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**Current
Affairs
(CONSOLIDATION)**

**JUNE 2024
(PART – II)**

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Polity and Governance

Highlights

- Joint Sitting of Parliament and Leader of House
- Enemy Agents Ordinance
- 1975 Emergency and its Impact
- National Green Hydrogen Mission
- Faecal Sludge and Septage Management
- Deputy Speaker of Lok Sabha
- Role of PESA in Forest Conservation
- Managed Care Organisations
- Post Office Act 2023
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- UN Sustainable Development Report 2024
- Criminal Justice System
- Railway Accidents and Kavach System
- Mercy Petition
- Controversies Surrounding UAPA

Joint Sitting of Parliament and Leader of House

Why in News?

The President of India recently addressed the **joint sitting of both houses of Parliament**. It was the first time he addressed the **newly elected 18th Lok Sabha**.

What is the Joint Sitting of Parliament?

- **About:**
 - A joint sitting involves both houses of Parliament (Lok Sabha and Rajya Sabha) meeting together.
- **Types of Joint Sitings in the Constitution:**
 - There are **two main types of joint sittings** in the Indian parliamentary system.
 - First is the **presidential address under Article 87** and
 - Second is the resolution of **legislative deadlocks under Article 108**.
 - **Article 87** of the Indian Constitution outlines when the President addresses both Houses of Parliament.
 - The President addresses the **Rajya Sabha and Lok Sabha at the beginning of the first session** after each general election.
 - The President also addresses both Houses at the **beginning of the first session** of each year.
- The **Constitution (First Amendment) Act of 1951** modified **Article 87** as follows: **In clause (1),**

the phrase “every session” was replaced with “the first session after each general election to the House of the People and at the commencement of the first session of each year.

➤ Significance of Joint Sitting:

- They provide **an opportunity for the President** to outline the government’s policy priorities and legislative agenda.
- The address after general elections is particularly significant as it **often reflects the mandate and priorities** of the newly elected government.
 - **Article 108 of the Constitution** can be called in the following scenarios:
 - when a bill is **passed by one house** but **rejected** or not returned by the **other**.
 - When the President returns a bill for reconsideration.
 - When more than six months have elapsed from the date of the
 - receipt of the bill by the other House without the bill being passed by it.
 - Key provisions for Joint Sitings:
 - Chaired by the Lok Sabha Speaker
 - Follows **Lok Sabha rules of procedure**.
 - A quorum is one-tenth of the total members from both houses
 - Used as a last resort to resolve legislative deadlocks.
 - **Exceptions to Joint Sitings:** The two exceptions are:

Note:



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- [Money Bills \(Article 110\)](#)
- [Constitution Amendment Bills \(Article 368\)](#)

Note:

- **Only three bills** have been passed through **joint sittings since 1950**:
 - Dowry Prohibition Bill, 1960
 - Banking Service Commission (Repeal) Bill, 1977
 - Prevention of Terrorism Bill, 2002

Who is the Leader of the House (LOH)?

- **Current LOH in Rajya Sabha:**
 - On the opening day of the **Rajya Sabha's 264th session**, Health Minister **Jagat Prakash Nadda** was officially appointed as the **Leader of the House in the Rajya Sabha**.
- **Legal Backing:**
 - The term Leader of the House is officially defined in the [Rules of Procedure for both the Lok Sabha and the Rajya Sabha](#).
- **Appointment Process:**
 - He is a **minister and a member of the Rajya Sabha** and is **nominated by the prime minister** to function as such.
 - Additionally, the **Leader of the House** has the authority to appoint a Deputy Leader of the House.
 - In the United States, a comparable position is known as the 'majority leader.'
- **Responsibilities:**
 - Conducts the **overall process**, especially debates and discussions
 - Maintains harmony among members
 - Upholds the respect of the Rajya Sabha
 - Maintains standard proceedings during parliamentary debates
- **LOH in Lok Sabha:**
 - **In the Lok Sabha**, the Leader of the House is typically the **Prime Minister** if they are a house member. If not, it's a Minister who is a member and is nominated by the Prime Minister for this role.
 - By convention, the Prime Minister is always the Leader of the Lok Sabha.

Enemy Agents Ordinance

Why in News?

Recently, **Jammu and Kashmir's** Director General of Police (DGP) proposed using the **Enemy Agents Ordinance of 2005**, which includes penalties such as **life imprisonment or the death penalty**, to prosecute militant supporters instead of the [Unlawful Activities Prevention Act \(UAPA\)](#).

What is the Enemy Agent Ordinance?

- **About:**
 - Introduced in **1917 by the Dogra Maharaja of Jammu and Kashmir (J&K)**.
 - The term 'ordinance' reflects the nomenclature for laws used during the **Dogra era**.
 - **Post-Partition Evolution:** The ordinance was **re-enacted in 1948** as a law by the Maharaja in exercise of his law-making powers conferred by **Section 5 of the Constitution Act of Kashmir, 1939**.
 - **Legal Basis:** The Enemy Agent Ordinance was subsequently protected by inclusion in the [Jammu and Kashmir Constitution of 1957](#), particularly under Section 157.
- **Constitutional Changes after Abrogation of Article 370:**
 - Key security legislation like the **Enemy Agents Ordinance and Public Safety Act** were retained.
 - Some laws, such as the Ranbir Penal Code, were superseded by the [Indian Penal Code](#).
- **Key Provisions of Enemy Ordinance:**
 - **Definition of Enemy Agent:**
 - Enemy agent ordinance targets **agents or friends of the enemy** rather than the enemy itself. It defines the **enemy in the context of the 1947 tribal invasion of Kashmir**.
 - Anyone who conspires with another person to act intended to aid the enemy is regarded as an enemy agent.
 - **Punishment:**
 - Enemy agents shall be punished with death or rigorous imprisonment for life or with rigorous imprisonment for a term which may **extend to 10 years and shall also be liable to fine**.
 - **Judicial Validation and Trial:**
 - In *Rehman Shagoo vs State of Jammu and Kashmir Case*, 1959, the [Supreme Court](#) upheld the enemy agent ordinance.

Note:

- The trial under the Enemy Agents Ordinance is conducted by a special government-appointed judge in consultation with the High Court.
- Accused under the ordinance cannot **engage a lawyer unless permitted by the court** and there is **no provision for appeal against the verdict**.

What is the Unlawful Activities Prevention Act (UAPA)?

- **The Unlawful Activities Prevention Act (UAPA)**, enacted in **1967** and initially aimed at addressing **secessionist movements and anti-national activities**.
- It has undergone multiple amendments, most recently in **2019**. These amendments include provisions concerning **terrorist financing, cyber-terrorism, individual designation, and asset seizure**.
- The UAPA grants authority to the **National Investigation Agency (NIA)** for nationwide investigation and prosecution under its purview and imposes severe penalties such as the **death penalty and life imprisonment** for terrorist acts.
- It allows for the detention of suspects without charge or trial for up to **180 days and denies bail** unless the **court finds the accused not guilty**.
- Terrorism under the UAPA encompasses acts causing or intending to cause harm to **individuals, property damage, or threats to the unity, security, or economic stability of India or any other nation**.

1975 Emergency and its Impact

Why in News?

Recently, the **Prime Minister** of India has paid homage to all those great men and women who resisted the **National Emergency** of 1975.

- 25th June **2024** marked the **49th anniversary** of the declaration of the national emergency in India.

What is an Emergency?

- **About:**
 - It refers to **legal measures and clauses within a country's constitution or laws** that enable the government to respond swiftly and effectively to **extraordinary situations, such as war, rebellion, or other crises** that threaten the nation's stability, security, or **sovereignty and democracy of India**.
- **Provisions in Constitution:**
 - These provisions are outlined in **Article 352 to Article 360** under **Part XVIII** of the Constitution.
 - The emergency provisions in the Indian Constitution draw inspiration from **Germany's Weimar Constitution**.

Articles	Subject Matter
Article 352	Proclamation of Emergency
Article 353	Effect of Proclamation of Emergency
Article 354	Application of provisions relating to the distribution of revenues while a Proclamation of Emergency is in operation
Article 355	Duty of the Union to protect States against external aggression and internal disturbance
Article 356	Provisions in case of failure of constitutional machinery in States
Article 357	Exercise of legislative powers under proclamation issued under Article 356
Article 358	Suspension of provisions of Article 19 during Emergencies
Article 359	Suspension of the enforcement of the rights conferred by Part III during Emergencies
Article 360	Provisions as to Financial Emergency

- **Significance:**
 - These provisions usually **give the executive branch temporary authority to bypass standard legislative procedures**, limit certain rights and freedoms, and implement policies that would ordinarily fall outside its jurisdiction under normal conditions.

Note:

What are the Types of Emergency in the Indian Constitution?

➤ National Emergency (Article 352):

- Under Article 352, the President is empowered to declare a state of emergency if he is satisfied that the **security of the country or any part thereof is threatened by war, external aggression (External Emergency), or armed rebellion (Internal Emergency)**.
 - The term 'armed rebellion' was inserted by the **44th amendment** replacing internal disturbance.
- The declaration grants the **executive vast powers to suspend fundamental rights (except Articles 20 and 21)**, allowing the government to take necessary measures to address the crisis effectively.

➤ Duration and Parliamentary Approval:

- The proclamation of emergency **must be approved by both the houses of Parliament within one month from the date of its issue**.
 - However, **if the proclamation of emergency is issued at a time when the Lok Sabha has been dissolved without approving the proclamation, then the proclamation survives until 30 days from the first sitting of Lok Sabha** after its reconstitution, provided the **Rajya Sabha** has in the meantime approved it.
- If approved by both the houses, the **Emergency continues for 6 months** and can be extended to an **indefinite period with an approval of the Parliament for every six months**.
- Every resolution approving the **proclamation of emergency** or its continuance must be passed by either House of Parliament **by a special majority**.

➤ Revocation of Proclamation:

- A proclamation of Emergency may be **revoked by the President** at any time by a subsequent proclamation. Such proclamation **does not require parliamentary approval**.
- The emergency must be revoked if the **Lok Sabha passes a resolution by a simple majority** disapproving its continuation.

➤ Applicability of National Emergency:

- A proclamation of National Emergency may apply to the **entire country or only a part of it**.
 - The **42nd Constitutional Amendment Act of 1976** enabled the President to **limit the operation of a National Emergency** to a specific part of India.

➤ Judicial Review of National Emergency:

- **38th Constitutional Amendment Act of 1975**: It made the declaration of a National Emergency **immune to judicial review**.
- **44th Constitutional Amendment Act of 1978**: It repealed this provision of the 38th Amendment, thereby **restoring the judiciary's ability to review the declaration of a National Emergency**.
- **Minerva Mills Case, 1980**: In this the **Supreme Court** ruled that the proclamation of a National Emergency **can be challenged in court** on grounds of **malafide intent** or if the declaration was based on extraneous or irrelevant facts.

➤ State Emergency or President Rule (Article 356):

PRESIDENT'S RULE


WHAT IT MEANS

HOW CAN IT BE IMPOSED IN A STATE

- 1 On recommendation of Governor in case of failure of constitutional machinery
- 2 If a state legislature is unable to function according to constitutional provisions

Article 356
of the Indian Constitution has the provision of President's Rule



DURATION 

6 months
A maximum of 3 years by approval of Parliament after every 6 months

EXECUTIVE AUTHORITY
Exercised through the centrally appointed Governor



TERMINATION
By President, any time (s)he deems fit; does not need Parliament's approval



A NEW PROVISION
The 44th Constitutional Amendment 1978 states that the President's Rule can't be imposed in any state beyond 1 year unless

PARLIAMENT'S ROLE
Every such proclamation must get Parliament's approval within two months from date of issue



- 1 A Proclamation of National Emergency is in operation
- 2 The Election Commission certifies that the continuance of President Rule is necessary to hold Assembly elections

○ Some of many Examples of Imposition of President Rule:

- **Maharashtra (2019)**: It was imposed for a short period following political uncertainty after the assembly elections, but a new government was formed within a week.
- **Uttarakhand (2020)**: It was imposed for a similar short duration due to a political crisis involving a floor test in the assembly.
- **Uttar Pradesh (1991-1992)**: Imposed following the assassination of then Prime Minister Rajiv Gandhi and subsequent political instability.

Note:

- **Punjab (1987-1992):** Imposed due to heightened militancy and internal disturbances.
- **Scope of Judicial Review**
 - The Supreme Court has laid down guidelines in various cases such as *S.R. Bommai vs Union of India, 1994* and *Rameshwar Prasad vs Union of India, 2006* regarding the use of Article 356.
 - ***S.R. Bommai vs. Union of India, 1994:***
 - The **Supreme Court** ruled that imposing President's Rule is **subject to Judicial Review**.
 - It established that the **satisfaction of the President** must be based on **relevant material**, and a proclamation based on irrelevant or extraneous grounds can be struck down.
 - The State Legislative Assembly should only be dissolved after Parliament has approved the proclamation; until then, the President can only suspend the assembly.
 - It emphasised that the power under **Article 356** is **exceptional** and should be used **only occasionally** to meet the requirements of **special situations**.
- Recommendation Regarding Article 356:
 - **Punchhi Commission:**
 - It recommended **localising emergency provisions under Articles 355 and 356** by bringing **only specific areas like a district or parts of a district under the President's rule** instead of the entire State.
 - They also suggested that such Emergency provisions **should not last for more than 3 months**.
 - **Sarkaria Commission:**
 - **Article 356** is a **measure of last resort** for preventing or rectifying the breakdown of the Constitutional Machinery of the State.
 - It can only be invoked in the event of **political crisis, internal subversion, physical breakdown, and non-compliance** with constitutional directives of the Centre.
 - The Governor's report should be a '**speaking document**' and **given wide publicity**.
 - The Governor should recommend a proclamation of the President's Rule **without dissolving the Legislative Assembly**.

➤ **Financial Emergency (Article 360):**

- This provision allows the **President** to declare a **state of financial emergency** if he is satisfied that the **financial stability or credit of India or any part thereof is threatened**.
- During a Financial Emergency, the **President can direct the reduction of salaries and allowances** of all or any class of persons serving in the civil services, **including judges of the SC and High Courts**.
- The central government also gains **control over the financial resources** of the states, with the power to give directions for their efficient management.
- The proclamation of a financial emergency must be **approved by both houses of Parliament within 2 months**. If not approved, the proclamation ceases to have effect. However, any such proclamation may be revoked or varied by the President at any time.
- Unlike the other two types of emergencies, a Financial Emergency has been **never proclaimed in India to date**.

How Many Times Emergency was Imposed in India?

- **National Emergency has been proclaimed 3 times so far in India:**
 - **Indo-China War (1962):** Declared due to "external aggression" in 1962 during the Sino-Indian War.
 - **Indo-Pak War (1971):** Imposed on the grounds of "external aggression" in 1971 during the Indo-Pakistani War.
 - **(1975-1977):** The third and **most controversial** national emergency was declared in 1975, primarily due to "**internal disturbance**" amidst internal political unrest. This period witnessed a **significant suspension of civil liberties**.

What were the Impacts of Imposing National Emergency in 1975?

- **Constitutional Changes:**
 - **Constitution (39th Amendment) Act, 1975** was enacted in response to the Allahabad High Court's ruling **declaring PM Indira Gandhi's election void**.
 - The Act placed **disputes involving the president, Vice President, prime minister, and Speaker beyond the judiciary's scope** and included certain Central Acts in the Ninth Schedule.

Note:

- **Constitution (42nd Amendment) Act, 1976** of India significantly increased the power of the central government and **Prime Minister's** office by introducing-
 - **Increased central government control** by allowing deployment of forces in states and overriding state laws during emergencies.
 - **Limited judicial review** of laws and amendments, making them less accountable.
 - **Extended the terms** of Parliament and state assemblies.
 - Allowed **laws overriding fundamental rights** in case of anti-national activities.
- **Constitution (44th Amendment) Act, 1978:**
 - It sought to rectify the imbalances created by the **42nd Amendment, 1976** and restore the primacy of fundamental rights. Key changes included
- **Limiting Suspension of Rights:** The right to life and liberty under **Article 21** could **not be suspended during any emergency**.
- **Judicial Review:** The Supreme Court's power to review presidential proclamations of emergency was reinforced.
- **On Emergency:** It made the requirement for the President to act on the **written recommendation of the cabinet** before declaring a national emergency under **Article 352**.
- **Emergency Acted as a Vaccine Against Dictatorship:**
 - The period of emergency in 1975-77 serves as a reminder of the **importance of democracy and the dangers of unrestrained executive authority**. This recognition can motivate efforts to **enhance democratic systems** by implementing restrictions on the Prime Minister's power in times of crisis.
 - Emergency undermined India's democratic integrity and oppressed people under the **Maintenance of Internal Security Act (MISA)** and **Defence of India Rules (DIR)** and exposed the **vulnerability of democratic institutions** and fostered cynicism about leadership.
- **Vocalism About Rights:**
 - **Strict control over media** stifled dissent and limited access to information which led to emergence of **grassroots movements** and **underground press** challenging the government's narrative and advocating for human rights such as
 - **Navnirman Andolan in Gujarat:** A youth-led movement advocating for democratic rights and social justice.
 - **Jayaprakash Narayan Movement in Bihar:** A movement calling for social and political reforms.
 - **George Fernandes-led Railway Strike:** A powerful demonstration of **worker solidarity and dissent against government policies**.
- **Evolving Role of Judicial Activism:**
 - The Emergency period highlighted the fluctuating role of judicial activism, with the **ADM Jabalpur case** showing concerns about overreach, but subsequent judgments like **habeas corpus petitions** and the **Menaka Gandhi case** reaffirming a commitment to uphold **fundamental rights**, paving the way for a stronger system of judicial review in India.
 - **ADM Jabalpur v. Shivkant Shukla, 1976** upheld the suspension of fundamental rights during an emergency. It argued that the **right to life could be restricted** by the government for national security. This decision sparked outrage and accusations of judicial overreach, weakening the protection of fundamental rights.
 - **Habeas Corpus Petitions:** These petitions, filed by individuals detained during the Emergency, **challenged the government's actions**. This marked a shift towards a more robust judicial review.
 - **State of Uttar Pradesh v. Raj Narain, 1975, Supreme Court** ruled Prime Minister Indira Gandhi **guilty of electoral malpractices** which highlighted the judiciary's independence even during a politically sensitive time.
 - In **Maneka Gandhi v. Union of India 1978**, the SC overruled the ADM Jabalpur judgement and **re-established the primacy of fundamental rights** and **limited the power to suspend** them during emergencies. It gave a new dimension to **Article 21** and held that the **right to live is not merely a physical right but includes within its ambit the right to live with human dignity**.
- **Changes in Political Parties' Attitude:**
 - The Emergency **united previously disparate opposition parties**. This underscored the **importance of a strong opposition in a democracy**. Political parties became **wary of resorting to similar measures in the future**, valuing democratic processes.

Note:


National Green Hydrogen Mission

Why in News?

Recently, the [Ministry of New & Renewable Energy \(MNRE\)](#) has increased the yearly allocation of [Green Ammonia](#) for the [fertiliser sector](#) from 550,000 to 750,000 tonnes to meet rising demand, enhancing support for [Green Hydrogen in India](#).

What is the National Green Hydrogen Mission (NGHM)?

- India launched the [National Green Hydrogen Mission \(NGHM\)](#) in January 2023.
- The [Ministry of New & Renewable Energy \(MNRE\)](#) is implementing the NGHM with a target to achieve a **production capacity of 5 million tonnes per annum** of Green Hydrogen in the country **by the year 2030**.
 - The [Strategic Interventions for Green Hydrogen Transition \(SIGHT\)](#) programme, under [NGHM](#), provides incentives for the **manufacturing of electrolyzers and the production of green ammonia**.
- Under NGHM a **dedicated portal** was launched to provide information on the mission and steps for developing the green hydrogen ecosystem in India.
- India has also **released scheme guidelines** for the use of Green Hydrogen in steel, transport, and shipping sectors.
- The [Department of Science and Technology](#) has initiated [Hydrogen Valley Innovation Clusters](#) to foster innovation and promote the green hydrogen ecosystem in India.



NATIONAL GREEN HYDROGEN MISSION

<p>NODAL MINISTRY</p> <ul style="list-style-type: none"> ▶ Ministry of New and Renewable Energy 	<p>OBJECTIVE</p> <ul style="list-style-type: none"> ▶ Decarbonise energy/industrial/mobility sector ▶ Develop indigenous manufacturing capacities ▶ Create export opportunities for GH₂ and its derivative
<p>COMPONENTS OF NGHM</p> <ul style="list-style-type: none"> ▶ Strategic Interventions for Green Hydrogen Transition Programme (SIGHT) ▶ Strategic Hydrogen Innovation Partnership (SHIP) (PPP for R&D) 	<p>Expected Outcomes by 2030</p> <ul style="list-style-type: none"> ◆ Atleast 5MMT GH₂ annual production ◆ Rs 1 lakh crore fossil fuel import savings ◆ 6 lakh jobs ◆ 50MMT CO₂ annual emissions averted ◆ ₹ 8 lakh crore investment

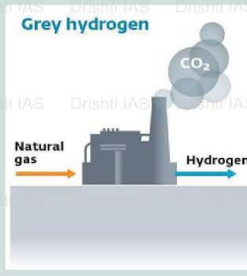
GH₂ is not commercially viable at present; current cost in India is around ₹350-400/kg. The National Hydrogen Energy Mission aims to bring it down under ₹100/kg.

HYDROGEN AND GREEN HYDROGEN

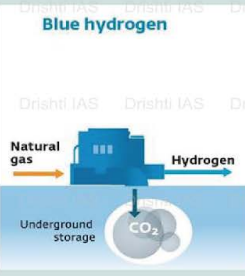
Hydrogen is the most common element in nature but exists only in combination with other elements. It has to be extracted from naturally occurring compounds (like water).

Green Hydrogen (GH₂) is made by splitting water through an electrical process called electrolysis, using an electrolyser powered by renewable energy (RE).

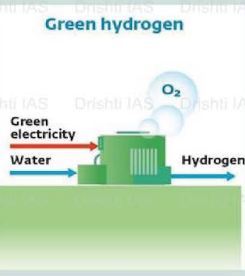
Grey hydrogen



Blue hydrogen



Green hydrogen



Other Initiatives Related to Renewable Energy

- [Jawaharlal Nehru National Solar Mission \(JNNSM\)](#).
- [International Solar Alliance](#).
- [PM- KUSUM](#).
- [National Wind-Solar Hybrid Policy](#).
- [Rooftop Solar Scheme](#)

What is Green Ammonia?

- **About:**
 - [Ammonia](#) is a chemical that is used mainly in the **manufacture of nitrogenous fertilisers**, like urea and ammonium nitrate, but can be put to other uses too, such as to run engines.

Note:

- Green ammonia production is where the process of making ammonia is 100% **renewable and carbon-free**.
 - Method of Production:
- It is produced by **using hydrogen from water electrolysis** and nitrogen separated from the air. These are then fed into the **Haber process**, all powered by sustainable electricity.
- Green ammonia production makes use of renewable energy sources such as **hydroelectric, solar power** or wind turbines.
- In the Haber process, hydrogen and nitrogen are reacted together at high temperatures and pressures to produce ammonia (NH₃).
 - Uses:
- **Energy Storage:** Ammonia is easily stored in bulk as a liquid at modest pressures (10-15 bar) or refrigerated to -33°C. This makes it an ideal chemical store for renewable energy.
- **Zero-carbon Fuel:** Ammonia can be burnt in an engine or used in a fuel cell to produce electricity. When used, ammonia's only by-products are water and nitrogen.
- **Marine Industry:** The **maritime industry** is likely to be an early adopter, replacing the use of fuel oil in marine engines.
 - Significance:
- Green ammonia is intended to be used in the **production of carbon-neutral fertiliser products**, decarbonizing the food value chain, and also has potential as a future climate-neutral shipping fuel.
- Green ammonia is crucial to tackling the **existential challenges of producing** enough food to feed a growing global population and generating CO₂-free energy.

Faecal Sludge and Septage Management

Why in News?

India has recently set up more than 1,000 **Faecal Sludge Treatment Plants (FSTPs)** equipped with digital technology. This signifies the emergence of **Faecal Sludge and Septage Management (FSSM)** as an innovative method for creating effective and environmentally friendly

sanitation solutions.

What are Faecal Sludge Treatment Plants (FSTPs)?

- **About:** FSTPs are specialised facilities in **FSSM** designed to process and treat faecal sludge and septage collected from **on-site sanitation** systems like **septic tanks**.
 - FSSM places a primary focus on the management of human excreta, recognising it as the waste stream with the most significant potential for disease transmission.
- **Objective:** FSTPs are created to manage and treat human waste that is **not connected to centralised sewage systems**, especially in areas needing more comprehensive sewerage infrastructure.
 - These plants treat the collected faecal sludge to **reduce pathogens and organic matter**, making it safe for disposal or reuse.
- **Digital Integration:** There's a growing trend of incorporating digital monitoring and management systems in FSTPs to improve efficiency and effectiveness.
 - **Geographic Information System (GIS):**
 - Use of **GIS technology** for mapping sanitation infrastructure and planning.
 - Mobile Applications:
 - Implementation of mobile applications like **SaniTab, mWater, Google Forms, and Kobo Toolbox** for streamlining field surveys and data collection
 - Utilisation of GPS tracking for desludging services, as seen in Odisha and Maharashtra.
 - **Sustainable Urban Services:**
 - Odisha has launched the **Sustainable Urban Services in a Jiffy (SUJOG)** program, which is powered by the **Digital Infrastructure for Governance, Impact, and Transformation (DIGIT)** platform to make city sustainable for future.

What are the Various Types of Sanitation Systems in India?

- **On-site Sanitation Systems (OSS):**
 - **Twin Pits and Septic Tanks:** prevalent in rural areas where centralized sewage is impractical.
- **Alternative On-site Solutions:**
 - Include bio-digester toilets, **bio-tanks, and urine diversion dry toilets**.

Note:

- Act as collection and passive treatment units.
- **Sulabh International** pioneered bio-toilets for sustainable, affordable sanitation.
- **Urban Sanitation:**
 - **Sewer Systems and Treatment Plants**
 - **Underground Sewer Networks:** Suited for densely populated urban areas, interconnected pipes collect and transport wastewater
- **Sewage Treatment Plants (STPs):**
 - They employ physical, **biological, and chemical processes, utilising both mechanised and non-mechanised** systems.

What is the Need for Faecal Sludge and Septage Management (FSSM)?

- **Eradicating Manual Scavenging:**
 - The practice of **manual scavenging** is driven by caste, class and income divides. It is linked to India's caste system where so-called lower castes are expected to perform this job.
 - In 1989, the Prevention of Atrocities Act became an integrated guard for sanitation workers with **more than 90% people** employed as manual scavengers belonged to the Scheduled Caste.
- **Health Outcomes:**
 - Adequate **sanitation facilities** play a crucial role in reducing **waterborne diseases**, significantly impacting India's overall health status.
 - The **total sanitation campaign** in India has demonstrated positive results in this regard.
- **Environmental Preservation:**
 - Improper sewage management, including the discharge of **untreated wastewater into the River Ganga**, continues to be a significant source of **environmental pollution**. Implementing effective sanitation systems is crucial to addressing this problem.
- **Socio-Economic Progress:**
 - Improved sanitation is strongly correlated with increased **economic productivity, as healthier communities** are better equipped to participate in the workforce and contribute to economic growth.
- **Dignity and Social Equity:**
 - Access to proper sanitation facilities is **fundamental to human dignity, particularly for women**, as it provides safe and private spaces for personal hygiene, thereby enhancing overall quality of life.

What are the Initiatives Related to Faecal Sludge and Septage Management (FSSM) in India?

- **National Faecal Sludge and Septage Management (NFSSM) Alliance:**
 - Organisations like the **NFSSM Alliance** typically aim to promote sustainable sanitation practices, particularly in the area of faecal sludge and septage management.
 - The **National Policy on Faecal Sludge and Septage Management, 2017** further detailed the design of septic tanks, operating procedures for desludging and the penalty for untreated discharge.
- **Constitutional Backing:**
 - According to the Constitution of India, **sanitation and water are State subjects (Seventh Schedule, List II – State List, Entries 6 and 17 respectively)**.
 - With the **74th Constitutional Amendment Act in 1992**, the responsibility for the planning and delivery of urban services, including sanitation, lies with **Urban Local Bodies (ULBs)** which are the local municipalities
- **Legal Framework:**
 - Laws like **Environment (Protection) Act, 1986** and **Water (Prevention and Control of Pollution) Act, 1974** prohibit discharge of untreated pollutants into the environment.
 - The **Solid Waste Management Rules, 2016** were passed for safe disposal of processed faecal sludge to prevent surface water and groundwater contamination.
 - The **Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act, 1993** and **Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013** were passed to prohibit the manual handling of human excreta, and the employment of manual scavengers is considered a criminal offence.
- **Open Defecation-Free (ODF)+ and ODF++ Protocols:**
 - India has continued to show its commitment towards FSSM through the launch of **Open Defecation-Free (ODF)+ and ODF++ protocols, an emphasis on FSSM in Swachh Survekshan, as well as financial allocations for FSSM across Atal Mission for Rejuvenation and Urban Transformation (AMRUT) and National Mission for Clean Ganga (NMCG) missions.**

Note:

➤ Related Sustainable Development Goals:

- **SDG 3: Good Health and Well-being** - Ensuring healthy lives and promoting well-being for all at all ages.
- **SDG 6: Clean Water and Sanitation**- Improve the functioning of onsite sanitation systems and to reduce the potential for human contact with faecal-borne pathogens;
- **SDG 11: Sustainable Cities and Communities** - Making cities and human settlements inclusive, safe, resilient, and sustainable.

What are the Challenges Related to Faecal Sludge and Septage Management (FSSM)?

➤ Collection and Conveyance Issues:

- Challenges include the **persistence of illegal manual scavenging, limited access to septic tanks, improper tank design and sizing**, inadequate infrastructure, lack of scheduled cleaning, and insufficient formal private sector involvement.

➤ Digital Barrier:

- Unreliable or absent internet access in peripheral areas hinders the effective deployment of digital solutions. The increasing digitalisation of FSSM systems raises vulnerabilities to data breaches and **cyber-attacks**, necessitating robust security measures.

➤ Treatment and Disposal Deficiencies:

- There's a significant **shortage of adequate centralised or decentralised facilities** and designated sites for sewage and septage treatment and disposal.

➤ Accessibility Barriers:

- Challenges such as **household financial constraints, limited space for individual toilets**, and **cultural or social factors** hinder widespread access to proper sanitation facilities.

➤ Institutional Fragmentation:

- The lack of an **integrated city-wide approach** leads to fragmented institutional roles and responsibilities.

Deputy Speaker of Lok Sabha

Why in News?

The recent increase in the Opposition's strength in the **Lok Sabha** has reignited their interest in securing the **Deputy Speaker's** post.

- This post has **remained vacant** throughout the **17th Lok Sabha (2019-24)**, marking a departure from the **16th Lok Sabha (2014-19)** where a **Member of Parliament (MP)** from the ruling party's ally held the office.

What is the Role of Deputy Speaker?

➤ Constitutional Provisions:

- **Article 95(1)**: It provides that the **Deputy Speaker** performs the duties of the Speaker if the **post is vacant**.
- The Deputy Speaker has the **same powers as the Speaker** when presiding over the House.
 - All references to the **"Speaker"** in the Rules are deemed to be references to the **Deputy Speaker as well** for the times when he or she presides.
- **Article 93**: It provides that Lok Sabha must, as soon as may be, choose **two members of the House** to be respectively **Speaker** and **Deputy Speaker**.
- **Article 178**: It contains the corresponding provision for the Speakers and Deputy Speakers in the **State Assemblies**.

➤ Compulsion of Choosing Deputy Speaker:

- The Constitution **does not specify a time frame** for choosing a Deputy Speaker, that allows governments to **delay or avoid** its appointment.
- Article 93 and Article 178 use the words **"shall"** and **"as soon as may be"** which indicates that **not only is the election of the Speaker and Deputy Speaker mandatory, it must be held at the earliest**.

➤ Rules for Election:

- The **Speaker/Dy Speaker** is elected from among the Lok Sabha members by a **simple majority of members present and voting**.
- The election of a **Deputy Speaker** in Lok Sabha is governed by **Rule 8 of the Rules of Procedure and Conduct of Business** in Lok Sabha.
- The election of the **Deputy Speaker usually takes place in the second session** but can occur in the first session of the new Lok Sabha or Assembly.
- The Deputy Speaker continues in office until the dissolution of the House.

➤ Resignation/Removal:

- Under **Article 94** (and **Article 179** for state Assemblies), the Speaker or Deputy Speaker **will vacate office if they cease to be a member** of the House of the People.

Note:

- They can also resign or be removed from office by a resolution of the House of the People passed by a majority of all the members (absolute majority).
- **Deputy Speaker from Opposition:**
 - As per the Parliamentary Convention, the **opposition party has held the post of Deputy Speaker** of Lok Sabha on several occasions. This includes during the Congress-led UPA-I (2004-09) and UPA-II (2009-14) governments, as well as during the tenure of Prime Ministers Atal Bihari Vajpayee (1999 to 2004), P V Narasimha Rao (1991-96), and Chandra Shekhar (1990-91).

LOK SABHA SPEAKER



The **Constitutional/Ceremonial Head** of LS who presides over its day-to-day functioning

What **Speaker/Deputy Speaker** is for LS, the **Chairman/Dy Chairman** is for RS

ORIGIN IN INDIA

- 1921 (GoI Act of 1919) under the name **President and Dy President**

GoI Act of 1935 changed this nomenclature to Speaker and Deputy Speaker

ELECTION (BOTH SPEAKER & DY SPEAKER)

- Article 93, Part V
- By a simple majority
- Re-election - Eligible

ELECTION CRITERIA

- Should be a member of LS
- No specific qualifications
- Generally, belongs to the ruling party

TENURE

- 5 years (till immediately before first meeting of the next LS)

Speaker does not vacate his/her office upon dissolution of LS

POWERS

- Final interpreter of Constitutional provisions in LS; his/her rulings are binding in nature
- Presides over a joint sitting of the two Houses of Parliament
- Can adjourn the House/suspend the meeting in absence of Quorum
- Power of Casting vote to resolve a deadlock
- Decides:
 - ⦿ if a bill is (not) a money bill
 - ⦿ Disqualification of LS members (under 10th Schedule) (granted via 52nd Amendment 1985)

REMOVAL (CONDITIONS)

- If s/he ceases to be a member of LS
- Written Resignation to Dy Speaker
- Removed by Effective Majority

Note:

Deputy Speaker Appointed as Speaker

- After the **first Speaker, G V Mavalankar** died in 1956 without completing his full term, **Deputy Speaker M Ananthasayanam Ayyangar** filled in for the remaining tenure of Lok Sabha from 1956 to 1957.
 - Ayyangar was later elected as Speaker of the second Lok Sabha.
- Similarly, after **G M C Balayogi** passed away in 2002, Deputy Speaker and Congress MP **P M Sayeed** became **acting Speaker** for two months until Manohar Joshi was elected Speaker.

Read more: [Deputy Speaker Election](#)

Role of PESA in Forest Conservation

Why in News?

A recent study has examined the connection between representation and forest conservation in India's Scheduled Areas.

- It has been found that **providing political representation and decision-making power through acts such as PESA to tribal populations has helped in the conservation of forests.**

What are the Key Findings of the Study?

- **About:**
 - The authors arrived at their conclusion by conducting a data-driven study on the **Panchayat (Extension to Scheduled Areas) Act (PESA)**, which provides political representation to **Scheduled Tribes (STs)**.
 - The study compared villages with **mandated ST representation** in local self-government to those **without it and villages that adopted PESA earlier to those that did later**, tracking deforestation and afforestation rates.
 - This allowed them to isolate the impact of PESA on forest cover using a **"difference-in-differences" framework**.
 - This study used **satellite data** to analyze forestation changes on a global scale from 2001 to 2017, diverging from the traditional method of fieldwork in small communities.
- **Key Findings:**
 - PESA has granted **STs greater political representation**, allowing them a say in how forests are managed.

- **PESA strengthens STs' ability to resist large-scale commercial activities** like mining that can cause deforestation leading to a **greater reduction in deforestation in PESA villages near mines.**

- The introduction of PESA also **increased the incidence of conflict around mining.**
- The PESA Act led to an **average increase in tree canopy by 3% per year** and a **reduction in the rate of deforestation.**
- **PESA increased economic incentives to ST communities, in protecting the forest**, for non-timber forest products (medicinal plants, fruits, etc.) and food security.
- The study found that the **Forest Rights Act, 2006** had **no additional impacts** on conservation beyond those caused by PESA.
- The study advocated for a **single institution that can balance conservation and development objectives.**
 - Such an institution would better navigate the complexities of balancing local economic interests with sustainable conservation practices.

What is the PESA Act?

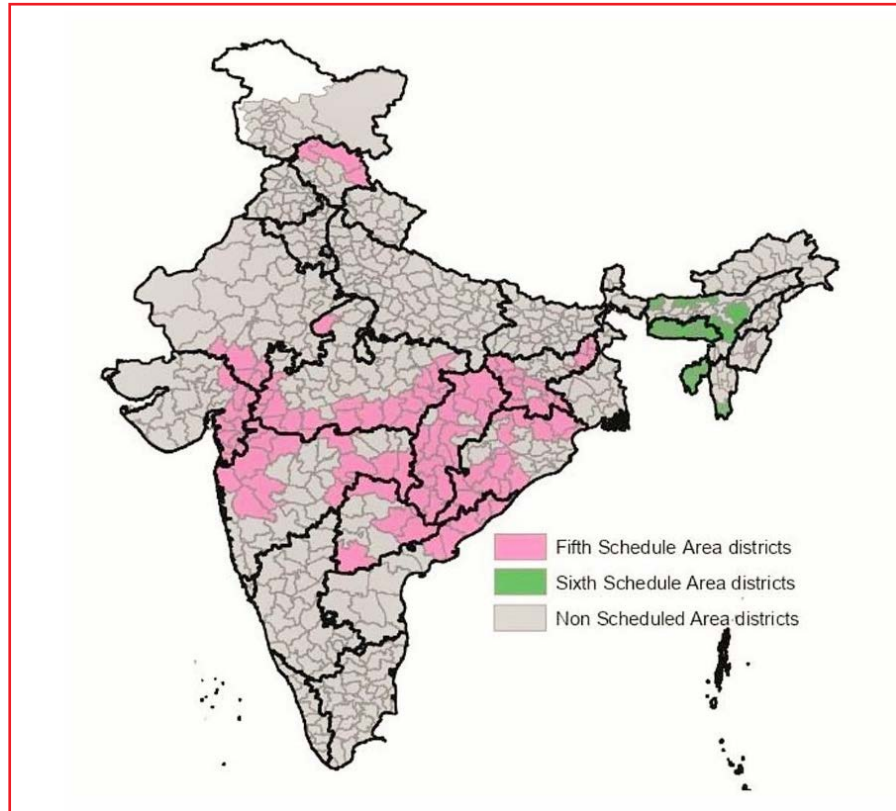
- **About:**
 - The **PESA Act** was enacted on **24th December 1996** to ensure **self-governance** for people living in **tribal areas**, called **Scheduled Areas**, through **traditional village assemblies** known as **Gram Sabhas**.
 - The Act extended the provisions of Panchayats by providing **self-tribal rule** to the tribal areas of **Fifth Schedule** states.
- **Legislation:**
 - The Act defines **Scheduled Areas** as those mentioned in **Article 244(1)**, which states that the **Fifth Schedule** applies to **Scheduled Areas** and **Scheduled Tribes** in states **other than Assam, Meghalaya, Tripura, and Mizoram**.
 - Scheduled Areas of India, which are areas notified by the **President** as predominantly inhabited by tribal communities.
 - 10 states have notified **Fifth Schedule areas** that cover (partially or fully) several districts in each of these states.
 - These include **Andhra Pradesh, Chhattisgarh, Gujarat, Himachal Pradesh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, and Telangana.**

Note:

➤ **Significant Provisions:**

- **Gram Sabha:** The PESA Act establishes the Gram Sabha as a **forum for community participation** in the development process. It is responsible for identifying development projects, preparing development plans, and implementing these plans.
- **Village-level Institutions:** The Act mandates the establishment of village-level institutions, including the **Gram Panchayat, the Gram Sabha, and the Panchayat Samiti**, to carry out development activities and provide basic services to the community.
- **Powers and Functions:** **Gram Sabha** and the **Gram Panchayat** are granted significant powers and functions related to **managing natural resources and regulating economic activities**.
- **Consultation:** The Act **requires consultation with the Gram Sabha** before any development projects or activities are undertaken in the Scheduled Areas.
- **Funds:** It provides for the **transfer of funds to the Gram Panchayat** to enable them to perform their functions effectively.
- **Land Rights:** The Act provides for the **protection of land rights of tribal communities** in the Scheduled Areas, requiring their consent before any land is acquired or transferred.

- **Cultural and Social Practices:** The Act **safeguards the cultural and social practices** of tribal communities in the Scheduled Areas, prohibiting any interference in these practices.



What are the Provisions Related to Scheduled Tribes in India?

➤ **Definition:**

- The Constitution of India **does not** define the criteria for recognition of STs. As per **Census-1931**, STs are termed as “**backward tribes**” living in the “**Excluded**” and “**Partially Excluded**” areas.
- The **Government of India Act of 1935** called for the first time for representatives of “backward tribes” in provincial assemblies.

➤ **Constitutional Provisions:**

- **Article 243D:** Mandates reservation of seats for STs in Panchayats
- **Article 330:** It provides Reservation of seats for SC and STs in the House of the People (Lok Sabha).
- **Article 332:** Reservation of seats for SC and STs in the Legislative Assemblies of the States.
- **Articles 341 & 342:** Define STs and empower the **President** to identify them through a public notification for each State/Union Territory.

➤ **Statutory Provisions:**

- **Protection of Civil Rights Act, 1955 against Untouchability.**
- **Scheduled Castes and the Scheduled Tribes (Prevention of Atrocities) Act, 1989.**

Note:

- [Provisions of the Panchayats \(Extension to the Scheduled Areas\) Act, 1996.](#)
- [Scheduled Tribes and Other Traditional Forest Dwellers \(Recognition of Forest Rights\) Act, 2006.](#)
- The [Tribal Panchsheel Policy](#)

Managed Care Organisations

Why in News?

Recently, a prominent healthcare chain in South India announced its venture into **comprehensive health insurance**, integrating insurance and healthcare provision functions under one roof, mirroring a **managed care organisation (MCO)**.

- In a related development, an [International Labour Organisation \(ILO\)](#) paper has also revealed that achieving universal social protection for low- and middle-income countries would necessitate an **additional USD 1.4 trillion per year**.

Note:

- **MCOs in US:** MCOs in the U.S. have predominantly served urban, high-income populations.
 - Successful MCOs require significant financial clout, managerial expertise, and a well-defined beneficiary base.

What is the Background of Managed Care Organisations (MCOs)?

- **About:**
 - An MCO is a healthcare provider whose goal is to **provide appropriate, cost-effective medical treatment**.
 - MCOs in the US evolved from early 20th-century prepaid healthcare practices.
 - **Mainstreaming in the 1970s:** The combination of insurance and service functions arose to manage costs, focusing on prevention, early management, and cost control with fixed premiums.
 - **Evolution:** MCOs have **diversified and penetrated** deeply into the health insurance space, although robust evidence of their impact on health outcomes and preventive care is limited. They have, however, **helped reduce costly hospitalisations** and associated expenses.
- **Development in India:** Since the 1980s, India's health insurance has focused on **indemnity insurance** and covering **hospitalisation costs**, despite a large market for outpatient consultations.

Bridging the Financing Gap for Universal Health Coverage

- **Global and Regional Financing Needs:**
 - **Financing Gap:** Achieving universal social protection in low- and middle-income countries requires an **additional USD 1.4 trillion annually**, with essential health care comprising 60.1% of this need.
 - **Regional Disparities:** Africa faces the largest financing gap, followed by the Arab States, Latin America, and Asia.
- **Strategies to Expand Fiscal Space:**
 - **Domestic Resource Mobilisation:** Progressive taxation, **social security contributions**, and **formalising employment** and enterprises are crucial.
 - **Fuel Subsidies:** Removing explicit and implicit fuel subsidies could generate significant fiscal space.
 - **Debt Management:** Renegotiating government **debt at lower interest rates** could free resources for social protection.
 - **Official Development Assistance (ODA):** Increasing ODA is vital, especially for low-income countries where the financing gap is substantial.

What are the Challenges to MCO in India?

- **Limited Reach:** MCOs in India primarily target the affluent, urban population as health insurance market is **skewed towards urban areas**. This neglects the vast rural demographics and hinders efforts towards [Universal Health Coverage \(UHC\)](#).
- **Informal Outpatient Care:** A significant portion of healthcare in India occurs in **informal outpatient settings**. This lack of standardisation and regulation makes it difficult for MCOs to integrate and manage care effectively.
- **Absent Standard Protocols:** The widespread **absence** of widely accepted **clinical protocols** across healthcare providers creates inconsistency and reduces the quality control MCOs rely on.
- **Economic Unsustainability:** High operational costs and resulting unaffordable premiums for MCO plans create a financial hurdle. This discourages participation and hinders long-term viability.
- **Lack of Incentives for Cost Control:** The current health insurance model in India hasn't fostered a culture of **consumer-driven cost control**, a core principle of MCOs.

Note:

What are the Steps Needed to Develop MCOs in India?

- **Focus on Rural Outreach:** Partner with government initiatives like **Ayushman Bharat** to expand coverage and leverage existing rural healthcare infrastructure. This aligns with the **National Health Policy 2017's** push for UHC.
- **Standardisation and Regulation:** Advocate for the development and implementation of standardised clinical protocols across outpatient settings. Collaborate with the **National Health Authority (NHA)** for accreditation and quality control mechanisms.
- **Technology and Innovation:** Utilise technology to streamline processes, reduce administrative costs, and offer **telemedicine services** to bridge the rural-urban gap. This aligns with recommendations from the **Committee on Affordable Healthcare for All**.
- **Value-Based Pricing:** Implement **value-based pricing models** that reward quality care and efficient service delivery. This incentivises cost control and aligns with suggestions from **NITI Aayog**.
- **Public-Private Partnerships:** Foster **public-private partnerships (PPPs)** to leverage government resources and private sector expertise for broader reach and improved infrastructure.
- **Data-Driven Decision-Making:** Encourage data collection and analysis to track healthcare trends, **identify cost-effective treatment options**, and improve service delivery across MCO networks. This aligns with the vision of the **National Digital Health Mission (NDHM)**.

Role of Public Policy in MCO Implementation

- **NITI Aayog Report:**
 - In 2021, NITI Aayog recommended **an outpatient care insurance scheme** based on a subscription model to generate savings through better care integration.
 - Managed care systems could **streamline management protocols**, consolidate dispersed practices, **and emphasise preventive care, providing a sustainable solution to outpatient care coverage**.
- **Ayushman Bharat Mission:**
 - The mission announced incentives for opening hospitals in **underserved areas**, prioritizing PMJAY beneficiaries.

- **Similar incentives could be designed** for MCOs to serve PMJAY patients and private clients, expanding awareness and demand for MCOs over time.

Post Office Act 2023

Why in News?

Recently, the Post Office Act of 2023 came into force repealing the **Indian Post Office Act, 1898**.

What are the Key Highlights of the Post Office Act 2023?

- **Interception and Detention of Items:**
 - **Section 9:** This provision allows the centre to **authorise any officer to intercept** or detain any postal item for reasons related to state security, foreign relations, etc.
 - Items suspected of containing prohibited goods or items liable for customs duty can be handed over to **customs authorities**.
- **Exemption from Liability:**
 - **Section 10:** The Post Office and its **officers are exempt from liability for loss, misdelivery, delay, or damage** during the course of providing services, except as prescribed.
- **Removal of Penalties and Offences:** The new Act **eliminates all penalties** and offences outlined in the 1898 Act, including those related to misconduct, fraud, and theft by postal officials.
 - It includes provisions to **recover unpaid service charges** as arrears of land revenue.
- **Penalty under Section 7:** Every person who avails of a service provided by the Post Office **shall be liable to pay the charges** in respect of such service.
- **Removal of Centre's Exclusivity:** The new Act **removes the exclusive privilege** of the Centre to convey letters, a privilege which was effectively obsolete by the rise of private courier services in the 1980s.
 - The Act now **explicitly brings private courier services** under its regulatory ambit, **recognizing the government's loss of exclusivity** while expanding the scope to intercept and detain any postal article, not just letters.
- **Director General of Postal Services:** The new Act authorises the Director General of Postal Services

Note:

to make regulations pertaining to activities essential for offering various additional services as may be prescribed by the central government, as well as for fixing charges for these services.

- It eliminates the need for parliamentary approval while revising the set charges for any services provided by post offices.
- **Identifiers and Post Codes: Section 5(1)** of the Act states that “The Central Government may prescribe standards for addressing on the items, address identifiers and usage of postcodes”.
 - This provision is a forward-looking concept and will replace physical addresses with digital codes based on geographical coordinates for precise identification of a premise.

Indian Post Office Act, 1898

- It came into force on 1st July 1898 with the objective to consolidate and amend the law relating to the Post Offices in India.
- It provides for the regulation of the postal services offered by the central government.
- It grants the Central government exclusive privilege over conveying letters and establishes a monopoly of the Central government over conveying letters.

What are the Issues in the Post Office Act 2023?

- **Regulation of Postal Services Different from Courier Services:** The Consumer Protection Act, 2019 does not apply to services by India Post, but it applies to private courier services. The Post Office Act, 2023, seeking to replace the 1898 Act, retains these provisions.
- **Lack of Procedural Safeguards Violates Fundamental Rights:** The Bill does not specify any procedural safeguards against the interception of postal articles. This may violate the right to privacy, and the freedom of speech and expression.
 - In the case of interception of telecommunications, the Supreme Court in *People's Union for Civil Liberties (PUCL) vs Union of India, 1996* held that a just and fair procedure to regulate the power of interception must exist.
 - Otherwise, it is not possible to safeguard the rights of citizens under Article 19(1)(a) and Article 21.
- **The Ground of 'Emergency' is Beyond the Reasonable Restrictions:** Like 1898 Act, an emergency is not explicitly defined in the present act.

- **Exemption from Liability for Lapses in Services:** The Act's framework differs from railway laws, which address service complaints like loss, damage, non-delivery of goods, and fare refunds through the Railway Claims Tribunal Act of 1987.
- **Removal of all Offences and Penalties:** Under the 1898 Act, postal officers and others could be jailed or fined for illegally opening mail, but the 2023 Act removes these penalties, potentially harming privacy rights.

Reforming Examination System in India

Why in News?

Recently, the Ministry of Education abruptly cancelled the June 2024 edition of the UGC-NET exam. Additionally, there were allegations regarding the fairness of the NEET-UG exam, citing a potential compromise of its integrity and fairness.

- This has led the government to pass the Public Examinations (Prevention of Unfair Means) Act, 2024 as a measure to curb illegal practices in exams.

Note:

- **NET UGC Exam:**
 - The University Grants Commission National Eligibility Test (UGC-NET) exam is conducted to fill positions of Junior Research Fellowship and Assistant Professor in Indian universities and colleges.
 - It is conducted by the National Testing Agency (NTA) twice every year (June & December).
 - The University Grants Commission (UGC) is a statutory body established by an Act of Parliament in 1956. It came into existence on 28th December 1953.
 - It aims for the coordination, determination and maintenance of standards of teaching, examination and research in university education.
- **NEET UG:**
 - National Eligibility-cum-Entrance Test (Undergraduate) or NEET, formerly the All India Pre-Medical Test, is an entrance examination for admission in undergraduate medical programs (MBBS and BDS courses) in India.
 - It is conducted by the NTA.

Note:

What is the Public Examinations (Prevention of Unfair Means) Act, 2024?

