Way Forward

1. The Textile sector has great potential and it should be realised by using innovations and latest technologies.
2. India can make the sector organised by setting up mega apparel parks and common infrastructure for the textile industry. Focus should be on the modernisation of obsolete machinery and technology.
3. India needs a comprehensive blueprint for the textile sector. Once that is drawn up, the country needs to move into mission mode to achieve it.

9.20 Veer Bal Diwas

Why in News?

On 26th December, the Prime Minister participated in a historic programme marking 'Veer Bal Diwas' at Major Dhyan Chand National Stadium in Delhi.

Background of Observing Veer Bal Diwas

On the day of the Prakash Purab of Sri Guru Gobind Singh Ji (9th January 2022), the Prime Minister announced that 26th December will be observed as 'Veer Bal Diwas', to mark the martyrdom of sons of Sri Guru Gobind Singh - Sahibzadas 'Baba Zorawar Singh' and 'Baba Fateh Singh'.



So, Who were Zorawar Singh and Fateh Singh?

1. Sahibzada Jorawar Singh (aged 9) and Sahibzada Fateh Singh (aged 7) are among the most celebrated martyrs in Sikhism.
2. In 1704, Mughal soldiers captured Anandpur Sahib on the orders of emperor Aurangzeb.
3. The 2 sons of Guru Gobind Singh were also captured.
4. They were offered safe passage on the condition that they should convert into Islam but both refused, so they were sentenced to death and were bricked alive.

About the Guru Gobind Singh

1. Guru Gobind Singh was born in 1666 at Patna, Bihar and was the last of 10 Sikh gurus.
2. He became the Sikh guru at the age of 9, following the demise of his father, Guru Tegh Bahadur (the 9th Sikh Guru)
3. Guru Gobind Singh was assassinated in 1708.

His Contributions are:

1. Towards Religion:
 - a) He is known for his significant contributions to the Sikh religion, including the introduction of the turban to cover hair.
 - b) He also founded the principles of Khalsa or the 5 'K's'.



- c) The 5 'K's are kesh (uncut hair), kanga (wooden comb), kara (iron or steel bracelet), kirpan (dagger) and kachera (short breeches).
- d) These are the 5 articles of faith that a Khalsa must always adorn.
- e) He also laid down many other rules for the Khalsa warriors to follow like abstaining from tobacco, alcohol, halal meat, etc.
- f) The Khalsa warrior was also duty-bound to protect innocent people from persecution.
- g) He named 'Guru Granth Sahib', the religious text of the Khalsa's and the Sikhs, as the next Guru.

2. Towards Literature:

- a) His literary contributions include the Jaap Sahib, Benti Chaupai, Amrit Savaiye, etc.
- b) He also wrote the 'Zafarnama' which was a letter to the Mughal Emperor Aurangzeb.

9.21 Bomb cyclone

Why in News?

Bomb cyclone is messing up as the death toll due to weather-related incidents in the United States has reached to 34 and has left millions without electricity.

What is Bomb Cyclone?

1. A bomb cyclone is a large, intense mid-latitude storm.
2. It has low pressure at its centre, weather fronts and an range of associated weather, from snowstorms to severe thunderstorms to heavy precipitation.
3. It becomes a bomb when its central pressure decreases very quickly by at least 24 millibars in 24 hours.
4. When a cyclone "bombs," or undergoes bombogenesis, this tells us that it has access to the optimal ingredients for strengthening, such as high amounts of heat, moisture and rising air.

[Bombogenesis is a phenomenon or process in which there is rapid and falling of pressure in the centre of the storm, indicative of its strengthening into a powerful storm.]



Why is it called a bomb?

1. Most cyclones don't intensify rapidly in this way.
2. Bomb cyclones put forecasters on high alert, because they can produce significant harmful impacts.

Why it was named as BOMB?

1. The word "bombogenesis" is a combination of cyclogenesis, which describes the formation of a cyclone or storm, and bomb, which is, well, pretty self-explanatory.
2. This can happen when a cold air mass collides with a warm air mass, such as air over warm ocean waters.



3. The formation of this rapidly strengthening weather system is a process called **bombogenesis**, which creates what is known as a bomb cyclone.

How does it occur?

1. Over the warmer ocean, heat and moisture are abundant.
2. But as cool continental air moves overhead and creates a large difference in temperature, the lower atmosphere becomes unstable and buoyant.
3. Air rises, cools and condenses, forming clouds and precipitation.

Where does it occur the most?