- **About:**
 - The **Public Examinations (Prevention of Unfair Means) Act, 2024** is law passed in the **Lok Sabha** aimed at addressing the issue of malpractices in government recruitment examinations. It came into effect on 21st June 2024.
- **Key Features:**
 - It defines various offences related to unfair means, such as paper leaks, the use of **fake websites**, and **collusion with service providers**.
 - It prescribes strict penalties, including a **minimum jail term of 3-5 years** and a **fine up to Rs. 1 crore**.
 - It holds **service providers** engaged for exam conduct liable with fines up to Rs 1 crore and a 4-year ban on their involvement in public exams.
 - It empowers **police officers** not below the rank of **Deputy Superintendent of Police** or **Assistant Commissioner of Police** to investigate offences under the Act.
 - It will cover a wide range of central government recruitment exams, including those conducted by UPSC, SSC, RRBs, IBPS, and NTA.
- **Punishable Offences Defined in the Act:**
 - **Leakage of question paper** or answer key
 - Directly or **indirectly assisting candidates** in an unauthorised manner
 - **Tampering with computer networks**, resources, or systems
 - **Creation of fake websites** to cheat or for monetary gain
 - Conduct of **fake examinations**, **issuance of fake admit cards** or offer letters
 - Manipulation of seating **arrangements**, and **allocation of dates** and shifts to facilitate unfair means.
- **Need for Act:**
 - Public exams are currently **vulnerable to cheating and disruptions**, affecting millions of students.
 - There's **no strong legal framework** to deter individuals or groups involved in exam malpractice.
 - This bill aims to **establish transparency, fairness, and trust** in the public examination system.

What are the Issues Related to the Existing Examination System in India?

- **Declining Credibility:** Lack of credibility and consistency in exams by different boards and universities leads to frequent scandals such as **paper leaks, cheating, and fake degrees, eroding public trust**.
 - Employers often conduct separate assessments of candidates, disregarding university/board certificates.
- **More Theoretical in Nature:** The current education system focuses heavily on theoretical knowledge and memorisation of facts through textbooks.
 - This can **lead to graduates who are well-versed in theory** but lack the practical skills needed to succeed in their professions.
- **Subjectivity:** The **examiner's biases can influence question phrasing**, students answer based on their own understanding, and different graders may award varying marks for the same response.
 - This **subjectivity creates an unfair and inconsistent evaluation** process for students.
- **Stifling Creativity and Critical Thinking:** The pressure to **perform well in standardized tests often discourages students** from asking questions, exploring diverse perspectives, or developing critical thinking skills.
 - A curriculum **focused on rote learning leaves little room for creativity** and intellectual curiosity, hindering innovation and problem-solving abilities.
- **Impact on Employability:** Employers **prioritise their evaluations over institutional certifications** when assessing candidates, placing importance on higher-order learning for employability.
 - This has led to a growing market for coaching for competitive exams and skill development.

What are the Initiatives to Reform the Education System?

- **Right To Education Act of 2009.**
- **New Education Policy 2020.**
- **Sarva Shiksha Abhiyan (SSA).**
- **Rashtriya Madhyamik Shiksha Abhiyan.**
- **Rashtriya Uchhatar Shiksha Abhiyan (RUSA).**
- **National Testing Agency (NTA)**
- **National Curriculum Framework.**

Note:

What Steps Can Be Taken to Address the Challenges in the Examination System?

- **Focus on Understanding and Analytical Ability:** Examinations should assess students' comprehension and analytical skills.
 - Question papers should include various forms of questions to evaluate different abilities in line with the instructional objectives of each course.
 - **Memory-based questions should be minimised** to encourage deeper learning.
- **Subject and Skill-Specific Assessments:** Incorporate subject-specific and skill-specific assessments for a comprehensive evaluation of students' learning achievements. Advocate for **challenging assessments that distinguish students** based on their academic attainments.
 - **Proper importance should be given to practical components** of the curriculum. Practical exams should be designed to assess students' hands-on skills and application of theoretical knowledge.
- **Prevent Cheating:** Strict measures such as **installing CCTV cameras, appointing vigilant invigilators**, and providing adequate guidance to students on avoiding unfair means should be implemented to curb cheating.
 - Examination centers that **fail to prevent cheating should be penalised or cancelled**.
- **Examinations as a Means, Not an End:** The primary purpose of examinations should be **to facilitate learning and help students achieve educational objectives**. Examinations should **not be treated as the final goal** but as a tool to promote continuous learning and improvement.
- **Leverage Technology for Credibility:** Utilise technology in **assessments to enhance credibility, standardising question papers** and evaluations. Explore market-available software solutions for both centralized and distributed assessment systems.

Read More: [Public Examinations \(Prevention of Unfair Means\) Bill, 2024](#)

National Forensic Infrastructure Enhancement Scheme

Why in News?

Recently, the **Union Cabinet**, chaired by the **Prime Minister**, has approved the proposal of the **Ministry of**

Home Affairs for the **Central Sector Scheme** "National Forensic Infrastructure Enhancement Scheme (NFIES)".

What is the National Forensic Infrastructure Enhancement Scheme?

- **About:**
 - This scheme aims to **enhance forensic infrastructure** across the country by establishing **off-campus laboratories** of the **National Forensic Sciences University** in 28 States and all Union Territories.
- **Outlay and Duration:**
 - The scheme has a total financial outlay of **Rs. 2,254.43 crore** during the period from **2024-25 to 2028-29**.
- **Components:**
 - Establishment of Campuses of the **National Forensic Sciences University (NFSU)** across the country.
 - Establishment of **Central Forensic Science Laboratories** in the country.
 - **Enhancement of existing infrastructure** of the Delhi Campus of the NFSU.
- **Key Objectives:**
 - It aims to **address the shortage of trained forensic manpower**, strengthening the capacity and capabilities of the National Forensic Sciences University.
 - The establishment of **new Central Forensic Science Laboratories** across the country is intended to **alleviate the caseload and pendency** in the existing forensic laboratories.
 - With the enactment of the **New Criminal Laws**, which mandates forensic investigation for offences involving punishment of **7 years or more**, a significant increase in the workload of forensic science laboratories is expected.
 - High-quality, trained forensic professionals are expected to **contribute to an efficient criminal justice process**, leveraging advancements in technology and evolving crime patterns.
 - The **scheme is intended to support** the government's objective of achieving a **high conviction rate of more than 90%**.

Note:

New Criminal Laws in India

- The new criminal laws in India are set to take effect on 1st July 2024. These laws will replace the existing colonial-era legislation.
 - The **Indian Penal Code (IPC)** will be replaced by the **Bharatiya Nyaya Sanhita (BNS)**.
 - The **Code of Criminal Procedure (CrPC)** will be replaced by the **Bharatiya Nagarik Suraksha Sanhita (BNSS)**.
 - The **Indian Evidence Act** will be replaced by the **Bharatiya Sakshya Adhinyam (BSA)**.

National Forensic Sciences University (NFSU)

- It is the **world's first** and only university dedicated to forensic sciences.
- It was established in **2009** as **Gujarat Forensic Sciences University** and was later renamed to **NFSU** in **2020**.
- The university was set up to **train professionals in forensic science** and is now an **institution of national importance** under the Union Ministry of Home Affairs.
- Its main campus is located in **Gandhinagar, Gujarat**.

Forensic Science

- Forensic science is the use of **scientific methods or expertise to investigate crimes** or examine evidence that might be presented in a court of law.
- It comprises a diverse array of disciplines, from **fingerprint** and **DNA analysis** to **anthropology** and **wildlife forensics**.
- It is a critical element of the **criminal justice system**.
- Forensic scientists **examine and analyse evidence from crime scenes** and elsewhere to **develop objective findings** that can assist in the investigation and prosecution of perpetrators of crime or absolve an innocent person from suspicion.

UN Sustainable Development Report 2024

Why in News?

Recently, the 9th edition of the **Sustainable Development Report** released by **UN Sustainable Development Solutions Network (SDSN)** has highlighted

that the world is significantly behind schedule in achieving the **Sustainable Development Goals (SDGs)** set by the United Nations in 2015.

UN Sustainable Development Solutions Network (SDSN)

- It is a global network established in **2012** by the **United Nations (UN)**.
- It aims to promote practical solutions for achieving the **Sustainable Development Goals (SDGs)** at national and international levels.
- It focuses on **mobilising expertise** by connecting universities, research institutions, and national laboratories to identify and **develop solutions for tackling critical sustainability challenges**.
- The Secretariat of the SDSN is located in Paris, France; Kuala Lumpur, Malaysia and New York, US.

What are the Key Findings of the Sustainable Development Report 2024?

- **Global SDG Progress:**
 - **Only 16%** of SDG targets are on track to be achieved by 2030, with **84%** showing **limited or reversed progress**.
 - Since 2020, global SDG progress has **stagnated**, particularly for **SDGs 2 (Zero Hunger), 11 (Sustainable Cities), 14 (Life Below Water), 15 (Life on Land), and 16 (Peace, Justice, and Strong Institutions)**.
 - Significant **reversals in progress** is observed in **obesity rates (SDG 2), press freedom (SDG 16), red list index (SDG 15), sustainable nitrogen management (SDG 2), and life expectancy at birth (SDG 3)**, influenced by **Covid-19** and other factors.
 - Progress towards SDG9 (Industry, Innovation, and Infrastructure), is showing **slightly positive trends**.
- **Food and Land Systems:**
 - **SDG targets related to food and land systems are off-track**.
 - It reported that globally **600 million people** will still suffer from **hunger by 2030** combined with increasing obesity globally.
 - **Greenhouse gas emissions** from **Agriculture, Forestry, and Other Land Use (AFOLU)** represent almost a **quarter** of annual global GHG emissions.
- **Regional and Country Group Variations:**
 - **Nordic countries lead** in SDG achievement, with

Note:

Finland (score 86.4) ranked first, followed by Sweden (85.7), Denmark (85.0), Germany (83.4), and France.

- **BRICS** and **BRICS+** countries (Egypt, Ethiopia, Iran, Saudi Arabia, UAE) have shown **faster-than-average SDG progress** since 2015.
 - Bottom 3 Countries: South Sudan, Central African Republic and Chad.
- East and **South Asia** are the regions with the **most SDG progress** since 2015.



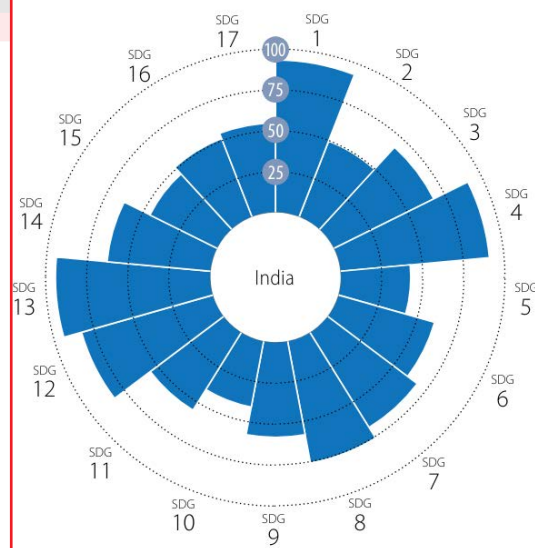
Investment Challenges:

- According to the **World Bank**, about 10% of the world's population lives in extreme poverty, surviving on less than USD 1.90 a day.
 - It also reports that **only 43% of adults** in low-income countries (LICs) have **access to formal financial services**, limiting their ability to invest and save for the future.
- The **International Monetary Fund (IMF)** estimates that LICs face an annual gap of **USD 290 billion** in funding for their SDGs.
- The **Global Education Monitoring Report** by **UNESCO** states that around **262 million children and youth** are out of school, with more than half of them in sub-Saharan Africa and Southern Asia.
- The **International Labour Organization (ILO)** highlights that around **152 million** children are involved in child labour, depriving them of education and proper development opportunities.

Global Cooperation:

- The report has introduced a new Index on **countries' support to UN-based multilateralism (UN-Mi)** ranks countries based on their **engagement with the UN system**.

AVERAGE PERFORMANCE BY SDG



- **Barbados** has topped the Un-Mi index followed by **Antigua and Barbuda, Uruguay, Mauritius, and the Maldives**.
- Bottom 5 countries include the **United States, Somalia, South Sudan, Israel, and the Democratic Republic of Korea**.

Note:

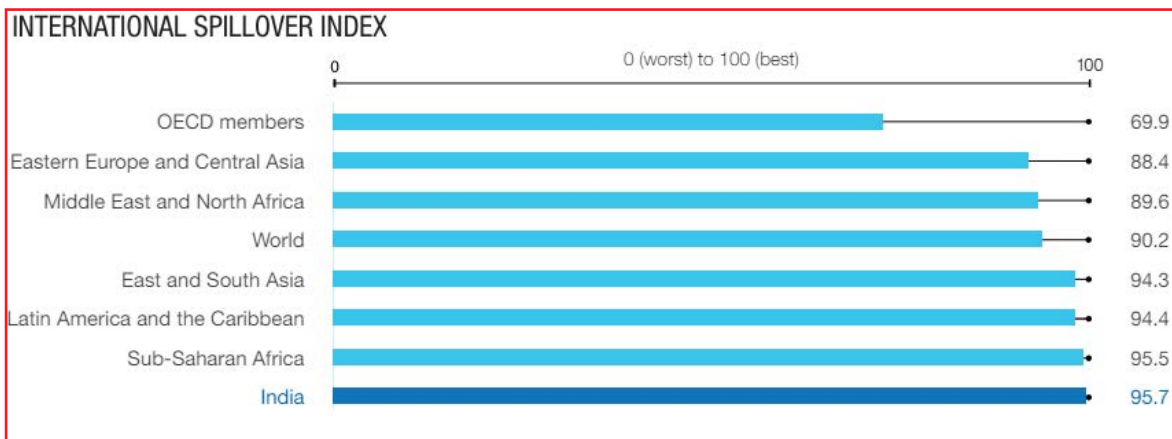
- This index takes into account factors such as **treaty ratification, votes at the UNGA, membership in UN organizations, participation in conflicts and militarisation, use of unilateral sanctions, and financial contributions** to the UN.

What is the Performance of India in SDG Index?

- **Ranking:** India secured **109th rank** with the overall **score of 64.0**.
- **Status of SDG Targets:** Only around **30% of SDG targets** are on track or have been achieved.
 - There is limited progress in the other 40% of the targets and in around 30% of targets the situation is worsening.
- **Average Performance of SDGs:** Highest performance is observed in achieving SDG 1, SDG 4, SDG 12 and SDG 13.
- **SDG Dashboard and Trends:**



- **International Spillover Index:** This index is a metric used to assess **how a country's actions impact the ability of other countries to achieve the SDGs**.
 - It measures the **international ripple effects** of a country's policies and practices.
 - It considers three main dimensions of these effects.
- **Environmental & social impacts** embodied in trade (e.g., pollution caused by production for export).
- **Economic & financial spillovers** (e.g., financial crises spreading across borders).
- **Security spillovers** (e.g., instability in one country impacting the safety of others).



Note:

- **Statistical Performance Index:** India scored 74.5 in this index.
 - It measures the **strength of a country's national statistical system**. A higher score indicates a country has a more reliable and comprehensive statistical system, which is crucial for effectively tracking progress towards the SDGs.

What are the Key Recommendations of the Report?

- **Strengthen Global Cooperation and Multilateralism:** The report recommends **nations to collaborate by sharing resources**, preventing duplication of efforts, and developing fair solutions for global issues.
 - Revitalised international institutions, clear goals, tracking systems, and engagement from all stakeholders are crucial.
 - Examples such as the **Paris Agreement** and the **Montreal Protocol** illustrate the power of collaboration.
- **Addressing Financing Gaps for Sustainable Development:** The report recommends setting up **new institutional frameworks** to facilitate and **channel financing** towards sustainable development initiatives.
 - It proposes the implementation of **innovative global taxation mechanisms** to generate additional resources for sustainable development.
 - The report calls for a **shift in investment priorities** towards funding **public goods, such as quality education (SDG 4)**, as a crucial component of sustainable development.
 - It emphasises the need to improve the **availability and accessibility of affordable long-term capital**, particularly for **low and middle-income countries**.
- **"FABLE" Pathways:** Innovative solutions, such as the **"FABLE" (Food, Agriculture, Biodiversity, Land-Use, and Energy)** pathways should be implemented to address the challenges in the food and land systems.
 - **Reducing overconsumption and limiting the intake of animal-based protein** emphasising the need to **respect cultural preferences** and dietary habits.
 - **Targeted investments to enhance agricultural productivity**, particularly in high-demand areas.
 - **Establishment of inclusive and transparent monitoring systems** involving various stakeholders and local communities to curb deforestation.

Criminal Justice System

Why in News?

Recently, a **fabricated rape accusation** and subsequent **imprisonment** revealed a range of systemic **shortcomings** in our **law enforcement machinery** and social complexities that demand urgent attention.

How is the Criminal Justice System (CJS) in India?

- **About:**
 - The criminal justice system of any state is the set of **agencies** and **processes** established by governments for **administration** of criminal justice aimed at controlling **crime** and imposing **punishment** on persons who violate the law.
 - India's criminal justice system is based on the **Indian Penal Code (IPC)** enacted in 1860.
 - **Article 246** of the Constitution of India places the **police, public order, courts, prisons, reformatories** and other allied institutions in the **State List**.
 - However, the **Union laws** are followed by the Police, Judiciary, and Correctional Institutes, which form the basic organs of the criminal justice system.
- **Structure of the CJS:** It consists of the **four main pillars**.
 - **Investigation by Police:** Section 161 of the **Criminal Procedure Code, 1973** allows the investigation officer to question anyone who may know about the case and write down their statement.
 - **Prosecution of Case by the Prosecutors:** **Prosecutors** charge an accused with a crime and try to show that he/she is guilty in a court of law.
 - **Determination of Guilt by the Courts:** The court pronounces the **sentence** using its **discretion**, considering aggravating and mitigating factors, the offender's background, and the likelihood of their **reform**.
 - **Correction through the Prison System:** The imprisonment in India is used for the **reformation and rehabilitation** of the prisoner through **education, labour, vocational training** and **yoga** and **meditation**.
- **What are the Challenges Involved in the Criminal Justice System in India?**
 - **Pendency of Cases:** As of July 2023, **over 5 crore** cases were pending across all courts in India.

Note:

- Of them, **87.4%** are pending in **subordinate courts**, **12.4%** in **High Courts**, while nearly **1,82,000 cases** have been pending for **over 30 years**. The **Supreme Court** had **78,400** pending cases.
- **Judicial Vacancies:** Despite a longstanding target of **50 judges per million people**, India has only **21 judges per million people**, laying the foundation for delays.
- **Slow Progress in Fastrack Courts:** The functioning of **fast-track courts** has been **far from ideal**.
 - **New courts** with the necessary infrastructure and dedicated judges are **not** set up for **fast-track purposes**.
 - Instead, **existing courts** are typically **designated** as **fast-track courts**, requiring judges to manage their **regular caseloads** in addition to these **expedited cases**.
- **Abuse of Power by Police:** **Police** are often accused of **unwarranted arrest, unlawful imprisonment**, wrongful search, **harassment, custodial violence**, death etc.
 - In addition, police are continuously acquiring **more and more power** on the grounds of **prevention laws**.
- **Complex Mechanism:** Present day justice mechanisms are **too complex** and it is completely far from the **marginalised people**.
 - In a system focused on institutional arrangements rather than building capacity, **vulnerable sections** of society will inevitably be marginalised.
- **Perceived Biases:** In comparison to their percentage in the **total population**, **Adivasis, Christians, Dalits, Muslims** and **Sikhs** are all well **over-represented** in Indian prisons.
- **Violations of Human Rights in Prison:** In the name of extracting **confessions** and investigating crimes, authorities use **physical force** upon the prisoners.
 - **Torture** is also inflicted on women in the form of **custodial rape, molestation** and other forms of **sexual abuses**.

How can the Criminal Justice System in India be Reformed?

- **Bail Reforms:** **“Bail is rule and jail is an exception”** is a judicial principle that was laid down by the Supreme Court during a landmark judgment of **State of Rajasthan v. Balchand alias Baliyain** 1978.
 - In its **268th Report**, the **Law Commission** of India stressed that urgent measures need to be taken

to **curtail** the length of **detention**, and concluded that the law relating to **bail** must be **revisited** to prevent this.

- **Reviving Fastrack Courts: Expeditious disposal** of long pending sessions cases should be done to make these courts **“truly fast-track”**.
- **Legal Aid Reform: Training, mentoring and building capacities** of young professionals for improving quality of **socio-legal services** to make CJS more effective.
- **Filling Judicial Vacancies:** Filling judicial vacancies effectively is crucial for maintaining a **functional and fair judicial system**. For this, **All India Judicial Service (AIJS)** can be explored for the recruitment of **judges** at the level of **additional district judges** and **district judges**.
- **Application of AI in Criminal Case Management:** AI can be used to help judges make decisions about **bail, sentencing, and parole**.
 - AI can be used to assess the risk of **recidivism** for offenders.

Related Initiatives Taken by Government

- **National Mission for Justice Delivery and Legal Reforms**
- **AI Portal SUPACE**
- **Modernisation of Police Scheme**
- **Bharatiya Nyaya (Second) Sanhita, 2023**
- **Bharatiya Nagarik Suraksha (Second) Sanhita, 2023**
- **Bharatiya Sakshya (Second) Bill, 2023**
- **National Mission for Justice Delivery and Legal Reforms**

What Commissions have been set up to Reform CJS?

- **National Police Commission (NPC):** It recommended that there must be a **judicial enquiry** in cases of **custodial death or rapes**.
- **Malimath Committee:** It recommended that there is a need to have a **separate police force** for maintaining law and order and crime investigation.
- **All India Jail Reforms Committee (Mulla Committee):** It emphasised the recruitment of **proper and trained staff** for the administration of jails and, for this purpose, a **correctional service** should be established.
- **Krishnan Iyer Committee:** It recommended the appointment of **women staff** in the police for handling **women and child offenders**.

Note:

Police Reforms in India



CONSTITUTIONAL STATUS

- Police and Public Order: State subjects (7th Schedule)



NEED FOR REFORM

- Colonial Law
- Custodial Death
- Lack of Accountability
- Political Interference
- Poor Gender Sensitivity
- Communal/Caste Bias
- No Anti-Torture Law



IMPORTANT COMMITTEES/COMMISSION



RELATED INITIATIVES

- SMART Policing (pan-India)
- Automated Multimodal Biometric Identification System (AMBIS) (Maharashtra)
- Real Time Visitor Monitoring System (uses AI and blockchain) (Andhra Pradesh)
- CyberDome (Tech R&D Centre) (Kerala)



CHALLENGES WITH POLICING

- Low Police-Population Ratio
- Political Superimposition
- Unsatisfactory Police-Public Relations
- Infra Deficit
- Corruption
- Understaffed/Overburdened



RELATED DATA

- Police-People Ratio: 153 police/100,000 people (Global benchmark: 222 police /100,000 people)
- Custodial Deaths: 175 in 2021-2022 (as per MHA)
- Women's Share: 10.5% of entire force (India Justice Report 2021)
- Infrastructure: 1 in 3 police stations is equipped with CCTV (India Justice Report 2021)

WAY FORWARD

- ↑Police Budget, Resources
- ↑Recruitment Process
- Implement Measures to Reduce Corruption
- ↑Skills of Policemen
- Better Representation (Women, Minorities)



Railway Accidents and Kavach System

Why in News?

Recently, the collision at Rangapani involving the **Kanchenjunga Express** highlights the necessity for **enhanced safety measures**.

- Despite safety advancements, Indian Railways has experienced **fluctuating collision rates**, recording six incidents in 2022-23 and four in 2023-24, highlighting the ongoing need to prevent such incidents.

What are the Reasons behind Railway Accidents?

- **Derailments:** Many train disasters in India are **caused by derailments**, with a government safety report from 2020 finding they were responsible for **70% of train crashes** in the country.
 - A 2022 **Comptroller and Auditor General** report noted that 7 in 10 railway accidents between 2018 to 2021 came due to derailments.
- **Human Errors:** The railway staff, who are responsible for operating, maintaining, and managing the trains and tracks, are **prone to human errors** due to **fatigue, negligence, corruption, or disregard for safety rules and procedures**.
- **Signalling Failures:** The signalling system, which controls the movement and

What are Judicial Pronouncements Related to Reformation of CJS?

- **Prakash Singh v. Union of India Case, 2006:** The Hon'ble Supreme Court stated that a **state security commission** must be established in each state to keep a check on the work of the police and observe that there is no influence.
- **S.P. Anand v. State of Madhya Pradesh Case, 2007:** Prisoners have basic **rights to a healthy life** even though their right to liberty and free movement is restricted.
- **State of Gujarat v. High Court of Gujarat Case, 1988:** It was held that **reasonable wages** must be paid to prisoners in jail for the work or labour they have done.
- **Hussainara Khatoon v. Home Secretary, State of Bihar Case, 1979:** Keeping the **undertrials** in jail for a longer period than their punishment is a **clear violation** of their fundamental rights guaranteed under **Article 21**.
- **Prem Shankar Shukla v. Delhi Administration Case, 1980:** The practice of **handcuffing** is **inhuman, unreasonable and harsh**, and thus, an accused person must not be handcuffed in the first instance.

Note:

direction of trains on the tracks, can fail due to **technical glitches, power outages**, or human errors.

- **Unmanned level crossings (UMLCs):** UMLCs are crossings where railway tracks intersect without barriers or signals, all unmanned ones on broad gauge routes have been removed, yet accidents still pose risks at **manned level crossings (MLCs)**.
- **Infrastructure Defects:** The railway infrastructure, which includes tracks, bridges, overhead wires, and rolling stock, is **often defective** due to poor maintenance, ageing, vandalism, sabotage, or natural disasters.
 - Many routes are **operating at over 100% capacity**, which increases the risk of accidents due to congestion and overloading.
- **Safety and Information Flow Challenge:** Since the inception of railways in India, periodic field inspections by authorities at various levels have been crucial for ensuring compliance with established procedures and standards.
 - This **“top-down” approach** inherently places the responsibility of detecting deviations on higher authorities, creating a **“cops and robbers”** dynamic where **higher authorities view frontline staff with suspicion**, and the latter adopts a **“catch me if you can” attitude**.
 - This scenario **encourages superficial compliance** and conceals underlying issues, undermining transparency and frankness.
 - Such dynamics can be counterproductive, especially in railway safety matters, where many accidents result from a series of ‘near miss’ situations, unsafe practices, or deviations from the norm over time.

What Steps have been taken by Railways to Reduce Accidents?

- **Sufficient Funding:** Creation of special funds known as **Rashtriya Rail Sanraksha Kosh (RRSK)** and the **Rail Safety Fund** but also through capital grants it is permitted to utilise towards these essential requirements.
 - **Rashtriya Rail Sanraksha Kosh (RRSK)** is a **safety fund for critical assets** established in 2017-18 with a corpus of Rs 1 lakh crore over five years for critical safety-related works such as track renewals, signalling projects, bridge rehabilitation, etc.

- An unprecedented allocation for **capex of over Rs 2.5 lakh crore** was made during 2023-24 and again for 2024-25.

- **Expansion of Railway Network:** While the rail network is being extended to cover the farthest parts of the country, **capacity augmentation** of the congested routes is also being undertaken.
 - The **National Rail Plan 2030** aims to identify **new dedicated freight** and high-speed rail corridors and increase the average speed of trains.
- **LHB Design Coaches:** Lighter and safer coaches for Mail/Express trains. These coaches are **based on German technology** and have better anti-climbing features, fire retardant materials, higher speed potential and longer service life than conventional ICF design coaches.
- **Modern Track Structure:** Stronger and more durable tracks and bridges. This includes using a **Prestressed Concrete Sleeper (PSC)**, higher Ultimate Tensile Strength (UTS) rails, fan-shaped layout turnout on PSC sleepers, Steel Channel Sleepers on girder bridges, etc.
- **Technological Upgradation:** Improved design and features of coaches and wagons. This includes **introducing Modified Centre Buffer Couplers, Bogie Mounted Air Brake System (BMBS)**, improved suspension design and provision of Automatic fire & smoke detection system in coaches.
 - It also includes installing **KAVACH**- an indigenously developed Automatic Train Protection (ATP).
 - Indian Railways have installed **Block Proving Axle Counter (BPAC)** for better Railway traffic control. BPAC is a **train detection system** installed on trains, which **automatically detects** the crossing of a train between two points on the track.
 - It doesn't permit two trains to be within the same block section at the same time, which **ensures the safety of trains**.

Electronic Interlocking (EI)

- It employs **computer-based systems** and electronic equipment to control signals, points, and level-crossing gates.
- Unlike conventional relay interlocking systems, EI utilises software and electronic components to manage the interlocking logic.
- EI ensures the **synchronisation of all elements** to facilitate uninterrupted train movement.

Note:

- As of 2022, 2,888 stations in India were equipped with an electronic interlocking system comprising 45.5% of the Indian Railways network.

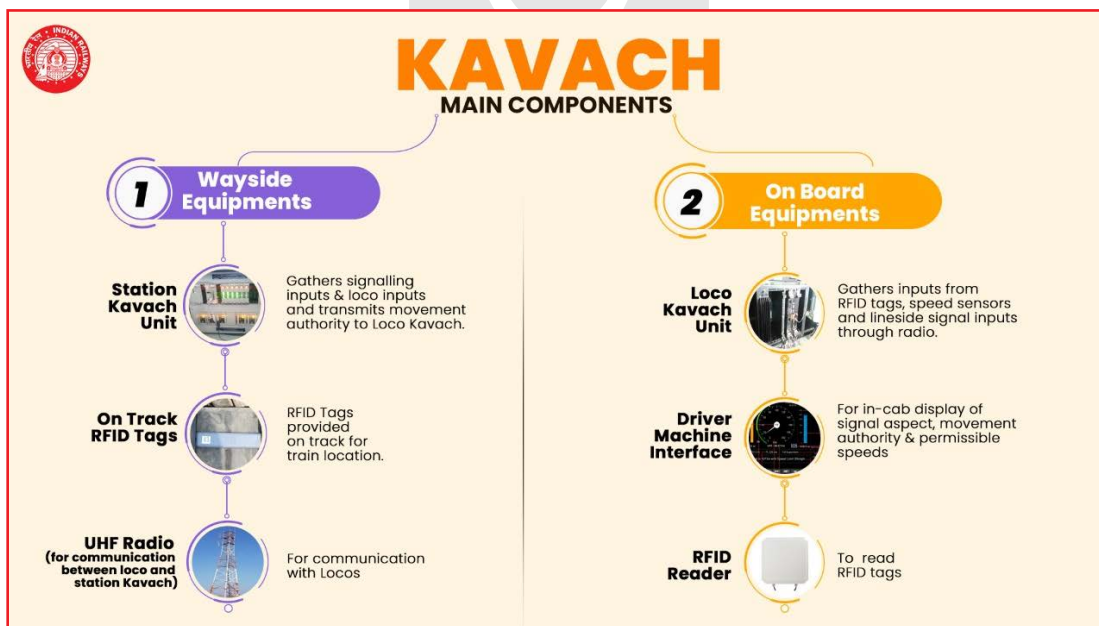
What is the Kavach System?

➤ About:

- **Kavach** launched in 2020, is a **cab signaling train control system** with **anti-collision features** developed by the **Research Design and Standards Organisation (RDSO)** in association with three Indian vendors.
- It has been adopted as **National Automatic Train Protection (ATP) System**.
- It adheres to **Safety Integrity Level-4 (SIL-4) standards** and acts as a vigilant watchdog over the existing signaling system, alerting the loco pilot when approaching a 'red signal' and **applying automatic brakes** if necessary to prevent overshooting the signal.
 - Safety Integrity Level is a measure used in functional safety standards to quantify the level of risk reduction provided by a safety function.

SILs are defined in range from SIL 1 (lowest level of safety integrity) to SIL 4 (highest level of safety integrity).

- The system also **relays SoS messages** during emergency situations.
- It features **centralised live monitoring** of train movements through the Network Monitor System.
- **Components of Kavach:**
 - The Kavach system's deployment involves three critical components:
 - Firstly, **Radio Frequency Identification (RFID)** technology is integrated into the tracks. RFID uses electromagnetic fields to automatically identify and read information from a wireless device from a distance, without requiring physical contact or a line of sight
 - Secondly, the driver's cabin (locomotive) is equipped with **RFID readers**, a computer, and brake interface equipment
 - Finally, **radio infrastructure**, including towers and modems, is installed at railway stations.



➤ Status of Kavach:

- Kavach aims to secure India's extensive railway network of over 68,000 km, but **only 1,500 km are currently equipped** with the system since its initial rollout.
 - It costs ₹50 lakh per km for trackside installation and ₹70 lakh per train.
- It aims to **cover 6,000 km by 2025**, including key routes like **Delhi-Mumbai and Delhi-Howrah**.
 - While current capacity is 1,500 km annually, it's expected to reach 5,000 km by 2026.

Note:

- Upgrades are planned to make the system **4G/5G** compatible.
- Installation is ongoing, with components like optical fiber cables, towers, and station equipment being deployed.

Committees Recommendations

- **Kakodkar Committee (2012):**
 - Adopting **advanced technologies** for track maintenance and inspection
 - Improving **human resource** development and management
- **Bibek Debroy Committee (2014):**
 - Separating the **railway budget** from the general budget
 - Outsourcing **non-core activities**
 - Creating a **Railway Infrastructure Authority of India**
- **Vinod Rai Committee (2015):**
 - Establishing an independent Railway Safety Authority with statutory
 - Setting up a **Railway Accident Investigation Board** to conduct independent and impartial inquiries.
 - Creating a **separate Railway Infrastructure Company** to own and maintain railway assets.

What Steps are Needed to Enhance Safety in India?

- **Creating Statutory Railway Safety Authority:** Set up a railway safety authority as a statutory body with **powers to frame safety standards**, conduct safety audits and inspections, enforce accountability and penalties for lapses, and investigate accidents.
- **Confidential Incident Reporting and Analysis System (CIRAS):** Given the rapid advances in communications and information technology, it is crucial to **introduce a confidential reporting system** like CIRAS in the UK for Indian Railways, focusing on **correction over punishment** and fostering a **culture of shared safety** commitment from management.
- **Enhance Coordination and Communication:** Improve the communication and coordination **among the railway board, zonal railways, divisions, production units, research organisations, etc.**, which are involved in railway operations.
- **Invest More in Safety-Related Works:** Allocate more funds for **track renewal, bridge repair, signalling upgrade, coach refurbishment, etc.**

- **Train Employees to Minimize Human Errors:** Provide **regular and comprehensive training** to the railway staff on the latest technologies, equipment, systems, safety rules and procedures.
- **Improve Infrastructure:** Indian railway tracks **need regular checks**, especially because they expand in summer and contract in winter due to temperature changes, requiring **structural and geometrical evaluations** every three months.
- **Adopt advanced technologies:** Install **anti-collision devices (ACDs)** such as Kavach/ Train Collision Avoidance System (TCAS), Train Protection Warning System (TPWS), Automatic Train Control (ATC), etc.
 - The railways are in the process of installing these technologies on some sections of tracks, but they **need to be expanded** to cover the entire network.
 - Emulate **successful Automatic Train Protection Systems** from other regions, like **Mumbai's suburban system**.
- **Introduce Performance-Linked Incentives:** Reward the railway staff based on their **performance and compliance** with the safety rules and procedures.
- **Ensure accountability:** The government must consider presenting an **annual performance report** of the Railways in the Parliament, similar to the Finance Ministry's Economic Survey before the General Budget, **focusing on internal audit** of performance.
- **Indian Railways Management Service (IRMS):** Evaluate the IRMS scheme's impact on loyalty, ownership, and safety, and consider revising and implementing it to enhance specialization and commitment to safety.
- **Learning From Best Global Practices:**
 - Despite recent accidents, Indian railways **maintain a strong safety record** compared to international standards. In 2022, IR recorded 0.03 significant accidents per million train km, **significantly lower than** the 0.39 per million train km average **across 35 countries**.
 - **United Kingdom:** The UK has **one of the lowest rates of train accidents** in Europe.
 - The **Train Protection and Warning System (TPWS)**, **automatically stops** trains that pass signals at danger or exceed speed limits.
 - The **European Train Control System (ETCS)**, **provides continuous communication** between trains and signalling centres.

Note:

- **Japan:** Japan's high-speed Shinkansen trains, operating at up to 320 km/h, have maintained a **perfect safety record** since 1964 due to advanced safety measures like the **Automatic Train Control (ATC) system**, **Comprehensive Automatic Train Inspection System (CATIS)**, and Earthquake Early Warning System (EAWS).

Mercy Petition

Why in News?

Recently, the **President of India** has denied the **mercy petition** of a Pakistani national sentenced to death for the 2000 Red Fort terrorist attack.

What is Mercy Petition?

- About:
 - A mercy petition is a **formal request** made by someone who has been sentenced to **death or imprisonment** seeking mercy from the President or the Governor, as the case may be.
 - The idea of Mercy Petition is followed in many countries like the United States of America, the United Kingdom, Canada, and India.
 - Everyone has the basic **right to live**. It is also mentioned as a **fundamental right** mentioned under **Article 21** of the **Indian Constitution**.
- **Philosophy Behind:** The philosophy behind the pardoning powers in India is rooted in the recognition that no judicial system is infallible and the need for a mechanism to rectify potential judicial errors.
 - **Rectification of Judicial Errors:** This safeguard acts as a **corrective measure** against potential miscarriages of justice.
 - For example, in 2012, 14 judges from the Supreme Court and High Courts, in separate letters to the President of India, highlighted cases from the 1990s where courts had wrongfully awarded capital punishment to 15 individuals, two of whom were subsequently executed.
 - **Maintaining Public Trust:** One of the core objectives of the pardoning power is to **uphold and maintain the trust** of the common man in the criminal justice system.
- Constitutional Framework:
 - As per the Constitutional framework in India, a mercy petition to the President is the **last constitutional resort** a convict can take when he is sentenced by a **court of law**. A convict can present a mercy petition to the President of India under **Article 72** of the Constitution of India.
 - Similarly, the power to grant pardon is conferred upon the **Governors of States** under **Article 161** of the Constitution of India.

Article 72	Article 161
<ul style="list-style-type: none"> ➤ The President shall have the power to grant pardons, reprieves, respites or remissions of punishment or to suspend, remit or commute the sentence of any person convicted of any offence: ➤ In all cases where the punishment or sentence is by a Court Martial ➤ In all cases where the punishment or sentence is for an offence against any law relating to a matter to which the executive power of the Union extends ➤ In all cases where the sentence is a sentence of death. 	<ul style="list-style-type: none"> ➤ It provides that the Governor of a State shall have the power to grant pardons, reprieves, respites or remissions of punishment or to suspend, remit or commute the sentence of any person convicted of any offence against any law relating to a matter to which the executive power of the State extends. ➤ The SC in 2021 held that the Governor of a State can pardon prisoners, including death row ones, even before they have served a minimum 14 years of prison sentence.

➤ Process of making a Mercy Petition:

- There is **no statutory written procedure** for dealing with mercy petitions, but in practice, after extinguishing all the reliefs in the court of law, either the **convict in person or his relative** on his behalf may submit a written petition to the President.
- The petitions are received by the President's secretariat on behalf of the President, which is then **forwarded to the Ministry of Home Affairs** for their comments and recommendations.

Note:



➤ **Grounds for filing Mercy Petition:**

- The mercy or clemency is granted on the grounds based on his **health, physical or mental fitness**, and his family's financial conditions considering if he is the only sole earner of bread or butter or not.
 - The Supreme Court in cases such as *Shatrughna Chauhan vs Union of India (2014)* held that Right to seek for mercy under Article 72/161 of the Constitution is a constitutional right and not at the discretion or whims of the executive.

➤ **Judicial Review:**

- SC in several cases such as **Maruram vs Uoi, Epuru Sudhakar vs State of Andhra Pradesh, and Kehar Singh vs Uoi** has stated that judicial review of the exercise of pardoning power is possible but on the limited ground.
- The court has stated the following provision for **judicial review** of clemency power:
 - Powers have been exercised without application of mind
 - Exercised with Malafide intentions
 - Relevant material was kept out of consideration

What are some of the Important Judgments Related to Mercy Petition?

- **Bachan Singh v. State of Punjab:** In 1980, the Supreme Court upheld the constitutionality of the death penalty,

but established important guardrails. "Judges", the court said, "should never be bloodthirsty", and the death penalty should not be awarded "save in the rarest of rare cases when the alternative option is unquestionably foreclosed", and all possible mitigating circumstances have been considered.

- The court has reaffirmed the "rarest of rare" standard in several decisions since then.

➤ **Maru Ram v. Union of India (1981):** The SC held that the power to grant pardon under Article 72 is to be exercised on the advice of the Council of ministers.

➤ **Kehar Singh v. Union of India (1989):** The SC had examined the scope of the President's pardoning power under Article 72 in detail.

- In the Kehar Singh case, the court stated that the convict does not have the right to an oral hearing to mercy petition.

➤ **Shatrughan Chauhan v. State of U.P. (2014):** In this judgement the SC held that inordinate delays in deciding mercy petitions can lead courts to commute death sentences.

➤ **Law Commission Report:** The Report of the 262nd **Law Commission** published in 2015 recommended the "absolute abolition" of the death penalty "for all crimes other than terrorism-related offences and waging war".

What are the Different Types of Pardoning Power?

Type of Pardoning Power	Description	Example
Pardon	Completely absolves the convict of the crime, erasing the conviction and all associated penalties.	The President grants a pardon to a person wrongly convicted of treason.
Commutation	Substitutes a harsher punishment with a lighter one.	The President commutes a death sentence to life imprisonment.
Remission	Reduces the period of the sentence without changing its nature.	The Governor remits one year from a two-year sentence of rigorous imprisonment.
Reprieve	Temporarily postpones the execution of a sentence, usually for a short period.	The President grants a reprieve to a condemned prisoner to allow time for the filing of a mercy petition.
Respite	Similar to reprieve, but for a longer period and often for medical reasons.	The Governor grants a respite to a terminally ill prisoner to allow them to spend their final days at home.

Note:

What do the Laws of other Countries Provide?

- **USA:** The **Constitution of America** gives the President the similar powers to grant reprieves or pardon for offences under Federal law, except in cases of impeachment. However, in cases of violation of state law, the power has been given to the concerned Governor of the state.
- **UK:** In the UK, the Constitutional **monarch can pardon** or reprieve for offences on ministerial advice.
- **Canada:** The National Parole Board under the **Criminal Records Act** is authorised to grant such reliefs.

Controversies Surrounding UAPA

Why in News?

Recently, the Delhi Lieutenant Governor (LG) approved the prosecution of novelist Arundhati Roy for **supposedly making provocative statements at a 2010 event that advocated Kashmiri separatism**. This approval was granted under **Section 13 of the Unlawful Activities (Prevention) Act, of 1967**.

- In 2023, the author was **charged under several sections of the Indian Penal Code (IPC)**.

Note: Section 13 of the UAPA deals with advocating, abetting or inciting any unlawful activity and is punishable with imprisonment for up to seven years.

What is the Unlawful Activities (Prevention) Act (UAPA)?

- **Background:**
 - On 17th June 1966, the President promulgated the Unlawful Activities (Prevention) Ordinance **“to provide for the more effective prevention of unlawful activities of individuals and associations”**.
 - Subsequently, the Unlawful Activities (Prevention) Act of 1967 **was enacted**.
- **About:**
 - The Unlawful Activities (Prevention) Act, 1967 was **enacted to provide for more effective prevention of certain unlawful activities of individuals and associations**, for dealing with terrorist activities, and for matters connected therewith.
 - Unlawful activities are **defined as actions supporting or inciting the cession or secession**

of any part of India, or actions questioning or disrespecting its sovereignty and territorial integrity.

- The **National Investigation Agency (NIA)** is empowered by the UAPA to investigate and prosecute cases nationwide.
 - The Act also empowers the **Director-General, the National Investigation Agency (NIA) to grant approval of the seizure or attachment of property** when the case is being investigated by the agency.
- **Amendments:**
 - It underwent multiple amendments (**2004, 2008, 2012 and 2019**) expanding provisions related to terrorist financing, **cyber-terrorism**, individual designation as terrorist, and property seizure.
- **Major Provisions:**
 - Till the year 2004, “unlawful” activities referred to actions related to secession and cession of territory. Following the 2004 amendment, **“terrorist act” was added to the list of offences**.
 - 2019 amendment, empowers the government to **designate individuals as terrorists**.
 - The Act gives the **central government complete authority to declare any activity as unlawful**. If the government considers an activity unlawful, it can **officially declare it so by publishing a notice in the Official Gazette**.
 - Under the UAPA, **the investigating agency can file a charge sheet in maximum 180 days after the arrests** and the duration can be extended further after intimating the court.
 - **Both Indian and foreign nationals can be charged**. It will be applicable to the offenders in the same manner, even if crime is committed on a foreign land, outside India.
 - It has the death **penalty and life imprisonment as highest punishments**.
- **Related Judgments:**
 - In **Arup Bhuyan vs State Of Assam, 2011** the Supreme Court ruled that mere membership of a banned organisation **will not incriminate a person**. It can be done if a person **resorts to violence or incites people to violence** or does an act intended to create disorder.

Note:

- However, in 2023 the Supreme Court ruled that **membership alone in such organisations can be considered an offense** even without the presence of overt violence.
- In the *People's Union for Civil Liberties v. Union of India, 2004*, the Court decreed that if human rights are violated in combating terrorism, it will be self-defeating.
 - The court held that a former police officer is not a good choice to be appointed as a member of the **National Human Rights Commission (NHRC)** as their experience is more related to **investigating crimes rather than protecting and promoting human rights**.
- In the *Mazdoor Kisan Shakti Sangathan v. Union of India, 2018*, the Court said that protests against governmental and parliamentary actions are legitimate, although **such protests and assemblies are supposed to be peaceful and non-violent**.
- In the *case of Hussain and Anr. v/s Union of India, 2017*, the focus was on expediting the processing of bail applications, with an emphasis on the idea that bail should be the standard and imprisonment the rare exception.
- In *NIA v. Zahoor Ahmad Shah Watali, 2019*, the Supreme Court emphasised that courts should not delve deeply into the evidence but rather trust the state's case as presented when making decisions on bail applications related to the UAPA.

What are the Concerns Related to UAPA?

- **Low Conviction Rate:** According to NCRB data, a significant number of UAPA cases remain pending, with a low conviction rate.
 - Only 18% of UAPA cases result in convictions, and the pendency rate in trials is 89%.
- **Subjective Interpretation:** The vague definition of unlawful activities allows for subjective interpretations, making it vulnerable to potential misuse against specific groups or individuals based on their identity or ideology.
- **Limited Judicial Review:** The 2019 amendment empowers the government to designate individuals as terrorists without any **judicial review**, raising **concerns about due process of law** and the potential for arbitrary designations.
- **Detention Rules:** The UAPA has a provision that allows for individuals to be detained for up to 6 months without being charged. This is in stark contrast to regular criminal law, which only **allows for a 3 month pre-charge detention period** before bail can be sought.
- **Violation of Fundamental Rights:** The law infringes upon the essential rights of free speech, assembly, and association protected by the Constitution.
 - It makes it illegal to express disagreement and protest and **can be employed to single out advocates, reporters, students, and marginalised communities who speak out against the authorities**.



Note:

Economic Scenario

Highlights

- India to Import at Concessional Duty
- Rooftop Solar in India's Energy Sector
- Trends in Remittances Inflow
- Ethanol Production
- Poverty and Inequality Measures in India
- Cotton Cultivation in India
- Power Markets in India
- 53rd GST Council Meeting
- Container Port Performance Index (CPPI) 2023
- National Monetisation Pipeline
- E-commerce As Export Hub
- Angel Tax and Capital Gain Tax
- Base Erosion and Profit Shifting
- India's New Economic Brain Power

India to Import at Concessional Duty

Why in News?

Recently, India has allowed **limited imports** of **corn**, **crude sunflower oil**, **refined rapeseed oil**, and **milk powder** under the **Tariff-Rate Quota (TRQ)**.

- This has been taken with the effort to control the rising **food inflation**.

Tariff-Rate Quota (TRQ)

- It is a trade policy tool that allows a set amount of a specific good to be imported at a **reduced tariff rate**, while quantities above this threshold are subject to a **higher tariff**.
- This is used to **balance protecting domestic industries** with the need to meet demand through imports.

What is India's Position in Vegetable Oil and Milk Market?

- **India's Position in Vegetable Oils:**
 - India is the world's **largest importer of vegetable oils** such as **palm oil**, **soya oil** and **sunflower oil**, fulfilling almost **two-thirds** of its needs through imports.
 - **Palm oil** accounts for **40%** of India's vegetable oil consumption, with over two-third of it imported from **Indonesia** and **Malaysia**.
 - In 2021, India unveiled the **National Mission on Edible Oil-Oil Palm** to boost India's domestic palm oil production.

- **Sunflower oil** and **Soybean oil** are imported from **Russia, Ukraine, Argentina, and Brazil**.
- **Top 5 producers of Edible Oil:** China, India, the United States, Indonesia and Brazil.

Milk Production:

- India is the **top producer of milk** contributing around **24.64%** of the world's total milk production in 2021-22 as per **Food and Agriculture Organisation's (FAO)** data.
 - The **National Dairy Development Board (NDDB)** reported a significant **58% increase** in milk production from 2014-15 to **2022-23**, with the total production reaching **230.58 million tonnes**.

Corn:

- India ranks **fourth** globally in corn cultivation area and **seventh largest producer**, contributing around **2% to global corn output**.
- Corn production estimates for 2023-24 indicate a yield of approximately **33.5 million metric tons**.
- **Top 3 Producers of Corn:** US, China and Brazil.

What is Concessional Duty?

- **About:**
 - It is a **tariff**, or **tax**, imposed **on imported goods**, but **at a lower rate** than the standard duty.
- **Reasons for Imposition:**
 - **Reduced Import Costs:** By lowering the duty, the government aims to make **importing certain goods cheaper**. This can **benefit consumers** by making those goods more affordable domestically.

Note:

- **Control Prices:** It can help regulate domestic prices, especially when dealing with essential commodities.
- **Encourage Specific Industries:** Reduced duties on raw materials or equipment can incentivize domestic production in certain industries.
- **Strengthen Trade Relations:** Offering concessional duties can be a way to build stronger trade partnerships with other countries.
- **Temporary Measure:** These are often implemented as temporary measures to address specific situations, like high domestic prices or shortages. Once the situation improves, the duty may be raised back to the standard rate.

Rooftop Solar in India's Energy Sector

Why in News?

As of March 2024, **India's total installed rooftop solar (RTS)** capacity stood at **11.87 gigawatts (GW)**, with a notable increase of **2.99 GW in installed capacity** during 2023-2024. This highlights the substantial transformative potential of RTS within **India's energy sector**.

What is the Rooftop Solar Programme?

- **About:**
 - The government introduced the **Rooftop Solar Programme in 2014** to promote rooftop solar installation.
 - The original target was **40 GW installed capacity (out of 100 GW by 2030) by 2022** but the goal was not met by 2022, the deadline was **extended to 2026**.
 - Rooftop solar panels are **photovoltaic panels** installed on the roof of a building and connected to the main power supply unit.
- **Objective:**
 - To promote **grid-connected solar rooftop systems** on residential buildings.
- **Historical Context:**
 - This program was launched as part of the **Jawaharlal Nehru National Solar Mission in 2010**, the Initial target was **20 GW of solar energy by 2022** then the revised target was **100 GW by 2022**, including 40 GW from RTS.

- **Key Initiatives under Rooftop Solar:**
 - **SUPRABHA** (Sustainable Partnership for RTS Acceleration in Bharat).
 - **SRISTI** (Sustainable Rooftop Implementation for Solar Transfiguration of India).
- **Implementation and State Performance:**
 - Centrally driven by the **Ministry of New and Renewable Energy (MNRE)** and executed through state nodal agencies and power distribution companies.
 - **Top performers States:** Gujarat, Maharashtra, Rajasthan.
 - **Moderate performers:** Kerala, Tamil Nadu, Karnataka.
 - **Underperformers:** Uttar Pradesh, Bihar, Jharkhand.

What is the Significance of the Rooftop Solar Programme?

- **Decentralised Energy Production:** It reduces dependency on centralized power grids and enhances energy security and **resilience by installing rooftop solar panels in targeted households**.
- **Economic Advantages:** It lowers **electricity bills for consumers**, creates jobs in the solar industry, and reduces the need for expensive grid infrastructure upgrades.
- **Energy Independence:** It empowers consumers to become 'prosumers' (producers and consumers) and reduces reliance on **fossil fuels and energy imports**.
- **Rural Electrification and Energy Diversification:** It provides power to remote areas not connected to the main grid, **improves the quality of life in underserved communities**, and contributes to a more diverse and stable energy mix.
- **Sustainable Development:** It aligns with **UN Sustainable Development Goals (SDG 7)** and supports India's commitment to renewable energy and climate action.

What is India's Current Solar Capacity?

- **India's Rooftop Solar Capacity:**
 - **India's total installed rooftop solar capacity** is reported to be approximately 11.87 GW, with Gujarat leading the table followed by Maharashtra, **as of March 2024**.
 - The overall **RTS potential of India** is approximately **796 GW**.

Note:

- According to a **Council on Energy, Environment and Water (CEEW)** report, only **20% of rooftop solar installations** are currently in residential sectors, with the majority **concentrated in commercial and industrial sectors**.
- The CEEW report projects that **India's 250 million households have the potential** to collectively install up to 637 GW of rooftop solar capacity, which could potentially fulfil **one-third of the country's** residential electricity demand.
- **Total Installed Capacity:**
 - Regarding total solar capacity, the **Ministry of New and Renewable Energy** states that India had achieved approximately **73.31 GW by December 2023**, with Rajasthan leading at **18.7 GW** and Gujarat following at **10.5 GW**.

Note:

- **Modhera, India's first solar-powered village**, is in Gujarat and has 1,300 RTS systems of 1 kW each.

What is PM Surya Ghar Muft Bijli Yojana?

- **About:**
 - The **PM Surya Ghar Muft Bijli Yojana** is a scheme aimed at providing RTS systems in 1 crore households.
 - Under this initiative, participating households can receive **300 units of electricity free every month**.
 - The scheme targets residential consumers with systems up to **3 kW capacity**, covering a majority of households in India.
- **Registration and Installation:**
 - To initiate the installation, interested residents must register on the **national rooftop solar portal** and select a vendor from the provided list.

- Eligibility requires a valid electricity connection and no prior subsidy availed for solar panels.
- **Financial Setup:**
 - The scheme is financed with a central allocation of Rs 75,021 crore, primarily distributed as direct subsidies to consumers.
 - It also includes provisions for **payment security in renewable energy service company models** and supports innovative projects.
- **Key Benefits:**
 - It includes **free electricity, reduced electricity bills**, payback periods ranging from **three to seven years**, lower costs for the government, increased adoption of renewable energy, and decreased carbon emissions.

What are the Other Government Initiatives to Harness Solar Energy?

- **FDI in Renewable Energy:** Permitting up to **100% FDI under the automatic route** for renewable energy projects.
- **One Sun, One World, One Grid**
- **Pradhan Mantri Sahaj Bijli Har Ghar Yojana (SAUBHAGYA)**
- **Green Energy Corridor (GEC)**
- **National Smart Grid Mission (NSGM) and Smart Meter National Programme**
- **International Solar Alliance (ISA)**
- **National Solar Mission**
- **Solar Park Scheme**
- **Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM)**

What are the Different Challenges and Way Forward Related to RTS?

Challenges	Way Forward
<ul style="list-style-type: none"> ➤ High Initial Costs: A typical 3 kW residential system costs around Rs. 1.5-2 lakhs (before subsidies) and Commercial installations can cost Rs. 40-50 per watt. 	<ul style="list-style-type: none"> ➤ Policy Reforms: Expand and Simplify Subsidies, increase subsidy coverage for larger systems, and streamline the subsidy disbursement process ➤ Innovative Financing Models: Promote solar leasing and power purchase agreements (PPAs) les.
<ul style="list-style-type: none"> ➤ Limited Awareness: Only 20% of RTS installations are in the residential sector (CEEW report) which poses a significant hurdle to its installation in rural sectors. 	<ul style="list-style-type: none"> ➤ Awareness and Outreach: Launch comprehensive public awareness campaigns. And leverage social media and community engagement programs.

Note:

<ul style="list-style-type: none"> ➤ Grid Integration Challenges: In India, states like Rajasthan, Gujarat, and Tamil Nadu face issues with grid stability due to intermittent solar generation. 	<ul style="list-style-type: none"> ➤ Grid Modernization: Invest in smart grid technologies to better integrate distributed solar generation. ➤ Promote energy storage solutions to address intermittency issues. ➤ Develop better forecasting and management systems for solar power.
<ul style="list-style-type: none"> ➤ Limited Skilled Workforce: India needs an estimated 300,000 skilled workers in the solar sector by 2022 and lack of skilled force is one of the prominent reasons behind the noncompletion of the target. 	<ul style="list-style-type: none"> ➤ Capacity Building and Technology and Innovation: Expand training programs like 'Suryamitra', and partner with educational institutions. ➤ Invest in R&D for more efficient and cost-effective solar technologies.

Trends in Remittances Inflow

Why in News?

According to the latest report by the [World Bank](#), the **growth in remittances to India** is likely to **halve in 2024** compared to **2023**.

- This slowdown is attributed to “**reduced outflows from GCC (Gulf Cooperation Council) countries**, amid declining oil prices and production cuts.

What are Remittances?

➤ About:

- Remittances are the **funds or goods that migrants send back to their families** in their **home country to provide financial support**.
 - They are an important source of income and **foreign exchange** for many developing countries, especially those in **South Asia**.
- Remittances can help **reduce poverty**, improve living standards, support education and health care, and stimulate economic activity.
- India sent out 18.7 million emigrants in 2023.

➤ Growth of Remittances:

- India received **USD 120 billion** in remittances in **2023 with growth at 7.5%**.
- It is forecasted to grow at **3.7% in 2024** to reach **USD 124 billion**, while the growth estimate for **2025 is 4%** and it is expected to reach **USD 129 billion** by 2025.

MONEY MATTERS

	Inflows (\$ bn)	Growth (% chg Y-o-Y)
2023	120	7.5
2024	124	3.7
2025	129	4

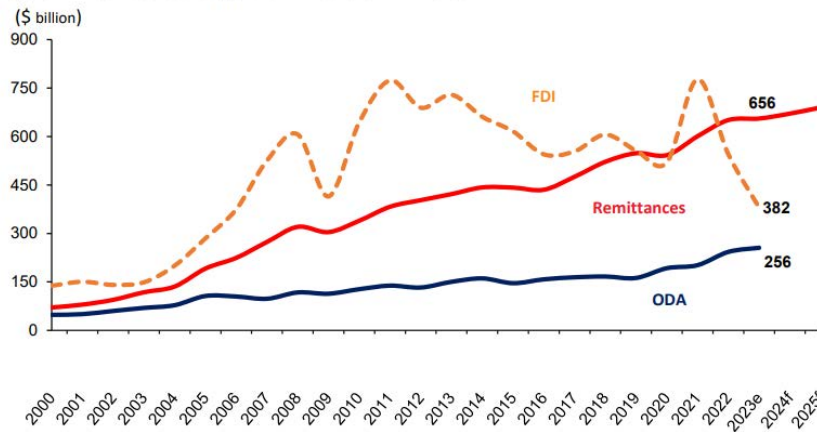
Note: Growth numbers may not tally due to rounding off by World Bank
Source: World Bank

Note:

➤ Remittances Inflows in Countries:

- In 2023, India topped in remittances inflow list, followed by **Mexico (USD 66 billion)**, **China (USD 50 billion)**, the **Philippines (USD 39 billion)**, and **Pakistan (USD 27 billion)**.
- India's foreign assets increased more than liabilities in 2023-24 according to RBI data.

Figure 1.1 Remittances Larger than FDI and ODA in 2023



Source: World Bank/KNOMAD staff estimates.

Note: f = forecast; FDI = foreign direct investment; ODA = official development assistance.

Migration Trends

- In 2023, there were approximately **302.1 million international migrants** globally, according to **World Bank** data.
 - **Economic migrants** constituted an estimated **252 million** of the total international migrants.
- **Refugees and asylum seekers** numbered around **50.3 million** in 2023, according to the **United Nations High Commissioner for Refugees (UNHCR)**.

What are the Factors Affecting Remittance Flows to India?

➤ Top Sources of Remittances for India:

- Around **36%** of total remittance flows to India are sent by **high-skilled Indian migrants** residing in 3 high-income countries like the **United States, the United Kingdom, and Singapore**.
 - The post-pandemic recovery led to a tight labour market in these regions, resulting in wage hikes that boosted remittances.
- Among the other high-income destinations for Indian migrants, such as the **Gulf Cooperation Council (GCC)** countries, **UAE accounted for 18%** of India's remittance flows, while **Saudi Arabia, Kuwait, Oman, and Qatar** collectively accounted for **11%**.

➤ Reason for Consistent Remittance Inflow:

- **Strong Economic Conditions:**
 - In developed economies like the **US, UK, and Singapore**, **lower inflation and strong labour markets** have benefited **skilled Indian professionals**, resulting in **increased remittance inflows** to India.

- **High employment growth** and a **general decrease in inflation** in **Europe** contributed to the **increase in remittances worldwide**.

○ Diversified Migrant Pool:

- India's migrant pool is no longer concentrated solely on high-income countries. A significant portion resides in the **Gulf Cooperation Council (GCC)**, offering a **buffer during economic downturns** in either region.
- Favorable economic conditions in GCC, including **high energy prices** and **curbed food price inflation** have positively impacted employment and incomes for Indian migrants, especially those in **less-skilled sectors**.

India and the United Arab Emirates (UAE) signed a pact in 2023 to establish a **Local Currency Settlement System (LCSS)** to promote the use of the **Indian rupee (INR)** and **UAE Dirham (AED)** for cross-border transactions further boosting remittance flows.

○ Improved Remittance Channels:

- Initiatives like **Unified Payment Interface (UPI)** have enabled **real-time fund transfers**, allowing remittances to be sent and received instantly.

Note:



- The **National Payments Corporation of India (NPCI)** has allowed NRIs to use UPI in several countries including Singapore, Australia, Canada, Hong Kong, Oman, Qatar, USA, Saudi Arabia, United Arab Emirates, and the United Kingdom, Sri Lanka, Bhutan, Mauritius, France, Nepal.

How can Remittance Inflow in India be Increased?

- **Boosting Financial Inclusion:** World Bank data indicates **only 80% of Indians** have bank accounts. **Expanding formal financial services**, especially in rural areas can **facilitate easier remittance transfers** through a wider network of bank branches, ATMs, and digital platforms.
- **Reducing Remittance Costs:** As per **World Bank** data, India has **high remittance costs (5-6%)**.
 - Introducing **competition between remittance service providers** and **promoting digital channels** can **lower transaction costs**, while **government incentives** for formal channels can boost adoption.
- **Enhancing Remittance Infrastructure: Upgrading payment systems** and leveraging new technologies like **blockchain** can streamline the remittance process.
 - The **Reserve Bank of India's Centralized Payment System** such as **Real Time Gross Settlement (RTGS)** and **National Electronic Funds Transfer (NEFT)** is a step towards this goal.
- **Targeted Diaspora Engagement:** Increased government engagement with the Indian diaspora through programs like **Pravasi Bharatiya Divas** and the **Know India Programme** can strengthen connections.
 - Offering attractive investment options and **tax breaks**, as suggested by the **International Monetary Fund (IMF)** data can incentivize higher remittance inflows.
- **Promoting Economic Stability:**
 - Implementing sound macroeconomic policies, improving the ease of doing business, and addressing corruption is crucial for diaspora confidence which can create a more attractive environment for remittance flows.

Ethanol Production

Why in News?

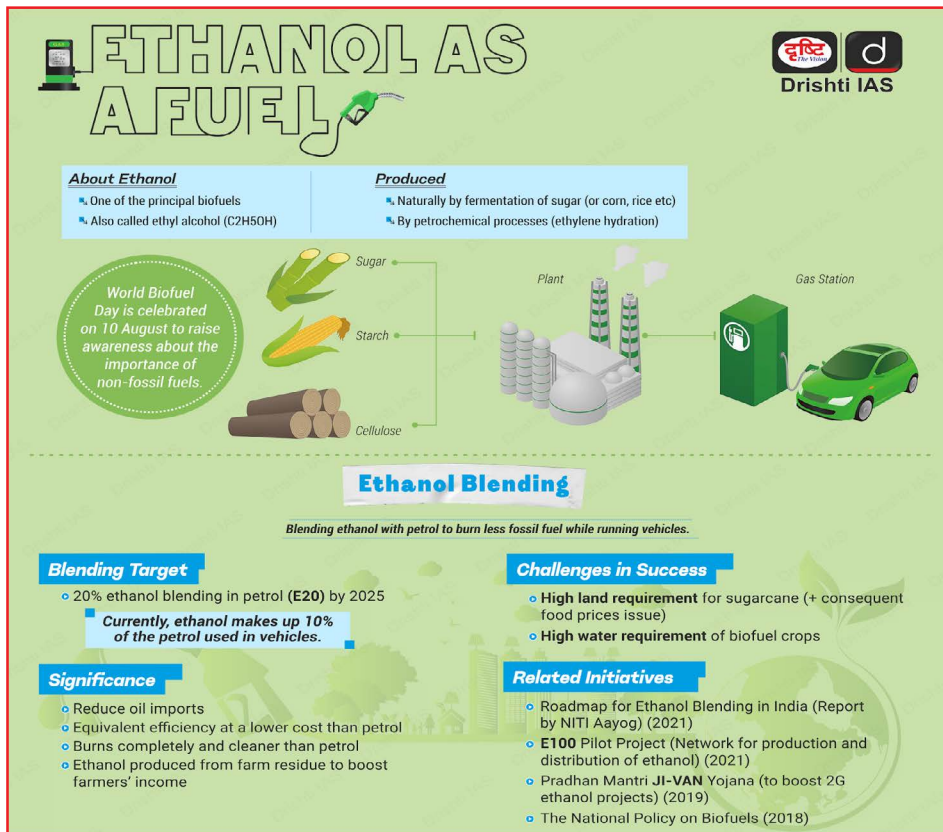
Recently, India has achieved **higher ethanol production** from grains, particularly **maize**, surpassing that from **sugar-based feedstock**.

What is Ethanol?

- **About:**
 - Ethanol, also known as ethyl alcohol, is a **biofuel** produced from various sources such as **sugarcane**, corn, rice, wheat, and biomass.
 - **Molasses**, a **byproduct of sugar manufacture**, are generally the main source of production of ethanol (anhydrous alcohol) and rectified spirit. Molasses can be categorised into following:
 - **A Molasses (First Molasses):** An intermediate **by-product** from initial sugar crystal extraction, containing 80-85% dry matter (DM).
 - **B Molasses (Second Molasses):** Similar DM content as A molasses but with less sugar and no spontaneous crystallization.
 - **C Molasses (Final Molasses, Blackstrap Molasses, Treacle):** The **end by-product of sugar processing**, containing significant amounts of sucrose (about 32 to 42%). It does not crystallize and is used as a commercial feed ingredient in liquid or dried form.
 - The production process involves the **fermentation of sugars** by yeasts or via petrochemical processes such as ethylene hydration.
 - Ethanol is **99.9% pure alcohol** that can be blended with petrol to **create a cleaner fuel alternative**.
- **Properties of Ethanol:**
 - Ethanol is a **clear, colorless liquid** with a characteristic wine-like odor and pungent taste.
 - It is **fully soluble in water** and most organic solvents.
 - In its pure form, it has a boiling point of 78.37 degrees Celsius and a melting point of -114.14 degrees Celsius.
 - Ethanol is a **combustible material** and has a lower combustion temperature than gasoline, making it a cleaner-burning alternative.
- **Applications of Ethanol:**
 - **Beverages:** Ethanol is the type of alcohol found in alcoholic beverages. It is consumed socially in various forms, such as **beer, wine, and spirits**.
 - **Industrial Solvent:** Due to its ability to dissolve a wide range of substances, ethanol is used as a **solvent in the manufacturing** of pharmaceuticals, perfumes, and other products.

Note:

- **Medical and Laboratory Uses:** Ethanol is used as an **antiseptic, disinfectant,** and preservative in medical and laboratory settings.
- **Chemical Feedstock:** It serves as a **feedstock for the production** of various chemicals.
- **Fuel:** It is used as a biofuel and is often mixed with gasoline to produce ethanol-blended fuels.



- **Grain-based ethanol** now constitutes nearly 51% of the total ethanol production for the current ethanol-supply year (November 2023-October 2024).

- The **National Agricultural Cooperative Marketing Federation of India Ltd (NAFED)** and the **National Cooperative Consumers' Federation of India Ltd (NCCF)** are procuring maize to promote its use in ethanol production.

- Moreover, Leading sugar companies have installed distilleries that can operate on multiple feedstocks such as rice, damaged grains, maize, and millets throughout the year for continuous production.

- **Government's Differential Pricing Policy:** The government has fixed different prices for ethanol derived from C heavy molasses, B heavy molasses, sugarcane juice/sugar/sugar syrup, and damaged food grains or rice.
 - For example, from 2018-19, the Indian government began fixing **higher prices for ethanol produced from B-heavy molasses** and whole sugarcane juice/syrup.

What are the Measures to Promote Ethanol Production?

- **Feedstock Diversification:** Ethanol production in India was **mainly based on 'C-heavy' molasses**, with a sugar content of 40-45%, yielding 220–225 litres of ethanol per tonne.
 - Earlier, India explored direct sugarcane juice for ethanol production, increasing yield and efficiency.
 - However, India is using other methods also for increasing production. The country has diversified its feedstocks by including **rice**, damaged grains, **maize**, jowar, bajra, and **millets**.
 - It has been seen that Ethanol **yields from grains are higher** compared to molasses, with rice producing 450-480 liters and other grains 380-460 liters per tonne.
- By 9 June 2024, India produced 3.57 billion litres of ethanol.
- Out of this, 1.75 billion litres were from **sugar-based feedstock** (sugarcane juice, B-heavy molasses, C-heavy molasses) and 1.81 billion litres were from grain-based feedstock with maize alone contributing 1.10 billion litres.

Note:

- This policy has helped increase the supply of ethanol for the Ethanol Blended Petrol (EBP).
 - **E20** fuel is a blend of 20% ethanol and 80% petrol. The E20 was launched by the Prime Minister of India in February 2023 in Bengaluru.
 - This pilot covers at least 15 cities and will be rolled out across the country in a phased manner.
- **Setting up Ambitious Targets:**
 - India has set up a very ambitious target to increase Ethanol production in the country. For Instance, India plans to start using 20% ethanol blended petrol (E20) from 2025.
 - As of 9 June 2024, India achieved a 12.7% ethanol blend with petrol, targeting 15% for the current year.
 - Achieving the **E20 target** by 2025-26 will require 10.16 billion litres of ethanol, according to NITI Aayog estimates.
- **International Commitments:**
 - At the 64th **International Sugar Organization** meeting, India reaffirmed the commitment to achieving 20% ethanol blending by 2025-26, predicting that grain-based ethanol production will exceed sugar-based ethanol in the 2023-24 supply year.
 - In September 2023, India, the US, the UAE, and Brazil launched the **Global Biofuel Alliance**. The countries agreed to provide financial and technical support to national programmes to promote the sustainable production and use of biofuels.
- **Other Policies:**
 - [National Policy on Biofuels 2018](#)
 - [E100 Pilot project](#)
 - [Pradhan Mantri JI-VAN Yojana 2019](#)
 - [Repurpose Used Cooking Oil \(RUCO\)](#)

What are the Benefits and Challenges of Ethanol Production?

- **Benefits:**
 - **Reduced Dependence on Oil Imports:** India imports a significant portion of its **crude oil** needs. A **NITI Aayog** report estimates that a successful ethanol blending program can save the country billions of dollars annually by reducing this reliance.
 - **Boost to Agricultural Income:** Increased ethanol production creates demand for crops like sugarcane and grains used in **fermentation**. This can lead to

- higher income for farmers according to a report by the International Renewable Energy Agency (IRENA).
- **Greenhouse Gas Reduction:** Ethanol **absorbs carbon dioxide** during its production, **offsetting combustion emissions** and supporting India's carbon footprint reduction goals.
- **Job Creation:** The ethanol blending program has the **potential to generate millions of jobs** in rural areas. New distilleries, expanded sugarcane cultivation, and associated logistics will require a significant workforce, boosting the rural economy.
- **Waste Management Solution:** The ethanol production can utilize molasses that often creates **waste disposal challenges**. By converting molasses into ethanol, the program promotes a more sustainable approach to waste management within the sugar sector.
- **Benefitting from the By products of Ethanol Production:** Apart from being a fuel additive, ethanol production yields **valuable byproducts like Distillers' Dried Grain with Solubles**, and Potash from Incineration Boiler Ash that find applications across various industries.
 - Distillers' Dried Grain with Solubles (DDGS):
 - DDGS is a byproduct of **grain-based ethanol** production.
 - It is the residue left after the starch in grains is fermented and ethanol is extracted.
 - DDGS is a valuable animal feed with **high protein content** and is used to supplement livestock diets.
 - Potash from Incineration Boiler Ash:
 - The ash remaining after Ethanol Production in the boiler contains up to 28% potash.
 - This ash is a rich source of potash and can be utilized as a fertilizer.
- **Challenges:**
 - **Food vs. Fuel:** A major challenge is the **competition for feedstocks** between food production and ethanol production. According to the **Environmental Protection Agency (EPA)**, corn-based ethanol production can lead to increased food prices and even contribute to deforestation in countries pressured to cultivate more land for crops.
 - **Land and Water Use:** Large-scale ethanol production, particularly from corn, requires **significant amounts of land and water**. This can strain resources and lead to issues like soil erosion and depletion of freshwater supplies.

Note:

- **Limited Environmental Benefit:** While touted as a renewable fuel, the lifecycle **greenhouse gas emissions** of corn ethanol can be comparable to gasoline, especially when considering indirect land-use changes.
- **Costly Processing:** The current methods for processing feedstocks, particularly non-food crops like switchgrass, often require **energy-intensive treatments** to convert them into usable sugars for fermentation.
- **Infrastructure Challenges:** Ethanol has a **higher water content than gasoline**, which can lead to corrosion in pipelines and storage tanks.
- **Shortage of Raw Material:** Though India has planned to achieve Ethanol Blending by 2025 but it often finds raw material shortage for ethanol production. For Example, due to a lower production of sugarcane, the government in December 2023 banned the use of cane juice and B-heavy molasses for ethanol production.

Poverty and Inequality Measures in India

Why in News?

Recently, **PM's Economic Advisory Council (PMEAC)** chief Bibek Debroy pitched for a review of India's official **poverty line** and suggested analysing inequality at the state level.

What is the Status of Poverty in India?

- **About:**
 - Poverty refers to a condition in which people or communities lack the financial resources and other essentials for a **minimum standard of living**.
 - In September 2022, the **World Bank** set the International Poverty line at **USD 2.15** using **2017 prices**.
 - It means that anyone living on less than **USD 2.15** a day is considered to be living in **extreme poverty**.
- **Poverty Estimation in India:**
 - **Study by VM Dandekar and N Rath (1971):** It made the **first systematic assessment** of poverty in India.
 - It was based on **National Sample Survey (NSS)** data from 1960-61.

- They argued that the **poverty line** must be derived from the expenditure that was adequate to provide **2250 calories per day** in both rural and urban areas.
- **Alagh Committee (1979):** It constructed a poverty line for rural and urban areas on the basis of **nutritional requirements**.
 - Nutritional requirements and related consumption expenditure based on 1973-74 price levels recommended were **2400 Calories for rural areas** (Rs 49.1 per capita per month) and **2100 Calories for urban areas** (Rs 56.7 per capita per month).
- **Lakdawala Committee (1993):** It made the following suggestions:
 - Consumption expenditure should be calculated based on **calorie consumption** as earlier.
 - **State specific poverty lines** should be constructed and these should be **updated** using the Consumer **Price Index of Industrial Workers (CPI-IW)** in urban areas and **Consumer Price Index of Agricultural Labour (CPI-AL)** in rural areas.
- **Tendulkar Committee (2005):** It was set up by the **Planning Commission** to **reassess the methods** for **estimating poverty** and submitted its report in December 2009.
 - According to the report, the **rural poverty headcount ratio for 2004-05** was at **41.8%**, **urban at 25.7%**, and the **pan-India poverty rate** stood at **37.2%**.
- **Rangarajan Committee (2012):** It was chaired by former Reserve Bank of India governor C. Rangarajan to review the country's poverty measurement methodology.
 - It defined poverty as living on **less than Rs 47 per day in urban areas and Rs 32 per day in rural areas**.
 - It estimated that **poverty levels were 19% higher in rural areas and 41% higher in urban areas compared to the Tendulkar Committee's estimates**.

What is the Need of a New Official Poverty Line in India?

- **Outdated Data:** India's poverty line estimate based on the **Tendulkar Committee (2005)** is two decades old.

Note:

- Estimating poverty on the basis of this data is a **futile exercise** and this grossly underestimates poverty.
- **Inconsistent with Global Data:**
 - The **World Bank's** 2022 report says, India saw “an increase of **56 million poor** people” in 2020 (at USD 2.15) due to the **pandemic**.
 - **Pew Research Institute's** March 2021 report said the number of Indian poor increased by **75 million** and added that its middle class shrinking by 32 million.
 - But India **never acknowledged** that poverty increased due to the pandemic or due to **pre-pandemic** economic shocks of **demonetisation** of 2016 and **GST** of 2017.
- **Less Realistic Data:**
 - The poverty threshold **varies from state to state** according to people's social and economic conditions but the current poverty **estimation is based on rural, urban and pan-India level**.
 - This data is **less realistic** due to **inadequate** customised measurement and **inconsistent** data collection methods.
- **Accuracy Issues:**
 - There is a lack of comprehensive **consumption** and **inflation** data making it impossible to get an accurate picture.
 - Indian authorities do not provide inflation data segmented by household income.
 - **Multidimensional poverty Index (MDPI)** evaluates **health, education** and **standard of living** across 12 indicators. It relies more on **survey-based data** rather than **actual consumption** metrics.
- **Institutional Issues:**
 - India's statistical system, **which was applauded globally in the early 1950s**, had been criticised by people outside as well as inside the government system in recent times.
 - The **Ministry of Statistics and Programme Implementation** has **failed** to provide **empirical data** and struggled to **effectively communicate its actions** to the relevant stakeholders.
 - **Example:** The findings of the **Consumption Expenditure Survey 2017-18** were so abysmal that they were withdrawn by the government.

Government Initiatives to Alleviate Poverty

- [Prime Minister Street Vendor's AtmaNirbhar Nidhi – PM SVanidhi](#)
- [Pradhan Mantri Shram Yogi Maan-Dhan \(PM-SYM\)](#)
- [National Nutrition Mission \(NNM\)](#)
- [Pradhan Mantri Garib Kalyan Yojana \(PMGKY\)](#)
- [Pradhan Mantri Suraksha Bima Yojana](#)

What is the Status of Inequality in India?

- **About:**
 - In the economy, inequality is the **unequal distribution of income and opportunity** between different groups in society.
 - Income Inequality refers to the **extent to which income is evenly distributed** within a population.
- **Inequality Estimation in India:**
 - Ways to measure inequality:
 - The **Gini coefficient** (Gini index or Gini ratio) is a measure of income inequality, wealth inequality, or consumption inequality within a nation or a social group.
 - A Gini index of **0** represents **perfect equality**, while an index of **1** implies **perfect inequality**.
 - **Inequality in India:**
 - As per the **Household Consumption Expenditure Survey 2022-23**, the value of the Gini coefficient for consumption expenditure **decreased** from 0.283 in 2011-12 to **0.266** for **rural** areas, and from 0.363 to **0.314** for **urban** areas in 2022-23.

Is a low Gini coefficient Good?

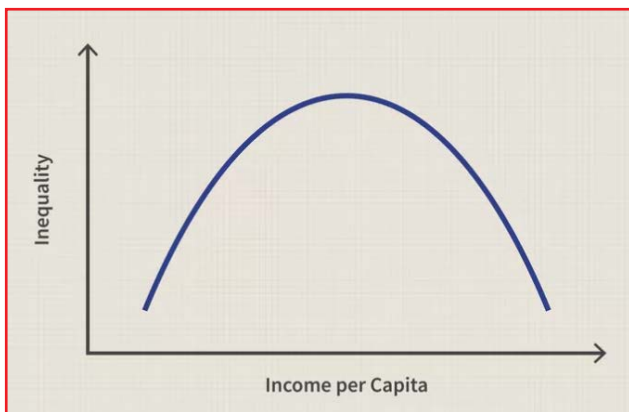
- Generally, **developed countries** tend to have **lower Gini coefficients** (e.g., below 0.30), indicating **relatively lower income or wealth inequality**.
- The Gini Coefficient of **developing countries** like India tends to be higher. As **economies grow and prosper**, **inequalities widen a bit**.

Kuznets curve

- The **Kuznets curve** is a **graphical representation** of the relationship between **economic development** and **income inequality**.
- It suggests that as an economy develops from a **low-income** agrarian society to a **higher-income** industrial and then **post-industrial** society, income inequality follows a **specific pattern**.

Note:

- The Kuznets curve is often depicted as an **inverted U-shaped curve**.
- Specific pattern of income inequality:
 - **Low-Income Stage (Agrarian Economy):** At the initial stage of economic development, when a society is **primarily agrarian, income inequality tends to be relatively low**.
 - **High-Income Stage (Industrialization):** As the economy develops and transitions into an **industrial phase, income inequality rises during this phase**.
 - **High-Income Stage (Post-Industrial):** In post-industrial societies, there is more emphasis on **service industries, education, and technology where income inequality is expected to decline**.




Cotton Cultivation in India

Why in News?

The data recently released by the **Ministry of Textiles** shows that **cotton** consumption by the textile industry from October 2023 to September 2024 is **one of the highest seen in this decade**.

What are the Key Facts About Cotton Cultivation?

- **About:**
 - Cotton is one of the most important **commercial crops** cultivated in India and accounts for around 25% of the total global cotton production.
 - Due to its economic importance in India, it is also termed as **“White-Gold”**.
 - In India, around **67%** of India’s cotton is grown in **rain-fed areas** and 33% in irrigated areas.




Drishti IAS


Cotton Cultivation

India got **1st** place in the world in cotton acreage with **130.61** lakh hectares area under cotton cultivation i.e. around **40%** of the world area of **324.16** lakh hectares.


India is the only country which grows all four species of cotton



G. Arboreum and
G. Herbaceum
(Asian cotton)




G. Barbadense
(Egyptian cotton)




G. Hirsutum
(American Upland cotton)

Major 9 cotton growing states divided according to Agro-Ecological zones



- Northern Zone
- Central Zone
- Southern Zone



➤ Growing Conditions:

- Cotton cultivation necessitates a **hot, and sunny climate** with a **long frost-free period**. It is most productive in **warm and humid climatic conditions**.
- Cotton can be successfully grown in a range of soil types, including **well-drained deep alluvial soils** in northern regions, variable-depth black clayey soils in the central region, and mixed black and red soils in the southern zone.
 - While cotton exhibits some tolerance to salinity, it is highly **sensitive to waterlogging**, emphasising the importance of well-drained soils in cotton farming.

➤ Hybrid and Bt Cotton:

- **Hybrid Cotton:** Cotton made by crossing two parent strains that have different genetic characteristics. Hybrids are often **spontaneously and randomly created** in nature when open-pollinated plants naturally cross-pollinate with other related varieties.
- **Bt Cotton:** It is a **genetically modified pest-resistant** variety of cotton.

➤ India’s Scenario:

- **Rank in Global Production (November 2023):** Globally, India is the largest producer of cotton, while **China is the second-largest producer, and the United States is the third-largest producer**.
- **Largest Producing Zone (2022-23):** Central Zone (Gujarat, Maharashtra, Madhya Pradesh).

Note:

Indian Government Initiatives For Development of the Cotton Sector

- **Cotton Development Programme Under the National Food Security Mission (NFSM):** It aims to enhance cotton production and productivity in major cotton-growing states and is being implemented by the **Department of Agriculture & Farmers Welfare** in 15 major cotton-growing states from 2014-15.
- **Cotton Corporation of India (CCI):** It was established in 1970 under the administrative control of the **Ministry of Textiles** as a **Public Sector Undertaking** under the **Companies Act 1956**.
 - Its role is to stabilise prices by enforcing price support measures whenever the market prices fall below the government-decided price supports.
- **MSP Formula for Cotton:** Introduced a formula of 1.5 times the cost of production (A2+FL) for **Minimum Support Price (MSP)** calculation ensuring the economic interest of cotton farmers and availability of cotton to the textile industry.
 - **Cotton Corporation of India (CCI):** Appointed as a **Central Nodal agency** for MSP operations when Fair Average Quality grade seed cotton (kapas) fell below the MSP rates.
- **Textile Advisory Group (TAG):** Constituted by the **Ministry of Textiles** to facilitate coordination among stakeholders in the cotton value chain to address issues related to productivity, prices, branding, and more.
- **Cott-Ally Mobile App:** Developed to provide farmers with knowledge about MSP Rate, procurement centers through a **user-friendly interface**.
- **Committee on Cotton Promotion and Consumption (COCPC):** To ensure the availability of cotton to the textile industry.

What are the Issues Associated with the Cotton Sector in India?

- **Pest Attack:** In past instances, the primary factor responsible for the decline of cotton production was the emergence of the **pink bollworm** (*Pectinophora gossypiella*).
 - When pink bollworm (PBW) larvae invade cotton bolls, it causes cotton plants to produce less cotton and the cotton produced is of lower quality.
 - PBW is **monophagous (that primarily feeds on a single specific type of food)**, feeding mainly on cotton, which contributes to the **development of resistance against Bt proteins**.

- Continuous cultivation of **Bt hybrids** led to PBW populations developing **resistance**, replacing susceptible ones.

- Several states like Gujarat, Punjab, Haryana, Rajasthan have over the years experienced heavy infestation of the pest.
- **Yield Fluctuations:** Cotton production in India can be quite unpredictable due to **several factors**.
 - Limited access to **irrigation systems**, declining soil fertility, and **erratic weather patterns**, including **unexpected droughts** or excessive rainfall, contribute to the uncertainty surrounding cotton yields.
- **Smallholder Dominance:** The majority of cotton farming in India is carried out by small-scale farmers.
 - These farmers often rely on **traditional agricultural practices** and have limited access to modern farming technologies, which in turn affects overall cotton production.
- **Limited Market Access:** A significant number of cotton growers in India face constraints in reaching markets and are compelled to sell their **harvest** at reduced rates to intermediaries.

Power Markets in India

Why in News?

Recently, the government has allowed the **trading of surplus electricity** generated from "linkage coal" in the country's power markets amid increasing demand during the summer.

- Coal linkages are **government-allocated resources to thermal units** based on long-term **power purchase agreements (PPAs)** with distribution companies to ensure reliable and consistent **coal supply** for electricity generation.

What are Power Markets of India?

- **About:**
 - **Power markets** in India represent a system where electricity is traded through various mechanisms and platforms like **power exchanges**, allowing for **flexible and efficient** allocation of electrical power.
- **Power Exchange:**
 - **Power exchanges** are a key infrastructure within power markets that **enable the buying and selling**

Note:

of electricity through transparent and competitive processes, thereby contributing to the overall efficiency and reliability of the electricity supply system.

○ **Structure and Evolution:**

- Power exchanges were **first introduced in Europe** in 1990-91 and now operate in about 50 countries worldwide.
- In India, the **Electricity Act of 2003** established the framework for exchange operations, and exchanges commenced in 2008.

➤ The **spot market** was introduced in 2020 to enhance flexibility and responsiveness.

○ **Trading Mechanism:**

- **Bidding Process:** Buyers make bids for purchasing electricity, and sellers make offers to sell.
- **Market Clearing Price:** The equilibrium of demand bids and supply offers determines the **market clearing price** at which electricity is traded.

○ **Categories of Power Markets:**

● **Spot Market:**

- Real-time market (RTM) for near-immediate delivery.
- The intraday market for same-day trades hours before delivery.

● **Contract Markets:**

- **Day-ahead market (DAM)** for closed auctions in 15-minute time blocks for the following day.
- **Term-ahead market (TAM)** for trades from **3 hours to 11 days** in advance.

➤ **Benefits of Power Markets:**

- **Flexibility:** Generators can respond to short-term demand fluctuations and sell surplus power **independently of long-term power purchase agreements (PPAs)**.
- **Transparency and Reliability:** Price-based demand response involves multiple parties, **resulting in greater transparency** and reliability compared to bilateral contracts.
- **Resource Optimisation:** Market-driven approaches enable generators to **optimise their output and revenue**, while utilities can meet variable power demands more efficiently.

➤ **Major Power Exchanges in India:**

- **Indian Energy Exchange Ltd (IEX):** Dominates with over 90% market share.
 - Traded about 110 billion units (BU) of electricity in FY 2023-24, growing 14% year-on-year.
- **Power Exchange India Limited (PXIL):** It is India's first institutionally promoted power exchange which has been providing innovative and credible solutions since 2008.
- **Hindustan Power Exchange Ltd (HPX):** It provides a comprehensive market platform for different electricity products.

➤ **Regulation:** All exchanges are regulated by the **Central Electricity Regulatory Commission (CERC)**.

- CERC intends to **promote competition, efficiency and economy** in bulk power markets, improve the **quality of supply, promote investments** and advise the government on the removal of institutional barriers to bridge the demand-supply gap.
- It is a **statutory body** functioning with quasi-judicial status under the Electricity Act 2003.
- **Electricity Act 2003: The Electricity Act, 2003** provides for **Electricity Regulatory Commissions** at both the **central and state levels** (CERC and SERCs).

Instruments Related to Power Market

➤ **Renewable Energy Certificates (REC) Mechanism:**

- It allows utilities to meet **renewable purchase obligations (RPOs)** by buying RECs, each representing 1 MWh of renewable electricity.
 - RPO was instituted in 2011, it is a mandate that **requires large power procurers to buy a predetermined** fraction of their electricity from renewable sources.
- States with **insufficient renewable capacity** can purchase RECs to meet green energy targets.

➤ **Power Purchase Agreements (PPAs):**

- These are **long-term agreements** (typically 25 years) between electricity generators and buyers (usually public utilities).
- It involves **committing generators to supply power at fixed rates**, locking in significant generating capacity.
- They are inflexible and **unable to adapt to dynamic market conditions**.

Note:

What are the Challenges Faced by Power Markets in India?

- **Transmission Bottlenecks:** Insufficient transmission infrastructure creates congestion in the grid, hindering the efficient flow of electricity from generation sources to consumers.
 - This is particularly problematic for integrating renewable energy sources located far from demand centres.
- **Financial Health of Discoms:** Distribution Companies (Discoms) have weak finances due to high losses from inefficiencies, theft, and unpaid bills, limiting their ability to invest in grids and pay generators promptly, impacting the market.
 - For example, transmission and distribution losses (T&D) in India are more than 20% which is more than the world average.
- **Coal Dependence and Price Volatility:** India's heavy reliance on coal for power generation exposes the market to price fluctuations in the global coal market. This disrupts power pricing stability and can strain generator margins.
- **Market Design and Infrastructure:** Developing robust market designs, including market coupling and capacity markets, requires substantial investment in infrastructure and coordination.
- **Inconsistent Policy and Regulatory Framework:** A complex and evolving regulatory environment creates uncertainty for investors in the power sector.
- **Limited Market Products:** The current power market primarily focuses on short-term trading than developing a wider range of market products, such as futures and derivatives contracts.

Note:

- **Market Coupling:** Market coupling is a mechanism used in electricity markets to integrate and coordinate the trading of electricity across different regions or countries.
 - It aims to achieve a single market clearing price for electricity by matching supply and demand bids from all participating power exchanges or market platforms.
- **Capacity Markets:** Capacity markets are mechanisms within the electricity sector where generators are paid not only for the electricity they produce and sell but also for their capacity to generate electricity.

What are the Steps Needed to Strengthen Power Markets in India?

- **Promote Market-Based Pricing:** The [Economic Survey 2022-23](#) highlights the need for a market-driven approach to power pricing. This could involve reforms like phasing out subsidised electricity for high-income consumers and allowing generators more flexibility in setting prices based on demand and supply.
- **Introduce Market Coupling:** Implementing market coupling to unify power prices and develop capacity markets with incentives and support for grid reliability.
- **Address Discoms' Financial Issues:** Measures like improving billing and collection systems, reducing power theft, and exploring public-private partnerships can improve their financial health.
- **Encourage Renewable Energy Integration:** Promote renewable energy and smart grid technologies to improve grid management, efficiency, and reliability through better forecasting, storage, metering, data analytics, and automation.
- **Harmonize Regulatory Framework:** Develop uniform regulations across states to reduce inconsistencies and create a cohesive market environment.
- **Strengthen Transmission Infrastructure:** Using drones for line inspection and maintenance in tough terrains and exploring advanced materials for lighter, stronger, and more efficient transmission towers can help in strengthening the transmission infrastructure.

53rd GST Council Meeting

Why in News?

Recently, the 53rd meeting of the [Goods and Services Tax \(GST\) Council](#) has approved several measures to ease compliance for small businesses, exempting hostel accommodation, Railway services etc.

- It also agreed to reconvene in August 2024 to discuss restructuring the multiple tax rates under the seven-year GST.

What are the Key Highlights of the 53rd GST Council Meeting?

- **Aadhaar-based Biometric Authentication:** The council announced the rollout of biometric-based Aadhaar authentication on a national level to combat fraudulent input tax credit claims made through fake invoices. This is aimed at enhancing tax compliance.

Note:

- **Exemption for Hostel Accommodation:** Hostel accommodation services **outside educational institutions are exempt from GST** for rents up to Rs 20,000 per person per month, making it more affordable for students and the working class.
 - This exemption applies only for stays up to 90 days, whereas previously such rents incurred 12% GST.
- **Indian Railways Services:** GST exemption on **platform tickets**, aiming to ease the financial burden on passengers. This decision is part of broader efforts to make railway services more affordable.
- **Reduction in GST Rate on Cartons:** The GST rate on various types of carton boxes was **reduced from 18% to 12%**. This change is intended to **benefit both manufacturers and consumers by lowering the overall cost** of these essential packaging materials.
- **GST Reduction on Milk Cans and Solar Cookers:** A uniform GST rate of **12%** was announced for all milk cans, regardless of whether they are made of steel, iron, or aluminium.
- **Waiver of Interest and Penalties for Non-Fraudulent Cases:**
 - The council has recommended **waiving interest and penalties** for demand notices issued under **Section 73 of the GST Act**, which applies to cases that do not involve fraud, suppression, or misstatements.
- **New Monetary Limits for Filing Appeals:** The GST Council has recommended new monetary thresholds for filing appeals by the department in various courts which are **Rs 20 lakh for the GST Appellate Tribunal, Rs 1 crore for High Court, and Rs 2 crore for the Supreme Court** for filing appeals by the department.
 - The aim is to **reduce government litigation**.
- **Central Support and Conditional Loans to States:** The government introduced the **'Scheme for Special Assistance to States for Capital Investment'**, where some loans are **conditional** on states implementing citizen-centric reforms and capital projects, urging states to meet the criteria to access these loans.
- **Petrol and Diesel under GST:** The central government **expressed its intent to bring petrol and diesel under the GST regime**, pending consensus among states on the applicable tax rate.
 - This is viewed as a step towards uniform taxation of fuel across the country.

Note:

- **Goods and Services Tax (GST)** is a **value-added (Ad valorem) tax system** that is levied on the supply of goods and services in India.
- It is a comprehensive **indirect tax** that was introduced in India on **1st July 2017**, through the **101st Constitution Amendment Act, 2016**, with the slogan of **'One Nation One Tax'**.

What is the GST Council?**About:**

- The GST Council is a **constitutional body** responsible for making recommendations on issues related to the implementation of the **Goods and Services Tax (GST)** in India.
- It was set up to **simplify the existing tax structure** in India, where both the Centre and states levied multiple taxes making it more uniform across the country.

Constitutional Provisions:

- The **101st Amendment Act, of 2016** paved the way for the introduction of **GST**.
- The Amendment Act inserted a new **Article 279-A** in the Constitution, which empowers the **President** to constitute a **GST Council** or by an order.
 - Accordingly, the **President issued the order in 2016** and constituted the Goods and Services Tax Council.

Members:

- The members of the Council include the **Union Finance Minister (Chairperson)**, the **Union Minister of State (Finance)** from the Centre.
- Each state can nominate a minister in-charge of finance or taxation or any other minister as a member.

Functions:

- **Article 279A (4)** empowers the Council for making recommendations to the **Union and the states** on important **GST-related issues** such as the goods and services that may be subject to or exempted from GST, model GST laws, and GST rates.
- It decides on various **rate slabs of GST** and whether they need to be modified for certain product categories.
- The Council also considers **special rates for raising additional resources** during natural calamities/ disasters and special provisions for certain States.

Note:

➤ **Working:**

- The GST Council reaches decisions in its meetings by a **majority of at least three-fourths of the weighted votes of the members present and voting.**
- A **quorum of 50%** of the total members is required to conduct a meeting.
 - The **Central Government's** vote carries a weightage of **one-third** of the total votes cast in a meeting.
 - The votes of all **state governments** combined have a weightage of **two-thirds** of the total votes cast.
- The **recommendations of the GST Council** were earlier considered binding, but in 2022 the **Supreme Court** in **Union of India v. Mohit Minerals Pvt. Ltd Case** ruled that they **are not binding**, as both Parliament and State legislatures have "simultaneous" power to legislate on GST.

Impact of GST



Economy

- Dual monitoring by the Centre and states to reduce tax evasion
- Better compliance through real time matching of supplier and purchaser
- Reduction in the approx Rs 1.8 lakh crore annual loss due to excise duty exemptions
- Cut in Rs 1.5 lakh crore estimated loss to states due to tax exemptions



Companies

- Tax credits to **lower their tax burden, improve profit margin**
- **No distinction** between product and service for tax purposes
- Uniform tax across the country to **ease doing business**
- **Smooth movement** of products across states
- One-time increase in compliance cost likely



Consumer

- Most products are likely to be less expensive over time
- Most services (eg. restaurants, travels, mobile bills, insurance premium) likely to cost more
- Mobiles, Jewellery, some ready made wear in some states may cost more

What is not part of GST

Alcohol

Industry keen, states block move to include alcohol for human consumption. They want total freedom to tax the sin good

Petroleum

States don't want to give up power to tax, given this is an easy revenue

source. Petrol, diesel, aviation fuel, natural gas and crude stay out for two years

Real Estate

Stamp duty to remain on sale of property but service tax, where applicable, to be part of GST

Note:

Container Port Performance Index (CPPI) 2023

Why in News?

India's port development program received a major boost as **9 ports from India were included in the Global Top 100 for the first time in the Container Port Performance Index (CPPI), 2023.**

- The credit for this achievement has been given to the **Sagarmala programme** which has **focused on the modernisation of the ports** and improving their efficiency.

What are the Key Highlights of the CPPI 2023?

- About the Index:
 - It is a global index **developed by the World Bank and S&P Global Market Intelligence**. It measures and compares the performance of container ports around the world.
 - The index **ranks 405 global container ports** by efficiency, focusing on the duration of port stay for container vessels.
 - Its primary aim is to identify areas for enhancement for the **benefit of multiple stakeholders in the global trading system** and supply chains, from ports to shipping lines, national governments, and consumers.
- Global Ranking:
 - In the CPPI 2023 rankings, **Yangshan Port in China is first, followed by the Port of Salalah in Oman**. The Port of Cartagena is third, and Tangier-Mediterranean is fourth.
- India's Position:
 - Visakhapatnam Port jumped from 115 in 2022 to 19 in the 2023 rankings, becoming the **first Indian port to reach the Global Top 20**.
 - **Mundra Port** also improved its position, rising from 48 last year to 27 in the current ranking.
 - **Seven other Indian ports, which secured ranks in the top 100, are** Pipavav (41), Kamarajar (47), Cochin (63), Hazira (68), Krishnapatnam (71), Chennai (80) and Jawaharlal Nehru (96).

Sagarmala Programme

- The Sagarmala programme **launched in 2015**, a flagship initiative of the Ministry of Ports, Shipping and Waterways, **represents a visionary approach by the Government to transform the country's maritime sector.**
- With India's extensive coastline, navigable waterways, and strategic maritime trade routes, **Sagarmala aims to unlock the untapped potential of these resources for port-led development** and coastal community upliftment.
- It seeks to **enhance the performance of the logistics sector** by reducing logistics costs for both domestic and international trade.
- By leveraging coastal and waterway transportation, **the program aims to minimise the need for extensive infrastructure investments**, thus making logistics more efficient and improving the competitiveness of Indian exports.

What is the Scenario of India's Port Ecosystem?

- **About:**
 - According to the Ministry of Shipping, around **95% of India's trading by volume and 70% by value** is done through maritime transport.
 - In November 2020, the Prime Minister renamed the **Ministry of Shipping as the Ministry of Ports, Shipping and Waterways**.
 - The Indian Government plays an important role in supporting the ports sector. It has **allowed Foreign Direct Investment (FDI) of up to 100%** under the automatic route for port and harbour construction and maintenance projects.
- **Major Ports vs Minor Ports:**
 - Ports in India are classified as Major and Minor Ports according to the jurisdiction of the **Central and State government as defined under the Indian Ports Act, 1908**.
 - All the 13 Major Ports are **governed under the Major Port Trusts Act, 1963** and are owned and managed by the Central Government.
 - All the Minor Ports are **governed under the Indian Port Act, 1908** and are owned and managed by the State Governments.
 - Under the National Perspective Plan for Sagarmala, **six new mega ports will be developed in the country.**

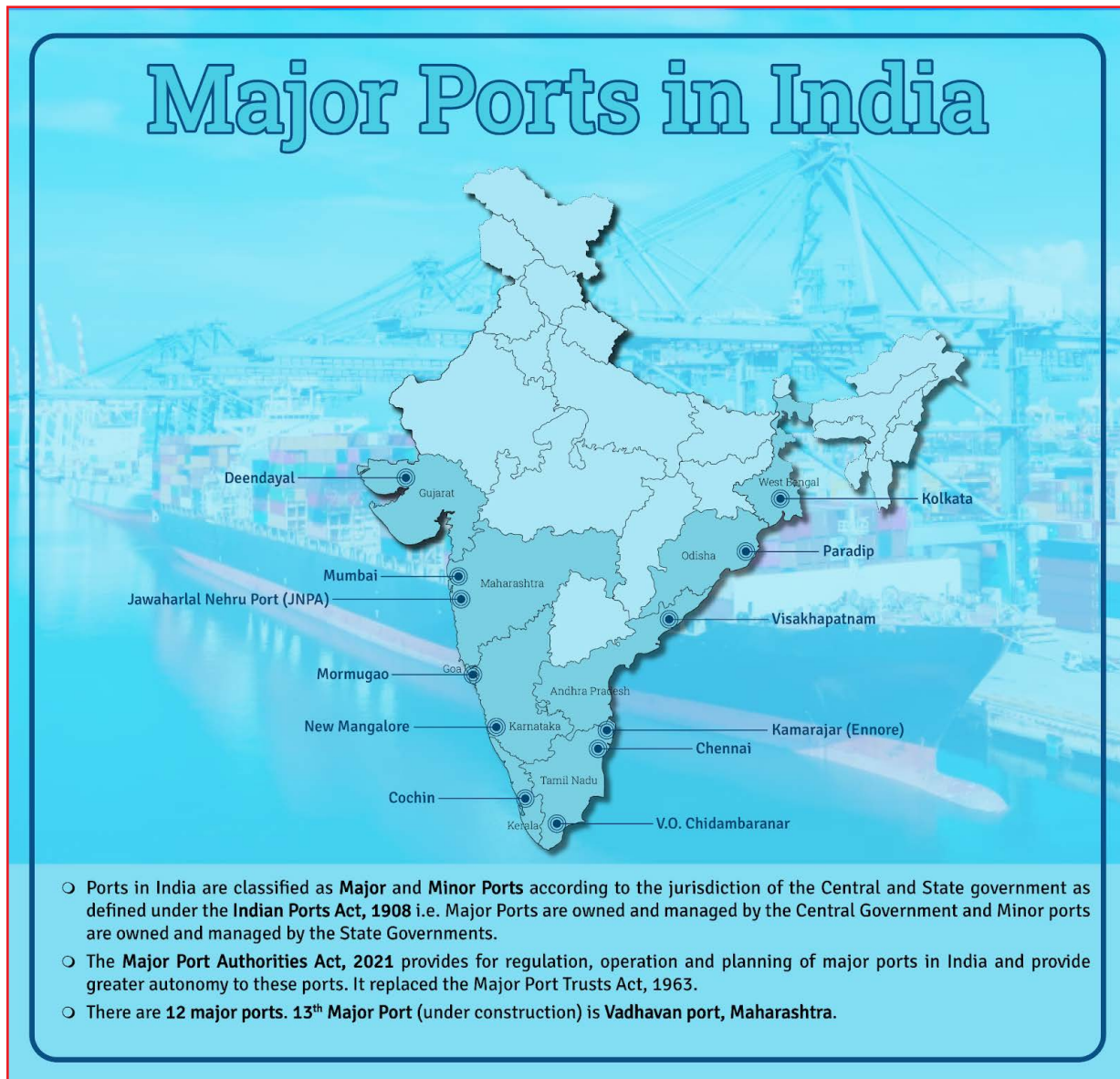
Note:

➤ **Related Statistics:**

- India is the **sixteenth-largest maritime country** in the world with a coastline of 7,516.6 kms. The Indian ports and shipping industry **play a vital role in sustaining growth in the country's trade and commerce.**
 - The Ports sector in India is being driven by high growth in external trade.
 - In FY23, major ports in India handled 783.50 million tonnes of cargo traffic, implying a

Compound Annual Growth Rate (CAGR) of 3.26% in FY16-23.