1. The **US coast** is one of the regions where bombogenesis is most common.
2. That's because storms in the mid-latitudes (a temperate zone north of the tropics that includes the entire continental US) draw their energy from large temperature contrasts.
3. Along the US East Coast during winter, there's a naturally potent thermal contrast between the cool land and the warm Gulf Stream current.

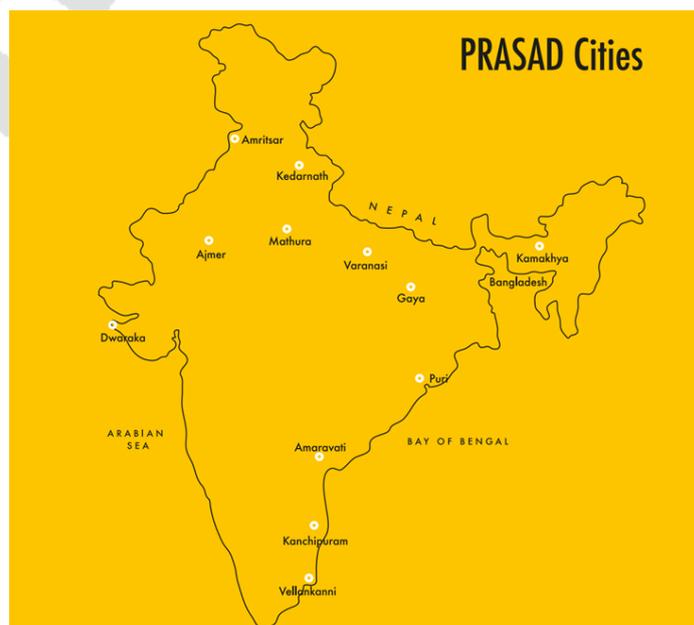
9.22 PRASAD Project

Why in News?

President of India inaugurated 'PRASAD' project at the tourism facilitation centre in the pilgrim town of Srisailem in Andhra Pradesh.

About PRASAD Scheme:

1. The full form of the PRASAD scheme is 'Pilgrimage Rejuvenation and Spiritual Augmentation Drive'.
2. The scheme was launched in the year **2014-2015**.
3. It comes under the **Ministry of Tourism**.
4. It is **100% Centrally Sponsored Scheme under Tourism Ministry**.
5. Provisions under the scheme include-
 - Tourism Promotion and Tourist Ecosystem
 - Vocational Training for Tourists and Hospitality Business
 - Hunar se Rozgar tak (HSRT) and earn while you learn programs
 - Improving Tourist Infrastructure



Development with PRASAD scheme:

1. The pilgrim town will get a pilgrim complex, amenities centres, an amphitheatre, sound and light show, digital intervention, parking areas among others.
2. There is total outlay of ₹48.03 crore under the PRASAD project.
3. **Cities Identified Under PRASAD Scheme:**
 - Amritsar (Punjab)
 - Kedarnath (Uttarakhand)
 - Mathura (Uttar Pradesh)
 - Ajmer (Rajasthan)
 - Varanasi (Uttar Pradesh)
 - Gaya (Bihar)
 - Kamakhya (Assam)
 - Dwaraka (Gujarat)
 - Puri (Odisha)



- Amaravati (Andhra Pradesh)
- Kanchipuram (Tamil Nadu)
- Velankanni (Tamil Nadu)

Significance of the PRASAD scheme:

1. **Promoting religious tourism:** The growth of domestic tourism hugely depends on pilgrimage tourism. The scheme paves the way for the development and promotion of religious tourism in India.
2. **Job creation:** to reap advantage of pilgrimage tourism's multiplier and direct effects on job creation and economic development.
3. **Development:** In the development of pilgrimage locations, it will adhere to the pro-poor tourist philosophy and community-based development.
4. Making use of public resources and skills.
5. **Infrastructure:** It will develop world-class infrastructure in religious places to sustainably increase tourism appeal.
6. **Knowledge:** It will increase local community knowledge of the relevance of tourism to them in terms of improved living conditions, increased sources of income, and overall region development.

9.23 City Finance Rankings 2022

Why in News?

Recently, the **Ministry of Housing & Urban Affairs** has launched **City Finance Rankings 2022** and **City Beauty Competition** aimed at incentivising urban local bodies for improving cities' public infrastructure and strengthening them on basis of key financial parameters.

More About the News:

A 'City Beauty Competition' initiative was also launched to encourage and recognise the transformational efforts made by cities and wards in India towards creating beautiful, innovative and inclusive public spaces.

What is City Finance Rankings 2022?