- In FY24 (April-January) cargo traffic handled by major ports stood at 677.22 million tonnes.
- Domestic waterways have found to be a **cost-effective and environmentally sustainable mode of freight transportation.**
 - The government aims to operationalise 23 **inland waterways** by 2030.



➤ **Major Initiatives:**

- In 2023, the Ministry of Ports, Shipping, and Waterways **proposed the Indian Ports Bill** with the aim of enhancing transparency in port tariffs and updating penalties.

Note:



drishti

- The bill empowers the Maritime States Development Council (MSDC) for integrated planning and introduces a three-tier dispute resolution mechanism for conflicts between state maritime boards.
- To bolster the shipbuilding industry under the **Make in India initiative**, the Ministry introduced the Shipbuilding Financial Assistance Policy (SBFAP).
 - This scheme, operational until March 2026, offers financial aid to Indian shipyards, encouraging competitiveness and securing global orders.

Note:

- India is home to the largest ship breaking facilities in the world with over 150 yards along its coast. On an average, close to 6.2 Million GT (Gross Tonnage) is scrapped in India every year, which accounts for 33% of the total scrapped tonnage in the world.
- India is recycling around 70 lakh GT every year, followed closely by Bangladesh, Pakistan and China.
- Alang Ship Breaking Yard in Gujarat being the world's largest ship recycling facility.

What are the Challenges Faced by Port Sector in India?

- **Low Share of Indian Fleet in Global Shipping:** Despite India's vast coastline and strategic location, the Indian fleet's share in global shipping remains minimal. As of recent statistics, Indian ships constitute less than 1% of the world's shipping fleet, far behind countries like China. This is far behind countries like China (around 19%).
 - However, India ranks third among nations supplying sailors, providing almost 10% of global seafarers, only behind China and Philippines.
- **High Turnaround Times at Indian Ports:** Indian ports are plagued with high turnaround times, affecting efficiency and increasing costs for shipping companies.
 - For instance, the average turnaround time at major Indian ports was around 2.48 days in 2022, compared to the global average of 0.97 days.
 - Poor performance at one port can disrupt schedules, increase import/export costs, reduce competitiveness, and hinder economic growth, especially affecting Landlocked Developing Countries (LLDCs) and Small Island Developing States (SIDS).

- **Infrastructure and Operational Inefficiencies:** Existing ports suffer from inadequate road and rail connectivity within the port area, lack of cargo handling equipment and machinery, poor hinterland connectivity, insufficient dredging capacity, and a shortage of technical expertise.
 - Limited Supporting Infrastructure such as insurance and financing companies, are predominantly based outside India. For instance, many marine insurance companies are headquartered in London, making it challenging for Indian shipping firms to access cost-effective and reliable services domestically.

National Monetisation Pipeline**Why in News?**

Recently, according to a statement by **NITI Aayog**, assets worth Rs 3.85 lakh crore have been monetised by the government under the **National Monetisation Pipeline** during the first three years of the financial period spanning from 2021-22 to 2024-25.

- The NITI Aayog is entrusted with the mandate to develop the National Monetisation Pipeline.

What is the National Monetisation Pipeline (NMP)?

- **About:**
 - The NMP envisages an aggregate monetisation potential of Rs 6 lakh crore through the leasing of core assets of the Central government in sectors such as roads, railways, power, oil and gas pipelines, telecom, civil aviation etc, over a four-year period (FY 2021-22 to 2024-25).
 - The Monetization through NMP only includes core assets, excluding monetization through disinvestment of non-core assets.
 - Currently, only assets of central government line ministries and CPSEs in infrastructure sectors have been included.
 - To streamline the process, the monetization of non-core assets, including land, real estate, and infrastructure, is being transferred from the Department of Investment and Public Asset Management (DIPAM) to the Department of Public Enterprises (DPE) within the Ministry of Finance.

Note:

- This pipeline is intended to support investments under the **National Infrastructure Pipeline (NIP)** worth Rs 111 lakh crore in six years through FY25.
- The timeline for the NMP has been strategically set to be **co-terminus** with the remaining period under the **National Infrastructure Pipeline (NIP)**.

➤ Status of NMP:

- The total target for the first two years i.e. 2021-22 and 2022-23 under NMP was around Rs. 2.5 lakh crore, against which around Rs. 2.30 lakh crore was achieved.
- During the financial year 2023-24, against the target of Rs. 1.8 lakh crore, which is the **highest among all the four years**, the achievement has been around Rs. 1.56 lakh crore.
 - Further, this achievement in 2023-24 is around 159% of the achievement in 2021-22.
- All the ministries achieved 70% of their monetisation targets with the **Ministry of Road Transport and Highways** and the **Ministry of Coal** being the top two achievers with a total achievement of Rs. 97,000 crore in 2023-24.

➤ Need for NMP:

- **Overcapitalisation:** The optimum input-output ratio is seldom observed in a majority of government infrastructure projects leading to their **overcapitalisation**.
- **Resource Optimization:** The NMP aims to improve resource use by bringing **market-driven methods** to better match resources with project needs, reducing delays and cost increases.
- **Coordination Challenges:** The NMP promotes **teamwork across government departments** and with private firms to improve how infrastructure projects are carried out.
- **Boost Economy:** NMP connects with **PM Gati Shakti**, which aims to develop India's infrastructure comprehensively, while NMP seeks to raise funds for new projects by leveraging existing assets.
- **Utilising Underutilised Public Assets:** The NMP aims to **sell unproductive government assets** to raise money for new infrastructure and expand green projects.

E-commerce As Export Hub

Why in News?

Recently, the **commerce ministry's 100-day agenda** roadmap for the new government includes plans to harness E-Commerce for export. India set a target to achieve **USD 1 trillion** in **merchandise exports** by 2030, identifying **cross-border e-commerce** as a key strategy to achieve this goal.

What are the 100-day agenda in E-Commerce?

- **100-day Agenda:** This is the programme to developing e-commerce hubs to **support online exports** is a key focus of the government's 100-day agenda.
 - The Commerce Department works with the Department of Revenue on **duty-free returns and faster customs clearances**.
- **Economic Potential:** In 2023, the **cross-border e-commerce trade was about USD 800 billion** and is estimated to reach **USD 2 trillion by 2030**.
 - China's e-commerce exports are about USD 350 billion, whereas India's shipments through online medium is only USD 2 billion.
- **Return Logistics Challenge:** In e-commerce, **about 25 per cent** of goods are re-imported, necessitating duty-free imports for these items.
 - Identifying these items for **duty-free status** is challenging.

What is E-Commerce?

- **About:** E-commerce involves buying and selling goods and services over the Internet.
 - As of 2023, India ranks as the **eighth-largest e-commerce** market globally.
 - E-commerce encompasses a broad spectrum of activities, **ranging from online retail platforms** that facilitate the purchase and sale of products, **to digital payment systems that enable secure and convenient financial transactions**.
- **Classification:**
 - **The Market-based Model:** It involves an e-commerce entity providing an **IT platform** to connect buyers and sellers, exemplified by companies like **Amazon and Flipkart**.
 - **The Inventory-based Model:** It entails an e-commerce entity owning and directly selling goods and services from its inventory to consumers, as seen with platforms such as **Myntra and Nykaa**.

Note:

- **Foreign Direct Investment (FDI)** is not permitted in inventory based model of e-commerce.

- **Current Status:** India's e-commerce platforms achieved a significant milestone, hitting a Gross Merchandise Value (GMV) of USD 60 billion in fiscal year 2023, marking a 22% increase from the 2022.
 - The export of **India's toy story** has grown at nearly 30% **Compound annual growth rate (CAGR)** over the last seven years.
 - In the fiscal year 2022-23, the **Government e-marketplace (GeM)** achieved its highest-ever Gross Merchandise Value of USD 2011 billion.
 - As of 2023, the e-commerce sector in India is valued at USD 70 billion, constituting approximately 7% of the country's total retail market.
 - India has approximately **800 million internet subscribers**, including about 350 million mature online users actively engaging in transactions.
- **Future Potential:** The Indian e-commerce industry is projected to reach **USD 300 billion by 2030**.
 - **Third-party logistics** providers are anticipated to manage approximately **17 billion shipments** within the next seven years.
 - It is anticipated to surpass the United States, becoming the world's second-largest e-commerce market.
 - The e-retail market in India is projected to surpass **USD 160 billion** by 2028.

Major Types of E-commerce

TYPE OF E-COMMERCE	EXAMPLE
B2C—Business to Consumer	Amazon.com is a general merchandiser that sells consumer products to retail consumers.
B2B—Business to Business	eSteel.com is a steel industry exchange that creates an electronic market for steel producers and users.
C2C—Consumer to Consumer	eBay.com creates a marketplace where consumers can auction or sell goods directly to other consumers.
P2P—Peer to Peer	Gnutella is a software application that permits consumers to share music with one another directly, without the intervention of a market maker as in C2C e-commerce.
M-commerce—Mobile commerce	Wireless mobile devices such as PDAs (personal digital assistants) or cell phones can be used to conduct commercial transactions.

What is the Significance of the E-Commerce Industry In the Indian Economy?

- **Employment Provider:** The e-commerce sector in India offers substantial employment opportunities, both directly and indirectly, spanning various sectors such as **MSMEs, textiles, leather, agriculture** (farmers), and craftsmanship.
 - Additionally, it supports forward linkages including **logistics, packaging, transport, storage**, and advertising, contributing to economic growth and job creation.
 - Fashion, grocery, and general merchandise are projected to dominate the Indian e-commerce market, capturing nearly **two-thirds of the market share by 2027**, underscoring the sector's emergence as a pivotal growth area in India's retail landscape.
- **Enhancing the Competitiveness of Indian Products in Global Markets:** E-commerce has enabled Indian manufacturers and sellers to showcase their products on international platforms, increasing their reach and exposure to global markets.
 - According to industry reports, **e-commerce exports from India stood at around USD 49 billion in the financial year 2022-23**.
- **Catalysing Export Growth:** The rise of e-commerce has significantly boosted India's export potential, providing a platform for Indian businesses to tap into international markets. As per data from the **Reserve Bank of India**, major export destinations include the **USA, UAE, China, Hong Kong**, and several European nations.
- **Facilitating Efficient Service Delivery:** Services like **online education, telemedicine, and professional consultations** have become more accessible, bridging geographical barriers.

Note:



- According to industry estimates, the online education sector in India is projected to grow at a **CAGR of around 20% between 2020-2025**.
- **Transforming Logistics and Supply Chain Management:** Government initiatives like the **National Logistics Policy** have streamlined deliveries, enhancing logistical efficiency and cost-effectiveness.

What are the Various Regulatory Frameworks for E-commerce in India?

- **Taxation Related:** E-commerce entities operating in India are subject to taxation under the **Income Tax Act, of 1961**. **Goods and Services Tax (GST)** applies to e-commerce transactions within India.
 - Taxation agreements under the **Double Taxation Avoidance Agreement** facilitate international transactions.
- **Business Regulation:** The B2B (Business to Business) e-commerce sector in India is governed by the **Foreign Direct Investment (FDI)** policy and the **Foreign Exchange Management Act (FEMA)**, which regulates foreign investments and business setups.
 - Additional regulations impacting e-commerce include provisions under the **Companies Act 2013**,

Payment and Settlement Act 2007, RBI regulations on payment mechanisms, and rules on labeling and packaging.

- **Data and Associated Issues:** The **Information Technology Act, of 2000 (IT Act)**, regulates various aspects of e-commerce, including electronic contracts, digital signatures, and cybercrime prevention.
 - Sections **84A and 43A of the IT Act** impose obligations on entities handling sensitive personal data or information.
 - The **Information Technology (Guidelines for Intermediaries and Digital Media Ethics Code) Rules, 2021**, introduced new regulations aimed at digital media intermediaries, including e-commerce platforms.

What are the Government Initiatives Related to the E-Commerce Sector in India?

- **National E-Commerce Policy**
- **FDI Policy:**
- **Open Network for Digital Commerce (ONDC)**
- **The Consumer Protection (e-commerce) Rules, 2020.**
- **Digital India initiative**

What are the Various Challenges and Way Forward in E-Commerce Sector Export?

Challenges	Way Forward
<p>1. Logistics and Supply Chain Inefficiencies: Logistics and supply chain infrastructure in India is still developing, leading to inefficiencies and higher costs, which can hinder export competitiveness.</p>	<p>1. Continued Investment in Logistics infrastructure: Investment such as dedicated freight corridors, modern warehousing facilities, and seamless multimodal connectivity. Adoption of advanced technologies like automation, IoT, and data analytics can optimise supply chain operations.</p>
<p>2. Cross-Border Trade Facilitation: Challenge: Complexities in cross-border trade procedures, such as customs clearance, documentation, and payment gateways, can hinder e-commerce exports.</p>	<p>2. E-commerce under WTO: Need to update WTO e-commerce moratorium (1998) to regulate e-commerce under WTO rules to facilitate cross-border trade. (WTO e-commerce moratorium prohibit charging customs duties on electronic transmissions).</p>
<p>3. Cybersecurity: E-commerce websites are vulnerable to cyber attacks, which can lead to loss of sensitive information and negatively impact the reputation of the business.</p>	<p>3. Developing a Strong Data Privacy Network: A strong data network is crucial for e-commerce exports, and India needs to develop robust cybersecurity measures and promote consumer awareness campaigns to build confidence in e-commerce platforms.</p>

Note:

Angel Tax and Capital Gain Tax

Why in News?

Recent 2023 amendments and the broadened scope of the **Angel tax** have faced criticism amid a significant downturn in **startup funding** and subsequent **job losses**.

- In another development, **capital gains tax** has also gained considerable attention in India, especially with the approaching **Union Budget** for 2024-25.

What is Angel tax?

- **About:**
 - The 'angel tax' was initially **introduced in 2012** and expanded through the **Finance Act of 2023**, to discourage the generation and utilisation of unaccounted money through investments in closely held companies.
 - It is the tax that must be paid on the funds raised by **unlisted companies** through the issuance of shares in off-market transactions if they exceed the fair market value of the company.
 - **Fair market value (FMV)** is the price of an asset **when the buyer and seller have reasonable knowledge** of it and are willing to trade without pressure.
- **Expansion Under Finance Act, 2023:**
 - Under the **Finance Act, 2023**, a relevant section of the **Income-tax Act** was amended to include foreign investors in the ambit of the angel tax provision.
 - Currently, if a start-up company receives equity investment from a resident that exceeds the face value of the shares, it is considered as income for the start-up and subject to income tax under the category of '**Income from other Sources**' for that financial year.
 - The recent amendment extends this rule **to include foreign investors as well**. This meant that start-ups raising funds from foreign investors would also be subject to taxation.
 - Start-ups recognized by the **Department for Promotion of Industry and Internal Trade (DPIIT)** were excluded from this provision.
- However, following industry pushback and concerns about declining funding, the **Finance Ministry**

exempted investors from 21 countries, including major economies like the US, UK, and France, from the Angel Tax levy for investments in Indian startups.

- **Funding Winter and Job Losses:** In 2023, **Indian startups** faced severe funding challenges, with a reported **decline of over 60%** in funding compared to previous years.
 - This funding winter resulted in layoffs exceeding 15,000 employees across the sector.
- **Industry Perspective on Angel Tax:** The **Confederation of Indian Industry (CII)** and other industry stakeholders have recommended the removal of **Section 56(2)** of the **Income-tax Act, 1961** commonly known as the Angel Tax.

What is Capital Gain Tax?

- Any profit or gain that arises from the sale of a 'capital asset' is a capital gain. This gain or profit comes under the **category of 'income'**.
- Hence, the **capital gain tax** will be required to be paid for that amount in the year in which the transfer of the capital asset takes place. This is called the capital gains tax, which can be both short-term and long-term.
 - **Long-Term Capital Gains (LTCG):** This applies to assets held over a specified period (over 36 months).
 - **Short-Term Capital Gains (STCG):** Profits from assets held for shorter durations. Any asset that is held for less than 36 months is termed as a short-term asset. In the case of immovable properties, the duration is 24 months.
- Capital gains can be reduced by **deducting the capital losses** that occur when a taxable asset is sold for less than the original purchase price. The total of capital gains minus any capital losses is known as the "**net capital gains**".
- Tax on capital gains is **triggered only when an asset is sold**, or "realised". Stock shares that appreciate every year will not be taxed for capital gains until they are sold.

Base Erosion and Profit Shifting

Why in News?

Recently, the **Organisation for Economic Co-operation and Development (OECD)** welcomed the commitment of the **147 Members** of the Inclusive Framework on **Base**

Note:



Erosion and Profit-Shifting (BEPS) to keep working to resolve any remaining issues in the signing process of the Multilateral Convention (MLC).

What is Base Erosion and Profit Shifting (BEPS)?

➤ About:

- The BEPS initiative is an OECD initiative, approved by the **G20**, to identify ways of providing more standardised tax rules globally.
- BEPS refers to tax strategies exploiting differences in tax rules across countries **to minimise overall corporate tax payments.**

➤ Aim:

- This strategy aims **to reduce overall corporate tax liability** by making profits seem to vanish or by moving them to low-tax regions with minimal real economic activity.
 - While often not illegal, BEPS tactics capitalise on variations in international tax regulations.
- Developing countries are particularly vulnerable to BEPS due to their strong dependence on corporate income tax, especially from multinational corporations.

➤ Inclusive Framework on BEPS:

- Inclusive Framework was **established by** the OECD and G20 **in 2016.**
- It unites **147 countries and jurisdictions**, to combat tax avoidance and promote equitable tax practices, and comprises two pillars.

- First Pillar:

- It addresses **cross-border profit shifting** by multinational and digital companies.
- It aims to ensure these large enterprises pay taxes where they generate profits, potentially reallocating over **USD 100 billion** annually to market jurisdictions.
 - Second Pillar:
- It proposes a **global minimum corporate tax rate**, currently suggested at **15%**, to prevent harmful tax competition among countries.
- It will raise significant revenues of **up to USD 192 billion** per year for developed and developing countries.

What is the Global Minimum Tax (GMT)?

- A globally agreed minimum tax rate, currently suggested at **15%** could mitigate tax base erosion without putting the companies at a financial disadvantage.
- Through GMT, leading nations seek **to curb profit shifting** by multinationals to **low-tax jurisdictions**, irrespective of where their actual sales occur.
- There's a growing trend of companies moving income from intangibles like **patents, software, and IP royalties to tax havens**, thereby sidestepping higher taxes in their home countries.
- The G20 and the OECD will spearhead crucial decisions regarding this global minimum tax initiative.

What is the Significance of BEPS?

- **Equitable Tax Contributions:** It ensures multinational enterprises (MNEs) pay their fair share where they do business. **For example**, A global coffee chain would pay taxes in each country where it sells, not just where it's headquartered.
- **Fiscal Healing:** It helps governments raise crucial funds to mend public finances strained by various unforeseen conditions (Man-made or Natural disasters).
 - A country can use additional tax revenue to reduce pandemic-induced debt. Increased tax income allows for upgrading healthcare facilities or expanding broadband access.
- **Competitive Balance:** It reduces the tax advantages of larger corporations over smaller, domestic businesses.
- **Digital-Era Readiness:** Tax systems **catch up with online commerce**. Like, An e-commerce platform pays taxes where customers shop, even without physical stores.
- **Worldwide Teamwork:** It emphasises an international commitment to solving cross-border tax challenges.

What is the OECD?

- It is an intergovernmental economic organisation, founded in **1961** with its Headquarters in **Paris, France.**
- It has a total membership of **38 countries.**
- India is not a member but a key partner of the OECD.
- It aims to stimulate economic progress and world trade.
- Most OECD members are **high-income economies** and are regarded as developed countries.

Note:



What is India's Position on Global Tax Reform?

- **Signing Global Tax Reform:** Indian multinational enterprises will have to start reviewing and accounting for any additional tax liability as per the global tax reform signed by India.
 - For Example, India joined the **Multilateral Competent Authority Agreement on Automatic Exchange of Financial Account** Information in 2015.
 - It is **to exchange a wide range of financial information** after collecting the same from financial institutions in their country/jurisdictions
- **Consensus-Driven Solution:** The country supports a **consensus-driven solution** that's easy to implement and comply with.
 - India advocates for broader implementation of the **new tax law** to ensure it doesn't collect less than its current **equalisation levy** revenue.
- **Abiding Market Jurisdiction:** India emphasises that the solution should allocate **substantial and sustainable revenue** to market jurisdictions, especially developing and emerging economies.
 - The **Two-Pillar Plan aligns with India's stance** on granting markets a larger profit share and factoring in **demand-side elements** in profit allocation.
 - India has ratified the **Multilateral Convention to Implement tax treaty-Related Measures to Prevent Base Erosion and Profit Shifting**.

Note:

- India initiated a **6% levy on online advertisement services** by non-residents in 2016. From 1st April 2020, a **2% levy** was imposed on **digital transactions** by foreign entities operating in India or accessing the local market.

What are the Concerns Related to Global Tax Reform?

- **Sovereignty Issues:** The reform may infringe upon a **nation's sovereign right** to determine its own tax policies.
 - A global minimum tax rate **could deprive countries of a policy instrument** used to promote their individual interests.
- **Limiting Tax Competition:** Some argue that the **fear of tax competition** restrains governments from imposing **excessive taxes on citizens** to finance extravagant spending.

- **Effectiveness:** Critics, including organisations like Oxfam, question the reform's potency, **suggesting it may not eliminate tax havens** as multinational companies continue to engage in aggressive **tax planning strategies that exploit regulatory gaps** and inconsistencies.
 - Such as a multinational tech might sell **intellectual property rights (such as patents or trademarks)** to a subsidiary located in a **low-tax jurisdiction** at a price that undervalues these assets.

India's New Economic Brain Power

Why in News?

In recent years, India's transformation from a back-office service provider to a **strategic intellectual hub** for **Multinational Corporations (MNCs)** has been driven by the rise of **Global Capability Centers (GCCs)**.

- GCCs are **offshore units** established by MNCs to perform strategic functions using specialised talent, cost advantages, and operational efficiencies in different locations worldwide.

What are the Major Shifts in the Indian Economy due to the Rise of GCCs?

- **From Back-Office to Strategic Partner:**
 - Traditionally, in the 1990s and 2000s India's role in the global economy was primarily focused on **back-office functions** like telemarketing and data entry.
 - However, they have now expanded into **complex tasks like R&D, analytics, artificial intelligence/machine learning, robotic process automation** and product development, positioning India as a vital contributor to the global innovation ecosystem.
- **Skill Development and Talent Pool Evolution:**
 - The demand for **skilled professionals by GCCs** is driving a revamp of India's education and training system.
 - Educational institutions are focusing on developing skills in **STEM fields (Science, Technology, Engineering, and Mathematics)** along with critical thinking and problem-solving abilities to meet the evolving needs of GCCs.
- **Innovation and Knowledge Economy:**
 - GCCs are not just replicating tasks but also **becoming innovation hubs** for their parent companies.

Note:

- This fosters a **culture of research and development** within India, leading to the creation of new technologies and solutions.
- The **knowledge transfer from MNCs to the Indian workforce** further fuels innovation and strengthens India's position in the knowledge economy.
- **Job Market Transformation:**
 - GCCs are creating high-paying jobs in various sectors beyond traditional IT services.
 - This shift is attracting a **wider range of talent, including engineers, data scientists, and financial analysts**.
 - The rise of GCCs offers better career prospects and contributes to an **overall improvement in living standards** for skilled professionals.
- **Evolving IT Landscape:**
 - The presence of GCCs is driving investments in **cutting-edge technologies** like artificial intelligence, cloud computing, and **big data analytics**.
 - This focus on **advanced technologies** positions India as a leader in the global IT services market.
- **Increased Global Competitiveness:**
 - The rise of GCCs showcases India's capabilities on the international stage.
 - MNCs are increasingly **recognizing the talent and cost-efficiency advantages** offered by India.
 - This is attracting further **foreign investment** and propelling India's competitiveness in the global knowledge economy.

What are Global Capability Centers (GCCs)?

- **About:**
 - Global Capability Centers (GCCs), also known as Global In-House Centers (GICs), are strategic outposts established by **multinational corporations (MNCs)** in countries around the world.
 - Operating as internal entities within the global corporate framework, these centres **offer specialised**

capabilities including IT services, research and development, customer support, and various other business functions.

- **Examples of GCCs:**
 - **General Electric (GE)** has a large GCC in Bangalore, focused on R&D and engineering for its aviation and healthcare businesses.
 - **Nestle** has established a **GCC in Lausanne, Switzerland**, dedicated to product development and innovation for its food and beverage brands.
- **Present Status:**
 - **In 2022–23**, around **1,600 GCCs** made up a market of **USD 46 billion**, employing **1.7 million people**.
 - Within GCCs, professional and consulting services are the fastest-growing segment despite only accounting for **25% of India's services exports**.
 - Their compounded annual growth rate (**CAGR**) of **31%** over the last four years significantly outpaces computer services (16% CAGR) and R&D services (13% CAGR).
- **Benefits of GCCs:**
 - **Cost Efficiency:** Setting up a GCC in a country with **lower operational costs** can provide significant savings for the MNC.
 - **Operational Efficiency:** GCCs can handle specific functions, freeing up headquarters resources to focus on core business strategies.
 - **Market Access:** GCCs can provide valuable insights into local markets, **customer preferences, and regulatory environments**, enabling the MNC to adapt its offerings and strategies for regional success.
- **Impact on Local Economies:**
 - GCCs **create high-skilled jobs** in the host country, boosting the local economy and knowledge base.
 - They contribute to **knowledge transfer and technology adoption** within the host country.
 - GCCs can also act as a **catalyst for further foreign investment** by demonstrating the country's skilled workforce and business environment.



Note:

Agriculture

Highlights

- Direct Seeding of Rice

Direct Seeding of Rice

Why in News?

The Government of Punjab is actively promoting the **Direct Seeding of Rice (DSR)** also called the 'tar-wattar' technique of rice cultivation, which promises a multitude of advantages over traditional transplanting.

- However, the adoption of DSR in Punjab has been slow, with only 1.73 lakh acres (out of 79 lakh acres under paddy cultivation) using this technique in 2023.

What is Direct Seeding of Rice (DSR)?

➤ Transplantation Technique of Rice:

- In this technique, farmers prepare **nurseries** where seeds are first sown.
- After 25-35 days, the young seedlings are **uprooted and replanted**, in the main field.
- This method is labour and water-intensive, it is known to maximise yields and maintain better crop health. It requires around 25-27 irrigations in total.

➤ Direct Seeding of Rice (DRS):

- There is no nursery preparation or transplantation involved in this method.
- In DSR, the **pre-germinated seeds are directly drilled into the field** roughly 20-30 days prior to when they would have been transplanted by a tractor-powered machine.
- The field is irrigated and levelled prior to the seeding process which is carried out using a **seed drill** or lucky seeder.
- Before sowing seeds are treated by soaking in a fungicide solution.
- The first irrigation is carried out 21 days after sowing.

➤ Soil Characteristics for Successful DSR:

- **Soil Texture:** It is more suitable for **heavy or medium-to-heavy-textured soils** as they have **high water retention capacity** due to the presence of **high clay and less sand** content.

- Only 20% of Punjab's soil is light-textured.

- **Iron Content in the Soil:** Soils should be **rich in plant-available iron** and have **minimal weed pressure** for optimal DSR.

- Iron deficiency may require crop transplantation after a month, which negates the labour-saving benefits of DSR.

- **Use ferrous iron (green-coloured, non-oxidized)** as a supplement if needed, instead of oxidized iron (brown-coloured).

What are the Benefits of the DSR Technique?

➤ Reduced Water Usage:

- The DSR technique can reduce water usage by **15-20%** compared to the traditional puddling method, which requires **3,600 to 4,125 litres** of water per kg of rice.
- With DSR, 15-18 irrigation rounds are required against 25 to 27 irrigation rounds in traditional methods.

➤ Lower Labour Requirements:

- It **requires less labour** compared to the traditional transplantation method, where paddy seedlings have to be uprooted and replanted in the main field.

➤ Earlier Maturity:

- Crops grown using the DSR technique **mature 7-10 days faster** than those grown using the traditional method. This gives **farmers more time to manage the paddy straw**.

➤ Improved Soil Health:

- The DSR technique involves **less disturbance to the soil**, which can help **maintain soil health and fertility**, unlike the traditional method that involves extensive ploughing and puddling.

➤ Reduced Greenhouse Gas Emissions:

- The traditional transplantation method **involves puddling of the soil**, which leads to the release of methane, a potent greenhouse gas.

Note:



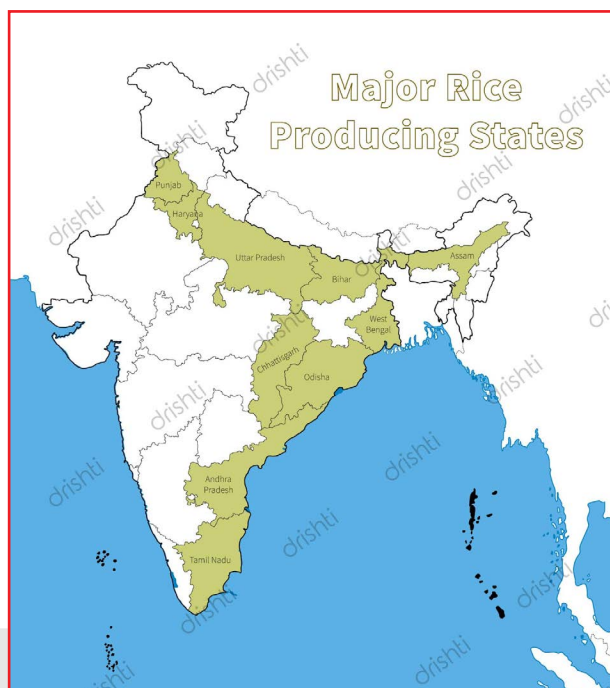
- **Puddling involves saturating the soil with water and then mechanically breaking it down** through techniques like ploughing or harrowing.
- The DSR technique does not require puddling, thus reducing methane emissions.

Rice

- Rice is a **staple food for most of the population in India**.
- It is a kharif crop that requires high **temperature (above 25°C)** and **high humidity** with annual rainfall **above 100 cm**.
 - In areas of less rainfall, it is grown with the help of irrigation.
- In southern states and **West Bengal**, the climatic conditions allow the cultivation of two or three crops of rice in an agricultural year.
 - In West Bengal farmers grow three crops of rice called '**aus**', '**aman**' and '**boro**'.
- About **one-fourth** of the total cropped area in India is under rice cultivation.
 - Leading producer states: **West Bengal, Uttar Pradesh, and Punjab**.
 - High Yielding States: **Punjab, Tamil Nadu, Haryana**, Andhra Pradesh, Telangana, West Bengal and Kerala.
- India is the **second-largest** producer of rice after China.

What are the Challenges Associated with DSR Technique?

- **Subsidised Electricity:** A major reason Punjab farmers hesitate to adopt DSR is the **availability of subsidised or free electricity**, which **reduces the incentive to switch** to water-saving techniques like DSR.



- **Weed Growth:** In conventional methods, saplings are taller than weeds from the start, while in DSR, **both plants and weeds grow simultaneously**, which causes issues in harvesting and increase in the cost of weed removal using manpower
- **Lack of Awareness:** There is insufficient awareness and guidance on the benefits of DSR. Farmers are uncertain about yields from DSR, as results vary based on soil types, leading to confusion.
- **Cost:** The **high cost of DSR machines** is a significant barrier, especially for small and marginal farmers.
 - Additionally, the adoption of DSR could negatively impact skilled migrant labourers from Eastern UP and Bihar who rely on traditional paddy transplanting for employment.



Note:

International Relations

Highlights

- India-EU Trade Conundrum
- Russian Consignment to India via INSTC
- Shifting of Route of the Silk Road
- UN Global Principles for Information Integrity
- Indus Water Treaty
- RELOS and India-Russia Relation
- India-Sri Lanka Relations
- SIPRI Report on Nuclear Arsenal
- Ukraine "Path to Peace" Summit
- 50th G7 Summit

India-EU Trade Conundrum

Why in News?

Recently, the **European Union (EU)** has decided to extend **safeguard duties**, which were set to expire this month. As a result of this extension, the safeguard duties will now remain in effect **until 2026**.

What are the Recent Key Highlights in India-EU Trade?

- **Exports:** **India's exports to Europe** in FY24 are about **USD 86 billion** and **merchandise exports to EU member countries** stood at **about USD 65 billion in 2021-22**, while imports aggregated at **USD 51.4 billion**.
 - In 2022-23, the exports aggregated at USD 67 billion.
- **Substantial Interest in Steel Exports:** India's **iron and steel product exports to the EU increased to USD 6.64 billion in 2023-2024** and from **USD 6.1 billion** in 2022-23.
- **Imposition of Countervailing Duties:** In 2020, the US and EU imposed **countervailing duties (CVDs)** on certain Indian exports, including **paper file folders, common alloy aluminium sheets, and forged steel fluid**.
 - **Countervailing duties (CVDs)** are tariffs on **imported goods** imposed to offset subsidies given by the exporting country's government, aimed at protecting the domestic industry.
- **Government's Response:** The commerce ministry is working on an institutional mechanism to **verify tax refunds** given to **exporters** under the **government's duty remission scheme (RoDTEP)** to avoid countervailing duties imposed by top importing countries.

What is the RoDTEP Scheme?

- **About:**
 - It is a duty remission program implemented from **1st January 2021**, and **designed to boost exports** by reducing **tax burdens on exported goods**.
 - It is administered by the Department of Revenue, Ministry of Finance.
 - It replaces the prior export incentive program, **Merchandise Exports from India (MEIS)**.
 - MEIS was driven by a **World Trade Organization (WTO)** decision, as the MEIS scheme violated the World Trade Organization (WTO) regulations
- **Objective:**
 - The scheme aims to offer **comprehensive assistance** to exporters by reimbursing a wide range of costs.
 - It aims to reimburse exporters for **taxes, duties, and levies** incurred during the production and distribution process **that are not refunded under other schemes**.
- **Addition of New Sectors Under RoDTEP:**
 - The Government of India has announced the extension of the RoDTEP Scheme support to additional export sectors Such as **Advance Authorisation (AA)** holders, **Export Oriented Units (EOU)**, and **Special Economic Zones (SEZ)** export units.
 - Sectors such as **Engineering, Textiles, Chemicals, Pharmaceuticals & Food Processing**, and many others stand to benefit from the measure.
- **Financial Allocation:**
 - Since its inception, the RoDTEP Scheme has already provided support amounting to Rs **42,000 Crores** to more than **10,500 export items**.

Note:

- In the current financial year, the scheme has a budget of **Rs 15,070 Crore** with an additional increase of **10% in FY 2024-25**.

Extending Support

Refund of Duties and Taxes on Exported Products (RoDTEP) scheme implemented from Jan 1, 2021

Offers **0.3-4.3%** incentive to **8,555** products in sectors such as marine, agri, and gems & jewellery

But excludes pharma, steel and chemicals



Commerce ministry will need additional **₹2,000 cr** to expand coverage under scheme

Chemical sector eyes a remission rate of **2.3-2.9%**

Pharma industry seeks **5-6%**

It's a crucial move as India's Sent exports shrank 3.5% on weak global demand

Russian Consignment to India via INSTC

Why in News?

Recently, Russia has sent two trains carrying coal to India through the **International North-South Transport Corridor (INSTC)** for the **first time**.

- The consignment will travel over **7,200km** from **St. Petersburg, Russia** to Mumbai port via **Bandar Abbasport** of Iran.

What is the International North-South Transport Corridor (INSTC)?

- **About:**
 - INSTC is a **7,200-kilometer Multimode Transit Route** linking the **Indian Ocean and the Persian Gulf to the Caspian Sea via Iran** and onward to **northern Europe via St. Petersburg** in Russia.
 - It connects **ship, rail, and road routes** for moving cargo between **India, Iran, Azerbaijan, Russia, Central Asia, and Europe**.
- **Origin:**
 - It was launched on **12th September 2000** in **St. Petersburg**, by a trilateral agreement signed by **Iran, Russia and India** at the **Euro-Asian Conference on Transport in 2000** for promoting transportation cooperation among the Member States.
- **Ratification:**
 - Since then, INSTC membership has expanded to include **10 more countries (total 13)-Azerbaijan, Armenia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkey, Ukraine, Syria, Belarus, and Oman**.

Routes and Modes:

- **Central Corridor:** It begins from the **Jawaharlal Nehru Port in Mumbai** and connects to the **Bandar Abbas port (Iran)** on the **Strait of Hormuz**. It then passes through the Iranian territory via **Nowshahr, Amirabad, and Bandar-e-Anzali**, runs along the Caspian Sea to reach the **Olya and Astrakhan Ports** in Russia.
- **Western Corridor:** It connects the **railway network of Azerbaijan to that of Iran** via the cross-border nodal points of **Astara (Azerbaijan) and Astara (Iran)** and further to **Jawaharlal Nehru port** in India via sea route.
- **Eastern Corridor:** It connects **Russia to India through the Central Asian countries** of **Kazakhstan, Uzbekistan, and Turkmenistan**.



What is the Significance of INSTC for India?

- **Diversification of Trade Routes:**
 - INSTC allows India to **bypass chokepoints** like the **Strait of Hormuz** and the **Red Sea (Suez Canal route)**, making its trade more secure.
 - The **Israel-Hamas conflict** and the **Houthi attacks** on ships in the southern **Red Sea** have highlighted the significance of having alternative trade routes.
 - Through this India can **bypass Pakistan and unstable Afghanistan** to reach Central Asia.
- **Enhanced Connectivity with Central Asia:**
 - It connects India to markets in **Russia, the Caucasus, and Eastern Europe**, facilitating trade, energy cooperation, defense, counterterrorism, and cultural exchanges with **Central Asian Republics** through initiatives like **"Connect Central Asia"**.
 - The INSTC significantly **reduces transit time by 20 days** and **freight costs by 30%** compared to the Suez Canal route.

Note:

- **Energy Security:**
 - The INSTC facilitates India's access to energy resources in **Russia and Central Asia** and can **reduce reliance on the Middle East**.
 - Since the **Russia-Ukraine war**, imports of **metallurgical coal from Russia** have tripled, and are expected to grow amid **declining imports from Australia**.
- **Strengthening Ties with Iran and Afghanistan:**
 - India has invested in the **Chabahar Port** in **Iran's Sistan-Balochistan province** and signed an agreement for the INSTC, aiming to facilitate trade with Central Asian countries.
 - Chabahar Port is essential for **India, Iran, and Afghanistan** as it offers direct sea access and trade opportunities in the region.

What are the Challenges Related to Full Utilisation of INSTC?

- **Limited International Funding:** Unlike **China's Belt and Road Initiative (BRI)** with its dedicated funding institutions, INSTC **lacks significant financial funding** from major institutions like the **World Bank** and **Asian Development Bank**.
- **US Sanctions on Iran:** The harsh sanctions imposed on Iran after the **US's withdrawal from the JCPOA (Joint Comprehensive Plan of Action)** in 2018 resulted in many global companies withdrawing from infrastructure projects in Iran.
- **Security Concerns in Central Asia:** The presence of terrorist organizations like the **Islamic State (IS)** in Central Asia poses a significant security threat along the corridor which can deter investment and smooth operation of the route.
- **Differential Tariffs and Customs:** Disparities in **customs regulations**

and **tariff structures** across member states create **complexities and delays for cargo movement**.

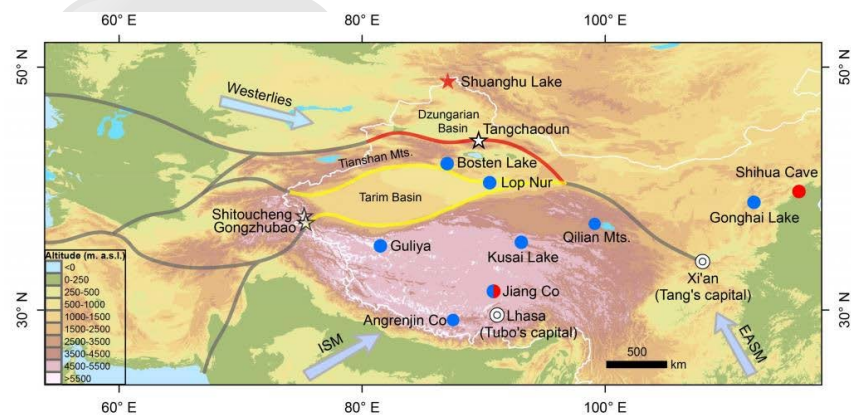
- **Uneven Infrastructure Development:** The corridor utilizes **various modes of transport (ship, rail, road)**. Uneven infrastructure development across member states, particularly **underdeveloped rail networks in Iran**, creates bottlenecks and hinders the seamless movement of goods.
 - There is a **lack of a joint work plan for developing the corridor and its business ecosystem**.

Shifting of Route of the Silk Road

Why in News?

A recent study by Chinese scientists published in the journal **Science Bulletin**, found that the main route of the ancient **Silk Road** shifted northward due to **climate change**.

- The study provides a valuable case study for examining the relationship between climate change and the spatial evolution of human societies.



What is the Silk Road?

- **About:**
 - The Silk Road was a **vast network of trade routes** that connected the **Atlantic seaboard of Europe with the Pacific coast of Asia (China)**, spanning over 1,500 years of history.
 - It was named for the **lucrative silk trade** that was established in China at the far eastern end of the trade route.
 - Besides silk, the route was also used to transport other goods such as spices, gold, and precious stones.
- **Route:**
 - Along the way, it passed through a number of important cities and kingdoms, including Samarkand, Babylon, and Constantinople.
- **History:**
 - In the 2nd century BCE, **Emperor Wu** of the **Chinese Han Dynasty** dispatched his diplomat **Zhang Qian** to the "Western Regions" (Xinjiang and beyond). This led to the gradual establishment of the **Tarim Basin route** of the Silk Road.

Note:

- Zhang Qian is credited as the “**Father of the Silk Road**” for his pioneering expedition.
- Caravans travelling from China’s capital Xian or towards it used the **Tarim Basin route**, which skirted the basin enclosed by the **Tianshan, Kunlun, and Pamir mountains** and within the basin lies the **Takla Makan Desert**.
- After travelling around the Tarim Basin, the caravans would head west towards the **Levant (modern-day Syria, Jordan, the Holy Land, and Lebanon)** and **Anatolia**, where the goods would be transferred to ships in **Mediterranean ports**, and then further westward to **Western Europe**.
- This route facilitated the flow of goods, people, ideas, religions, and even diseases between the opposite ends of Eurasia and played a crucial role in the cultural and economic exchange between the civilisations of Europe and Asia.

How the Route of Silk Road was Shifted?

- **Old Route (Tarim Basin Route):**
 - The original main route of the Silk Road went **around the Tarim Basin** which lies between the **Tianshan Mountains** to the north and the **Kunlun Mountains** to the south.
 - The merchants chose this route in order to avoid the harsh desert conditions of the Tarim Basin.
- **New Route (Junggar Basin Route):**
 - During the period of around **420–850 CE**, the caravans **no longer** followed the traditional route around the Tarim Basin on the Silk Road.
 - Instead, they started using the **northern slopes of the Tianshan Mountains** (in **Junggar Basin** in modern-day Xinjiang), historically called **Dzungaria**.
 - This “**New Northern**” route eventually replaced the Tarim Basin route entirely.
 - Consequences of the New Route:
 - It fostered the development of the **Turco-Sogdian cultural** sphere.
 - It facilitated communication and trade between Chinese dynasties and nomadic empires in Central and West Asia, like the **Khazar Empire**.
 - This shift **improved communication and trade across Eurasia**, connecting the Pacific and Atlantic regions.

What were the Reasons Behind the Shift of the Silk Road?

- **Climate Change:**
 - Researchers used **chironomid (‘lake flies’) fossils** to reconstruct past climate and found a period of **cooling and drying (420-600 CE)** in the **Tarim Basin**, which means the region experienced **colder temperatures and less precipitation (climate change)** during that time.
 - The decline in meltwater and precipitation in the Tarim Basin made the traditional route less viable due to **water scarcity**. Thus caravans **switched to the northern route along the Tianshan mountains** because it offered more abundant and stable water resources.
- **Geopolitical Factors:**
 - Even after the climate in the Tarim Basin improved (warmer and wetter between 600-850 CE), the trade **route remained on the northern Junggar Basin route**.
 - This is due to the rise of the **Tubo Kingdom (Tibet)** south of Xinjiang, whose expanding power clashed with China’s Tang Dynasty, making the traditional Tarim Basin route potentially less safe or politically favourable for trade.

What was the Historical Significance of the Silk Route?

- **Economic Significance:**
 - The Silk Road served **as the main trade route**, enabling the **trade of high-end products** such as silk, spices, valuable metals, and gemstones between China, India, Persia, Arabia, and the Mediterranean.
 - This **generated considerable wealth and prosperity**, playing a role in the economic **advancement and progress of the societies situated** along this ancient network.
- **Cultural Diffusion:**
 - The Silk Route facilitated the **exchange of cultural, artistic, and religious ideas** between the East and the West, leading to the spread of **Buddhism, Christianity, Islam**, and other beliefs. It also enabled the transfer of technologies, agricultural practices, and artistic traditions.

Note:

- This exchange promoted the **blending of cultures, languages, and knowledge, enriching cultural heritage and contributing** to a diverse and interconnected world.
- **Geopolitical Significance:**
 - The Silk Route was a **crucial network of trade routes**, granting power and influence to controlling empires. Securing it led to military outposts, fortifications, and diplomatic ties.
 - Competition for **control shaped Eurasia's geopolitical landscape**, influencing the rise and fall of civilizations for centuries.
- **Technological Advancements:**
 - The Silk Route enabled the **exchange of technological innovations like the compass, gunpowder, and printing** between East and West.
 - It also spurred the development of advanced transportation methods, including camel caravans and maritime shipping.
- **Legacy and Contemporary Relevance:**
 - The Silk Route continues to impact modern trade and cultural exchanges, with initiatives like the **Belt and Road Initiative** highlighting its importance in current economic and geopolitical dynamics.

How did the Silk Route End, and What are the Revival Efforts in Present Times?

- **End of Silk Route:**
 - The original Silk Route disappeared in 1453 when the **Ottoman Empire** closed off trade with the West, leading to the separation of East and West. Alternative sea routes were later discovered for more efficient East-West trade.
- **Reviving the Silk Route:**
 - In 2013, China initiated the **"One Belt, One Road" (OBOR)** or **Belt and Road Initiative** strategy to revive the Silk Route.
 - It aims to enhance connectivity with over 60 countries across Asia, Europe, and East Africa.

What is the Belt and Road Initiative (BRI)?

- **About:**
 - It represents a multifaceted **development strategy** aimed at enhancing global connectivity and cooperation.
 - It was launched in **2013** and aims to link **Southeast Asia, Central Asia, the Gulf region, Africa and Europe** with a network of land and sea routes.

- **Objectives:**
 - It aims to boost international connectivity by enhancing infrastructure, trade, and economic cooperation.
- **Routes of BRI:**
 - **Silk Road Economic Belt:**
 - This segment of the **BRI is dedicated to improving connectivity, infrastructure, and trade links** across Eurasia through a network of overland transportation routes.
 - **Maritime Silk Road:**
 - This component emphasizes **maritime connections and cooperation** in the form of ports, shipping routes, and maritime infrastructure projects.
- It begins via the **South China Sea** going towards **Indo-China**, South-East Asia and then around the **Indian Ocean** thus reaching Africa and Europe.
- **Geographic Corridors:**
 - The land-based Silk Road Economic Belt envisions 6 key corridors for development:
 - **China-Pakistan Economic Corridor (CPEC).**
 - New Eurasian Land Bridge Economic Corridor.
 - China-Indochina Peninsula Economic Corridor.
 - China-Mongolia-Russia Economic Corridor.
 - China-Central Asia-West Asia Economic Corridor.
 - China-Myanmar Economic Corridor.



Note:

UN Global Principles for Information Integrity

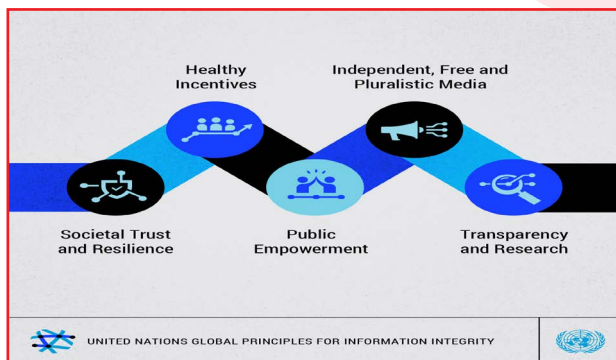
Why in News?

Recently, the [United Nations Secretary-General](#) unveiled a set of 'United Nations Global Principles for Information Integrity' aimed at curbing the spread of online misinformation, [disinformation](#), and [hate speech](#).

- These guidelines are designed to address the widespread harm caused by [false information](#) on digital platforms.

What are the United Nations Global Principles for Information Integrity?

- These principles form the foundation of a vision for a more **humane information ecosystem**. The initiative aims to prioritise **human rights** and support [sustainable development](#), [climate action](#), [democracy](#), and [peace](#).
- The **5 Global Principles for Information Integrity** are as following:
 - **Societal Trust and Resilience:** Building societal trust and resilience to counteract the spread of misinformation and hate speech.



- **Independent, Free, and Pluralistic Media:** Ensuring **media independence**, **freedom**, and diversity to support [high-quality journalism](#) and diverse viewpoints.
- **Healthy Incentives:** Creating incentives that promote truthful and constructive content while discouraging the spread of harmful misinformation.
- **Transparency and Research:** Enhancing [transparency](#) and supporting research to understand and mitigate the impact of misinformation and to develop effective solutions.

- **Public Empowerment:** Empowering the public with the tools and knowledge to **critically assess information**, **protect their rights**, and participate in the information ecosystem responsibly.

Initiatives Taken Combat Misinformation and Disinformation

- [Information Technology \(Intermediary Guidelines and Digital Media Ethics Code\) Rules, 2021](#)
- [Disaster Management Act 2005](#)
- [Epidemic Diseases Act 1897](#)
- [Information Technology Amendment Rules, 2023](#)
- [Digital Personal Data Protection Bill](#)

What are the Challenges Associated with Humane Information Ecosystem?

- **Speed and Scale of Misinformation Spread:** Digital platforms and [AI technologies](#) have accelerated the spread of **misinformation** and **hate speech**, causing **rapid** and **widespread harm**.
 - For example State media outlets in **Venezuela** spread **pro-government messages** through **AI-generated deepfake videos**.
- **Impact on Social Cohesion and Democracy:** False narratives and distortions undermine **social cohesion**, **breed cynicism**, **disbelief**, and **disengagement**, and **damage the integrity** of elections.
 - According to the **Global Risk Report 2024**, **misinformation** and **disinformation** are among the **top five risks** identified.
- **Reinforcement of Prejudices:** Opaque algorithms create **information bubbles** that reinforce prejudices, including [racism](#), [misogyny](#), and various forms of discrimination.
 - For example **algorithms create eco-chamber effect** which tend to show **users content** similar to what they've engaged with before.
 - It reinforces preconceived views or biases, making it harder for them to consider alternative viewpoints.
- **Targeting of Vulnerable Groups:** Women, refugees, migrants, minorities, and activists often face targeted harassment and humiliation.
- **Monetisation of Harmful Content:** Advertisers and the **PR industry** often profit from harmful content, exacerbating the spread of misinformation.
- **Weak Protections for Journalists:** Journalists face threats and lack strong protections, which impacts their ability to report accurately and freely.

Note:

Misinformation, Disinformation and Hate Speech

- **Misinformation:**
 - Misinformation is **false or inaccurate information shared without intending to cause harm.**
 - Example of misinformation is when someone **shares an outdated weather forecast**, believing it to be current.
- **Disinformation:**
 - Disinformation refers to **intentionally false or misleading information** that is disseminated with the purpose of deceiving or misleading others.
 - **Example:** A fake news website publishes a fabricated story about a public health crisis to cause panic and distrust among the population.
- **Hate Speech:**
 - **Hate Speech** refers to **offensive discourse targeting a group or an individual based on inherent characteristics** such as race, religion, or gender, and that may threaten social peace.
 - It typically involves **epithets, malicious stereotypes, and statements** intended to incite **hatred or violence** against a particular group.

Indus Water Treaty

Why in News?

Recently, a five-member Pakistani delegation was flown to Jammu's Kishtwar to inspect power projects set up on the rivers covered under the **Indus Water Treaty (IWT)** of 1960.

What is Indus Water Treaty (IWT)?

- **About:**
 - Indus Waters Treaty was signed on September 19, 1960, between **India and Pakistan** and was brokered by the **World Bank**.
 - The treaty sets out a **mechanism for cooperation and information exchange** between the two sides on the use of the water of the **Indus River** and its five tributaries **Sutlej, Beas, Ravi, Jhelum, and Chenab**.

Key Provisions:

- **Water Sharing:**
 - It prescribes how water from the six rivers of the Indus River System would be shared between India and Pakistan.
 - It allocated the **three western rivers** Indus, Chenab and Jhelum to Pakistan for unrestricted use, barring certain non-consumptive, agricultural and domestic uses by India and the **three Eastern rivers Ravi, Beas and Sutlej** were allocated to **India for unrestricted usage**.
- This means that 80% of the share of water went to Pakistan while leaving the rest 20% of water for use by India.
 - **Permanent Indus Commission:**
 - Under the Indus Waters Treaty, both countries must set up a **Permanent Indus Commission**, mandated to meet annually.
 - **Dispute Resolution Mechanism:**
 - The IWT provides a **three-step dispute resolution mechanism** under which "questions" on both sides can be resolved at the Permanent Commission, or can also be taken up at the inter-government level.
 - Unresolved differences between the countries on water-sharing can be addressed by the World Bank-appointed **Neutral Expert (NE)**.
- Appeal from a Neutral Expert of WB can be referred to a **Court of Arbitration set up by the World Bank**.
- **Various Projects to be Inspected Under IWT:**
 - **Pakal Dul and Lower Kalnai:** Pakal Dul Hydro Electric Project built on river Marusudar, a tributary of the Chenab. Lower Kalnai is developed on the **Chenab**.
 - **Kishanganga Hydroelectric Project:** It is a **run-of-the-river project** located in J&K.
 - Pakistan objected to the project arguing that it would affect the flow of the Kishanganga River (called the **Neelum River in Pakistan**).
 - In 2013, The **Hague's Permanent Court of Arbitration (CoA)** ruled that India could divert all the water with certain conditions.
 - **Ratle Hydroelectric Project:** It is a **run-of-the-river hydroelectric power station** on the Chenab River, in J&K.

Note:

The Indus Waters Treaty (IWT)

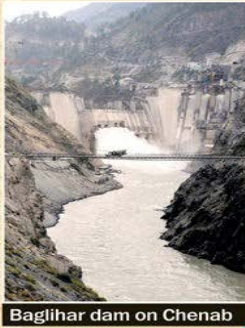
■ The distribution of waters of the Indus and its tributaries between India and Pakistan is governed by the Indus Water Treaty (IWT).

■ Was signed on Sept 19, 1960, between India, Pakistan and a representative of World Bank after eight years of negotiations.

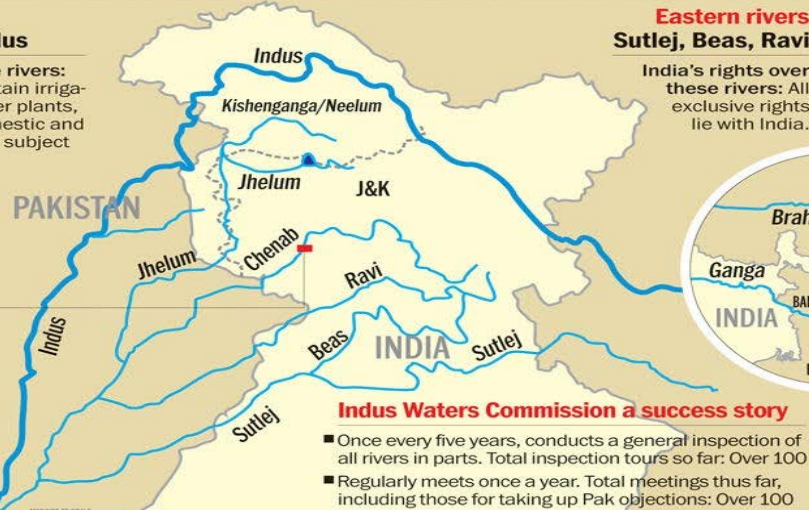
■ Partition of India cut across the Indus river basin, which has the Indus river, plus five of its main tributaries.

Western rivers Chenab, Jhelum, Indus

India's rights over these rivers: Limited — can set up certain irrigation, run-of-the-river power plants, very limited storage, domestic and non-consumptive use, all subject to conditions



Baglihar dam on Chenab



Eastern rivers Sutlej, Beas, Ravi

India's rights over these rivers: All exclusive rights lie with India.

Indus Waters Commission a success story

- Once every five years, conducts a general inspection of all rivers in parts. Total inspection tours so far: Over 100
- Regularly meets once a year. Total meetings thus far, including those for taking up Pak objections: Over 100

Indus River and its Tributaries

➤ Source:

- The Indus (In Tibetan called Sengge Chu/'Lion River'), a major river in South Asia, **originates in Tibet** near Mansarovar Lake in the Trans-Himalaya.
- The river flows through **Tibet, India and Pakistan** and about 200 million people live in the area of its drainage basin.

➤ Course and Major Tributaries:

- It enters India through Ladakh and flows through Jammu and Kashmir before reaching Pakistan's Gilgit-Baltistan region.
- The major **left-bank tributaries** of the Indus River are the Zaskar, Suru, Soan, **Jhelum, Chenab, Ravi, Beas, Satluj**, and Panjnad rivers.
- The **major right-bank tributaries** are Shyok, Gilgit, Hunza, Swat, Kunnar, Kurram, Gomal, and Kabul rivers.
- The Indus River **empties into the Arabian Sea** near the city of Karachi in southern Pakistan.

River	Source	Joins
Jhelum	Spring at Verinag, Kashmir Valley	Chenab at Trimmu, Pakistan
Chenab	Chandra and Bhaga streams near Bara Lacha Pass	Satluj after receiving Jhelum and Ravi
Ravi	Kullu hills near Rohtang Pass	Chenab near Rangpur, Pakistan
Beas	Near Rohtang Pass	Satluj at Harike Barrage, India
Satluj	Manasarovar-Rakas Lakes, Tibet	Indus a few kilometres above Mithankot, Pakistan

Note:

RELOS and India-Russia Relation

Why in News?

Recently, the India-Russia mutual logistics agreement named the **Reciprocal Exchange of Logistics Agreement (RELOS)** is now ready for finalisation. It will facilitate military cooperation between India and Russia, including **joint exercises, training, and disaster relief efforts**.

What is Reciprocal Exchange of Logistics Agreement (RELOS)?

➤ About:

- The Reciprocal Exchange of Logistics Agreement (RELOS) between India and Russia is a significant administrative arrangement that will enhance **military cooperation between the two nations**.

➤ Purpose:

- This agreement is designed to **streamline military logistics support**, making joint operations and **long-distance missions** more efficient and **cost-effective** for both India and Russia.

➤ Significance:

- Sustained Operations:
 - It will facilitate the replenishment of **essential supplies (fuel, rations, spare parts)** thus enabling continuous, uninterrupted military presence in crucial regions.
 - It will provide **berthing facilities for troops**, warships, and aircraft.
 - It will be applicable during **both wartime and peacetime missions**.
- Strategic Advantages:
 - It will enable smoother utilisation of the host nation's **existing logistics networks**. Enhances ability to **respond swiftly** to crises.
 - It will provide a **strategic edge to the military operations** of both countries thereby **reducing** overall mission costs.
- Expanded Military Reach:
 - Enhances India's maritime outreach and influence in strategically important regions.
 - Boosts **Maritime Domain Awareness (MDA)** and shared logistics facilities could enable **better information exchange** about maritime activities, enhancing both countries' situational awareness.

○ Balancing Quad Agreements:

- RELOS balances India's logistics agreements with **Quad** countries and Russia's non-Quad stance.
- Strengthens Russian presence in Indo-Pacific without Quad involvement.
- It Counterbalances US influence and China's regional role for both India and Russia.

○ Scientific Interconnections:

- India's primary engagements in the Arctic are focused on understanding scientific interconnections between Arctic sea ice melting and changes in **Indian monsoon** systems.

What are India's Logistics Agreements with Various Countries?

➤ India and USA:

- **General Security of Military Information Agreement (GSOMIA)**: It was signed in 2002, to facilitate sharing military intelligence between **India and the USA**.
- **Logistics Exchange Memorandum of Agreement (LEMOA), 2016**: Allows mutual **use of military logistics facilities**.
- **Basic Exchange and Cooperation Agreement (BECA), 2020**: Provides India access to U.S. **geospatial intelligence data**.
- **Communications Compatibility and Security Agreement (COMCASA), 2018**: Enables the **transfer of encrypted communication equipment**.

➤ India and France:

- Facilitates **logistical support during joint exercises**, port visits, and humanitarian efforts
 - Promotes stability in the Pacific and **Indian Ocean regions**.
 - Enables maritime intelligence sharing.

➤ India and Australia:

- Comprehensive **Mutual Logistics Support Agreement (MLSA), 2020**.
 - Emphasises shared vision for Indo-Pacific maritime cooperation.

➤ India and Japan:

- **Allows Close Coordination of Services (ACSA), 2020** and supplies between armed forces.

Note:

How has the Relationship Between India and Russia Evolved?

- **Historical Genesis:**
 - **The Indo-Soviet Friendship Treaty of 1971:** In the wake of the **Indo-Pak war (1971)**, Russia supported India while the US and China supported Pakistan.
 - **Declaration on the India-Russia Strategic Partnership:** In October 2000, India-Russia ties acquired a **qualitatively new character** with enhanced levels of cooperation in almost all areas of the bilateral relationship.
 - **Special and Privileged Strategic Partnership:** During the visit of the Russian President to India in December 2010, the **Strategic Partnership was elevated to the level of a "Special and Privileged Strategic Partnership"**.
- **Bilateral Trade:**
 - Bilateral trade has been substantial, with India's total reaching **approximately USD 13 billion in 2021-22**.
 - Russia ranks as **India's seventh largest trading partner**, a significant rise from its position in previous years.
- **Political Engagement:**
 - Politically, both countries engage through annual meetings of two **Inter-Governmental Commissions: One focused on Trade, Economic, Scientific, Technological, and Cultural Cooperation (IRIGC-TEC)** and another on Military-Technical Cooperation (IRIGC-MTC).
- **Defence and Security Relations:** Both countries regularly conduct the Tri-Services exercise '**INDRA**'.
 - The joint military programs between India and Russia include:
 - **BrahMos cruise missile** program
 - 5th generation fighter jet program
 - Sukhoi Su-30MKI programme
 - The **military hardware purchased/leased** by India from Russia includes:
 - **S-400 Triumf**
 - **Kamov Ka-226** 200 to be made in India under the **Make in India** initiative
 - **T-90S Bhishma**
 - **INS Vikramaditya aircraft carrier program**
 - **AK-203 Rifles**

➤ Science and Technology:

- The partnership dates back to the early days after India's independence when Soviet assistance was pivotal in establishing institutions like the **Bhilai Steel Plant and supporting India's space program**.
- Today, collaboration extends to advanced fields such as **nanotechnologies, quantum computing**, and India's manned spaceflight program (**Gaganyaan**).

What are the Key Challenges in India-Russia Relations?

➤ Strategic Shifts:

- **Closer Ties with China:** Russia seeks to avoid **conflicts on two fronts** (West and China).
 - **Increasing Sino-Russian military and economic cooperation** affects India's strategic calculations.
- **Improved Relations with Pakistan:** It can be due to strengthening **US-India ties** and it complicates India's regional strategy.

➤ India's Diplomatic Balancing Act:

- India's great **power calculations create the dilemma** to choose between a "comprehensive global strategic partnership" with the US on one hand, and its "**special and privileged partnership with Russia**" on the other.

➤ Russia-Ukraine Crisis Response:

- India faced significant **criticism in the West for refraining from condemning the Russian invasion of Ukraine** and for its continued expansion of energy and economic cooperation with Moscow.

➤ Declining Defence Imports:

- There has been a gradual **decline in the defence purchase of India from Russia** because of its desire to diversify its defence imports which heightened competition for Russia.
 - It will also force it to explore other potential buyers like Pakistan.

India-Sri Lanka Relations

Why in News?

Recently, the Indian External Affairs Minister met with the Sri Lankan President to discuss **bilateral cooperation** in various sectors, including power, energy, connectivity, port infrastructure, aviation, etc.

Note:

What are the Recent Developments in India-Sri Lanka Relations?

- **Maritime Rescue Coordination Centre (MRCC):** They jointly commissioned MRCC built with a USD 6 million grant from India.
 - This includes a centre at **Navy Headquarters in Colombo**, a sub-centre in Hambantota and unmanned installations at Galle.
 - The launch of MRCC is part of the broader initiative under the **Colombo Security Conclave**, which includes India, Sri Lanka, Maldives, and Mauritius, with Bangladesh and the Seychelles as **observers**.
- **Model Village Housing Project:** Both leaders virtually handed over houses constructed under the **Model Village Housing Project** and **Indian Housing Project**, with funding from India.
- **Energy Sector Initiatives:** A plan for an LNG supply, a **proposed petroleum pipeline** linking the two countries, and advancing oil and gas exploration projects were also discussed.
 - The construction of the **Sampur Solar Power Plant** was also announced.
- **Other Developments:** Discussions were also held on projects aimed at developing **Trincomalee and expanding the Kankesanthurai port**, and bolstering Sri Lanka's **liquid milk industry** and fertilizer production.

How have Relations Between India and Sri Lanka Been?

- **Historical Ties:** India and Sri Lanka share **deep historical connections** through culture, religion, and trade, with many Sri Lankans having Indian roots and **Buddhism** playing a significant role in both countries.
- **Economic Ties:**
 - **Financial Assistance from India:** India gave about USD 4 billion in aid to help Sri Lanka through its worst **financial crisis** since independence in 1948, caused by a severe lack of **foreign exchange reserves** in 2022.
 - India was the first to offer support to Sri Lanka for its debt restructuring, working with the **International Monetary Fund (IMF)** and creditors.
 - **Economic and Technology Cooperation Agreement (ETCA):** Both countries are exploring the possibility of an ETCA to integrate their economies and foster development.

- **Adoption of India's UPI:** Sri Lanka has **adopted India's UPI service**, which is a significant step towards enhancing fintech connectivity between the two countries.
- The **use of the rupee for trade settlement** is further helping Sri Lanka's economy.
- **Trade:** India is Sri Lanka's third largest export destination, after the US and UK. More than 60% of Sri Lanka's exports enjoy the benefits of the **India-Sri Lanka Free Trade Agreement**. India is also a major investor in Sri Lanka.
- **Participation in Groupings:** Sri Lanka is also a member of groupings like **BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation)** and **SAARC** in which India plays a leading role.
- **Tourism:** In 2022, India was the **largest source of tourists** for Sri Lanka with over 100,000 tourists.

What is the Significance of India and Sri Lanka Relations?

- **Focus on Regional Development:** India's progress is intricately linked with its neighbouring nations, and Sri Lanka aims to enhance its own growth by integrating with the Southern economy, in South Asia.
 - The external Affairs Minister also reaffirmed India's commitment to its **'Neighbourhood First' Policy**, emphasising the importance of Sri Lanka as India's closest maritime neighbour.
- **Strategic Location:** Sri Lanka, positioned near India's southern coast across the **Palk Strait**, holds a crucial role in the relationship between the two nations as it is at the **crossroads of major shipping lanes making it a critical point of control for India**.
- **Ease of Doing Business & Tourism:** The enhancement of **digital payment systems across the two nations** will promote economic integration and simplify business transactions between India and Sri Lanka.
 - This advancement will not only **streamline trade** but also **improve connectivity** for tourism exchanges between the two nations.

Ban on LTTE

- The Indian government has banned the **Liberation Tigers of Tamil Eelam (LTTE)** under the **Unlawful Activities (Prevention) Act 1967**.
 - The Tamil Nadu Government has also banned it in May 2024 stating that despite their 2009 defeat, the group still **pursued their goal of 'Eelam'**.

Note:

- **LTTE** was formed in 1976 as the self-styled “national freedom movement of the people of **Tamil Eelam**” and began a **guerilla war** on the government and administration.
 - It undertook numerous terrorist activities in Sri Lanka especially against the Sinhalese and **executed the assassination of Rajiv Gandhi** (the ex Prime Minister of India).
 - After a long strife, and millions of casualties, the civil war with LTTE ended in 2009.

What are the Challenges in India-Sri Lanka Relations?

- **Tamil Ethnic Issue:** India has historically been concerned about the welfare and rights of the Tamil community in Sri Lanka particularly the implementation of the **13th Amendment in its true spirit**.
 - The **13th Amendment**, which led to the creation of Provincial Councils, assured a power-sharing arrangement to enable all nine provinces in the country, including Sinhala majority areas, **to self-govern**.
- **China’s Influence:** India has concerns about China’s investment in Sri Lanka like **Hambantota Port** due to its proximity.
- **Fisheries Dispute:** Issues of illegal fishing and arrest of fishermen by both countries on maritime boundaries often led to diplomatic tussles.
- **Katchatheevu Island Dispute:** The issue revolves around the **ownership and usage rights** of the uninhabited island of Katchatheevu, located in the Palk Strait between India and Sri Lanka, imposing restrictions on fishing activities without explicit permission.
- **Border Security and Smuggling:** The **porous maritime boundary** between India and Sri Lanka has led to issues of border security and the **smuggling** of goods, including **narcotics** and **illegal immigrants**.

SIPRI Report on Nuclear Arsenal

Why in News?

Recently, a **Stockholm International Peace Research Institute (SIPRI)** report was released that highlighted the **increased risk and instability** associated with the ongoing **modernisation and expansion** of **nuclear arsenals** worldwide.

What are the Key Highlights of the Report?

- **Global Nuclear Warheads:**
 - All **nine nuclear-armed states** (USA, Russia, UK, France, China, India, Pakistan, North Korea, and Israel) continued to **modernise their nuclear arsenals**.
 - The total global inventory of nuclear warheads was approximately **12,121 as of January 2024**, with about 9,585 in military stockpiles.
 - Around 2,100 warheads were kept on high operational alert, primarily by Russia and the USA, but for the first time, **China** may have **some warheads on high alert**.
- **Country-Specific Developments:**
 - **Russia and USA:** Together **hold almost 90%** of all nuclear weapons.
 - **China:** China has significantly increased its nuclear arsenal from 410 to 500 by January 2024 and is expanding its nuclear arsenal **faster than any other country**.
 - North Korea has approximately 50 warheads and materials for up to 90.
 - **Israel** is **modernising its arsenal** and enhancing **plutonium** production capabilities (though not officially acknowledged).
 - **India and Pakistan:**
 - India now has 172 **nuclear warheads** as of January 2024, ranking 6th globally, ahead of Pakistan (170), and is emphasising longer-range weapons aimed at China.
- **Nuclear Diplomacy Challenges:**
 - Nuclear arms control and **disarmament** diplomacy faced setbacks, particularly due to the war in **Ukraine** and **Gaza**.
 - Tensions between Iran and the USA fluctuated and the Israel-Hamas war complicating diplomatic efforts.
 - Significant setbacks included Russia’s suspension from the **New START treaty** and withdrawal from the **Comprehensive Nuclear-Test-Ban Treaty (CTBT)** ratification.
- **Global Security Concerns:**
 - It also highlighted issues like military expenditure, arms transfers, and the role of private military companies in conflicts.

Note:

- It also highlighted the risks related to **artificial intelligence**, **outer space**, **cyberspace**, and the protection of civilians in war zones.

SIPRI

- It is an **independent international institute** dedicated to research into conflict, armaments, arms control and disarmament.
- It was established in 1966 in **Stockholm (Sweden)**.
- It provides data, analysis and recommendations, based on open sources, to policymakers, researchers, media and the interested public.

What are the Challenges and the Way Forward for India's Nuclear Program?

- **Challenges:**
 - India faces nuclear threats mainly from **Pakistan and China** due to **border tensions and terrorist issues**.
 - Due to the **rising threats of cyberattacks** ensuring the safety and security of nuclear systems is crucial as any weaknesses could lead to consequences like alleged 2019 cyberattack on India's **Kudankulam Nuclear Power Plant**.
 - The rapid **advancement of hypersonic missiles, autonomous weapons**, and AI poses **new challenges for nuclear deterrence strategies**.
 - India's nuclear energy program faces **challenges like the risks of radioactive contamination, environmental and health impacts**.

International Treaties for Nuclear Programs

- **Treaties Preventing Nuclear Proliferation and Testing:**
 - The Treaty on the **Non-Proliferation of Nuclear Weapons (NPT)**.
 - **Partial Test Ban Treaty (PTBT)**: Banning nuclear weapon tests in atmosphere, outer space and under water.
 - The **Comprehensive Nuclear Test Ban Treaty (CTBT)** was signed in 1996 but has yet to enter into force.
 - The Treaty on the Prohibition of Nuclear Weapons (TPNW), which will enter into force on 22nd January 2021.
- **Other Related Initiatives:**
 - **Nuclear Suppliers Group**
 - **Missile Technology Control Regime**

- **Hague Code of Conduct against Ballistic Missile Proliferation**
- **Wassenaar Arrangement**

India's Nuclear Program

- India tested its **first nuclear device in May 1974**, and remains outside both the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and the Comprehensive Nuclear Test Ban Treaty (CTBT).
- However, India has a **facility-specific safeguards agreement in place** with the **International Atomic Energy Agency (IAEA)** and a waiver from the Nuclear Suppliers Group (NSG) allowing it to **participate in global civilian nuclear technology commerce**.
- It was admitted as a member of the Missile Technology Control Regime (MTCR) in 2016, **Wassenaar Arrangement in 2017** and **Australia Group in 2018**.
- In 2024, India initiated the core loading of **India's Prototype Fast Breeder Reactor (PFBR)** at Kalpakkam, Tamil Nadu marking a significant milestone in India's nuclear program.
- India maintains its official commitment to **no-first-use** of nuclear weapons.

Ukraine "Path to Peace" Summit

Why in News?

Recently, the two-day **Summit on Peace in Ukraine** titled "**Path To Peace Summit**", held in Switzerland, ended on 16th June 2024.

- Through this summit, participants hoped for an end to the **war between Russia and Ukraine**.

What were the Key Highlights of the Summit?

- **Call for Territorial Integrity of Ukraine:**
 - 80 countries have called for the "**territorial integrity**" of Ukraine to be the basis for any peace agreement to end the **Russia-Ukraine war**.
 - They supported the final joint communiqué that outlined a "**Path to Peace**" and focused on 3 agendas: **nuclear safety, global food security, and humanitarian issues**.
- **Release of Prisoners of War:**
 - The declaration emphasised the release of all prisoners of war and the return of all deported and unlawfully displaced Ukrainian children and civilians.

Note:

- **Absence of Russia from Peace Summit:**
 - Russia, the primary party to the conflict, was **not invited** by the host, Switzerland, due to the **International Criminal Court's** indictment of President Vladimir Putin.
- **India's Refusal to Endorse Ukraine Meet Statement:**
 - India along with **Saudi Arabia, South Africa**, and the **United Arab Emirates** refused to sign onto the final document released at the conclusion of a Peace Summit.
 - India emphasised that only proposals acceptable to **both Russia and Ukraine** can lead to peace.

What is India's Stand in the Russia-Ukraine Conflict?

- **Commitment to Non-Alignment:**
 - India's non-aligned foreign policy, with its origins in the **Bandung Conference of 1955**, has been a central tenet of its approach to international conflicts.
 - India has opted to abstain on **UN Security Council (UNSC)** resolutions regarding Russia's actions in Ukraine. This aligns with their established policy of neutrality in major power disputes.
- **Preserving Strategic Partnership with Russia:**
 - India regards Russia as a crucial strategic partner, with Russia being a significant **supplier of military hardware** and **energy resources** to India.
 - According to data from the **Stockholm International Peace Research Institute (SIPRI)**, Russia accounted for approximately **46%** of India's total arms imports between 2017-2021.
- **Humanitarian Assistance and Diplomatic Efforts:**
 - India has taken various steps to address the humanitarian aspects of the conflict by providing **humanitarian aid to Ukraine**, including **medical supplies and relief materials**.
 - Furthermore, India emphasised the need for a **diplomatic solution to the conflict** and has urged both Russia and Ukraine to engage in dialogue in various international forums, reflecting India's efforts to promote a peaceful resolution to the crisis.
- **Balancing Ties with the West:**
 - While maintaining its strategic partnership with Russia, India has also tried to balance its ties with the US and the **European Union (EU)**, which are India's largest trading partners.

- This is aimed at protecting India's economic and geopolitical interests in the face of the evolving international landscape.

What are the Areas of Cooperation between India and Russia?

- **Trade and Economic Cooperation:**
 - India-Russia relations have been a key pillar of India's foreign policy since the signing of the **"Declaration on the India-Russia Strategic Partnership"** in 2000, which was further elevated to a **"Special and Privileged Strategic Partnership"** in 2010.
 - In 2021, the two countries held their first **2+2 Dialogue** (Foreign and Defence Ministers of both countries), highlighting the deeper collaboration.
 - India has announced a USD 1 billion **line of credit** for the development of Russia's Far East.
- **Defence and Security:**
 - It is guided by the **Agreement on the Programme for Military Technical Cooperation** signed between the two countries.
 - The **Agreement on Program of Military-Technical Cooperation from 2021-2031** was signed during the inaugural meeting of the **India-Russia 2+2 Dialogue** held in Delhi in December 2021.
 - India is the top purchaser of Russian military equipment, including the **S-400 Triumph Missile system, Kamov 226 helicopters**, and **T-90S tanks**.
 - Both countries are also collaborating on developing defence technologies such as the **BrahMos supersonic cruise missile** and conducting **joint military exercises like INDRA & AviaIndra**.
- **Energy Cooperation:**
 - Russia has vast **natural gas** reserves and India is shifting towards using more natural gas, actively importing from the Russian Far East.
 - India and Russia signed their **first nuclear cooperation agreement** in 1963. It led to construction of reactors at **Kudankulam Nuclear Power Plant** commissioned in 2016.
 - Both are working on the **Rooppur Nuclear Power Project** in Bangladesh.
 - In 2018, they agreed to jointly develop **Small Modular Reactors (SMRs)**, which are small, efficient nuclear reactors used for electricity generation or industrial heat production.

Note:

➤ International Cooperation:

- India and Russia are members of various multilateral organisations, such as **BRICS**, **Russia-India-China Grouping (RIC)**, **G20, East Asia Summit**, and **Shanghai Cooperation Organisation (SCO)**, which provide opportunities for cooperation on mutual issues.
- Russia supports India's aspiration for a permanent seat in the **UN Security Council (UNSC)**.
- Russia has endorsed India's membership in the **Nuclear Suppliers Group (NSG)** and **Asia Pacific Economic Cooperation (APEC)**.
- Russia is **considerate of India's stance on the Jammu and Kashmir issue** in relation to Pakistan.
- The two countries are involved in connectivity projects like the International **North-South Transport Corridor (INSTC)**.

➤ Cyber Security:

- India and Russia have an **"Agreement on Cooperation in International Information Security"** to work together in cyber security.
- They are also collaborating to combat **radicalization and cyberterrorism**. Additionally, India plans to work with the **Russian Quantum Center** to utilise **quantum cryptography** for enhanced information security in various sectors.

What are the Global Implications of the Russia-Ukraine War?

- **Geopolitical Implications:** War has led countries to **align with Russia, Ukraine, or remain non-aligned**. The EU has imposed sanctions on Russia, while the UK supports Ukraine. Many **developing countries prioritise pragmatic relationships, staying non-aligned**.
 - The war has driven **increases in European defence budgets, strengthening partnerships like NATO**, shifting the global balance of power.
 - Turkey doesn't fully align with all NATO proposals, particularly on economic sanctions.
- **Strained Global Institutions:** The war has exposed **limitations of international institutions like the UN to prevent major conflicts**. Countries may question the effectiveness of these bodies, potentially leading to a shift in how international disputes are addressed.
- **Massive Displacement:** The UN estimates over **11 million Ukrainians have fled their homes**, creating

a significant refugee crisis in Europe and internally displaced populations within Ukraine. This has placed immense strain on neighbouring countries and international aid organisations.

- **UNICEF** reports that two-thirds of Ukrainian children have been negatively impacted by the war, facing displacement, psychological trauma, and disruptions to education.
- **Threatened Food Security:** Ukraine is a major **agricultural producer**, supplying a significant portion of the **world's wheat, corn, and sunflower oil**. The war has disrupted planting, harvesting, and exports exacerbating existing food insecurity issues and potentially leading to shortages in vulnerable regions.
- **Disruption in Global Energy Market:** Russia's role as a **major energy exporter has caused disruptions in global energy markets**. Sanctions and boycotts have led to price hikes for oil and gas, impacting energy security and inflation worldwide.

What are the International Efforts to Establish Peace between Russia and Ukraine?

- **Ukrainian 10-Point Peace Plan:** It was promoted by the President of Ukraine since the 2023 **G-20 Summit** and outlined key demands.
 - Withdrawal of Russian troops from Ukrainian territory.
 - Restoration of Ukraine's territorial integrity as per its internationally recognised borders established in 1991.
 - Prosecution of war crimes committed by Russia.
- **Minsk Agreements, 2015:**
 - **Minsk Agreements** were signed in 2014 and 2015 in the Belarusian capital Minsk.
 - The Minsk agreements were discussed and agreed upon with the involvement and support of **France, Germany**, and the **Organization for Security and Co-operation in Europe (OSCE)**. These agreements were **signed by Ukraine, Russia**, and the representative of the OSCE. It aimed to **end the initial phase of the conflict in eastern Ukraine**. It included:
 - A **ceasefire** between Ukrainian forces and pro-Russian separatists.
 - **Withdrawal of heavy weaponry** from the conflict zone.
 - **Full Ukrainian government control** over the eastern **Donbas region**.

Note:



- **United Nations Efforts:** UN experts have consistently called for intensified efforts by the international community to achieve peace in line with the **UN Charter**. This includes respecting Ukraine's sovereignty, independence, unity, and territorial integrity as outlined by the UN Secretary-General.



50th G7 Summit

Why in News?

Recently, the Prime Minister attended the annual **G7 summit** held in **Italy** from 13 to 15th June 2024. This summit marked the **50th anniversary of the group**.

- This is his first foreign trip after assuming office for the third straight term.

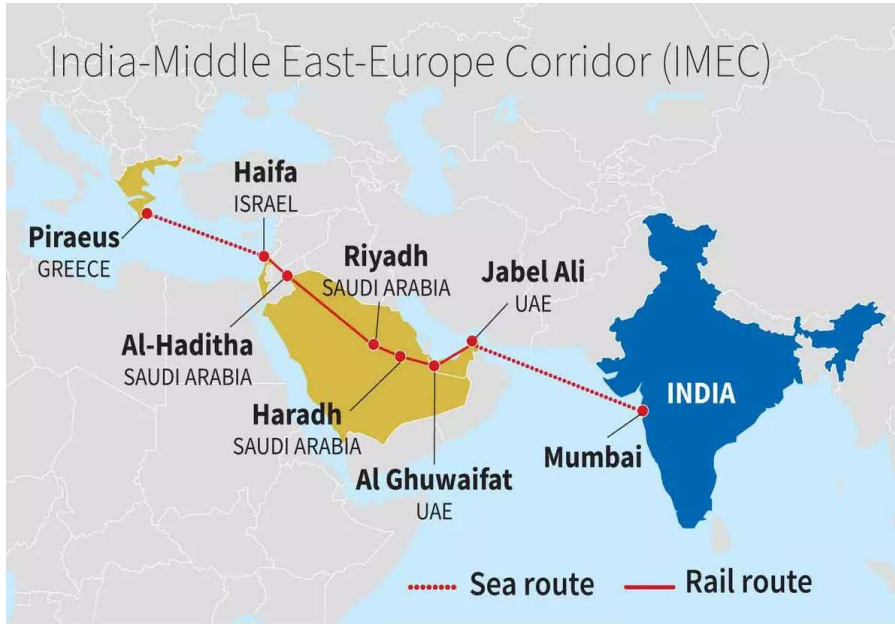
What are the Key Highlights of the 50th G7 Summit in Italy?

- Promotion to G7 **PGII (Partnership for Global Infrastructure and Investment)**:
 - In the 50th G7 Summit, leaders decided to **promote concrete G7 PGII (Partnership for Global Infrastructure and Investment) initiatives**.
 - This initiative was launched by the US and G7 allies at the **48th G 7 Summit in 2022** that aims to narrow the USD 40 trillion infrastructure gap in the developing world.
 - It is a “values-driven, high-impact, and transparent infrastructure partnership to meet the enormous infrastructure needs of low and middle-income countries.
 - Under this, G7 will mobilise **USD 600 billion by 2027** to deliver infrastructure projects to developing and middle-income countries.

- **Support and Promotion to India-Middle East-Europe Economic Corridor (IMEC):**
 - G-7 nations committed to promoting the **IMEC**.
 - IMEC aims to create a comprehensive transportation network, comprising rail, road, and sea routes, connecting India, the Middle East, and Europe.
 - IMEC:
 - It was signed at the **G20 Summit** in New Delhi, in September **2023**.
 - This project forms part of the PGII.
 - The proposed IMEC will consist of **Railroad, Ship-to-Rail networks and Road transport routes** extending across **2 corridors**:
- **East Corridor:** Connecting India to the Arabian Gulf
- **Northern Corridor:** Connecting the Gulf to Europe.
 - It will also include an electricity cable, a hydrogen pipeline and a high-speed data cable.
 - **India, the US, Saudi Arabia, UAE, the European Union, Italy, France, and Germany** are the signatories of IMEC.
- **Support to Infrastructure Projects:**
 - G7 also extended support for the **Lobito Corridor** in Central Africa and **Luzon Corridor** and the **Middle Corridor**.
 - **Lobito Corridor:** It extends from the **port city of Lobito on the Atlantic coast of Angola** through the Democratic Republic of the Congo (DRC) and into Zambia.
 - **Luzon Corridor:** It is a strategic economic and infrastructure corridor located **on the island of Luzon in the Philippines**. Luzon is the largest and most populous island in the Philippines.
 - **Middle Corridor:** It is also referred to as the **Trans-Caspian International Transport Route (TITR)**, a vital **logistics and transportation network** connecting **Europe and Asia**.
- This route serves as an alternative to the traditional Northern and Southern corridors, enhancing trade and economic cooperation between the regions it traverses.
 - **The Great Green Wall Initiative:** It is a project aimed at **combating desertification and land degradation** in the **Sahel region of Africa**.
- it aims to **create a wall of trees stretching across Africa** from west to east to help prevent the spread of the Sahara Desert, improve biodiversity, and provide economic opportunities for local communities.

Note:

- **Enhancing Interoperability of AI Governance:**
 - The G7 leaders commit to **step up efforts to enhance interoperability amongst their AI governance** approaches to promote **greater certainty, transparency and accountability**.
 - It focuses on managing risks in a way that supports innovation and promotes healthy, inclusive, and long-lasting economic growth.
- **Extraordinary Revenue Acceleration (ERA) Loans for Ukraine:**
 - The G7 agreed to provide financing of approximately USD 50 billion in additional funding to Ukraine by the end of 2024.



What is G7?

- **About:**
 - **G-7** is a group of the most **developed and advanced economies** of the world. i.e. **France, Germany, Italy, the United Kingdom, Japan, the United States, and Canada**.
 - The leaders of important international organisations like the **European Union (EU), IMF, World Bank and the United Nations** are also invited.
 - Summits are held annually and hosted on a rotation basis by the group's members.
- **Origin:**
 - The G7 originated from the **Oil crisis of 1973** and the resulting financial crisis, which forced the leaders of 6 major industrial nations to convene a meeting in **1975**.
 - The participating countries were the **US, UK, France, West Germany, Japan, and Italy**.
 - **Canada** joined in **1976**, leading to the formation of the **G7**.
 - It was known as the **'G8'** for several years after the original seven were **joined by Russia in 1997**, but it was renamed as G7 after Russia was expelled as a member in 2014 following its **annexation of the Crimea region of Ukraine**.

- **Nature of Grouping:**
 - **Informal Grouping:** The G7 is an **informal grouping** that operates outside of formal treaties and lacks a permanent bureaucracy. **Each member nation takes turns leading the discussions (presiding nation)**.
 - **Decision Through Consensus:** Despite the absence of legal enforcement, the **G7's power stems from its members' economic and political clout**. When these major powers can agree on a course of action, it can significantly impact global issues.
 - **Limited Legislative Power:** The G7 **cannot enact laws directly**. However, their pronouncements and coordinated efforts can influence international policies and shape global agendas.
- **Purpose:**
 - **Facilitate Dialogue:** The G7 acts as a forum for member nations to have open and frank **discussions on critical global issues**. This allows them to understand different perspectives and build consensus.
 - **Forge Collective Action:** It aims to **develop coordinated political responses** to global challenges. This could involve collaborative efforts on issues like trade agreements, security threats, or climate change initiatives.

Note:

- **Set the Agenda:** The G7's discussions and pronouncements **can influence the direction of global conversations on pressing issues**. This can help shape international policies and priorities.

➤ **Significance:**

- **Wealth:** Control **60%** of global net wealth
- **Growth:** Drive **46%** of global GDP
- **Population:** Represents **10%** of the world's population.



Note:

- India is **not** a member of the G7. However, India participated as a guest in the 2019, 2021, and 2022 G7 summits at the invitation of France, the UK, and Germany respectively.

Why is India's Role in the G7 Important?

- **India's Economic Significance:**
 - With a GDP of USD 3.57 trillion (nominal), India's economy is larger than 4 G7 member countries - **France, Italy, the UK and Canada**.
 - According to the **IMF**, India is one of the **fastest-growing economies in the world**.
 - India's **abundant young and skilled workforce**, coupled with its **market potential, low manufacturing costs**, and favourable business climate, make it an attractive investment destination.
- **India's Strategic Importance in the Indo-Pacific:**
 - India has emerged as a **major strategic partner for the West in containing China's** expanding influence, particularly in the Indian Ocean.
 - India's strategic partnerships with the US, UK, France, Germany, and Japan, as well as its rapidly expanding ties with Italy, make it a crucial player in the **Indo-Pacific**.

➤ **India's Role in Addressing the European Energy Crisis:**

- India's ability to **secure discounted Russian oil and supply** refined fuels to Europe has made it an important **player in addressing the European energy crisis**.
 - The **war in Ukraine** has caused an energy crisis in Europe as they cut back on Russian energy imports. **India has acted as a transit country for Russian oil**. This oil is then **refined in India and exported to Europe**, helping to alleviate the pressure on their economies.

➤ **India's Potential for Mediating the Russia-Ukraine Conflict:**

- India's long-standing relationships with both Russia and the West position it as a **potential mediator in the Ukraine conflict**. By leveraging its neutral stance, India could offer a way out for both sides, facilitating dialogue and diplomacy to bring an end to the war.

The Oil Crisis of 1973-74

➤ **About:**

- It refers to a **period of sudden surge in oil prices**, accompanied by a decrease in supply which has **destabilised the global economy** since oil is a major source of energy for many countries.

➤ **Trigger:**

- **Yom Kippur War (October 1973):** Egypt and Syria launched a surprise attack on Israel. The United States intervened by resupplying the Israeli military during the conflict.
- **OPEC's Political Leverage:** The **Organization of the Petroleum Exporting Countries (OPEC)**, consisting of major oil-producing nations, **decided to use oil as a political weapon in response**.

➤ **OPEC's Actions:**

- **Oil Embargo:** OPEC, particularly its **Arab members**, **imposed an oil embargo on countries that supported Israel**, including the United States and some European nations.
- **Production Cuts:** OPEC also reduced overall oil production, further tightening the supply.

➤ **Impact:**

- **Supply Shortage:** The embargo and **production cuts led to a global oil shortage**. Long lines formed at gas stations in many countries, and rationing became necessary.

Note:

- **Price Hike:** With reduced oil availability, **prices heavily increased** (from USD 3 to USD 11).
- **Economic Downturn:** Higher oil prices had a cascading effect. Transportation costs increased, raising the prices of goods and services. This **fueled inflation** and economic stagnation in many countries.

What are the Challenges to India in Balancing Power Conflict Between West and China-Russia?

- **Defence Dependence:** India's reliance on Russia for over 60% of its **military equipment** creates a complex situation. A **strained West-Russia relationship could disrupt supply chains** and force India to diversify its defence partnerships.
- **Economic Interdependence:** Deepening economic ties with both the US and China **expose India to potential**

decoupling pressures. Balancing trade relations with these competing entities will be crucial.

- **Divergent Approaches:** Disagreements within the West regarding how to confront Russia and China create uncertainty for India. **Aligning with one bloc too closely could alienate the other.**
- **Domestic Political Turmoil:** Internal political divisions in Western **democracies could lead to policy inconsistencies**, further complicating India's strategic calculations.
- **Border Disputes:** Unresolved territorial disputes with **China, coupled with China's growing assertiveness in the Indo-Pacific**, will continue to pose a security threat to India.
- **Geopolitical Rivalry:** The intensifying **competition between the US and China** in the region could force India to take sides on issues that don't directly align with its national interests.



Note:

Social Issues

Highlights

- Hooch Tragedy
- Maternity Leave for Surrogates
- High Court Struck Down Bihar 65% Quota Rule
- Global Initiative on Digital Health
- Greening the Education Sector
- First All-India Survey on AYUSH
- Child Food Poverty

Hooch Tragedy

Why in News?

Recently, around 34 people have died, and around 100 others have been hospitalized after consuming **hooch** or **spurious liquor** in Tamil Nadu's Kallakurichi district.

What is Hooch?

➤ About:

- Hooch is a commonly used term for **poor-quality alcohol**, derived from Hoochinoo, a native **Alaskan tribe** that was known to produce very strong liquor.
- It is often produced in **unregulated and unsanitary conditions**, leading to potential health risks.
- The **lack of quality control** in hooch production makes it difficult for consumers to know the **exact alcohol content** and any **potential contaminants** present.

➤ Production Process:

- **Fermentation:**
 - The production process is similar to making beer or wine. It starts with a **sugary substance** like fruits, grains, or sugarcane. **Yeast** is added, which **ferments** the sugars into **alcohol** and **carbon dioxide**.
- **Distillation (Optional):**
 - Hooch often has higher potency (strength), unlike beer or wine, which have lower alcohol content. Distillation **increases the alcohol content** by **heating the fermented mixture**.
 - **Alcohol evaporates** first due to its lower boiling point, and the **vapor is captured and condensed back into a liquid**, resulting in a **stronger alcohol concentration**.

What is Alcohol Content in Liquor?

➤ Alcohol in Liquor:

- **Ethanol** is the type of alcohol commonly found in **alcoholic beverages** and is the **psychoactive ingredient** responsible for the effects of intoxication.
 - Ethanol (C₂H₅OH) is a compound consisting of two carbon atoms, six hydrogen atoms, and one hydroxyl group (OH-).
- Liquor is differentiated by its **alcohol content**. It ranges from **5% in beer** to **40% in distilled spirits** such as vodka and whiskey.
- Inside the body, **ethanol** is metabolised in the liver and the stomach by **alcohol dehydrogenase (ADH) enzymes** to **acetaldehyde**.
 - Then, **aldehyde dehydrogenase (ALDH) enzymes** transform the acetaldehyde into **acetate**.

➤ Spurious Liquor:

- It is a **fake** or **counterfeit alcohol** that is often made at home.
- In this **methanol** is added to **make the alcohol stronger** in terms of its intoxicating effects or to **increase the quantity of the liquor** being produced. **It is a harmful substance** that can be dangerous if consumed in high amounts.
- **Hooch production** carries inherent risk due to the presence of **toxic methanol** in the distilled fermented mixture, alongside consumable ethanol.

➤ Regulation:

- The **Food Safety and Standards (Alcoholic Beverages) Regulations 2018** prescribe the maximum permissible quantity of methanol in different liquors.
- These values span a wide range, including "absent" in coconut fenny, 50 grams per 100 litres of country liquor, and 300 grams per 100 litres of pot-distilled spirits.

Note:

What is Key Facts About Methanol and its Consumption?

- **Methanol:**
 - Methanol, chemically represented as CH_3OH , is a simple alcohol molecule consisting of one carbon atom bonded to three hydrogen atoms and one hydroxyl group (OH).
 - **Regulations:**
 - Methanol is classified under **Schedule I** of the **Manufacture, Storage and Import of Hazardous Chemical Rules 1989** in India.
 - **Indian Standard IS 517** specifies how the quality of methanol should be determined.
 - **Industrial Production:**
 - Methanol is primarily produced industrially by combining **carbon monoxide and hydrogen** in the presence of **copper and zinc oxide** catalysts, typically at pressures of **50-100 atm** and temperatures around **250°C**.
- Historically, methanol was also produced through the **destructive distillation of wood**, a method known since ancient times, including in ancient Egypt.
- **Industrial Uses:**
 - Methanol serves as a **crucial precursor in the production of acetic acid**, formaldehyde, and various aromatic hydrocarbons. It is widely used as a **solvent, antifreeze, and in various industrial processes** due to its chemical properties.
- **Effect on Human Body:**
 - **Metabolic Acidosis:**
 - Methanol in the body is broken down into toxic byproducts, primarily **formic acid**. This acid disrupts the body's delicate **pH balance** in the blood, leading to a condition called **metabolic acidosis** (production of **excessive acid** that cannot be flushed out by kidneys).
 - This makes the **blood more acidic**, hindering its ability to function properly.
 - **Cellular Oxygen Deprivation:**
 - Formic acid also interferes with an enzyme called **cytochrome oxidase**, which is crucial for cellular respiration. This **disrupts the cells' ability to use oxygen, leading to a buildup of lactic acid** and further contributing to acidosis.

- **Vision Impairment:**
 - Methanol can **damage the optic nerve and retina**, causing **methanol-induced optic neuropathy**. This condition can lead to permanent **vision problems, including blindness**.
- **Brain Damage:**
 - It can cause **cerebral edema (fluid buildup in the brain)** and **hemorrhage (bleeding)**. These can lead to **coma and death**.
- **Treatment:**
 - **Pharmaceutical-Grade Ethanol:** Medical ethanol competes with methanol for the same enzymes (ADH) in the liver. Since the **body processes ethanol much faster (around 10x faster)**, it prevents the methanol from being converted into toxic formic acid.
 - **Fomepizole:** It **binds to the ADH enzymes, slowing down the metabolism of methanol** to formic acid. This allows the body to **eliminate methanol before it causes serious harm**.
 - **Dialysis:** It may be prescribed to remove methanol and its toxic byproducts (formic acid salts) directly from the bloodstream. This can help protect the kidneys and retina from damage.
 - **Folinic Acid:** This medication helps the body **break down formic acid** into less harmful substances like carbon dioxide and water.

Read more:

- [Industrial Alcohol Regulation](#)
- [Ban on Liquor](#)
- [Crack Down on Illegal Liquor Supply](#)

Maternity Leave for Surrogates

Why in News?

- Recently, the Government has notified an **amendment to Central Civil Services (Leave) Rules, 1972** to grant **maternity leave** and other benefits to **government employees** in case of children born through **surrogacy**.
- This move aims to **address the existing gap in the leave policies** for government employees **who opt for surrogacy**.

Note:

What are the Provisions of Notified Amended Rules?

- **Maternity Leave for Surrogate and Commissioning Mothers:** It allows women government employees who have children through surrogacy to avail **180 days of maternity leave.**
 - This includes **both the surrogate mother and the commissioning mother** (the intended mother) with less than two surviving children.
- **Paternity Leave for Commissioning Fathers:** The new rules also grant **15 days of paternity leave** to

the “**commissioning father**” (the intended father) who is a male government servant with less than two surviving children.

- This leave can be availed within 6 months from the date of delivery of the child.
- **Child Care Leave for Commissioning Mothers:**
 - Additionally, the commissioning mother with less than two surviving children is eligible for childcare leave, as per the existing provisions in the **Central Civil Services (Leave) Rules.**

Understanding Surrogacy and its Regulation

SURROGACY

- Having another woman bear a child for a couple (or single women or men) to raise.
- The surrogate offers to carry a baby through pregnancy and then return the baby to the intended parent(s) once it is born.
- Surrogacy is an option to fulfill the desire to have a child of a couple for whom it is physically or medically impossible or undesirable to carry a baby to term on their own.
- There are two types of surrogacy – traditional surrogacy and gestational surrogacy.
- In Traditional Surrogacy, a surrogate mother is artificially inseminated, either by the intended father or an anonymous donor. The surrogate mother provides the egg and is thus genetically related to the child.
- In Gestational Surrogacy, an embryo is created using an egg and sperm produced by the intended couple and is transferred into the surrogate's uterus. The surrogate has no genetic link to the child. Her eggs cannot be used to conceive the child.
- The Surrogacy (Regulation) Bill seeks to allow and regulate Gestational Surrogacy.
- Surrogacy can be altruistic or commercial. In altruistic surrogacy, the surrogate is not paid for her services, except for medical expenses and insurance. In commercial surrogacy, the surrogate is paid over and above these expenses.
- The Surrogacy (Regulation) Bill seeks to ban commercial surrogacy but protect the altruistic surrogate through enhanced, prescribed payments (for medical expenses, food and care, longer-duration insurance).

INDICATIONS FOR SURROGACY

- Opting for surrogacy is often a choice made when women are unable to carry children on their own.
- This can be for a number of reasons, including an abnormal uterus or a complete absence of a uterus either congenitally or post-hysterectomy.
- Women may have a hysterectomy due to complications in childbirth, medical diseases such as cervical cancer or endometrial cancer, or heart and renal conditions, etc.