1. It aims to evaluate, recognise, and reward urban local bodies on the basis of their strength across key financial parameters.
2. City Finance Rankings aim to motivate city and state officials and decision makers, to implement municipal finance reforms.
3. The participating urban local bodies will be evaluated on 15 indicators across three key municipal finance assessment parameters like resource mobilisation, expenditure performance, and fiscal governance.
4. The basis of the ranking will be their scores under any one of the following 4 population categories:
 - Above 4 million
 - Between 1-4 million
 - 100,000 to 1 million
 - Less than 100,000
1. The top 3 cities in each population category will be recognized and rewarded at the national level as well as within each state/state cluster.

Significance:

1. It will help identify areas in the financial performance of the cities where they can make further improvements.
2. It will motivate city/state officials and decision-makers, to implement municipal finance reforms.
3. It will enable them to deliver quality infrastructure and services, and hence a good quality of life to citizens.



4. At a state- and national level, the rankings will highlight the outcomes achieved by municipalities and provide critical insights to key policymakers into the state of finances of urban local bodies.

About City Beauty Competition:

1. Wards and public places of cities would be judged against the 5 broad pillars:
 - Accessibility
 - Amenities
 - Activities
 - Aesthetics
 - Ecology
2. It would felicitate most beautiful wards and beautiful public places at the city level.
3. It aims to encourage and recognise the transformational efforts made by cities and wards in India to create beautiful, innovative and inclusive public spaces.

9.24 Areca Nut

Why in News?

Recently, a Lok Sabha member has requested Union government to levy a heavy import duty on areca nut to control the falling prices in the domestic market.

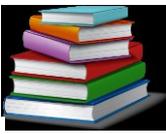


About Areca Nut/Areca Palm:

1. Areca palm, has also been called yellow palm, butterfly palm, yellow butterfly palm, cane palm and golden feather palm.
2. The areca nut palm is the source of a common chewing nut, popularly known as betel nut or Supari.
3. India is the largest producer of areca nut and at the same time largest consumer also.
4. Major states cultivating this crop are:
 - Karnataka (40%)
 - Kerala (25%)
 - Assam (20%)
 - Tamil Nadu
 - Meghalaya
 - West Bengal
5. It was Originated in Madagascar and is widely grown outdoors in the tropics.

Growing Condition:

1. It grows well within the temperature range of 14°C and 36°C and is adversely affected by temperatures below 10°C and above 40°C.
2. The cultivation of areca nut is mostly confined to 28° north and south of the equator.
3. Ideal rainfall for healthy growth of areca nut is 750 mm or approx. 4500 mm of Irrigation.
4. In well-drained soils and in the fields where proper drainage can be provided, deep planting is preferred.
5. Deeper planting provides a firm port and larger volume of space for root development.
6. In areas where water table is high, shallow planting is preferred. Thus, in well-drained soils, planting at a depth of 90 cm is recommended and in heavy soils planting at a depth of 60 cm is recommended.



7. The largest area under the crop is found in gravelly laterite soils of red clay type. It can also be grown on fertile clay loam soils. Sticky clay, sandy, alluvial, brackish and calcareous soils are not suitable for areca nut cultivation.

9.25 J C Bose: A Satyagrahi Scientist

Why in News?

Recently, the Ministry of Culture has organized an international conference on the contributions of “J C Bose: A Satyagrahi Scientist” on his 164th birth anniversary.



So, Who was Jagdish Chandra (JC) Bose?

1. He was born in 1858 in the Bengal province of British India.
2. He earned a BSc from University College London and a BA (Natural Sciences Tripos) from the University of Cambridge in 1884.
3. His Scientific Contribution are:
 - a) He was a biologist, physicist, botanist and a writer of science fiction too.
 4. He was the inventor of ‘Crescograph’, a device which measures the growth of plants. He for the 1st time demonstrated that plants have feelings.
 - a) Bose discovered wireless communication and was named as the ‘Father of Radio Science’ by the Institute of Electrical and Electronics Engineering.
 - b) He was also having a great contribution in the expansion of experimental science in India.
 - c) Bose is considered as the father of Bengali science fiction. A crater on the moon has been named in his honour.
 - d) He founded ‘Bose Institute’, a premier research institute of India.
 - e) It was established in 1917 and the Institute was the 1st interdisciplinary research centre in Asia.
 - f) He served as the Director of Bose Institute from its beginning until his death.
 - g) To facilitate his research, he constructed automatic recorders which were capable of registering extremely slight movements and these instruments produced some good results too results, such as vibrations in injured plants, which Bose interpreted as a power of feeling in plants.
 - h) His most famous books are: Response in the Living and Non-Living (1902) and The Nervous Mechanism of Plants (1926).
5. He died on 23th November 1937 in Giridih, Jharkhand.



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By an IRS Officer of 2016



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