WHAT DO OTHER COUNTRIES DO?

- Russia, Georgia, Ukraine, Columbia, Iran, and some states of the US allow commercial surrogacy
- France, Finland, Italy, Japan, Spain, Sweden, Switzerland, Hungary, Ireland, etc. have banned all forms of surrogacy.
- India seeks a middle path between these extremes, by banning commercial surrogacy (including for foreigners) while allowing and regulating altruistic surrogacy for all persons of Indian origin.
- Australia, Canada, Israel, Netherlands, New Zealand, South Africa, UK, Vietnam, Thailand, Cambodia, Nepal, Mexico have similar surrogacy practices as India seeks to establish.

What is Surrogacy and Related Regulation?

- **About:**
 - It is a practice where a **woman gives birth to a child for an intended couple** with the intention to **hand it over to them after the birth.**
 - It is permitted **only for altruistic purposes** or for **couples who suffer from proven infertility or disease.**
 - Surrogacy is **prohibited for commercial purposes** such as sale, prostitution or any other forms of exploitation.
 - A child born through surrogacy will be deemed to be the biological child of the couple.
 - **Abortion** of such a fetus is allowed **only with the consent of the surrogate mother** and the authorities as per provisions of the **Medical Termination of Pregnancy Act 2021.**

- **Criteria:**
 - To avail of surrogacy, a couple should be **married for at least 5 years**, with the wife aged between 25-50 and the husband between 26-55.
 - They should **not have any living child** unless the child has disabilities or a life-threatening illness.
 - The couple must also have **certificates of eligibility and essentiality**, proving **infertility** and a **court order** for parentage and custody of the surrogate child. Additionally, the intended couple must provide **insurance coverage for the surrogate mother** for 16 months.
- **Criteria for Surrogate Mother:**
 - She must be a **close relative of the couple**, a **married woman** with her own child, aged 25-35, and have **only been a surrogate once.**

Note:

- She also needs a **certificate of medical and psychological fitness** for surrogacy.
- **Regulation:**
 - The **National Surrogacy Board** and **State Surrogacy Boards** are responsible for regulating surrogacy clinics and enforcing standards.
 - The Act prohibits practices like **commercial surrogacy, embryo selling, and exploitation or abandonment of surrogate mothers or children**. Violations can lead to **imprisonment for up to 10 years and a fine of Rs. 10 lakh**.

Laws Related to Surrogacy

- [Surrogacy \(Regulation\) Act, 2021](#)
- [Surrogacy \(Regulation\) Rules, 2022](#)
- [Assisted Reproductive Technology \(ART\) \(Regulation\) Act, 2021](#)

Read more: [Assisted Reproductive Technology, Surrogacy \(Regulation\) Act 2021](#)

High Court Struck Down Bihar 65% Quota Rule

Why in News?

Recently, the Patna **High Court** struck down the Bihar government's decision to increase the reservation quota from **50% to 65%** for **Backward Classes (BC), Extremely Backward Classes (EBC), Scheduled Castes (SC)** and **Scheduled Tribes (ST)** in educational institutions and government jobs.

- This move by the Bihar government has raised important questions about the legal limits on reservation policies in India.

What is the Background of the High Court's Ruling?

- **Background:**
 - In November 2023, the Bihar government issued gazette notifications to raise the quota for deprived castes from 50% to 65%.
 - This decision was taken following a **caste-based survey report**, which showed the need for increased representation of BC, EBC, SC and ST communities.
 - The Bihar Assembly unanimously passed the **Bihar Reservation Amendment Bill in November 2023** to implement this **65% quota**.

Key Arguments in Court Verdict:

- A **Public Interest Litigation (PIL)** was filed challenging the Bihar government's decision to increase reservations beyond 50%.
- The Patna High Court ruled that the 65% quota **violated the 50% limit** set by the **Supreme Court** in the **Indira Sawhney case (1992)**.
- The court argued that the state government's decision was **not based on "adequate representation"** in government jobs, but on the proportional population of these communities.
- The court also noted that together with the **10% Economically Weaker Sections (EWS)** quota, the bill has pushed total reservation to 75%, which is unconstitutional.
- **Need for Extended Reservation in Bihar:**
- **Socio Economic Backwardness of the State:**
 - Bihar has the **lowest per capita income** in the country (below USD 800 per year), **which is 30% of the national average**.
 - It has the **highest fertility rate** and only **12%** of the population lives in urban areas, compared to the national average of 35%.
 - The state has the **lowest college density** in the country and **30%** of the population lives below the **poverty line**.
- **Inadequate Representation of Backward Classes:**
 - **SC, STs and Backward Classes** constitute **84.46%** of Bihar's population, but their representation in government jobs and education was not proportionate.
- **Other Alternatives to Extending Reservation Limit:**
- **Building a Strong Foundation:**
 - Implement recommendations from the **Right to Education (RTE) Forum** to **improve early childhood development (ICDS centres), enhance teacher training, and shift towards interactive and technology-integrated learning methods**.
- **Skilling Bihar's Youth for the Future:**
 - Develop **skill-building programs** aligned with growing industries alongside fostering **entrepreneurship** through programs like the **SIPB (Single-window Investment Promotion Board)** to attract businesses and create a vibrant job market.

Note:

- **Infrastructure for Inclusive Growth:**
 - Invest in **improved irrigation systems** to tackle **floods and droughts**, and develop a **robust transport network** connecting rural and urban areas.
- **Empowering All Residents of States:**
 - Promote **women's education, skill development, and financial inclusion** to increase their participation in the workforce and achieve greater social equality. **Enforce laws more strictly** to tackle **social stratification** and promote social harmony.

Note:

- Other states having reservations above the 50% limit are **Chhattisgarh (72%), Tamil Nadu (69%)**.
- **North-eastern States** including Arunachal Pradesh, Meghalaya, Mizoram and Nagaland (**80% each**).
- Lakshadweep has 100% reservations for STs.

What is the Reservation?

- **About:**
 - Reservation is a form of **positive discrimination**, created to **promote equality** among marginalised sections and to **protect them from social and historical injustice**.
 - It **gives preferential treatment** to marginalised sections of society in employment and access to education.
 - It was also originally developed to correct years of discrimination and to give a boost to disadvantaged groups.
- **Pros and Cons of Reservation:**

Aspect	Pros	Cons
Social Justice	<ul style="list-style-type: none"> ➤ Provides opportunities for historically disadvantaged groups (SCs, STs). ➤ Levels the playing field by addressing historical injustices. ➤ Increases social mobility and representation in government. 	<ul style="list-style-type: none"> ➤ Can be seen as perpetuating the caste system. ➤ May not be reaching the most deserving within reserved categories. ➤ Raises questions about efficiency and effectiveness
Meritocracy	<ul style="list-style-type: none"> ➤ Can incentivise excellence within reserved categories. 	<ul style="list-style-type: none"> ➤ May lead to the selection of less qualified candidates over more qualified general category candidates.
Representation	<ul style="list-style-type: none"> ➤ Ensures diverse voices in government and institutions. ➤ Promotes social inclusion and national integration. 	<ul style="list-style-type: none"> ➤ May not reflect current socio-economic realities (wealthy individuals within reserved categories)
Creamy Layer	<ul style="list-style-type: none"> ➤ Exclusion of creamy layer (wealthy) within reserved categories attempts to target the most disadvantaged. 	<ul style="list-style-type: none"> ➤ Defining and identifying the creamy layer can be challenging. ➤ Also there is opposition from particular groups like SC and STs.
Economic Upliftment	<ul style="list-style-type: none"> ➤ Reservation in education can lead to better job prospects for reserved categories 	<ul style="list-style-type: none"> ➤ Does not directly address economic disparities

Note:

What are the Constitutional Provisions Related to Reservations in India?

- Part XVI of the **Constitution of India** deals with the reservation of SC and ST in Central and State legislatures.
- **Article 15** of the Constitution empowers the State to make the following provisions:
 - **Article 15(3)** provides special provision for **women and children**.
 - **Article 15(4) and Article 15(5)** provide special provision for the advancement of **any socially and educationally backward classes** of citizens or for the SCs and the STs, including their admission to educational institutions, including private ones.
 - **Article 15(6)** provides special provisions for the advancement of any **Economically Weaker Sections (EWS)** of citizens other than the classes mentioned in clauses (4) and (5).
- **Article 16** provides for the grounds of positive discrimination or Reservation in government jobs.
 - **Article 16(4)** provides for the reservation of appointments or posts in favour of any **backward class of citizens**.
 - **Article 16(4A)** provides for reservation in promotion for **Scheduled Castes (SC)** and the **Scheduled Tribes (ST)**.
 - The Constitution was amended by the **Constitution (77th Amendment) Act, 1995** and a **new clause (4A)** was inserted in **Article 16** to enable the government to provide reservation in promotion.
 - Later, **16(4A)** was modified by the **Constitution (85th Amendment) Act, 2001** to provide **consequential seniority to SC and ST candidates promoted by giving reservation**.
 - **Article 16 (4B)** allows states to consider unfilled reserved vacancies from a previous year meant for SCs and STs.
 - It was inserted by the **81st Constitutional Amendment Act, 2000**.
 - **Article 16(6)** provides for the reservation of appointments or posts in favour of any **Economically Weaker Sections (EWS)**.
- **Article 233T** provides reservation of seats for **SCs and STs in every Municipality**.
- **Article 243D** provides reservation of seats for **SCs and STs in every Panchayat**.

- **Article 335** of the constitution says that the claims of STs and SCs shall be taken into consideration consistently with the maintenance of efficacy of the administration.
- **Articles 330 and 332** provide for specific representation through the reservation of seats for SCs and STs in the **Parliament** and in the **State Legislative Assemblies** respectively.

What are Developments Related to Reservations in India?

- **Indra Sawhney Judgment, 1992:**
 - The court upheld the constitutionality of the **27%** reservation for OBCs but **put a ceiling of 50%** unless exceptional circumstances warranted the breach so that the constitutionally guaranteed **Right to Equality** under **Article 14** would remain secure.
 - This 9-judge bench judgement held that **Article 16(4)** of the Constitution, which allows **reservation** in appointments, **does not extend to promotions**.
 - The carry forward rule is valid but it is subject to **50%**. There should be **no reservation in the promotions**.
 - The court clarified that **Article 16(4)** is not a separate rule that overrides **Article 16(1)**. **Article 16(1)** is a fundamental right and **Article 16(4)** is an **enabling provision**.
 - **Article 16(1)**: It states that there **shall be equality of opportunity** for all citizens in matters relating to employment or appointment to any office under the State.
 - Further, the Court directed to exclude **Creamy Layer** (economically well-off) from **Other Backward Classes (OBCs)** from getting reservation benefits.
 - However, it specifically **excluded SCs and STs from this concept**.
- 85th Amendment Act (2001)**

 - It introduced the concept of **consequential seniority for SC/ST candidates** promoted through reservations. This **applied retroactively to June 1995**.
 - **“Consequential seniority”** refers to the concept of **granting seniority to government servants** belonging to SC and ST in cases of promotion through reservation rules.
- **M. Nagaraj Judgment, 2006:**
 - This judgment partially overturned Indra Sawhney's judgment.

Note:

- It introduced a **conditional extension of the “creamy layer” concept to SC/ST communities seeking promotions in government jobs.**
 - This concept was previously applied only to Other Backward Classes (OBCs).
- Judgment laid down **3 conditions** to allow states to provide reservations in promotions for SCs/STs.
 - **Inadequacy of Representation:** The state must demonstrate SCs/STs are inadequately represented in promotions.
 - **Creamy Layer Exclusion:** Reservation benefits should not extend to the “creamy layer” within SCs/STs.
 - **Maintain Efficiency:** Reservation should not affect overall administrative efficiency.
- **Jarnail Singh vs Union of India, 2018:**
 - In this case, the **SC** reversed its stance on data collection.
 - **States No Longer Need Quantifiable Data:** The SC ruled that states no longer needed to **collect quantifiable data to prove the backwardness of the SC/ST community** when implementing **reservation quotas for promotions.**
 - It allowed the government to implement **“accelerated promotion with consequential seniority”** for SC/ST members more easily.

103rd Constitution (Amendment) Act, 2019:

- It provides for **reservation to EWS** in jobs in central government jobs as well as government educational institutions.
- It was introduced by amending **Articles 15 and 16** and inserted Article 15 (6) and Article 16 (6).
- It was enacted to promote the welfare of the poor not covered by the 50% reservation policy for **Scheduled Castes (SCs), Scheduled Tribes (STs)** and **Socially and Educationally Backward Classes (SEBC).**
- It enables both the Centre and the States to provide reservations to the EWS of society.
- **Janhit Abhyan v. Union of India, 2022:**
 - It challenged the 103rd Constitutional Amendment. In a 3-2 verdict, the Court upheld the amendment.
 - It allowed the **government to provide reservation benefits based on economic standing, alongside existing reservations** for disadvantaged social groups.



Reservation for Economically Weaker Section

Economically Weaker Section (EWS):

- People in the **Unreserved** category having **annual income < 8 LPA**
- **Owning property:** <5 acres (agricultural land); <200 m² (residential land)

EWS Quota:

- Based on the recommendations of **S.R. Sinho Commission (2010)**
- Introduced under the **103rd Constitutional Amendment (2019)** inserting **Articles 15 (6) and 16 (6)**
- Provides **reservation of 10% to EWS** in jobs and admissions in educational institutions
- Both **Centre and States** can provide reservation to the EWS

Supreme Court's Stand on EWS:

- SC **upheld the validity of 103rd Amendment**
- Majority view - EWS quota **doesn't violate Basic Structure** of the Constitution
- Minority view - **Excludes poorest of the poor** among SCs, STs and OBCs



Caste-based Reservation in India:

- **Constitutional Provisions:**
 - Govt. Ed. Institutions - Article 15 - (4), (5), and (6)
 - Govt. Jobs - Article 16 - (4) and (6)
 - Legislatures (State/Union) - Article 334
- **OBC Reservation** - introduced in **Mandal Commission Report (1991)**
- Concept of **Creamy layer** exists only in OBC reservation (and not in SC/ST)
- **Cap** on caste-based reservation - **50%** (in **Indra Sawhney case 1992**)
- First major SC verdict on Reservation - **Champakam Dorairajan case 1951**
 - It led to the **First Amendment in the Constitution** which added **Clause (4)** to Article 15

Note:

Global Initiative on Digital Health

Why in News?

The Department of Economic Affairs (DEA) under the **Ministry of Finance** has not approved of India's contribution of USD 10 million for **Global Initiative on Digital Health (GIDH)**.

What is the Global Initiative on Digital Health (GIDH)?

➤ About:

- The **Global Initiative on Digital Health (GIDH)** is a network of organisations, institutions and government technical agencies engaged in supporting national digital health transformation.
- It is managed by the **World Health Organization (WHO)**.
- Its objectives include to assess and prioritise **needs for sustainable digital health transformation** and to match digital health resources and unfunded priorities.
- **GIDH** was launched during India's **G20 Presidency at the Health Ministers' meeting** in Gujarat in August 2023.
- It became part of the **New Delhi declaration** and **India** promised to make a **USD 10-million** contribution to it as a seed fund. The initiative was formally launched in February 2024.

➤ Components of GIDH: It has four Main Components.

- **Country Needs Tracker:** A mechanism to identify and track the digital health needs of different countries.
- **Country Resource Portal:** A map of available digital health resources within each country.
- **Transformation Toolbox:** A repository of quality-assured digital tools for health transformation.
- **Knowledge Exchange:** Facilitation of knowledge sharing among participating nations.

➤ Similar Initiatives:

- **Presidency Prevention, Preparedness Response (PPR) Financial Intermediary Fund (FIF)** was taken during the G20 Presidency by Indonesian, and **Indonesia had contributed USD 50 million as an initiator of the proposal.**

What is Digital Healthcare?

➤ About:

- **Digital healthcare** is a system of medical care delivery that uses an array of digital technologies to make quality medical care services accessible, affordable, and sustainable.
- The broad scope of digital health includes categories such as mobile health (mHealth), **health information technology (IT)**, wearable devices, telehealth and telemedicine, and personalised medicine.

➤ **Ayushman Bharat Digital Mission:**

- India's **Ayushman Bharat Digital Mission** is working toward creating a seamless electronic health record system.
- It was launched in September 2021 by the Prime Minister.
- It aims to provide **digital health IDs** for all Indian citizens to help hospitals, insurance firms, and **citizens access health records electronically** when required.
- The project is being implemented in the pilot phase in six States & Union Territories.
- The **National Health Authority (NHA)** under the Ministry of Health and Family Welfare will be the implementing Agency.

Greening the Education Sector

Why in News?

Recently, **UNESCO** launched two new tools, the **Greening Curriculum Guidance (GCG)** and the **Green School Quality Standards (GSQS)** under the **Greening Education Partnership**.

What are UNESCO's New Tools for Greening Education?

➤ **Greening Curriculum Guidance (GCG):**

- **Purpose:** Establishes a common understanding of climate education.
- **Scope:** Outlines how countries can integrate environmental topics into curricula.
- **Learning Outcomes:** Provides detailed learning outcomes for age groups from 5 years old to 18+.
- **Teaching Methods:** Emphasizes active learning and hands-on activities.

Note:

➤ Green School Quality Standard (GSQS):

- **Objective:** Sets minimum requirements for creating “green schools” with an action-oriented approach.
- **Governance:** Recommends establishing **green governance committees** including students, teachers, and parents to oversee sustainable management.
- **Teacher Training:** Calls for **comprehensive training for teachers** on environmental issues.
- **Resource Audits:** Advocates for **conducting audits of energy, water, food**, and waste within schools.
- **Community Engagement:** Encourages stronger ties with the wider community to help students address environmental issues at the local level.

What is the Greening Education Partnership?

- **About:** The Greening Education Partnership is a global initiative comprising 80 member states to take a whole-of-system approach to support countries to **tackle the climate crisis** by harnessing the critical role of education.
 - It aims to transform at least **50% of schools, colleges, and universities into Green Schools by 2030**, preparing learners to become climate-ready and active participants in sustainability initiatives
 - It also aims to achieve green national curriculum in 90% countries by 2030.
- **Pillars:** It is structured around **four key pillars** of transformative education aligning with **Sustainable Development Goal (SDG) Target 4.7**
 - Greening schools
 - Greening curriculum
 - Greening teacher training and education systems' capacities
 - Greening communities
- **Need:**
 - **70% of the youth surveyed** in a recent UNESCO study stated they had **limited understanding about climate change** based on what they had learned in school.
 - UNESCO's research on how climate change is integrated in the national curriculum frameworks

of **100 countries** revealed several challenges that need to be addressed.

- Almost **47% of the curricula examined did not feature climate change.**
- **Green School:** According to UNESCO, a Green School is a learning institution committed to **Education for Sustainable Development (ESD)**, with a specific focus on addressing climate change.
 - **Principles of a Green School:**
 - **Holistic Education:** Prioritizing holistic development by nurturing critical thinking, creativity, self-awareness, empathy, and ethical values in learners.
 - It incorporates **personalized and experiential learning, interdisciplinary approaches**, and community engagement to **address climate change challenges** effectively.
 - **Sustainability Practices:** Green Schools implement sustainable practices in areas such as **energy, water use, waste management, canteen and building and school yard design** thus **reducing greenhouse gas emissions** and environmental impact, ensuring the health and well-being of learners and staff.
 - **Sense of Responsibility:** Integrating **Education for Sustainable Development (ESD) into the curriculum** to develop critical thinking, problem-solving skills, and global citizenship among learners.
 - **Alignment with Comprehensive School Safety Framework (CSSF):** The Green school quality standard aligns with CSSF to integrate safety, resilience, and sustainability principles within educational settings.
 - The **Global Alliance for Disaster Risk Reduction and Resilience in the Education Sector (GADRRRES)** launched the **Comprehensive Safe School Framework (CSSF) 2022-2030** on 12th September 2022.

Note:

A climate-ready green learning environment should...

SCHOOL GOVERNANCE	TEACHING AND LEARNING
<p>...entrust the Green Committee to develop a Green School vision and policy and cover 1/3 of suggested activities on</p> <ul style="list-style-type: none"> ▶ Cultivating sustainable practices ▶ Ensuring daily sustainable practices ▶ Resilience and climate proof governance ▶ Establishing a green community 	<p>...develop lesson plans on ESD and climate change education and cover 1/3 of suggested activities on</p> <ul style="list-style-type: none"> ▶ Integrating ESD with an emphasis on climate change in teaching and learning ▶ Fostering meaningful connections beyond the school ▶ Hands-on projects and initiatives ▶ Leadership and capacity building
FACILITIES AND OPERATION	COMMUNITY ENGAGEMENT
<p>...set up a monitoring team and cover 1/3 of suggested activities on</p> <ul style="list-style-type: none"> ▶ Climate education, awareness and training ▶ Developing a climate-friendly infrastructure ▶ Ensuring climate resilience and disaster preparedness ▶ Promoting school safety and educational continuity management ▶ Promoting green procurement and ethical purchasing 	<p>...organize awareness campaigns for the school and the surrounding community and cover 1/3 of suggested activities on</p> <ul style="list-style-type: none"> ▶ Building climate resilience in the community ▶ School's contribution to community resilience to climate change ▶ Local community support for education responses to climate change ▶ General community-based climate awareness

Note: The [National Education Policy 2020](#) underscores the importance of making environmental education an integral part of school curricula at all stages.

What are the Major Challenges in Greening the Education Sector in India?

- **Lack of Comprehensive Sustainability Policies:** While there have been some initiatives to promote sustainability in education, **India lacks a comprehensive national policy framework** that mandates and guides the integration of environmental sustainability principles across all levels of education.
- **Infrastructure Deficiencies:** Many educational institutions in India, particularly in rural and semi-urban areas, **lack basic infrastructure facilities**, making it challenging to implement sustainable practices.
- **Limited Integration of Sustainability in Curricula:** While environmental studies are part of the curriculum in many Indian schools and colleges, the **integration of broader sustainability concepts and practices** into mainstream disciplines remains limited.
- **Inadequate Teacher Training and Professional Development:** Effective integration of sustainability education requires teachers to be well-versed in the **principles, pedagogies, and practical applications** of environmental sustainability.
 - However, many teacher education programs lack comprehensive training modules or resources to equip educators with the necessary knowledge and skills.
- **Limited Availability of [Green Building Materials](#) and Technologies:** India's construction industry is still in the **process of transitioning towards sustainable building materials and technologies**.
 - The limited availability and higher costs of green building materials, renewable energy systems, and water-efficient fixtures can **impede the adoption of sustainable practices in educational institutions**, particularly in remote and rural areas.

Note:



First All-India Survey on AYUSH

Why in News?

Recently, the **Ministry of Statistics and Programme Implementation (MoSPI)** released the findings of a national survey on **Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy (AYUSH)** systems of medicine.

What are the Highlights of the Survey?

➤ About:

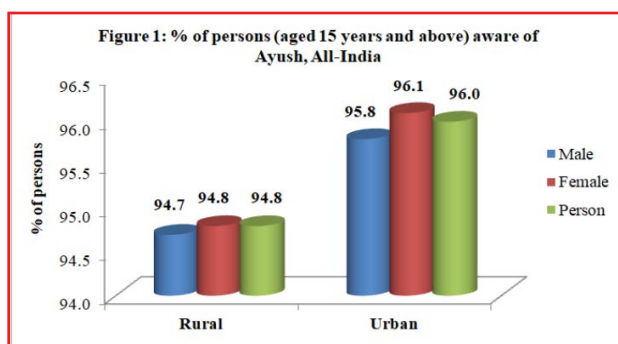
- This is the first-ever all-India AYUSH survey conducted by the **National Sample Survey Office (NSSO)** from July 2022 to June 2023, that provides valuable insights into the utilisation patterns of these traditional healthcare practices within the Indian population.
- This survey covered the entire Indian Union, excluding a few inaccessible villages in the **Andaman & Nicobar Islands**.

➤ Objectives: To collect information on:

- **Awareness** of people about the traditional system of healthcare (AYUSH system of medicine).
- **Uses of AYUSH** for prevention or treatment of ailments.
- Awareness of the households about home remedies, medicinal plants, local health tradition/ folk medicine.
- Gathering information on household expenditure for treatments using AYUSH medicine systems.

➤ Key Findings:

- **Awareness of AYUSH:**



- In **rural India**, around **95% of males and females** (aged 15 and above) are knowledgeable about AYUSH, while in **urban areas** the awareness rate is around **96%**.

- About **79% of households in rural India** and about **80% in urban India** have at least one member aware about **medicinal plants and home medicines**.

- Around **24%** of the households (in both rural and urban India) have at least one member aware about **folk medicine or local health tradition**.

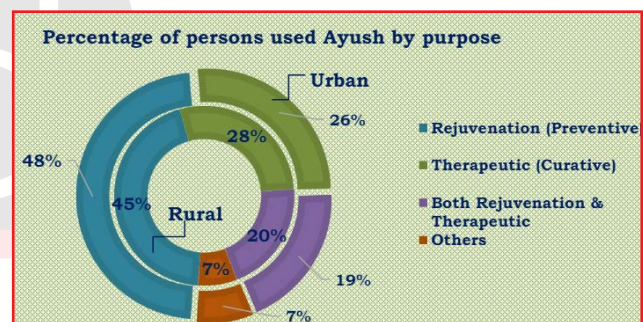
○ Use of AYUSH:

- Around **53% of people in urban areas** and **46% in rural areas** have used AYUSH for prevention or treatment of ailments, during the last 365 days.

○ Expenditure Incurred for Availing Treatment of AYUSH:

- The average expenditure per person for prevention or treatment of ailments using AYUSH stood at **Rs. 574/person in urban areas** and **Rs. 472/person in rural areas**.

○ Use of AYUSH System by Purpose:



○ Practice of Yoga:

- In around **1.1 crore households in rural India** and around **1.4 crore in urban India**, at least **one member** of the household is found to **practice yoga regularly**.

AYUSH

➤ AYUSH is the acronym of the medical systems that are being practised in India such as:

- **Ayurveda:** Ancient system emphasising holistic well-being.
- **Yoga:** Union of body, mind, and spirit through physical postures and meditation.
- **Naturopathy:** Natural healing using elements like water, air, and diet.
- **Unani:** Balance restoration through herbal medicines and humoral theory.
- **Siddha:** Traditional Tamil medicine with roots in five elements and humours.

Note:

- **Homoeopathy:** Highly diluted remedies stimulating self-healing responses.
- These systems are based on **definite medical philosophies** and represent a way of **healthy living with established concepts** on **prevention of diseases** and promotion of health.

- The Ministry of AYUSH, is responsible for developing education, research and propagation of AYUSH in India.

AYUSH Systems of Medicine

AYUSH encompasses Ayurveda, Yoga & Naturopathy, Unani, Siddha, Sowa Rigpa, and Homeopathy, with Ayurveda having a documented history of 5000+ years.

Ayurveda

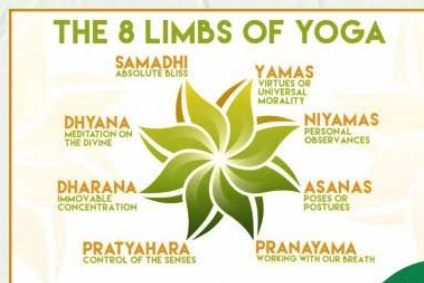
- ⌚ **Samhita Period (1000 BC):**
Emerged as mature medical system
 - ⌚ **Charaka Samhita:** Oldest and most authoritative text
 - ⌚ **Sushruta Samhita:** Gives fundamental principles and therapeutic methods in eight specialties
- ⌚ **Main Schools:**
 - ⌚ **Punarvasu Atreya** - School of physicians
 - ⌚ **Divodasa Dhanvantari** - School of surgeons

Lord Brahma is believed to be the 1st proponent of Ayurveda

Branches of Ayurveda:

- | | |
|--|--|
| ■ Kayachikitsa (internal medicine) | ■ Agada Tantra (toxicology) |
| ■ Shalya Tantra (surgery) | ■ Bhootavidya (psychiatry) |
| ■ Shalakyata Tantra (disease of supra-clavicular origin) | ■ Rasayana Tantra (rejuvenation and geriatrics) |
| ■ Kaumarabhritya (paediatrics) | ■ Vajikarana (eugenics & science of aphrodisiac) |

Yoga & Naturopathy



- ⌚ **Naturopathy:** Healing with help of 5 natural elements - Earth, Water, Air, Fire and Ether
 - ⌚ Based on theories of self-healing capacity of body and principles of healthy living
 - ⌚ Encourages a **person-centred approach** rather than disease-centred

Yoga first propounded by Maharishi Patanjali in systematic form Yogsutra

Unani

Pioneered in Greece, developed by Arabs as 7 principles (Umoor-e-Tabbiya)

- ⌚ Based on the framework of teachings of **Buqrat** (Hippocrates) and **Jalinoos** (Galen)
 - ⌚ Hippocratic theory of **four humors** viz. blood, phlegm, yellow bile, and black bile
- ⌚ **Recognised by WHO** and granted official status by India as an alternative health system

Siddha

Dates back to 10000 – 4000 BC; Siddhar Agasthiyar - Father of Siddha Medicine

- ⌚ Preventive, promotive, curative, rejuvenative, and rehabilitative health care
- ⌚ **4 Components:** Latro-chemistry, Medical practice, Yogic practice & Wisdom
- ⌚ Diagnosis based on 3 humors (**Mukkutram**) and 8 vital tests (**Ennvagai Thervu**)

Sowa Rigpa

Origin: Lord Buddha in India before 2500 years

- ⌚ Traditional medicine in Himalayan regions of Ladakh, Himachal Pradesh, Arunachal Pradesh, etc.
- ⌚ Recognised in India by Indian Medicine Central Council Act, 1970 (As amended in 2010)

Homeopathy

German physician Dr. Christian F. S. Hahnemann codified its fundamental principles

- ⌚ Medicines prepared mainly from natural substances (plant products, minerals, animal sources)
- ⌚ Brought in India by European missionaries - 1810; official recognition - 1948
- ⌚ **3 Key Principles:**
 - ⌚ **Similia Similibus Curentur** (let likes be cured by likes)
 - ⌚ Single Medicine
 - ⌚ Minimum Dose

What are the Government Schemes Related to Promotion of AYUSH in India?

- **Centrally Sponsored Schemes:**
 - **National Ayush Mission:**
 - It was launched in 2014 to promote the traditional and cost-effective AYUSH system of medicine in India.
 - It focuses on strengthening infrastructure development, promoting education and research, manpower augmentation, and quality control in AYUSH.
- **Central Sector Schemes:**
 - **Ayur Gyan:**
 - The scheme aims to promote education, research, and innovation in Ayush and has been approved for the period from FY 2021-22 to FY 2025-26.
 - It involves 2 components: **Capacity Building and Continuing Medical Education (CME)** in AYUSH to provide training and bridge knowledge gaps for AYUSH professionals and **Research & Innovation in AYUSH** to support research in AYUSH systems, focusing on priority areas aligned with national health programs.
 - **AYURSWASTHYA:**
 - The AYURSWASTHYA Yojana's Centre of Excellence program grants money to organisations and institutes working in AYUSH. This funding helps them improve their facilities, research, and overall operations.
 - **Champion Service Sector Scheme:**
 - It aims to boost medical tourism in India. It goes beyond just promoting traditional medicine systems like Ayurveda and Yoga.
 - The scheme also aims to attract a surge of international patients, tourists, and visitors seeking these unique healthcare options in India.
 - **Promotion of International Cooperation in AYUSH:**
 - It aims to promote and strengthen awareness and interest about AYUSH Systems of Medicine and to facilitate International promotion, development and recognition of AYUSH.
 - **Ayush Oushadhi Gunvatta Evam Utpadan Samvardhan Yojana:**
 - It aims to upgrade AYUSH medicine quality and manufacturing in India making them safer, more trusted, and potentially exported worldwide.

Conservation, Development, and Sustainable Management of Medicinal Plants:

- It aims at promotion, cultivation and preservation of medicinal plants.
- The **National Medicinal Plant Board** set up by the Ministry of AYUSH aims to support the growth and cultivation of medicinal plants and to coordinate development efforts across different ministries, departments, and organisations.

Other Schemes Related to AYUSH

- [New Portals on AYUSH Sector](#)
- [AYUSH Entrepreneurship Programme](#)
- [AYUSH Wellness Centers](#)
- [ACCR Portal and AYUSH Sanjivani App](#)
- [AYUSH Holistic Wellness Centre \(AYUSH HWC\)](#)

Child Food Poverty

Why in News?

A recent **UNICEF** report titled 'Child Food Poverty: Nutrition Deprivation in Early Childhood' examines the status, trends, inequities and drivers of child food poverty in early childhood.

What are the Key Findings of the Report?

- Approximately **181 million children under the age of 5 years** are living in severe child food poverty globally, which accounts for **one in four children** in this age group.
 - According to UNICEF global databases, **2023, in India, 40% of children are living in severe child food poverty.**
- Progress in addressing severe **child food poverty** is slow overall, but some regions and countries are demonstrating that progress is possible.
- Severe child food poverty affects children from **both poor and non-poor households**, indicating that household income is not the sole factor driving this issue.
- Children living in severe child food poverty **lack access to nutrient-rich foods** and are increasingly consuming unhealthy foods.
- The global food and nutrition crisis, as well as **localised conflicts and climatic shocks**, are intensifying severe child food poverty, particularly in fragile countries.

Note:

- In vulnerable communities in the **Democratic Republic of the Congo and Somalia**, more than 80% of parents reported that their child had been **unable to eat for an entire day** because of a lack of money or other resources.
- Severe child food poverty is a significant driver of **child undernutrition**.
- The prevalence of severe child food poverty being **three times higher** in countries with a high prevalence of **child stunting**.

What is Child Food Poverty?

- **Definition:**
 - **UNICEF** defines child food poverty as **children's inability to access and consume a nutritious and diverse diet in early childhood (under 5 years old)**.
 - The term **Child Food poverty** or Child malnutrition covers two broad groups of conditions:
 - One is '**Child Undernutrition**'—which includes
 - **Child Stunting** (low height for age),
 - **Child Wasting** (low weight for height),
 - **Underweight** (low weight for age) and
 - **Micronutrient deficiencies** or insufficiencies (a lack of important vitamins and minerals).
 - The other is **Child Overweight**, obesity and diet-related eating habits.
 - **Childhood overweight** occurs when children's calorie intake from food and beverages exceeds their energy requirements.

Child food poverty is measured using the UNICEF and World Health Organization (WHO) dietary diversity score. To meet the *minimum dietary diversity* for healthy growth and development, children need to consume foods from **at least five out of the eight** defined food groups.

If children are fed:	0–2 food groups/day they are living in severe child food poverty	3–4 food groups/day they are living in moderate child food poverty	5 or more food groups/day they are not living in child food poverty
			
Breastmilk	Grains, roots, tubers and plantains	Pulses, nuts and seeds	Dairy products
			
			Flesh foods (meat, poultry and fish)
			
			Eggs
			
			Vitamin A-rich fruits and vegetables
			
			Other fruits and vegetables

Note: Hidden hunger, also known as micronutrient deficiency, is a **form of undernutrition that occurs when people do not have sufficient intake of essential vitamins and minerals** in their diets.

What are the Key Drivers of Child Food Poverty?

- **Poor Food Environments:**
 - **Disruptions in Rural Areas:** Adverse weather, climate shocks, insecurity, or poor infrastructure are **disrupting food production and access** in rural and remote areas.
 - Example: **Droughts and floods** in **African countries like Somalia**, have disrupted food production, limiting access to diverse and healthy foods for children in those regions.
 - **The overabundance of Unhealthy Options:** Globally, shops and markets in urban areas are **flooded with ultra-processed foods** (low in nutrients, high in unhealthy fats, sugar, and salt) that are **aggressively marketed** and often cheaper than healthier alternatives.

Note:



- **Poor Feeding Practices in Early Childhood:**
 - **Generational Knowledge Gaps:** Inaccurate information and lack of proper guidance on **child feeding practices** are being passed down through generations, leading to inadequate diets for young children.
 - **Gender Inequality:** Discriminatory gender norms in some countries are limiting **women's access to information and income**, hindering their ability to make informed decisions about their children's diets.
- **Household Income Poverty:**
 - **Unaffordability of Nutritious Foods:** Nutritious foods, especially animal-source proteins (eggs, meat, fish) and fruits and vegetables, are often more expensive than staple foods. This makes it **difficult for low-income families to afford** a balanced diet for their children.
 - **Example:** Rising food prices due to **inflation can push nutritious foods further out of reach** for families living in poverty, forcing them to prioritise filling stomachs with less-nutritious options.
- **Failing Food and Health Systems:**
 - Food Systems are failing to provide **affordable, diverse, and nutritious food options** for families and children.
 - **Lack of access to adequate information**, counselling, and support on child feeding within healthcare systems hinders families' ability to make informed choices.
 - Further, **insufficient social safety nets** leave vulnerable children exposed to malnutrition, especially in times of economic hardship.

What are the Impacts of the Child Food Poverty?

- **Impaired Growth and Development:**
 - **Physical Growth:** Malnutrition, particularly undernutrition, can lead to stunting. Stunted growth has **long-term implications** for muscle and bone development, impacting overall physical health and stature.
 - **Cognitive Development:** Undernourished children often experience **deficiencies in essential nutrients** crucial for brain development. This can lead to impaired cognitive function, reduced learning capacity, and lower educational attainment.

- **Weakened Immune System:**
 - Malnutrition weakens the immune system, making children more susceptible to infectious diseases like **diarrhoea, pneumonia, and measles**. These illnesses can further worsen nutritional status, creating a vicious cycle.
 - Severe malnutrition can lead to **increased mortality in children**, particularly in the first five years of life.
- **Long-Term Health Issues:**
 - **Chronic Diseases:** Childhood malnutrition has been linked to an increased risk of developing chronic diseases like diabetes, heart disease, and certain cancers later in life. This can place a significant burden on healthcare systems in the long run.
 - **Reduced Productivity:** The cognitive and physical limitations caused by malnutrition can hinder a child's ability to reach their full potential as adults. This can translate to **lower productivity in the workforce** and **reduced economic opportunities**.
- **Perpetuating the Cycle of Poverty:**
 - Children who experience malnutrition often come from **impoverished backgrounds**. The negative impacts on their **health, development, and education** can limit their ability to escape poverty, trapping them and future generations in a vicious cycle.

What can be done Towards Ending Severe Child Food Poverty Globally?

- **Making Policy-Based Targets:**
 - **Child food poverty elimination** should be seen as a **policy imperative** with time-bound targets and results in relevant sectoral and multisectoral plans.
- **Transforming Food Systems:**
 - **Focus on Accessibility:** Making nutritious foods readily available especially to **vulnerable sections of population** communities is crucial. This includes:
 - **Supporting small-scale farmers** through grants and training to **increase the production** of nutrient-rich crops.
 - Investing in **infrastructure like storage facilities and transportation networks** to reduce food waste and ensure year-round access to diverse food groups, especially in remote areas.
 - **Affordability:** High food prices are a major barrier. Initiatives like **targeted food subsidies for low-income families**, school feeding programs, and price stabilization measures can help bridge this gap.

Note:

➤ **Regulating the Food Industry:**

- **Curbing Unhealthy Marketing:** Restricting the marketing of unhealthy foods and beverages targeted towards children is critical.
 - This can involve implementing regulations on advertising content, placement (for example, near schools), and **age restrictions**.
- **Promoting Transparency:** Promoting transparency in food labelling allows families to make informed choices. Clear labelling systems highlighting **nutritional content, including sugar, salt, and unhealthy fats**, can empower consumers.

➤ **Strengthening Health Systems:**

- **Early Childhood Nutrition Services:** Integrating nutrition counselling and support into existing healthcare services like prenatal care and well-child visits is vital.
 - Healthcare professionals can offer guidance on appropriate infant and **young child feeding practices** to optimise nutrient intake.
- **Community Outreach:** Nutrition education programs for families can raise awareness about the importance of a **balanced diet for child development**.

- **Social Safety Nets:** Strengthening social safety nets that provide income support to vulnerable families can improve their ability to afford nutritious food.

➤ **Data and Monitoring:**

- **Improved Data Collection:** Investing in robust data collection systems is crucial to accurately **assess the prevalence and severity** of child food poverty across different regions and demographics.
 - This allows for **targeted interventions** and **tracks progress** towards achieving national and global goals.
- **Early Detection:** Early detection of rising child food poverty, especially in **fragile and humanitarian contexts**, allows for timely responses and resource allocation to prevent further worsening of the situation.

What are the Indian Initiatives Related to Child Food Poverty?

- [Mid-day Meal \(MDM\) scheme](#)
- [POSHAN Abhiyaan](#)
- [The National Food Security Act \(NFSA\), 2013,](#)
- [Pradhan Mantri Matru Vandana Yojana \(PMMVY\)](#)
- [Integrated Child Development Services \(ICDS\) Scheme](#)

Note:

Science & Technology

Highlights

- Bio-Bitumen
- Pushpak, ISRO's Reusable Launch Vehicle
- New Freshwater Diatom Genus Discovered
- Developments in HIV Vaccine Research

Bio-Bitumen

Why in News?

Recently, India has embarked on plans to initiate large-scale production of bio-bitumen from **biomass** or agricultural waste.

What is Bio-Bitumen?

➤ About:

- Bio-bitumen is a **bio-based binder** derived from renewable sources like vegetable oils, crop stubble, algae, lignin (a component of wood), or even animal manure.

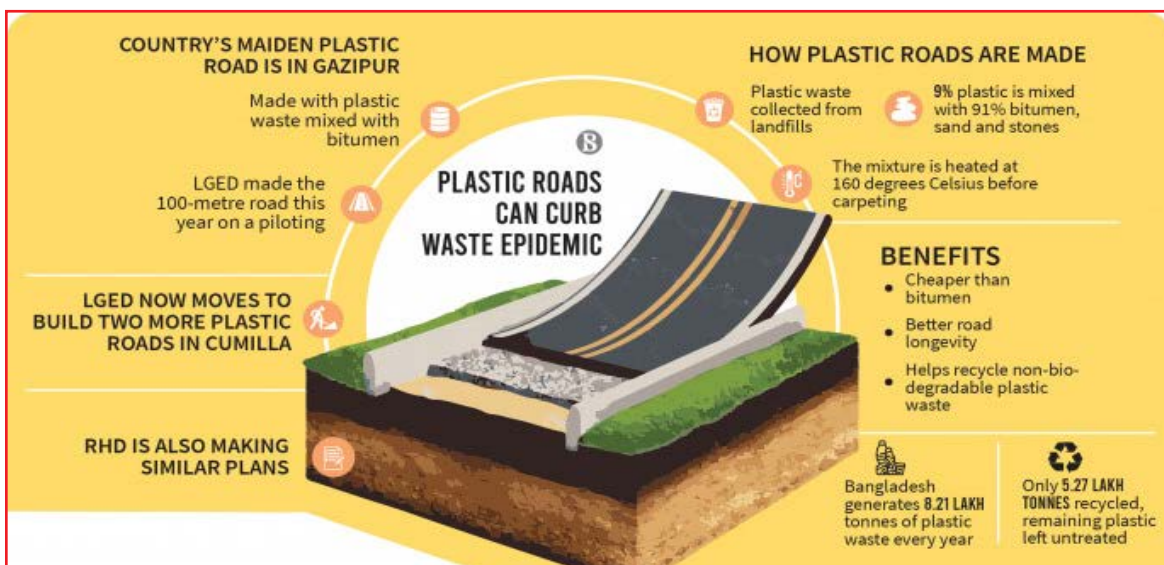
- **Origin and Production:** Bitumen is primarily derived from the **distillation of crude oil**. During refining, the heavier bitumen remains after lighter components like **gasoline** and **diesel** are removed. It can also naturally occur in deposits, such as in oil sands.

➤ Properties and Uses of Bitumen:

- It is known for its **waterproofing** and **adhesive properties** and is extensively used in **road construction (asphalt paving)** and waterproofing applications in buildings and marine structures.

➤ Bio-bitumen can be Used in Various Ways:

- **Direct Replacement:** Completely replacing petroleum bitumen with bio-binder in asphalt.
- **Modifier:** Adding bio-materials to traditional bitumen to improve its properties.
- **Rejuvenator:** Restoring the elasticity and functionality of aged asphalt pavements.



Note:

- **Current Bitumen Scenario in India:**
 - **Import Dependency:** India currently imports **approximately half** of its annual bitumen requirement, amounting to 3.21 million tonnes in the fiscal year 2023-24.
 - **Domestic Production:** Indigenous bitumen production stood at 5.24 million tonnes during the same period.
 - **Increasing Consumption:** Bitumen consumption has **risen steadily**, averaging 7.7 million tonnes annually over the past five years.
 - Construction of **national highways (NH)** touched around **12,300 km in 2023-24** which is almost 34 km per day.
- **Objectives of Bio-Bitumen Production Initiative:**
 - **Reducing Import Dependency:** The primary objective is to **replace imported bitumen** with domestically produced bio-bitumen over the next decade, thereby reducing foreign exchange expenditure.
 - **Addressing Environmental Concerns:** Bio-bitumen production aims to **mitigate environmental issues** associated with stubble burning by utilising biomass and agricultural waste as feedstocks.
 - **Promoting Sustainable Practices:** By leveraging bio-based materials, the initiative supports sustainable **road construction practices** and aligns with global environmental standards.
 - **Technological Development and Pilot Study:** The **Central Road Research Institute (CRRI)** is collaborating with the Indian Institute of Petroleum to conduct a pilot study on a 1-km road stretch using bio-bitumen.
- **Challenges:**
 - **Cost-Effectiveness:** Currently, bio-bitumen production can be **more expensive** than traditional methods.
 - **Long-Term Performance:** More extensive field trials are needed to assess the **long-term performance** and durability of bio-asphalt compared to traditional pavements.
 - **Standardisation:** Establishing **clear standards and specifications** for bio-bitumen is necessary for its wider adoption in the construction industry.

Other Innovation Methods in Road Construction

- **Steel slag road technology** is a novel method of using steel slag, the waste generated during steel production, to build more robust and more durable roads.
 - For example, **Steel Slag Road technology was first used in Surat.**
- In Hamburg, Germany, companies developed **100% recycled asphalt pavement (RAP)** to meet reduce costs, save energy, and lower carbon emissions.
- India has built more than 2,500 km of **plastic roads** and globally too, **plastic roads** are proliferating in more than 15 countries.
 - For example, it is mandatory to make use of at **least 10% of plastic waste for road construction in Ladakh.**

Pushpak, ISRO's Reusable Launch Vehicle

Why in News?

Recently, the **Indian Space Research Organisation (ISRO)** successfully completed the third and final **Reusable Launch Vehicle Landing Experiment (RLV LEX-03)** for the **Pushpak vehicle**.

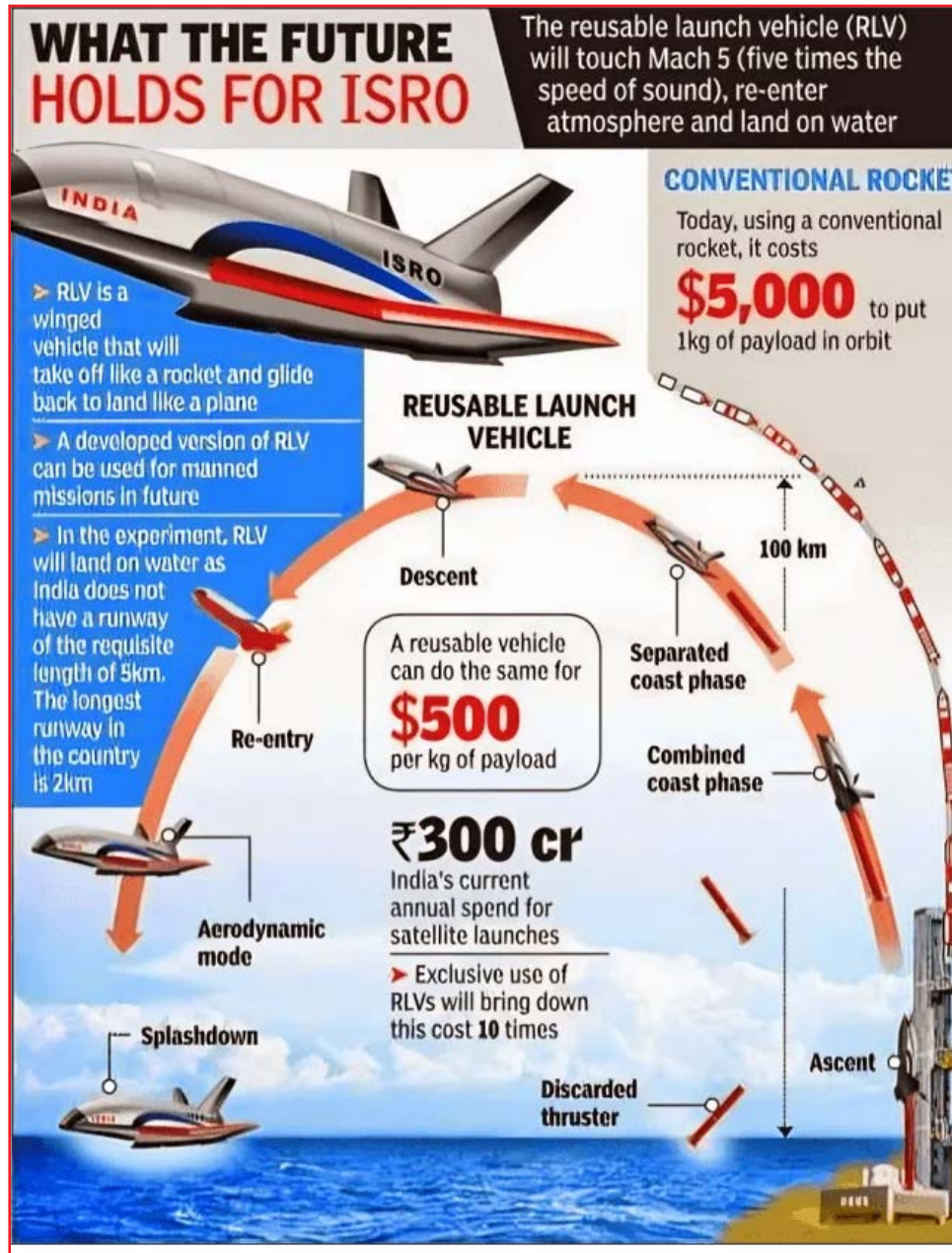
- This demonstrated the autonomous landing capability of the RLV under more challenging release conditions and severe wind conditions.

What is RLV LEX-03 Mission?

- **About:**
 - During the RLV LEX-03 mission, the **Pushpak vehicle** was released from an **Indian Air Force Chinook helicopter** at an altitude of 4.5 km.
 - From this point, the winged vehicle autonomously executed cross-range correction manoeuvres approached the runway and performed a precise horizontal landing at the runway centerline.
 - The high-speed landing, exceeding 320 km/h, was successfully slowed to around 100 km/h using the vehicle's brake parachute and landing gear brakes.
- **Technologies and Capabilities Demonstrated:**
 - **Precise Landing:** LEX-03 used multisensor fusion to guide the vehicle for a controlled landing.

Note:

- **Autonomous Flight:** The Pushpak vehicle demonstrated its ability to land itself, including correcting its course during descent.
- **Reusable Design:** The mission reused key parts from a previous flight, highlighting the cost-saving potential of RLVs.
- **Significance:**
 - This mission simulated the **approach and landing interface**, as well as the **high-speed landing conditions**, for a vehicle returning from space.
 - It validated **ISRO's advanced guidance algorithm** for longitudinal and lateral error corrections, which is essential for future **Orbital Re-entry Missions**.
 - By testing key technologies like autonomous landing and reusable parts, it paves the way for a fully reusable launch vehicle. This could **cut launch costs** and make **space missions more efficient**.



Note:

What are Reusable Launch Vehicles?

- **About:**
 - **Reusable launch vehicles (RLVs)** are **rockets** that can be **used multiple times** for space missions, unlike **traditional expendable rockets** where **each stage is discarded after use**.
- **Different from Multi-Stage Rocket:**
 - In a typical multi-stage rocket, the **first stage is jettisoned** (discarded to lighten the load) after its fuel is consumed, while the **remaining stages continue to propel the payload into orbit**.
 - **RLVs recover and reuse the first stage**. After detaching from the upper stages, the first stage uses engines or parachutes to descend and land back on Earth.
 - It can then be **refurbished** for future launches, significantly **reducing costs**.
- **Space Agencies Currently Using or Developing RLVs.**
 - **SpaceX (USA): Falcon 9**, with over 220 launches, 178 landings, and 155 re-flights as of May 2023.
 - **Blue Origin (USA): New Shepard** performs suborbital flights and lands vertically.
 - **JAXA (Japan) and ESA (Europe):** Researching reusable launch systems to reduce space access costs.
 - **ISRO (India):** Developed the Reusable Launch Vehicle-Technology Demonstration (RLV-TD) and conducted a successful landing.

New Freshwater Diatom Genus Discovered

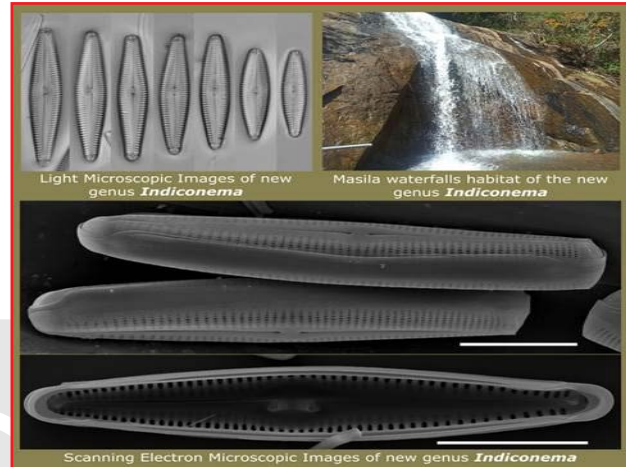
Why in News?

Recently, scientists have discovered a new genus of freshwater **diatom** - **Indiconema**, a microscopic algae crucial to life, in the clean rivers of the **Eastern** and **Western Ghats**.

What are the Key Features of Indiconema?

- It has been named **Indiconema** to value its restricted distribution in the country.
- This genus features unique **valve symmetry** and a **distinct valve structure**, differing significantly from other members in the Gomphonemoid group.
- It has **pore fields** at both the head and foot poles, unlike others that have them only at the foot pole.

- **Indiconema** was found in both the Eastern and Western Ghats, reflecting the shared **endemic elements** between these mountain systems seen in other **endemic-rich groups** such as **reptiles**.
- Morphological features suggest that **Indiconema** is closely related to **Afrocybella**, a genus endemic to **East Africa**, highlighting biogeographic connections between Indian and East African **diatom species**.



What are Diatoms?

- Diatoms are **microscopic algae** producing 25% of the **global oxygen supply**, forming a critical base of the **aquatic food chain**.
 - They are **sensitive indicators** of aquatic health due to their responsiveness to changes in water chemistry.
- **Diatoms are the first recorded microorganisms in India**, with Ehrenberg's (a German naturalist and zoologist) first report dating back to 1845 in his publication *Mikrogeologie*.
 - India hosts approximately 6,500 diatom taxa, with about **30% being endemic**, reflecting the country's unique biodiversity.
- **Diverse biogeographic zones** in India support various diatom species across different habitats, including freshwater, marine environments, and high mountain regions.
- The **evolution of monsoons** and the resulting **rainforest biome** in the Indian Peninsula has significantly influenced diatom flora.
 - The unique **physiographic** and **climatic gradients** of the Eastern and Western Ghats provide a wide array of habitats for distinct diatom species.

Note:

Microalgae	Macroalgae
Unicellular	Multicellular
Need a microscope to see	Can see without a microscope
Dinoflagellates, diatoms, golden-brown, blue-green	Red, green, or brown in color
Referred to as phytoplankton	Referred to as seaweed
Larger population	Smaller population
Superior food source for the soil microbiome	Provides abiotic plant stress mitigation benefits
Improves crop yield and soil health	Improves crop yield

Microorganisms	Characteristics	Beneficial roles
Prokaryotes		
Bacteria	Rigid cell wall, divided by binary fission, some capable of photosynthesis	Recycle biomass, control atmospheric composition, component of phytoplankton and soil microbial populations
Archaea	Rigid cell wall, unusual membrane structure, photosynthetic membrane, lack chlorophyll	Produce and consume low molecular weight compounds, aid bacteria in recycling dead biomass, some are extremophiles
Eukaryotes		
Fungi	Rigid cell wall, single-cell form (yeast), reproducing by budding, multicellular form (hyphae, mycelium), no photosynthetic members	Recycling biomass, stimulate plant growth
Algae	Rigid cell wall, photosynthetic	Important component of phytoplankton

Developments in HIV Vaccine Research

Why in News?

Despite 4 decades of effort, traditional vaccine approaches have been unable to prevent HIV acquisition **because the virus mutates rapidly and hides from the immune system.**

- Experts believe that more sophisticated vaccine strategies will be necessary and that the research and development process will take some more time.

What is the Traditional Vaccine Approach against HIV?

- **About:**
 - It refers to the development of vaccines that

aim to prevent infection from the **human immunodeficiency virus (HIV)** using **conventional methods** such as **inactivated or weakened forms of the virus, viral subunits, or other components that elicit an immune response.**

- These approaches typically involve **stimulating the body's immune system to recognize and attack HIV**, thus preventing infection or reducing the severity of the disease.
 - It teaches the body to fight off new invaders.
- **Failure of Traditional Vaccine Approach Against HIV:** This approach has failed for HIV due to the following reasons.
 - **Lack of Natural Self-Defence in Body:** Unlike other viruses, most of the human bodies don't build good defences against **HIV** on their own.

Note:

- **Rapid mutation:** HIV has parts that mutate often, like a **shape-shifter**. Vaccines target these parts, but by the time the vaccine is ready, the **virus has already changed its shape**.
- **Extreme viral diversity:** HIV has a vast pool of circulating variants, making it difficult to target all strains.
- **Complex immune response:** A successful vaccine needs to stimulate both antibody and cellular immune responses against a rapidly changing virus.

What is the Progress in the Development of Effective HIV Vaccines?

- **Broadly Neutralising Antibodies (bNAbs):** It is a kind of **antibody**, which could neutralise a large number of circulating viral strains.
- **Germline Targeting Approach:** It uses a **series of vaccines to encourage the development and multiplication of specialised precursor B cells** that have the **make bNAbs**.
 - It **identifies and** matures **B-cells** into bNAb-producing cells against HIV to neutralise a wide range of HIV strains.
- Other Vaccines:
 - **N332-GT5 Immunogen:** To **train B cells** to produce a different powerful antibody called BG18.
 - **MPER-Targeting Vaccine:** It targets a more stable region of the HIV envelope that doesn't mutate as frequently.

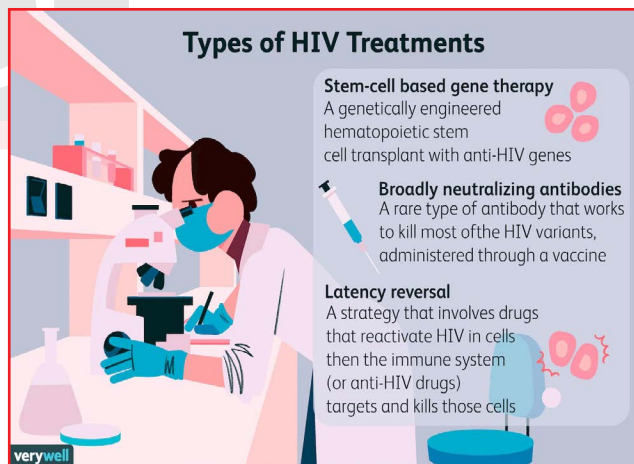
HIV (Human Immunodeficiency Virus)

- **HIV/AIDS is a chronic and potentially life-threatening condition** caused by the **human immunodeficiency virus (HIV)** which targets the immune system, making individuals more susceptible to infections and diseases
- **HIV attacks CD4, a type of White Blood Cell (T cells)** in the body's immune system.

- T cells are those cells that move around the body detecting anomalies and infections in cells.
- After entering the body, **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.
- **Related Initiatives:** The **HIV & AIDS Prevention and Control Act, 2017**, **Project Sunrise, 90-90-90**, The Red Ribbon, **Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM)**.

Prevalence of HIV-AIDS

- It is estimated that globally **39 million persons** are living with HIV (Human Immunodeficiency Virus). In **India** the figure is **2.4 million**.
- There were **1.3 million new HIV infections in 2022 globally** and 63,000 in India.
 - In 2022, 650,000 persons died due to these conditions globally. In **India, AIDS caused 42,000 deaths**. Many of these opportunistic infections are preventable and treatable.



Read more: [ART's Intervention in HIV/AIDS Treatment](#), [Human Immunodeficiency Virus](#), [UNAIDS Report: Progress & Challenges in HIV/AIDS Fight](#)



Note:

Environment and Ecology

Highlights

- Rhisotope Project
- Pink Flamingos
- Bonn Climate Conference 2024
- Great Nicobar Island Project Conundrum
- SWM Cess on Waste Generators
- Cheetahs in Gandhi Sagar Wildlife Sanctuary
- World Crocodile Day 2024
- Environmental Performance Index 2024
- E-flow Monitoring System

Rhisotope Project

Why in News?

Recently, South African scientists injected **radioactive material** into live **rhinoceros** horns to make them easier to detect at **border posts** in a pioneering project aimed at **curbing poaching**.

What is the Rhisotope Project?

➤ About:











- The Rhisotope Project commenced in 2021 and involves **administering measured quantities** of radioisotopes into the **horns of live rhinos**.
- Under the project “two tiny little radioactive chips” were inserted into the horn of a rhinoceros.
 - The radioisotopes make the horn “**useless**” and “**poisonous** for human consumption.”
 - The project’s final phase includes **aftercare and follow-up blood samples** to ensure the animals are protected, with the radioactive material lasting five years on the horn, proving **more cost-effective** than dehorning every 18 months.
- This project aims to use nuclear science in a **novel way for conservation**.
- This **non-lethal** yet powerful solution aims to radically reduce the demand from end-users and save rhinos from the very real **threat of extinction**.

➤ Impact:

- The procedure, performed on sedated rhinoceroses, is safe for the animals, with a radiation dose low enough not to affect their health or the environment.
- Radioactively treated horns are more likely to be **detected at international borders**, making it more likely that **smuggling syndicates** are exposed, prosecuted and convicted under **anti-terrorism laws**.

➤ Need:

- Rhinoceros horns are **highly valuable on black markets**, with prices comparable to gold and cocaine.

 <p>WHITE RHINO <i>Ceratotherium simum</i></p>  <p>IUCN Estimated Population: 16,803 DECREASING</p> <p>IUCN Status: NEAR THREATENED</p>	 <p>GREATER ONE-HORNED RHINO <i>Rhinoceros unicornis</i></p>  <p>IUCN Estimated Population: 4,014 INCREASING</p> <p>IUCN Status: VULNERABLE</p>	 <p>BLACK RHINO <i>Diceros bicornis</i></p>  <p>IUCN Estimated Population: 6,487 INCREASING</p> <p>IUCN Status: CRITICALLY ENDANGERED</p>	 <p>JAVAN RHINO <i>Rhinoceros sondaicus</i></p>  <p>IUCN Estimated Population: 76* STABLE</p> <p><small>*Indonesia's Ministry of Environment and Forestry has reported that 12 of these individuals may be missing.</small></p> <p>IUCN Status: CRITICALLY ENDANGERED</p>	 <p>SUMATRAN RHINO <i>Dicerorhinus sumatrensis</i></p>  <p>IUCN Estimated Population: 34-47 DECREASING</p> <p>IUCN Status: CRITICALLY ENDANGERED</p>
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Note:



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- Previous anti-poaching strategies like **dehorning and poisoning horns** have failed to deter poachers.
- Despite government efforts, **499 rhinoceroses were killed in 2023, an 11% increase from 2022**, primarily in state-run parks.

Legal Frameworks for Wildlife Conservation

- **Global Wildlife Conservation Efforts to which India is a Party:**
 - [Convention on International Trade in Endangered Species of Wild Fauna and Flora \(CITES\)](#)
 - [Convention on the Conservation of Migratory Species of Wild Animals \(CMS\)](#)
 - [Convention on Biological Diversity \(CBD\)](#)
 - [The Wildlife Trade Monitoring Network \(TRAFFIC\)](#)
 - [United Nations Forum on Forests \(UNFF\)](#)
 - [International Union for Conservation of Nature \(IUCN\)](#)
 - [Global Tiger Forum \(GTF\)](#)
- **Domestic Framework:**
 - [Wildlife \(Protection\) Act, 1972](#)
 - [Environment Protection Act, 1986](#)
 - [The Biological Diversity Act, 2002](#)
- **Conservation Efforts Specifically for Rhinos:**
 - [New Delhi Declaration on Asian Rhinos](#)
 - [DNA Profiles of all Rhinos](#)
 - [National Rhino Conservation Strategy](#)
 - [Indian Rhino Vision 2020](#)
 - **Translocation:** Rhino translocations to **Manas National Park** set for the beginning of 2023 were rescheduled for 2024 while security measures were reinforced after a poached rhino was discovered in January.
 - **Rhino Corridor:** In 2022, the Assam government finalized the addition of approximately 200 sq km to **Orang National Park** in north-central Assam, more than **doubling the size of this protected area and key rhino habitat**.

Pink Flamingos

Why in News?

Recently, **climate change** has altered water levels and salinity at **Tanzania's Lake Natron**, home to many

pink **flamingos**, making nesting more difficult and causing their population to decline due to **extreme weather** and human encroachment.

What are the Key Facts About Flamingos?



- **About:** It belongs to the family **Phoenicopteridae**.
 - There are **six species** of flamingo namely the **Greater flamingo** (state bird of Gujarat), Chilean flamingo, Lesser flamingo, Caribbean flamingo, Andean flamingo, and Puna flamingo that inhabit lakes, mudflats, and shallow lagoons in the Americas, Africa, Asia, and Europe.
- **Distinctive Appearance:** Known for their **vibrant pink feathers**, flamingos have long legs and necks, webbed feet, and a distinctive downward-curving bill adapted for filter-feeding.
 - Flamingos' **habitats and food sources change by location and season, causing their colors to range** from dark or bright pink to orange, red, or pure white.
- **Adaptations:** Flamingos have adapted to **extreme environments** with high salinity and temperatures, where their predators are limited.
- **Ecological Role:** They play a crucial ecological role by maintaining the health of their habitats through their feeding activities, which affect **nutrient cycling** and **algae** populations.
- **Conservation Status:**
 - **IUCN Red List:**
 - **Vulnerable:** Andean flamingo
 - **Near Threatened:** Lesser flamingo, Puna flamingo, and Chilean flamingo
 - **CITES:** Appendix II
 - **Wildlife Protection Act, 1972:** Schedule II

Note:

Lake Natron

- Lake Natron is a salt lake located on the border between **Tanzania and Kenya**, part of the eastern branch of the **Rift Valley**.
 - The **Great Rift Valley** is a massive geological formation that stretches around 6,400 kilometers from **northern Syria** to **central Mozambique** in East Africa.
 - The valley is home to the **Jordan River**, which flows through the Jordan Valley and eventually **empties into the Dead Sea** on the border between Israel and Jordan.
- Lake Natron Basin was included in the **Ramsar List in 2001**, recognizing Lake Natron as an internationally significant **wetland** under **Article 2** of the Ramsar Convention.
- It has a unique composition of warm waters and salt, caustic soda, and magnesite deposits.
- Lake Natron's alkaline waters support a **thriving ecosystem** of salt marshes, freshwater wetlands, flamingos and other wetland birds, tilapia and the algae on which large flocks of flamingos feed.



Bonn Climate Conference 2024

Why in News?

The recent climate meeting in Bonn, Germany, did not achieve significant progress in defining a new climate finance goal.

- Countries have yet to make concrete advancements on issues concerning the funding required to address the climate crisis.

What is Climate Financing?

➤ About:

- It refers to **large-scale investments** required for actions to **mitigate or adapt to climate change**.
 - Mitigation involves **reducing greenhouse gas emissions**, such as **increasing renewable energy and expanding forest cover**.
 - Adaptation involves **taking action to prevent or minimise the damage** from adverse effects of climate change, such as building infrastructure to protect coastal communities from sea-level rise.

➤ Current Agreed Amount for Climate Financing:

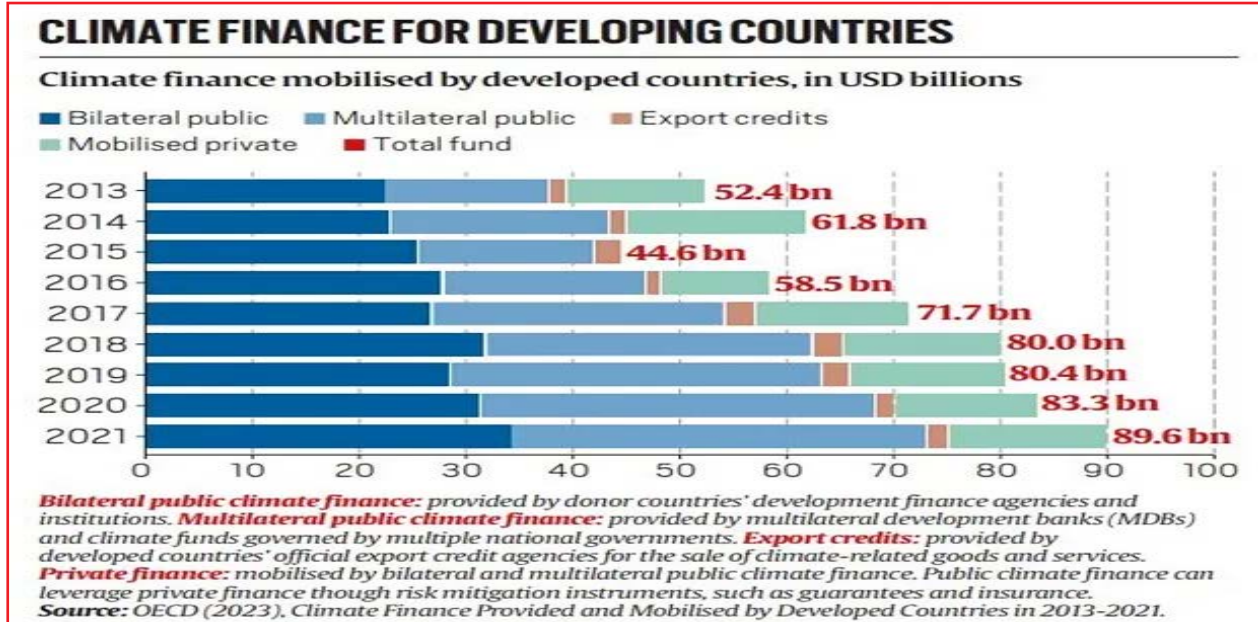
- The **1992 United Nations Framework Convention on Climate Change (UNFCCC)** mandated high-income countries to provide climate finance to the developing world.
- As per **Copenhagen Commitment, 2009**, developed countries agreed to provide **USD 100 billion per year** to developing countries by 2020.
- The **Green Climate Fund** was established in 2010 as a key mechanism to deliver climate finance.
- The **Paris Agreement in 2015** reinforced the **USD 100 billion target** and extended it to 2025.

➤ Need for Increasing Amount:

- As per the **UNFCCC 2021 Report**, developing countries need approximately **USD 6 trillion** annually from 2021 to 2030 to implement climate action plans and around **USD 4-6 trillion** is annually required until 2050 for a **global low-carbon economy transition**.
- Tripling renewable energy capacity, as agreed in Dubai, is estimated to cost USD 30 trillion by 2030 as per the **International Renewable Energy Association (IRENA)**.

Note:

- Combining these estimates suggests an annual requirement of USD 5-7 trillion, equivalent to about 5-7% of global GDP, highlighting the escalating cost of inaction.
- India has proposed a **New Collective Quantified Goal (NCQG)** of at least USD 1 trillion per year, focusing on grants and concessional finance.



➤ Arguments for Climate Financing:

- Developing countries argue that developed nations should provide financial assistance because the rich world's emissions over the last 150 years have caused the climate problem.
- High-income countries have **not yet fulfilled** their financial pledges for climate finance, as **majority of the finance provided is in the form of loans.**
 - A recent report by the **OECD** said developed countries met the long-standing USD 100-billion-a-year promise in 2022. However, **69%** of this was provided in the form of **loans.**

What are Issues Related to Climate Finance?

➤ Contention Between Developed and Developing Countries:

- **Debate Over Contribution:** Under the **UNFCCC** and the **Paris Agreement**, only the **25 countries** listed in **Annexure 2** of the UNFCCC, along with the **European Economic Community**, are **obligated to provide climate finance** to developing nations.
 - **Many other countries are now economically better off** than in the early 1990s, are **not part of Annexure 2** like **China** (world's second-largest economy), **oil-rich Gulf countries**, and others like **South Korea.**

- While developing countries refer to **Article 9** of the **Paris Agreement**, which mandates **climate finance to flow from developed to developing countries.**

- **Recipient Prioritisation:** Developed countries advocate for climate finance to **prioritise the most vulnerable nations**, such as least developed countries and small island developing states, while developing countries claim that **all developing nations should be eligible for support.**

➤ Definition and Nature of Climate Finance:

- Developing countries demand **clarity on the definition of climate finance**, insisting it **should not include development finance** and **caution against double-counting.**

➤ Issues of Mitigation and Adaptation:

- The balance between funding for mitigation (reducing emissions) and adaptation (adjusting to climate impacts) is a major point of contention.
- Currently, **a significant portion of climate finance goes towards mitigation projects like renewable energy.**
 - However, developing countries argue that **adaptation is crucial for their immediate survival**, given the existing impacts like rising sea levels and extreme weather events.

Note:



What is the New Collective Quantitative Goal (NCQG)?

- It is a **new annual financial target proposed in COP21** in 2015 to set a **post-2025 climate finance goal** that developed countries must meet from 2025 onward to provide climate finance to developing countries.
 - It will replace the previous commitment of **USD 100 billion per year** that developed nations had pledged in **Copenhagen Commitment, 2009** and under **Paris Agreement (2015)** but failed to deliver.
- The final NCQG amount will be a key negotiation point at the **COP29 summit to be held in Baku, Azerbaijan, in November 2024**.
 - The NCQG negotiations aim to set a higher collective amount that wealthy countries will need to mobilise annually for **mitigation, adaptation, and other climate action efforts in poorer nations** vulnerable to the impacts of climate change.
- Securing an adequate NCQG figure is extremely important for developing countries, as a **lack of sufficient climate finance has been a major barrier to implementing effective climate plans** and building resilience against global warming's effects.

UN Framework Convention on Climate Change (UNFCCC)

- It is a **global environmental treaty** to reduce **greenhouse gas concentrations** to prevent harmful human-induced disruptions to the Earth's climate system.
- It was officially **ratified in 1992**. It is also referred to as the **Earth Summit, the Rio Summit, or the Rio Conference**.
- The **Conference of the Parties (COP)**, a supreme decision making body of UNFCCC **hold meetings annually** and convenes representatives from all **197 parties** to assess the progress in combating climate change.
- In **1993**, India became a party to the UNFCCC, with the **Ministry of Environment, Forests, and Climate Change (MoEFCC)** serving as its nodal agency.

CLIMATE FINANCE

Climate finance refers to local, national or transnational financing—drawn from public/ private/alternative sources of financing—to support mitigation and adaptation actions against climate change.

PRINCIPLES OF CLIMATE FINANCE

- ⊖ Polluter Pays
- ⊖ Common but Differentiated Responsibility and Respective Capability (CBDR-RC)

Multilateral Climate Funds Coordinated by UNFCCC

- ⊖ **Global Environment Facility (GEF)**: Operating entity of financial mechanism (1994)
- ⊖ **Kyoto Protocol (2001)**:
 - ▶ **Adaptation Fund (AF)**: Gives developing countries full ownership of adaptation projects
 - ▶ **Clean Development Mechanism (CDM)**: To carry out emission-reduction projects in developing nations
- ⊖ **Green Climate Fund (GCF)**: estd. - 2010 (COP 16)
 - ▶ Funds under it - **Least Developed Countries Fund (LDCF)** and **Special Climate Change Fund (SCCF)**
- ⊖ **Long-Term Climate Finance**:
 - ▶ **Cancun Agreements (2010)**: Mobilize and provide scaled-up funds in short and long term
 - ▶ **Paris Agreement (2015)**: Developed nations agreed to establish new collective goal of at least \$100 billion/year by 2025
- ⊖ **Loss and Damage Fund (2023) (COP27 & COP28)**: Financial assistance to nations most vulnerable and impacted by effects of climate change

Climate Investment Funds (CIFs) under World Bank

- ⊖ Clean Technology Fund
- ⊖ Strategic Climate Fund

INDIA'S INITIATIVES REGARDING CLIMATE FINANCE

Fund	Objective
<ul style="list-style-type: none"> ■ National Adaptation Fund for Climate Change (NAFCC) (2015) ■ National Clean Energy Fund (2010-11) ■ National Adaptation Fund (2014) ■ Intended Nationally Determined Contributions (INDCs) (2015) ■ Climate Change Finance Unit (2011) 	<ul style="list-style-type: none"> ■ For vulnerable Indian states ■ Advancing clean energy (started with initial carbon tax on industrial coal use) ■ Bridging gap between required and available funds ■ Nationally binding targets adopted under UNFCCC ■ Leads on global climate finance issues

Challenges to Climate Finance

- ⊖ Gap between national needs and climate finance under NDCs
- ⊖ Least Developed Countries receive much less approved funding in per-capita terms from the multilateral climate funds
- ⊖ Slow rate of approvals
- ⊖ Failure in securing viability-gap funding



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Note:

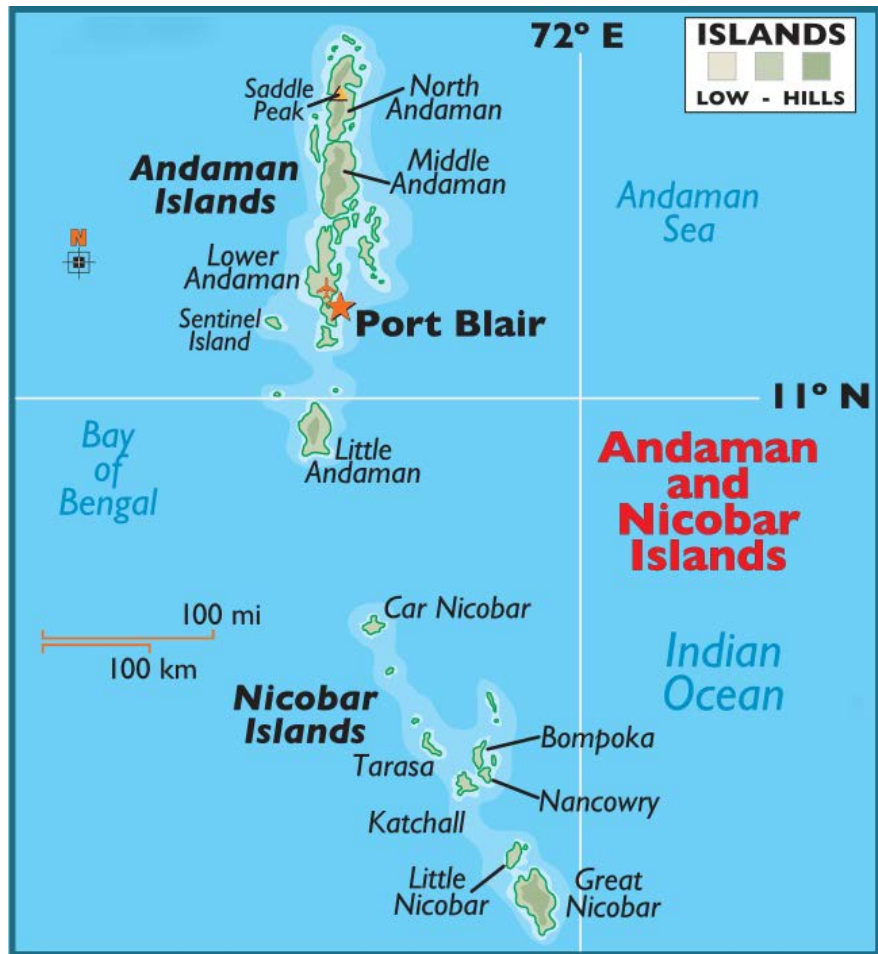
Great Nicobar Island Project Conundrum

Why in News?

Recently, the opposition party has described the proposed Rs 72,000-crore infrastructure upgrade at the **Great Nicobar Island** as a “grave threat” to the island’s indigenous inhabitants and fragile ecosystem, and demanded immediate suspension of all clearances and a thorough, impartial review of the proposed project, including by the concerned Parliamentary committees.

Great Nicobar Island

- Great Nicobar is the southernmost and largest of the Nicobar Islands, a sparsely inhabited 910-sq-km patch of mainly tropical rainforest in southeastern Bay of Bengal.
 - **Indira Point** on the island, India’s southernmost point, is located 90 nautical miles (<170 km) from Sabang at the northern tip of **Sumatra**, the largest island of the Indonesian archipelago.
- The Andaman and Nicobar Islands consist of 836 islands, divided into two groups known as the Andaman Islands located in the north and the Nicobar Islands situated in the south, separated by the 10° Channel which is 150 kilometres wide.
- Great Nicobar has two national parks, a biosphere reserve, small populations of the Shompen, Onge, Andamanese and Nicobarese tribal peoples, and a few thousand non-tribal settlers.



What is the Great Nicobar Island Project?

- **About:**
 - The Great Nicobar Island (GNI) project, **launched in 2021**, is a mega project **to be implemented at the southern end of the Andaman and Nicobar islands**.
 - It involves **developing a trans-shipment port**, an international airport, township development, and a **450 MVA gas and solar-based power plant** on the island.
 - The project was implemented after a report by **NITI Aayog** which **identified the potential to utilise the advantageous position of the island**, which is approximately equidistant from Colombo in Sri Lanka to the southwest and Port Klang (Malaysia) and Singapore to the southeast.
- **Features:**
 - The mega infrastructure project is **being implemented by the Andaman and Nicobar Islands Integrated Development Corporation (ANIIDCO)** and is proposed to include an International Container Trans-shipment Terminal (ICTT), a **greenfield international airport**.
 - It is **close to the Malacca Strait**, the main waterway that connects the **Indian Ocean to the Pacific**, and the ICTT is expected to allow Great

Note:



Nicobar to participate in the regional and global maritime economy by becoming a **major player in cargo transshipment**’.

- The site for the proposed ICTT and power plant is **Galathea Bay on the southeastern corner of Great Nicobar Island**, where there is no human habitation.

➤ **Strategic Importance:**

- The upgrade is aimed at facilitating the **deployment of additional military forces**, larger and more warships, aircraft, missile batteries, and troops.
 - Close surveillance of the entire area around the archipelago, and the building up of a **strong military deterrence at Great Nicobar is of vital importance to India’s national security**.
- The island is **close to the Malacca Strait, the main waterway that connects the Indian Ocean to the Pacific**, and the ICTT is expected to allow Great Nicobar to participate in the regional and global maritime economy by becoming a **major player in cargo transshipment**’.
- The Bay of Bengal and Indian Ocean regions are **extremely important for India’s strategic and security interests**. This is because the Chinese military (the **People’s Liberation Army Navy**) is **trying to increase its presence and influence in this entire region**.
 - India is particularly concerned about the possibility of China building up its naval forces at **important choke points** in the **Indo-Pacific area, such as the Malacca, Sunda, and Lombok Straits**.
- Furthermore, China is attempting to expand its foothold in this region by building a **military facility on the Coco Islands**, which are located just 55 km north of India’s Andaman & Nicobar Islands.
 - This raises concerns for India, as the Andaman & Nicobar Islands are **strategically very important for India’s maritime security in the region**.

What are the Challenges Related to the Great Nicobar Island Project?

- **Impact on Indigenous Tribes:** The **Shompen** and Nicobarese are a **Particularly Vulnerable Tribal Group (PVTG)** of hunter-gatherers, with an estimated population of only a few hundred individuals. **They live in a tribal reserve on the island.**

- There are serious concerns that the proposed infrastructure upgrade could have a potentially devastating impact on the Shompen tribe and their way of life, which is **closely tied to the island’s natural environment**.

- Also, the project **violates the letter and spirit of the Forest Rights Act (2006)**, which holds the **Shompen as the sole legally empowered authority to protect, preserve, regulate and manage the tribal reserve**.

- **Threat to Island Ecology:** The project will impact the island’s ecology with the felling of nearly a million trees. It is feared that the port **project will destroy coral reefs** with spinoff effects on the local marine ecosystem, and pose a threat to the **terrestrial Nicobar Megapode bird** and **leatherback turtles** who nest in the Galathea Bay area.

- This area is about **15% of the GNI’s land mass and constitutes one of the country’s largest forest diversions** in a nationally and globally unique rainforest ecosystem.

- **Seismic Vulnerability:** Proposed port is located in a **seismically volatile zone**, which experienced permanent subsidence of around 15 feet during the 2004 tsunami. This raises concerns about the safety and viability of constructing such a large-scale infrastructure project in a high-risk, disaster-prone area.

- **Lack of Adequate Consultation:** There is an accusation against the local administration of not consulting the **Tribal Council of Great and Little Nicobar Islands** adequately, as per legal requirements.

- In April 2023, **National Green Tribunal (NGT)** declined to interfere with the environmental and forest clearance granted to the project. The Tribunal, however, **ordered that a high-power committee should be constituted to look into the clearances**.

SWM Cess on Waste Generators

Why in News?

Recently, Bengaluru has proposed to increase the **Solid Waste Management (SWM) Cess to Rs. 100 per month** for each household in order to cope up with the high financial strain in the SWM process.

- Currently, ULBs typically charge about Rs. 30-50 per month for SWM services, which is often collected along with **property tax**.

Note:

What is SWM Cess?

- **About:**
 - Solid Waste Management (SWM) cess is a **user fee or charge** levied by **Urban Local Bodies (ULBs)** in India.
 - **Acess** is a form of tax or levy imposed by governments to fund specific services or purposes, such as waste management or infrastructure development.
- **Legal Provisions:**
 - As per the **Solid Waste Management Rules, 2016**, ULBs are required to collect user fees or cess for SWM services. The suggested rise in fees is a response to **the growing expenses and difficulties encountered by ULBs** in efficiently handling solid waste.

What are Solid Waste Management Rules 2016?

- These rules replaced the **Municipal Solid Wastes (Management and Handling) Rules, 2000**.
- It focused on the **segregation of waste at source**, the **responsibility of the manufacturer** to dispose of sanitary and packaging wastes, and **user fees for collection**, disposal and processing **from the bulk generator**.
- **Key Features:**
 - **Waste Segregation & Disposal:** Residents must separate waste into **wet (biodegradable)**, **dry (recyclable)**, and **hazardous** categories. Segregated waste goes to authorised collectors or local bodies.
 - **Payments:** Residents pay **user fees** for collection and face **finest** for littering or not segregating waste.
 - **Waste Processing:** The SWM Rules encourage composting or **bio-methanation of biodegradable waste** whenever possible. Landfills, waste-to-energy plants, and special handling for hilly areas are also covered by the rules.
 - **Local Authority Duties:** Municipalities collect segregated waste, ensure proper processing/disposal, and levy user fees to cover costs.
 - **Extended Producer Responsibility:** Manufacturers of disposables (packaging) share responsibility for collection and financially support waste management systems.

Other Initiatives Related to Waste Management

- **Plastic Waste Management (PWM) Rules, 2016** and **Plastic Waste Management (Amendment) Rules, 2022**.
- **Bio-Medical Waste Management Rules, 2016**
- **Waste to Wealth Portal:** It aims to **identify, develop, and deploy technologies** to treat waste to generate energy, recycle materials, and extract resources of value.
- **Waste to Energy:** A waste-to-energy or **energy-from-waste plant converts** municipal and industrial solid waste into electricity and/or heat for industrial processing.
- **Project REPLAN:** It aims to **make carry bags** by mixing **processed and treated plastic waste with cotton fibre** rags in a ratio of 20:80.

What is Rationale Behind Increasing SWM Cess Collection?

- **High Costs of SWM Services:** The SWM process is highly complex and **resource-intensive, consuming up to 50%** of the annual budgets of ULBs.
 - The expenses include capital investments, as well as operational costs, including salaries, waste collection, and the functioning of waste management plants.
- **Revenue Challenges:** Despite the high expenditure on SWM, **the revenue generated from these services is minimal**.
 - For example, Bengaluru spends approximately Rs 1,643 crore in SWM services, while the revenue generated from SWM services, excluding grants received, is almost negligible at Rs. 20 lakh per year.
- **Limited Recyclability:** A mere **1-2% of dry waste** is recyclable, while the bulk of the waste is non-recyclable and non-biodegradable, leading to **negligible revenue from recycling** efforts, further straining the financial resources of ULBs.
- **Operational Challenges:** Proper **segregation of waste at the source** is often lacking, complicating the processing of waste.
 - Also, there is a **limited market for the finished products** derived from waste processing, making it financially unviable.
- **Disposal Costs:** The disposal of **non-compostable and non-recyclable dry waste** is a significant expense, particularly due to the **transportation costs**, as the facilities for proper waste disposal are often located far from urban centers.

Note:

Methods of Solid Waste Management

- **Recycling:** Reprocessing used materials like paper, plastic, metal, and glass into new products **reduces reliance on resources and saves energy.**
- **Landfills:** These have been used for **disposing of all types of waste** as they served as the final destination for materials **that cannot be recycled or broken down naturally.** Modern landfills employ **liners** and other **containment methods** to minimise their environmental impact.
- **Incineration:** This involves **burning waste at high temperatures,** which significantly reduces its volume. It also raises concerns about **air pollution** and the release of harmful pollutants.
- **Composting:** It offers a natural solution **for managing organic waste,** such as food scraps and yard trimmings. Through the composting process, these materials are transformed into **nutrient-rich fertiliser,** which can then be used to enrich soil health.



What Measures can be Taken to Reduce Operational Expenditure on SWM Services?

- **Waste Segregation at Source:** Improving waste segregation at the **household level can increase the yield from composting operations and enhance the recycling of dry waste,** thereby reducing operational costs.
- **Reducing Single-use Plastic:** The increasing prevalence of **non-recyclable single-use plastics adds to the transportation and disposal costs** for ULBs. Reducing the use of such plastics can help lower operating expenses.

- **Decentralised Composting:** Setting up **Micro Composting Centers (MCCs)** at the ward level, as seen in Tamil Nadu and Kerala, can help process wet waste locally and reduce transportation costs.
- **Self-Waste Processing by Bulk Waste Generators:** Incentivising **large institutions and establishments** to set up **in-house waste processing facilities** can help reduce the burden on ULBs and promote cleaner premises.
- **Information, Education, and Awareness (IEC):** It will help to **prevent open littering.** Effective IEC campaigns to **discourage improper waste disposal** can reduce the labour required for **sweeping roads and clearing drains,** allowing the redeployment of resources to **waste processing and value recovery.**



Global Waste Management Outlook 2024 Report (GWMO 2024)

- It was released by the **United Nations Environment Programme (UNEP)** in February 2024.
- Key findings:
 - **Global Scenario:** Over **two billion tonnes of municipal solid waste (MSW)** are generated annually worldwide.
 - **Waste Collection:** More than a **third of the global population,** particularly in the Global South and developing regions, **faces severe waste management issues,** with over 2.7 billion people **lacking proper waste collection services.**
 - Approximately 540 million tonnes of MSW, **equating to 27% of the global total, remain uncollected.**

Note:

- **Future Projection:** Waste generation is expected to increase significantly, rising from 2.3 billion tonnes in 2023 to **3.8 billion tonnes by 2050**.
- **Barriers to Waste Management:** It includes **lack of public awareness** and education, lack of inclusion in decision-making, **technical barriers in extracting recyclable materials** from mixed waste, and bureaucratic barriers hindering private sector involvement.

Cheetahs in Gandhi Sagar Wildlife Sanctuary

Why in News?

Recently, the Madhya Pradesh Government has informed that it has completed its preparations for the **reintroduction of the cheetahs** from Africa in the **Gandhi Sagar Wildlife Sanctuary (GSWS)**.

- It will be the second home for cheetahs in India, after the **Kuno National Park (KNP)**.

Project Cheetah

- **Phase-1** of the project started in 2022, to restore the population of cheetahs, which were declared **extinct in the country in 1952**.
 - It involves the translocation of cheetahs from **South Africa** and **Namibia** to **Kuno National Park**.
 - The project is implemented by the **NTCA** in collaboration with the Madhya Pradesh Forest Department, and **Wildlife Institute of India (WII)**.
- Under **Phase-2** of the Project India is considering sourcing cheetahs from **Kenya** due to similar habitats.
 - Cheetahs will be translocated to **Kuno National Park** and **Gandhi Sagar Wildlife Sanctuary** (Madhya Pradesh).

What are Key Facts About Gandhi Sagar Wildlife Sanctuary?

➤ Location:

- Notified in 1974, encompassing the districts of **Mandsaur** and **Neemuchin** western Madhya Pradesh, bordering Rajasthan.
- The **Chambal River** bifurcates the sanctuary into two nearly equal parts, with the **Gandhi Sagar Dam** situated within the sanctuary.

➤ Ecosystem:

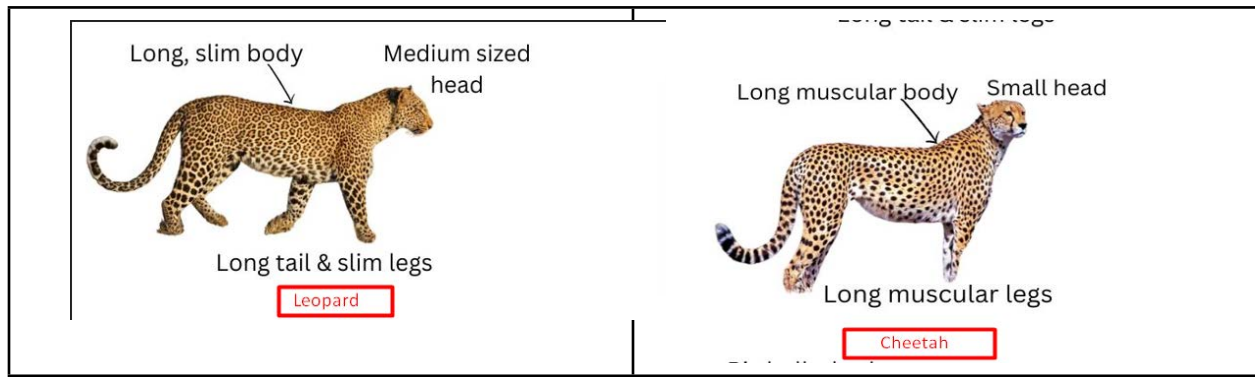
- Its ecosystem is characterised by its **rocky terrain** and **shallow topsoil**, which supports a **savanna ecosystem**.
- This comprises **open grasslands** interspersed with **dry deciduous trees** and shrubs. Additionally, the riverine valleys within the sanctuary are evergreen.

➤ Ideal Habitat for Cheetahs:

- The sanctuary's resemblance to the **Maasai Mara**, a renowned national reserve in **Kenya** known for its savanna wilderness and abundant wildlife, highlights its suitability for cheetahs.



Note:



Some Facts about Cheetahs

- **Breeding and Maturity:** Cheetahs breed throughout the year, with a peak during the **rainy season**. Females reach sexual maturity at 20-24 months, while males mature later at 24-30 months.
- **Gestation and Litters:** The gestation period lasts about 90-95 days, with **typical litters consisting of 3-5 cubs**.
- **Vocalizations:** Unlike other big cats **like lions and tigers, cheetahs do not roar**. They communicate through various vocalisations, including high-pitched chirps or barks.
- **Territorial Behaviour:**
 - Cheetahs are generally **solitary** and use multiple methods to mark their territories, such as **scratch marks on trees or rocks and scent marking by spraying urine or rubbing their cheeks** on objects.
 - They also use **vocalisations like the “stutter bark”** to warn other cheetahs of their presence and establish territory.
- **Speed and Hunting:**
 - Cheetahs are the fastest land animals, capable of reaching speeds up to **120 km/h in short bursts** and can accelerate from **0 to 100 km/h in just 3 seconds**.
 - They use a unique adaptation called “tripping” with their semi-retractable claws to trip their prey.
 - Despite their speed, their **hunting success rate is only about 40-50%**.
- **Protection Status of Cheetah:**
 - **Vulnerable** in **IUCN Red List**
 - **Schedule 2 of the Wild Life (Protection) Act, 1972.**
 - **Appendix I of CITES.**

What are the Challenges in Making Gandhi Sagar a Viable Cheetah Habitat?

- **Insufficient Prey Base:** Current prey numbers (**chital, blackbuck, chinkara**) are insufficient for cheetahs. Increasing the number of prey animals for cheetahs to hunt is crucial for their sustainable survival.
 - A population of **about 350 ungulates are required for a single cheetah coalition family**. Ungulates are members of a diverse clade of animals, primarily big mammals with hooves (like deer).
 - The leopard in GSWS could pose a threat to cheetahs through competition for the same prey.
- **Change of Habitat:** Cheetahs relocated from Kenya to India might grow thicker fur for the **African winter, which isn't needed in India's climate**.
 - This can cause discomfort and make it harder for them to adjust until they adapt to the new environment.
- **Proximity to Human Habitation:** Unlike Kuno, Gandhi Sagar has highways and human settlements located right outside the protected area boundary, which could present challenges.
- **Vulnerability to Infection:** The final decision on cheetah translocation will be made after the monsoon season, as the cats may be vulnerable to infections during this time.

Note:

AFRICAN CHEETAH VS ASIATIC CHEETAH



AFRICAN CHEETAH

- 🐾 **SCIENTIFIC NAME:**
Acinonyx Jubatus
- 🐾 **DISTRIBUTION:**
Across Africa from North-west Africa, East Africa, & Southern Africa
- 🐾 **SIZE:**
Slightly bigger build with sturdier legs and neck
- 🐾 **SKIN:**
Light brown to golden brown fur color, thicker than the Asiatic ones
- 🐾 **IUCN RED LIST STATUS:**
Vulnerable



ASIATIC CHEETAH

- 🐾 **SCIENTIFIC NAME:**
Acinonyx Jubatus Venaticus
- 🐾 **DISTRIBUTION:**
Only 12 Asiatic cheetahs, 9 males, and 3 females are left in Iran
- 🐾 **SIZE:**
Slightly smaller and slender than the African cheetah
- 🐾 **SKIN:**
Buff to light fawn color bordering pale yellow skin, has more fur underbelly and back of neck
- 🐾 **IUCN RED LIST STATUS:**
Critically Endangered



Kuno National Park

- It is located in **Madhya Pradesh**.
- It was initially established as a **wildlife sanctuary in 1981**.
- It was later designated as a **national park in 2018**.
- It is situated within the **Khathiar-Gir dry deciduous forests**.

Note:



drishti


World Crocodile Day 2024

Why in the News?

World Crocodile Day is celebrated on **17th June**. The day is a **global awareness campaign** to highlight the plight of **endangered crocodiles** and alligators around the world.

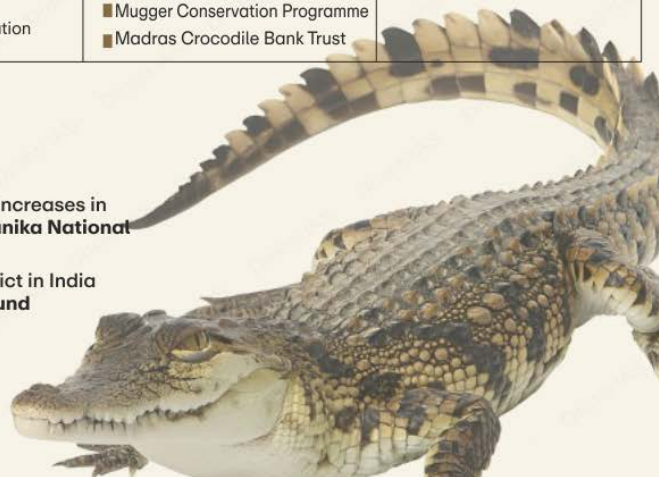
CROCODILE SPECIES IN INDIA

India harbours three diverse  crocodile species—Mugger, Saltwater, and Gharial—found in distinct habitats nationwide.

Aspects	Gharial	Mugger/Indian Crocodile	Saltwater Crocodile
Scientific Name	<i>Gavialis Gangeticus</i> 	<i>Crocodylus Palustris</i> 	<i>Crocodylus Porosus</i> 
Distribution: India	Viable Population: National Chambal Sanctuary (U.P, Raj, M.P) Small Non-Breeding Population: Son, Gandak, Hooghly, Ghagra & Satkosia WLS (Odisha)	Throughout India	East Coast (Odisha's Bhitarkanika WLS, Andaman & Nicobar Islands coast & Sundarbans)
Distribution: Neighbourhood	Brahmaputra of Bhutan & Bangladesh & Irrawaddy River	Extinct in Bhutan and Myanmar	Across Southeast Asia
Special Feature	Longest of all Crocodile, Long and thin Snout	Egg-laying, Hole-nesting, Wide & U-shaped Snout	Largest living reptile, Pointed & V-shaped Snout
Habitat	Freshwater	Freshwater	Saltwater, Brackish & Wetlands
IUCN Status	CR	VU	LC
CITES Status	Appendix I	Appendix I	Appendix I
CMS Status	Appendix I	-	Appendix II
WPA,1972 Status	Schedule I	Schedule I	Schedule I
Threats	Dams, Pollution, Sand mining	Habitat Destruction	Hunted for its skin and Habitat loss
Government Initiatives	■ Odisha: Rs. 1000 award to conserve Gharial in Mahanadi River Basin ■ Indian Crocodile Conservation Project,1975	■ Indian Crocodile Conservation Project,1975 ■ Mugger Conservation Programme ■ Madras Crocodile Bank Trust	Indian Crocodile Conservation Project,1975

MISCELLANEOUS FACTS

- 🕒 **17th June:** World Crocodile Day
- 📊 **Annual Reptile Census, 2023:** Marginal Increases in number of saltwater crocodiles (Bhitarkanika National Park and its nearby areas)
- 📍 **Odisha's Kendrapara District:** Only district in India where all three species of crocodiles found



Note:

What is the Crocodile Conservation Project?

➤ About:

- The **Crocodile Conservation Project** was initiated by the **United Nations** and the **Government of India**, shortly after the passage of the **Wild Life (Protection) Act, 1972**.
- The primary objectives were to **protect natural habitats**, boost crocodile populations through **captive breeding**, and address the low survival rates of hatchlings in the wild.
- The project set up breeding and rearing centers at 34 sites in India, including **Bhitarkanika**, to protect and revive the country's endangered crocodilian population, particularly focusing on **estuarine or saltwater crocodiles** (*Crocodylus porosus*).

➤ Current Crocodile Population and Distribution:

- The saltwater crocodile population in **Bhitarkanika** has significantly increased from 95 individuals in 1975 to 1,811 as of the latest reptile census report (2023).
- The **saltwater crocodile** is now found in three primary locations in India: Bhitarkanika, the Sundarbans, and the **Andaman and Nicobar Islands**.

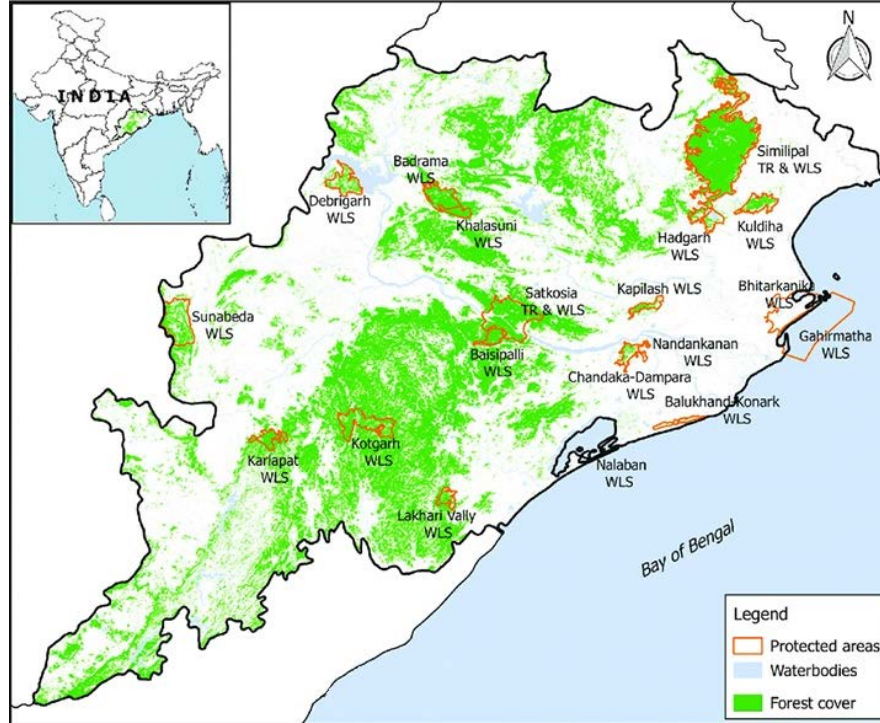
➤ Human-Crocodile Conflict:

- Rising crocodile numbers in Bhitarkanika have

caused **more conflicts** with humans, resulting in 50 deaths since 2014, prompting officials to install barricades at 120 river banks to curb attacks, yet conflicts persist.

Key Facts About Bhitarkanika National Park

- **Bhitarkanika National Park** is spread over a vast area of 672 km in Orissa.
- It is the second-largest **Mangrove ecosystem** of India after **Sundarbans**.
- The **National Park is essentially a network of creeks and canals** that are inundated with waters from rivers Brahmani, Baitarani, Dhamra, and Patasala forming a unique ecosystem.
- Its proximity to the **Bay of Bengal** makes the soil of the area enriched with salts, and the vegetation and the species of the sanctuary are comprised of those that are mainly found in the tropical and subtropical intertidal regions.
- It is the breeding place for the **Salt Water Crocodiles**.
- The Gahirmatha Beach which forms the boundary of the sanctuary in the east is the largest colony of the **Olive Ridley Sea Turtles**.
- Bhitarkanika is also home to **eight varieties of Kingfisher birds** which is also a rarity.



Note:

Environmental Performance Index 2024

Why in News?

The Yale Center for Environmental Law and Policy and the Columbia Center for International Earth Science Information Network released the **Environmental Performance Index (EPI)** for 2024.

What are the Key Highlights of EPI 2024?

- **Global Scenario:** Estonia leads the index by reducing its **greenhouse gas emissions** by 59% from 1990 levels.
 - The report shows that only five countries — **Estonia, Finland, Greece, Timor-Leste, and the United Kingdom** — cut their GHG emissions at the rate needed to reach **net zero by 2050**.
 - In contrast, **Sub-Saharan Africa and Southern Asia** rank **lowest** among the eight regions assessed.
 - Apart from the **United Kingdom**, all countries identified in the **2022 Environmental Performance Index (EPI)** report as being on track to achieve **net zero emissions** by 2050, and have either seen slow progress, as in the United States, or their emissions are still increasing, as seen in China, India, and Russia.
- **India's Performance:** India ranks **176th out of 180** countries with **27.6 points**, placing above only Pakistan, Vietnam, Laos, and Myanmar.
 - It performs poorly in **Air quality, Emissions, and Biodiversity Conservation**, largely due to its **heavy reliance on coal**, which contributes significantly to **greenhouse gas emissions and air pollution levels**.
 - Specifically, India ranks **177th in air quality and 172nd in projected emissions by 2025**.
- **The Largest Emitter Of Transboundary Pollution:** In **South Asia**, India is identified as the **largest emitter of transboundary pollution**, impacting neighbouring Bangladesh and affecting residents' well-being.
 - Despite its low overall ranking, India fares relatively better (133rd) in the **climate change category**, due to investments in renewable energy and a commitment to achieving **net-zero emissions by 2070**.
 - However, achieving these goals will require an **additional USD 160 billion** annually in climate change mitigation investments.

- **New Metrics Introduced:** The 2024 EPI introduces pilot indicators to measure the effectiveness and stringency of **protected areas**.

RANK	COUNTRY	SCORE
1	Estonia	75.3
2	Luxembourg	75.0
3	Germany	74.6
4	Finland	73.7
5	United Kingdom	72.7
6	Sweden	70.5
7	Norway	70.0
8	Austria	69.0
9	Switzerland	68.0
10	Denmark	67.9

176	India	27.6
177	Myanmar	26.9
178	Laos	26.1
179	Pakistan	25.5
180	Viet Nam	24.5

What are the Issues Related to EPI?

- **Issues Raised By India:**
 - **Projected GHG Emissions Calculation:** The calculation of projected GHG emissions by 2050 is based on the **average rate of change in emissions**, which India considers inadequate.
 - Measurement of **biodiversity loss or ecosystem health** can be challenging due to the **intricate dynamics** involved and the **lack of standardised methodologies** across all regions.
 - **Carbon Sinks Exclusion:** **India's forests and wetlands**, which act as crucial **carbon sinks**, have not been factored into the computation of projected GHG emissions trajectory up to 2050 in the EPI 2024.
 - **Ecosystem Condition Overlooked:** While the index computes the extent of ecosystems, it does not evaluate **their condition or productivity**.
 - **Lack of Relevant Indicators:** The index does not include indicators like **agro-biodiversity, soil health, food loss, and waste**, and developing nations may lack robust monitoring systems or **face difficulties in collecting comprehensive environmental data**, which are important for developing countries with large agrarian populations.

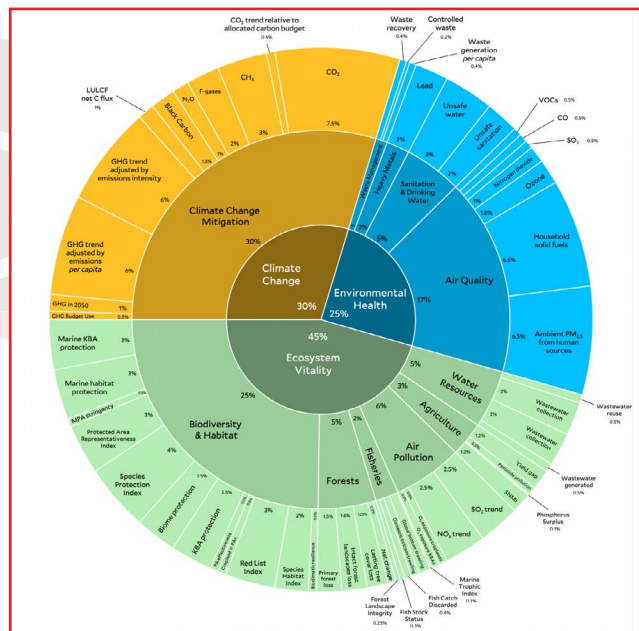
Note:

- **Issues In General:**
 - **Balancing National Priorities:** Countries may **prioritise economic development over environmental protection**, leading to potential conflicts or resistance in implementing EPI recommendations.
 - Nations heavily reliant on resource extraction or **fossil fuel-based industries** may face challenges in transitioning to more sustainable practices.
 - **Funding and Resource Constraints:** Developing countries may **struggle to allocate sufficient funds or expertise for environmental projects**, hindering progress and developed countries have **not allocated sufficient money** to the developing nation for mitigation.
 - **Cross-Border Environmental Impacts:** Addressing transboundary issues such as **air pollution, water management, or wildlife protection** may require multilateral agreements and joint efforts.

What is the Environmental Performance Index?

- **About:** The **Environmental Performance Index (EPI)** is a **biennial index**, initially launched by the **World Economic Forum** in **2002** under the name **Environmental Sustainability Index (ESI)**.
- **Evaluation Target:** It evaluates nations’ efforts to meet international environmental policy targets such as the **U.N. sustainability goals, the Paris Climate Change Agreement (2015), and the Kunming-Montreal Global Biodiversity Framework**.
- **Framework:** The 2024 EPI leverages **58 performance indicators** grouped into **11 issue categories** with 3 policy objectives:
 - Environmental Health
 - Ecosystem Vitality
 - Climate Change
- The EPI team transforms the raw environmental data into indicators that place countries on a **0–100 scale** from worst to best performance.
- **Significance:**
 - **Good Governance:** Strong governance frameworks, characterised in the EPI framework such as **transparency, accountability, and effective policymaking**, are essential for promoting and enforcing environmental regulations and policies.

- **Financial Resources:** Adequate financial resources play a pivotal role in implementing and sustaining environmental initiatives, **enabling countries to invest in sustainable practices and infrastructure**.
- **Human Development:** Countries with **higher levels of human development**, including factors such as **education, healthcare, and overall well-being**, tend to prioritise environmental sustainability and can implement effective measures.
- **Regulatory Quality:** Robust and well-designed environmental regulations, coupled with effective enforcement mechanisms, are critical for mitigating environmental degradation and ensuring compliance with sustainability standards.



What are the Environmental Conservation Programmes in India?

- **Climate Change:** [National Action Plan on Climate Change](#)
- **Desertification:** [National Action Programme to Combat Desertification](#)
- **Pollution Control:** [National Clean Air Program](#)
- **Environmental Impact Assessment:** [Environment Management Plan](#)
- **Forest Protection:** [National Afforestation Programme](#)
- **Species Conservation:** [Project Elephant](#), [Project Tiger](#)

Note:

E-flow Monitoring System

Why in News?

Recently, the **Union Jal Shakti Ministry** has introduced an innovative **Environmental flows (E-flows) Monitoring System** designed to facilitate real-time monitoring of river water quality and support the planning and oversight of projects related to river ecosystems.

- This system aims to enhance the management of water resources and environmental flows in key Indian rivers, including the **Ganga and Yamuna**.

What is Environmental Flow?

- **About: Environmental flow (E-flow)** is the **quantity, timing, and quality of water flows** required to maintain the health and functioning of aquatic ecosystems and support the livelihoods that depend on these ecosystems.
 - E-flows are essential for sustaining the **ecological integrity of rivers, lakes, and wetlands**, ensuring that they can continue to provide important ecosystem services.
- Key Aspects of Environmental Flows:
 - **Quantity:** Ensuring an adequate **volume of water is maintained to support the ecological processes** and species within the ecosystem.
 - **Timing:** Preserving the **natural variations in water flow**, including **seasonal and inter-annual fluctuations**, to mimic the natural hydrological cycle.
 - **Quality:** Maintaining **water quality standards that are suitable for the health** of the aquatic ecosystem, including **appropriate levels of dissolved oxygen, temperature, and nutrient concentrations**.
 - **Frequency:** Ensuring that specific flow conditions (such as **high flows, low flows, and flood events**) occur with a regularity that supports the life cycles of aquatic species.

What are the Key Features of the E-flow Ecological Monitoring System?

- **About:** The E-flow Monitoring System was developed by the **National Mission for Clean Ganga**, a division of the Jal Shakti Ministry.

- The introduction of this system follows the **2018 mandate by the Centre to maintain minimum e-flows** in various stretches of the Ganga throughout the year.

- This mandate was a response to concerns from environmental groups about the negative impact of dams on river ecology and flow.

➤ Key Features:

- **Real-Time Monitoring:** The system allows for the continuous analysis of water quality in the **Ganga, Yamuna, and their tributaries**.
- **Centralised Oversight:** It enables the monitoring of activities under the **Namami Gange programme**, particularly the performance of **Sewage Treatment Plants (STPs)**.
- **Comprehensive Data Analysis:** Utilises quarterly reports from the **Central Water Commission** to track in-flow, out-flow, and mandated E-flow across 11 projects along the Ganga Mainstream.

What is the Namami Gange Programme?

- **About:** It is an **Integrated Conservation Mission**, approved as 'Flagship Programme' by the **Union Government** in June 2014 to accomplish the objective of **effective abatement of pollution, conservation and rejuvenation of National River Ganga**.

➤ Main Pillars:

- **Sewerage Treatment Infrastructure**
- River-Front Development
- River-Surface Cleaning
- **Biodiversity Conservation**
- **Afforestation**
- Industrial Effluent Monitoring
- Ganga Gram
- Public Awareness

- However, despite its ambitious goals and substantial funding, the Namami Gange Programme is falling short of its targets .

Why is the Namami Gange Programme Falling Short of its Goals?

- **Delays in Project Execution:** Many sewage treatment projects have faced delays due to issues with land acquisition and the need for revisions in **Detailed Project Reports (DPRs)**.

Note:

- These challenges have slowed down the commissioning and operationalisation of crucial infrastructure and thereby falling short of desired objectives.
- **Funding and Budget Allocation:** Although the programme has received in-principle approval for projects worth **Rs 37,396 crore**, only **Rs 14,745 crore** has been released to the states for infrastructure work.
 - This discrepancy between approved and disbursed funds has hindered the timely completion of projects.
- **Insufficient Sewage Treatment Capacity:** Despite significant investments, the programme has only managed to install treatment plants capable of treating about **20% of the sewage generated** in the five major states along the Ganga.
 - This capacity is expected to increase to only **33% by 2024** and **60% by 2026**, falling short of the needs based on current and projected sewage generation.
- **Persistence of Industrial Pollution:** The program has struggled to address the issue of industrial pollution effectively.
 - **Many industries located along the Ganga** continue to discharge untreated effluents, contributing to the river's pollution.
 - According to the recent government estimates, about **402.67 million liters per day (MLD)** of industrial effluents by **3,186 grossly polluting industries (GPI)** are discharged into rivers Ganga and Yamuna.

What Measures can be Adopted to Enhance Conservation and Rejuvenation of Ganga River?

- **Leverage Technology for Monitoring and Data Management:** Utilise advanced technologies, such

as **remote sensing, Geographic Information Systems (GIS), and real-time monitoring systems**, to effectively monitor the progress of the program and the health of the Ganga River.

- Develop a **centralised data management platform** to integrate data from various sources, enabling informed decision-making and adaptive management.
- **Adopt-a-Ghat Initiative:** Partnering with NGOs and local communities to launch an **"Adopt-a-Ghat" program**.
 - Owner Groups can be held responsible for the cleanliness and beautification of specific ghats (**riverfront steps**) along the Ganga, fostering a sense of ownership and community involvement.
- **Riverine Economy Incentives:** Creating a **"Ganga Riverine Economy"** certification for businesses that adopt practices that minimise pollution and promote sustainable water usage.
 - This could **incentivize industries and hotels to become responsible stakeholders** in the river's health.
- **Floodplain Restoration:** Identifying opportunities for floodplain restoration projects in the long run. Reconnecting the river with its natural floodplains can **improve water filtration, reduce erosion, and provide critical habitat for aquatic life**.
- **Waste-to-Wealth Handicrafts:** Supporting and incentivising the self help groups for the creation of **eco-friendly handicrafts from waste collected along the riverbank**.
 - This can generate income for local communities, encourage waste collection, and promote sustainable practices.



Note:

Art and Culture

Highlights

- Evolution of Music System

- Kozhikode, UNESCO's City of Literature

Evolution of Music System

Why in News?

A recent study revealed chimps' ability to dance in tune with rhythmic music suggesting an evolutionary link in our sense of rhythm. Archaeological evidence, including a 40,000-year-old flute made from animal bone, provides insights into the origins of human musical expression.

What are the Findings of the Recent Study?

- **Origin of Music in Humans:** According to this study, humans likely began singing after the development of speech during the **Old Stone Age, approximately 2.5 million years ago**.
 - Evidence suggests that the ability to play musical instruments emerged around **40,000 years ago, exemplified by the discovery of a flute made from animal bone** with seven holes.
- **Musical Notations:** In India, musical notes ('sa, re, ga, ma, pa, da, ni') are believed to have originated during Vedic times (**1500-600 BCE**), forming the basis of Indian classical music traditions.
 - Musical notation systems were established **independently in Europe** and the **Middle East** around the **9th century BCE**, using spaced notations ('do, re, mi, fa, sol, la, ti').
- **Evolution of the Indian Music System:** Indian music evolved in the ancient, medieval and modern periods.

How Indian Music Evolved in the Ancient Period?

- **Origins in the Sama Veda:** The roots of Indian music stretch back to the **Sama Veda**, where slokas were harmonized with music.
 - **Narada Muni** introduced the art of music to humanity and imparted knowledge of **Naada Brahma**, the cosmic sound that permeates the universe.

- **Development of Vedic Music:** Initially centred around single notes, Vedic music progressively incorporated two and then three notes.
 - This evolution **culminated in the establishment of the seven basic notes (saptaswaras)** that form the basis of Indian classical music.
 - Vedic hymns were integral to **religious rituals such as yagas and yagnas**, where they were sung and danced to the accompaniment of string and percussion instruments.
- **Early Tamil Contributions:** Scholars like **Ilango Adigal and Mahendra Verma** contributed significantly to the musical ideas in ancient Tamil culture, documented in texts such as **SilappadiKaaram and Kudumiyamalai** inscriptions.
 - Ancient Tamil treatises, like **Karunamrita Sagara**, provided insights into **ragas represented by various 'pans'** and the understanding of sthayi (octave), srutis, and swarasthanas.

How Indian Music Evolved in the Medieval Period?

- **Unified Musical System:** Up until the **13th century**, India maintained a **cohesive musical system** grounded in fundamental principles such as **saptaswaras** (seven notes), octaves, and sruti (microtones).
- **Introduction of Terms:** Haripala coined the terms **Hindustani and Carnatic music**, marking the distinction between northern and southern musical traditions.
- **Impact of Muslim Rule:** With the arrival of **Muslim rulers in North India**, Indian music assimilated influences from **Arabian and Persian musical systems**. This interaction broadened the scope of **Indian musical expression**.
- **Regional Stability and Flourishing:** While North India experienced **cultural exchanges**, South India remained relatively insulated, fostering the uninterrupted **growth of classical music supported by temples and Hindu monarchs**.

Note:

- **The Emergence of Distinct Systems: Hindustani and Carnatic music** evolved as distinct systems, each rooted in Vedic principles yet exhibiting unique regional flavours and stylistic nuances.
- **Influence of Bhakti Movement:** The 7th century onwards saw the rise of numerous saint singers and religious poets across India, including **Purandara Dasa in Karnataka**, who systematised **talas (rhythmic cycles)** and contributed significantly to devotional song compositions.
 - During this era, classifications of **ragas** became clearer, laying the foundation for the **melodic structure** that defines Indian classical music.
- **Expansion and Refinement:** This era witnessed significant growth in the **quality and quantity of musical forms, including Ragas, Talas (rhythmic cycles)**, and musical instruments.
- **Emergence of Musical Forms:** Composition forms such as **Khayal, Thumri, and Tarana** gained prominence during this period, contributing to the diverse repertoire of Hindustani classical music.
- **Gharanas:** Distinct musical traditions known as gharanas, such as **Agra, Gwalior, Jaipur, Kirana, and Lucknow**, flourished during this period, each contributing unique stylistic elements to **Hindustani music**.

How Indian Music Evolved in the Modern Period?

- **Legendary Musicians:** Renowned musicians like **Ustad Alladia Khan, Pt. Omkarnath Thakur, Pt. Vishnu Digambar Paluskar and Ustad Bade Gulam Alikhan** emerged as icons of 20th-century Hindustani music, enriching the tradition with their mastery and innovations.
- **Preservation through Notation:** The advent of **notation systems** ensured the preservation and accessibility of musical compositions across generations, safeguarding invaluable musical heritage.
- **Systematization of Hindustani Ragas:** **Pandit Vishnu Narayan Bhatkhande** played a pivotal role in systematising Hindustani Ragas under the '**Thaat**' system, laying a structured foundation for musical education and performance.
- **Scholarly Compositions:** Numerous scholarly musical forms such as **Kritis, Swarajatis, Varna, Pada, Tillana, Jawali, and Ragamalikas** were composed.

- These compositions drew inspiration from ancient prabandhas while evolving in musical and lyrical sophistication.

Read more:

- [Hindustani Music](#)
- [Carnatic Music](#)

Kozhikode, UNESCO's City of Literature

Why in News?

Recently, **UNESCO** recognised **Kozhikode** as the '**City of Literature**' under the **UNESCO Creative Cities Network (UCCN)**.

What is the UNESCO Creative Cities Network?

- **About:**
 - **UNESCO Creative Cities Network (UCCN)** was created in 2004.
 - The network covers seven creative fields namely **Crafts and Folk Art, Design, Film, Gastronomy, Literature, Media Arts and Music**.
 - The **annual conference of mayors and other stakeholders** of network cities offers a unique occasion to **strengthen ties between creative cities** from across the world.
 - In 2024, the conference will be held in July in **Braga, Portugal**.
- **Objective:**
 - In 2024, **350 cities** make up this network which aims towards a common objective of placing **creativity and cultural industries** at the heart of their development plans at the local level and cooperating actively at the international level.
 - The **UNESCO Creative Cities** aims to achieve **Sustainable Development Goals¹¹** through innovative thinking and action to benefit communities at the urban level.
- **Significance:**
 - **UNESCO Creative Cities** pledge to share **best practices and develop partnerships** involving **public and private sectors** as well as **civil society** to strengthen the creation, production, and distribution of **cultural activities**.

Note:

Which are Indian Cities in UCCN?➤ **Kozhikode:**

- **Kozhikode** hosts many prominent personalities of **Kerala's literary and cultural world**, leading **media houses, several libraries** (over 500 libraries) and has also produced many **films and theatre professionals** over the years.
- The **first Malayalam novel Kundalatha** was written by **Appu Nedungadi** in Kozhikode in 1887.
- Many renowned writers like **S. K. Pottekkatt, Thikkodiyar and P. Valsala Sanjayan**, along with

poets, scholars, and publishers have contributed to the diversity and vibrancy of **Malayalam literature and culture**.

➤ **Other Indian cities in the UCCN:**

- **Jaipur:** Crafts and Folk Arts (2015),
- **Varanasi:** Creative City of Music (2015),
- **Chennai:** Creative City of Music (2017),
- **Mumbai:** Film (2019),
- **Hyderabad:** Gastronomy (2019), and
- **Srinagar:** Crafts and Folk Art (2021).



Note:

History

Highlights

- Inauguration of Nalanda University

- Holocaust and World War II

Inauguration of Nalanda University

Why in News?

Recently, the campus of Nalanda University was formally inaugurated by the Prime Minister of India.

- It is spread across 455 acres, located in Rajgir, Bihar. The site is only 12 km away from the ruins of the ancient Buddhist monastery of the same name.

What is the History and Revival Efforts of Nalanda University?

➤ History:

- **Gupta Emperor** Kumaragupta (Shakraditya) of the **Gupta dynasty** founded Nalanda University in **427 CE** in modern Bihar in the early 5th century, and it flourished for 600 years until the 12th century.
- During the era of **Harshavardhana** and the **Palas monarchs**, it rose to popularity.
- During King **Harshavardhana's reign (606-647 AD)** Chinese scholar **Xuan Zang** (also known as **Hiuen Tsang** and **Moksadeva**, a **7th-century Chinese Buddhist monk**, scholar, traveller, and translator) came here and studied for about 5 years.
 - He also carried back many scriptures from Nalanda, which were later translated into Chinese.
- In **670 AD**, another Chinese pilgrim **I-Tsing** visited Nalanda. He stated that Nalanda housed 2,000 students and was supported by money from 200 villages.
 - A large number of students have come to study from **China, Mongolia, Tibet, Korea**, and other Asian countries.
- Archaeological evidence also indicates contact with the **Indonesian Shailendra dynasty**, one of whose kings built a monastery in the complex.

- Spiritual divines like **Lord Buddha** and **Lord Mahavira** meditated in this region, adding to the positive vibrancy of the area.
- Great masters such as **Nagarjuna, Aryabhata**, and **Dharmakirti** contributed to the scholarly traditions of ancient Nalanda.
- The university was **destroyed in 1193 by Bakhtiyar Khilji, a general of the Turkish ruler Qutbuddin Aibak**.
- It was rediscovered in 1812 by Scottish surveyor **Francis Buchanan-Hamilton** and later identified as the ancient university by **Sir Alexander Cunningham** in 1861.

➤ Attacks:

- The first attack on Nalanda Mahavihara occurred between **455-470 AD** during the reign of Emperor **Samudragupta** of the Gupta Empire.
 - The attackers were the **Hunas**, a Central Asian tribal group, primarily motivated by the **desire to loot the university's valuable resources**.
 - **Emperor Skanda Gupta** later re-established the university. It was during his reign that the renowned Nalanda library was founded.
- The second attack on Nalanda Mahavihara occurred in the **early 7th century**, planned by **Goudas emperors** of Bengal.
 - The attack was driven by political tensions with **Emperor Harshavardhana** of Kannauj.
 - Despite destruction, the university was restored by Harshavardhana, allowing Nalanda to continue its mission of global knowledge dissemination.

➤ Revival:

- The idea for revival emerged in the early 2000s. Former President A.P.J. Abdul Kalam, the **Singapore** government, and leaders of **East Asian Summit (EAS)** countries all advocated for Nalanda's return.

Note:

- The **Indian Parliament** passed the **Nalanda University Act in 2010**, providing a legal framework for the new institution.
- Nalanda University is envisioned as a **collaborative effort** between **India** and other **East Asian nations**, symbolising a renewed focus on regional knowledge exchange.
- The Bihar government provided a 455-acre site near the ancient ruins. The architect, **B.V. Doshi**, **designed an eco-friendly campus** reflecting the spirit of the past while incorporating modern amenities.
- The **university offers postgraduate programs in various fields**, including Buddhist Studies, Historical Studies, Ecology and Environmental Studies, and International Relations.
- The **Campus is a 'Net Zero' Green Campus**. It is self-sustainable with a solar plant, domestic and drinking water treatment plant, **water recycling plant for reusing wastewater**, 100 acres of water bodies, and many other environment friendly facilities.
- The ruins of Nalanda University was declared as a **UN Heritage Site in 2016**.

East Asia Summit

- The EAS was established in 2005 as an **Association of Southeast Asian Nations (ASEAN)**-led initiative.
- It is the only leader-led forum in the Indo-Pacific that brings together all key partners to discuss political, security and economic issues of strategic importance.
- It operates on the principles of **openness, inclusiveness, respect for international law**, ASEAN centrality, and ASEAN's role as the driving force.

UNESCO's Heritage Sites Related to Buddhism:

- Archaeological Site of **Nalanda Mahavihara at Nalanda, Bihar**
- Buddhist Monuments at **Sanchi, MP**
- **Mahabodhi Temple** Complex at Bodh Gaya, Bihar
- **Ajanta Caves** Aurangabad, Maharashtra.
- The **Buddhist chanting of Ladakh** was included in **UNESCO's Representative List of Humanity's Intangible Cultural Heritage** in 2012.



Read more: [Dhamma Dipa International Buddhist University](#)

Holocaust and World War II

Why in News?

Recently, the **United Nations (UN)** report has warned that **Artificial Intelligence (AI)** technology is being used to spread misinformation and hate-driven stories about **World War II** atrocities.

- It also warns that AI can also unintentionally create untrue or deceptive content related to the **Holocaust**, which can pose a significant risk of fueling the spread of anti-Semitism (hatred, prejudice for Jewish people).

What was Holocaust Incident?

- **About:**
 - The word 'holocaust' comes from the Greek "**holokauston**", meaning "**an offering consumed by fire**".
 - It refers to the **systematic state-sponsored persecution and murder** of around 6 million European **Jews by Adolf Hitler's Nazi regime**.
 - It took place between **1941 and 1945**, with the planning and early persecution phases beginning **as early as 1933** when Adolf Hitler came to power in Germany.
- **Reason:**
 - The Nazis, motivated by **antisemitism** and a commitment to **racial purity**, saw Jews as a danger to the **Aryan race**. They also singled out other groups due to their **racial, ideological, and political convictions**.

Note:

➤ **Historical Context:**

- The defeat of Germany in **World War I (1914-18)** and the subsequent global **economic depression** of the 1930s created a tumultuous environment in the country which led to the rise of **Nazi Party**, led by **Adolf Hitler**.
- Hitler was appointed as the **German Chancellor** in 1933, and he immediately set out to consolidate his control over the government and the country.
- Once in power, Hitler moved swiftly to suppress all political opposition, curb press freedom, and begin the **systematic persecution of various groups** deemed **undesirable** by the Nazi regime.
- The groups targeted for persecution by the Nazis included **homosexuals, Romani people, individuals with disabilities**, and most notably, the **Jewish population**.

➤ **Persecution of Jews:**

- Jewish constituted less than **1% of Germany's population** but the community was **perceived as economically privileged**.
- Hitler's ideology blamed Jewish people for Germany's **World War I** defeat and the economic hardships of the 1930s.
- A **series of laws were enacted to strip Jews of their civil and political rights**, and Nazi paramilitaries terrorised Jewish communities.
- The situation escalated dramatically with events like **Kristallnacht (the Night of Broken Glass)** in 1938, during which **Nazi mobs destroyed Jewish-owned businesses, synagogues**, and homes, and assaulted and killed numerous Jews.
- As persecution intensified, the outbreak of **World War II** in 1939 following **Germany's invasion of Poland** exacerbated the plight of the Jewish population.
 - This invasion marked the beginning of **Hitler's aggressive expansionism aimed at securing "lebensraum" (living space) for the German people**.

➤ **The Final Solution:**

- The **"Final Solution to the Jewish Question"**

was a **systematic and organised effort** by Nazis for genocide of millions of Jews to eradicate the Jewish population.

- The Nazis believed that killing the Jews would be more "efficient" than forcing them to migrate.
- The plan began with the increasing **ghettoization** (isolation) of Jewish people, followed by **forced deportations to concentration camps**.
 - Millions of Jews were sent to concentration camps, where they were forced to do labour and kept in appalling conditions.
- Some of the concentration camps were equipped with **sophisticated gas chambers**, which were used for the collective murder of Jews and other **"undesirable"** population groups.

➤ **Auschwitz and the Concentration Camps:**

- **Concentration camps** were places of imprisonment to confine and persecute people deemed undesirable or a threat.
- **Auschwitz (in Poland)** was the largest Nazi concentration camp.
 - It became a **symbol of the Holocaust's brutality** as over 1.1 million people, mostly Jews, perished there from torture, starvation, disease, and gas chambers.
 - **Liberated in 1945**, the camp now serves as a memorial to the victims.

➤ **International Holocaust Remembrance Day:**

- Auschwitz became infamous for the cruelty and inhumane treatment inflicted upon its prisoners by the camp guards, who frequently subjected them to torture and abuse out of sheer malice and sadistic pleasure.
- The liberating of the camp by the **Red Army** (armed forces of the Soviet Union) on **27th January 1945** brought an end to its horrific operations, a date that is now observed globally as **International Holocaust Remembrance Day** to honour the memory of the victims.

Note:





What was World War II?

➤ About:

- **World War II** (1939-1945) is one of the most significant and devastating conflicts in human history.
- It was fought between the **Axis powers** (Germany, Italy, and Japan) and **Allied powers** (France, Great Britain, the United States, the Soviet Union, and, to a lesser extent, China).
- Nearly some 100 million people had been militarised, and 50 million had been killed (around 3% of the world's population).

Note:

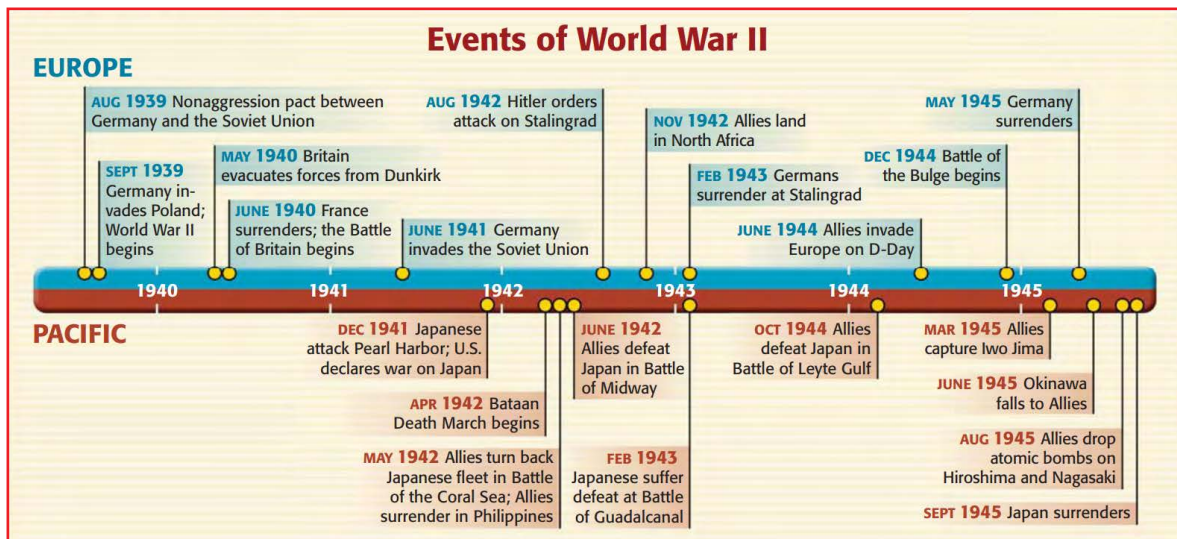
- **World War I (1914-18)** was fought between **Allied Power** (France, Russia and Britain) and **Axis (Central) Power** (Germany, Austria-Hungary, the Ottoman Empire, and Bulgaria) in which Allied Powers won.
- **Causes of War:**
 - **The Treaty of Versailles:** After **World War I**, the victorious Allied Powers forced Germany to sign the Treaty of Versailles, which made **Germany accept guilt for the war, pay reparations, lose territory, and prohibited them from having a large military.**

Note:

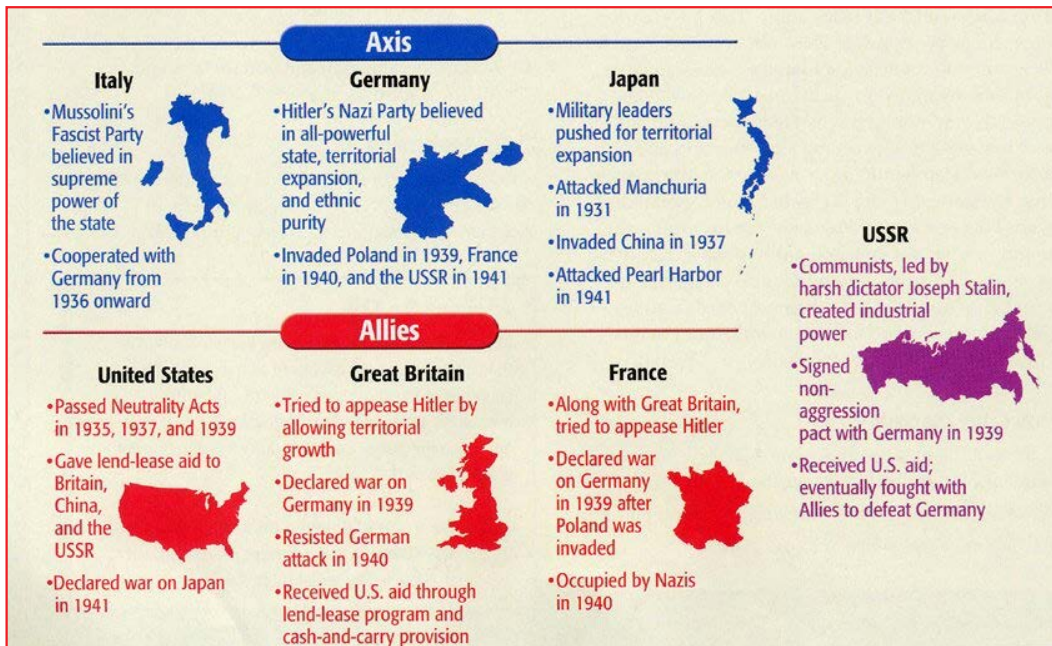
- This humiliation paved the way for the spread of **Ultra-Nationalism** and **Nazi regime** under Adolf Hitler in **Germany**.
- **Failure of League of Nations:** The **League of Nations**, established in **1919** to maintain **global peace**, ultimately failed due to not all countries joining and lacking an army to prevent military aggression.
 - Examples include League's **inability to intervene in conflicts**, such as the **Italian invasion of Ethiopia** and the **Japanese invasion of Manchuria**, undermining its credibility and effectiveness.
- **The Great Depression:** The global **economic depression** of the **1930s** exacerbated **political and social instability** in many countries, contributing to the rise of extremist movements.
 - The economic difficulties faced by **countries** like Germany and Japan led them to **pursue aggressive expansionist policies** to secure resources and markets.
- **The Rise of Totalitarian Regimes:** The establishment of authoritarian and totalitarian regimes, such as **Nazi Germany, Fascist Italy, and Imperial Japan**, with their **expansionist and militaristic ideologies**, was a major factor in the outbreak of the war.
 - These regimes sought to expand their power and influence, often through the use of military force.
- **The German Invasion of Poland (1939):** The invasion was a violation of the Munich Agreement

and was the immediate **trigger for the outbreak of World War II**.

- This invasion prompted **declarations of war from France and the United Kingdom against Germany**, marking the beginning of the war in Europe.
- **The Japanese Expansion in Asia:** The Empire of Japan's aggression in Asia, including the **invasion of China and the attack on Pearl Harbor in 1941**, brought the United States into the conflict.
 - Japan's expansionist policies and desire to control resources and territories in the Pacific region contributed to the outbreak of the war in the Pacific.
- **The End of the War and its Aftermath:**
 - **End of War:** The war in Europe ended with the **surrender of Germany** on 8th May 1945, following the **capture of Berlin** and the **suicide of Adolf Hitler**.
 - The war in the Pacific concluded with the **atomic bombings of Hiroshima and Nagasaki**, leading to Japan's surrender on 15th August 1945.
 - **New Superpowers:** World War II brought about **changes in the status of countries and continents**. Britain and France lost their positions of preeminence as superpowers and **yielded place to the USA and the USSR**.
 - **Start of Decolonisation:** After World War II, Britain and France faced significant domestic and international challenges that **weakened their control over their vast colonial empires**, which led to decolonisation in Africa and Asia and **redrawing of boundaries to establish sovereign nation-states**.

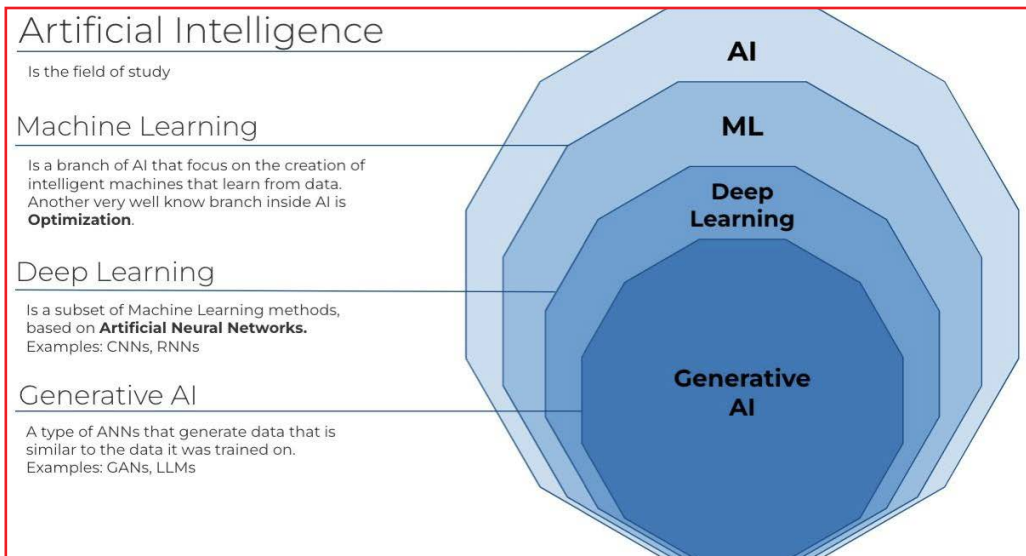


Note:



Artificial Intelligence

- **Artificial intelligence**, or AI, is technology that enables computers and machines to simulate human intelligence and problem-solving capabilities.
- It is the ability of a computer, or a robot controlled by a computer to do tasks that are usually done by humans because they require human intelligence and discernment.
- **Characteristics & Components:**
 - The ideal characteristic of artificial intelligence is its ability to rationalize and take actions that have the best chance of achieving a specific goal. A subset of AI is **Machine Learning (ML)**.
 - Deep Learning (DL) techniques enable this automatic learning through the absorption of huge amounts of unstructured data such as text, images, or video.



Note:

Geography

Highlights

- Low Snow Persistence in Hindu Kush Himalayas
- India's Water Stress and Hydropower
- Summer Solstice 2024
- Cold Lava

Low Snow Persistence in Hindu Kush Himalayas

Why in News?

The recent report from the [International Centre for Integrated Mountain Development \(ICIMOD\)](#) has shown that the snow persistence in the [Ganga, Brahmaputra, and Indus basins](#) of the [Hindu Kush Himalayas \(HKH\)](#) has reached record low levels.

- **ICIMOD** is a regional intergovernmental organisation established in **1983** and working **towards a greener, more inclusive, and climate-resilient** Hindu Kush Himalaya.

What are the Findings of the Report?

- **Global Findings:**
 - The **Amu Darya river basin** in Afghanistan reported its lowest snow persistence, the **Helmand River**, crucial for Iran and Afghanistan's drinking water supply, saw its snow persistence nearly 32% below normal.
 - China's **Yellow River basin** exceeding normal levels by **20.2%**, is influenced by the interaction of **cold air from the east asian winter monsoon** with moist air from the **Pacific Ocean**.
- **India's Context:**
 - The report analysed data from 2003 to 2024, revealing that the Ganga River basin experienced its **lowest snow persistence in 22 years**, and the Brahmaputra basin recorded a **14.6% decrease** in snow persistence compared to normal levels.
- **Reason Behind Low Snow Persistence:**
 - **Impact of Weakened Western Disturbances and Global Warming:**
 - This study reveals that weakened **western disturbances** from warmer seas in the

Mediterranean, **Caspian, and Black Seas** have reduced **winter precipitation and snowfall** in the Hindu Kush Himalaya region.

- Additionally, global warming has intensified **La Niña and El Niño events**, further decreasing the region's snow persistence capacity.
- The **1.5°C global temperature limit** set under the **Paris Agreement** may not be sufficient for the Hindu Kush Himalayan (HKH) region, as this area is expected to experience higher temperature increases than the global average.
- **Environmental Degradation:**
 - Environmental degradation in the HKH region, driven by **deforestation, overgrazing, unsustainable land practices**, and infrastructure development, is leading to profound impacts such as **soil erosion, loss of biodiversity, and water pollution** in the region.
 - **The Proliferation of Invasive Species:**
 - The proliferation of invasive species such as **Cirsium arvense (Canada thistle)** and **Trifolium repens (white clover)** poses a significant threat to native Himalayan species, upsetting the delicate balance of the region's ecosystem.
- **Key Recommendations:**
 - **Long-term Strategies:**
 - This study suggests that **reforestation** with native species such as **Cirsium arvense** improves **snow retention** in the HKH region.
 - Enhanced **weather forecasting** and **early warning systems**.
 - Improved **water infrastructure** and enact protective policies for snow-receiving areas.
 - **Community involvement** in decision-making along with promoting regional cooperation will help restore the HKH region.

Note:



○ Climate Change Mitigation:

- Reduce emissions to mitigate rising temperatures and focus on **G-20 countries** as they are responsible for 81% of global emissions
- Shift away from **fossil fuels** towards **cleaner energy sources**.

What is Snow Persistence?

➤ About:

- Snow persistence refers to the **duration that snow remains on the ground**. When this snow melts, it crucially contributes water to both people and ecosystems.

➤ Significance

- In the **Hindu Kush Himalaya (HKH) river basins**, snowmelt represents the largest water source for streams, **contributing 23%** of the annual runoff across the region's 12 major river basins.
 - These river basins provide water to almost one-fourth of the world's population and are a significant freshwater source for **240 million people** in the HKH region.
- In the **Ganga River basin**, the persistence of snow on the ground is particularly significant because its melt **contributes 10.3%** of the Ganga's water, whereas glacier melts contribute only 3.1%.
- Similarly, in the Brahmaputra and Indus river basins, snowmelt provides **13.2% and approximately 40%** of their respective water supplies, in contrast to 1.8% and 5% from glaciers.

What is the Hindu Kush Himalaya Region?

➤ Geographical Spans of HKH:

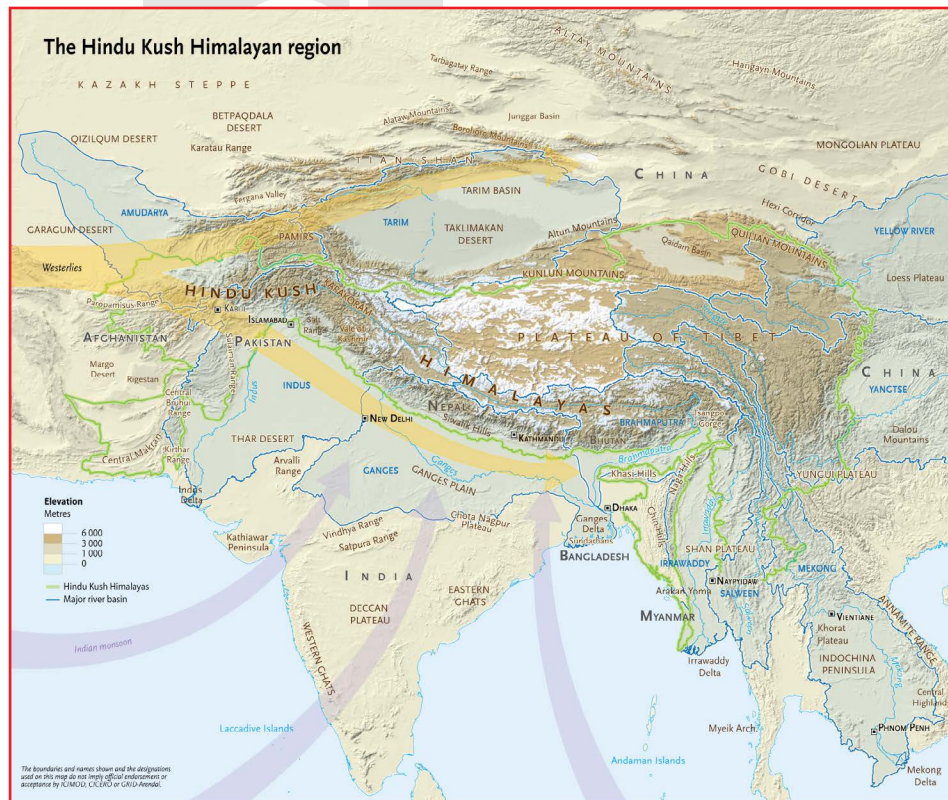
- The Hindu Kush Himalayan (HKH) region spans **Afghanistan, Bangladesh, Bhutan, China, India, Kyrgyzstan, Mongolia, Myanmar, Nepal, Pakistan, Tajikistan, and Uzbekistan**.

➤ Third Pole:

- Often referred to as the **Third Pole** due to its **vast ice and snow reserves**, it holds immense climatic significance.
- This region hosts the largest concentration of ice and snow outside the **Arctic and Antarctica**.
- The **ice and snow** from the HKH region serve as crucial water sources for **major rivers**, which flow through 16 countries across Asia.

➤ Key River Systems and their Destinations from HKH:

- **South Asia:**
 - Indus, Ganga, Brahmaputra → Arabian Sea and Bay of Bengal



Note:

- **Central Asia:**
 - Syr Darya, Amu Darya → former Aral Sea basin
- **East Asia:**
 - Tarim → Taklamakan Desert
 - Yellow River → Gulf of Bohai
 - Yangtze → East China Sea
- **Southeast Asia:**
 - Mekong → South China Sea
 - Chindwin, Salween, Irrawaddy → Andaman Sea

India's Water Stress and Hydropower

Why in News?

Recently, **Moody's Ratings** has warned that **India's escalating water shortage, climate change-driven natural disasters** can disrupt several sectors including agricultural production and industrial operations which could undermine the country's **sovereign credit strength**.

What is the Current State of Hydropower Generation in India?

- **Current State of Hydropower Generation:**
 - Hydropower generation in India has **declined by 17.33%** from 162.05 billion units in FY23 to **133.97 billion units in FY24**.
 - India's installed large **hydro capacity currently stands at 46.92 GW**, constituting approximately **10% of the nation's total power generation capability of 442.85 GW**.
 - **Capacity addition** of large hydropower projects witnessed a **decline in FY24**, with only **60 MW added** compared to 120 MW in FY23.
- **Factors Responsible of Low Hydropower Generation:**
 - **Delayed and Irregular monsoons:** The southwest monsoon has been **delayed this year** and the patchy rainfall due to **El-nino Effect** and a prolonged dry spell last year have left water reservoirs drying up.
 - **Low Reservoir Levels:** India's 150 key reservoirs had a **live storage of only 37.662 BCM, representing 21%** of their live storage capacity and 80% less than the previous year.
 - The **Indira Sagar reservoir** in Madhya Pradesh, which supports a hydel capacity of 1 GW, is

currently **17% full**, down from 24% at this time last year (2023).

- Meanwhile, the **Koyana dam** in Maharashtra, with a hydro power capacity of 1.9 GW, is at **10% capacity**, lower than the usual level of 15% for this time of year.
- **Shutdown of Hydropower Plants:** Some hydropower plants were shut down in the last few years **due to the adverse impact of floods and cloudbursts**, and these plants are yet to resume operations.
- **Implications of Low Hydropower for Energy Sector:**
 - **Increased Reliance on Thermal Power:** With declining hydropower generation compared to last year, **coal-fired power plants will have the load** to meet the rising power demand.
 - **Disruptions in Power Supply:** Industries with high water usage, such as **coal power plants and steel makers**, will be impacted by the shortage of water supply.
 - Further delay in monsoons has led to several **thermal power plants not undergoing the required maintenance**, which may lead to **faults and trippings** in power supply.
 - **Reduced Hydropower Potential:** The decline in water availability will further limit the **potential for hydropower generation**, which is a crucial component of India's **renewable energy** component.

What are Threats to India's Sovereign Credit Profile Identified by Moody's Ratings?

- **Moody** has highlighted a **potential threat to India's sovereign credit profile** arising from the **nation's water scarcity**.
- **Moody's** has currently assigned India a **Baa3 stable rating**, the **lowest investment-grade** and warned that India's low investment-grade credit rating could be downgraded due to **water scarcity** and the **increasing frequency and severity of climate change-driven natural disasters**.
- It has raised concern regarding critical sectors like **manufacturing, coal-fired power plants, steel production and agriculture**, which would be most affected by it leading to **inflationary pressures** on food prices, **reduced incomes** for affected businesses and communities and **increased volatility** in India's economic growth.

Note:

What is the Current State of Water in India?

- **Water scarcity:** India has a large population (18% of the world's total) but limited freshwater resources (only 4% of the world's total). This makes it a water-stressed country.
- **Water pollution:** Around 50% of India's rivers are contaminated and polluted, making the water unsafe for drinking or irrigation.
- **Overdependence on groundwater:** India is the world's largest user of groundwater, which is leading to depletion of these resources.
 - Groundwater plays a vital role in ensuring water security in rural and urban areas, fulfilling around 80% of the drinking water requirements and two-thirds of agricultural irrigation needs in the country.
- **Climate Vulnerability:** Around three-quarters of India's districts are vulnerable to extreme weather events like droughts and floods, which can further disrupt water availability.

Note:

- According to a study conducted by the **Council on Energy, Environment and Water (CEEW)**, 55% of tehsils in India have encountered a substantial increase of more than 10% in southwest monsoon rainfall over the past decade compared to the preceding three.

What are the Causes of Water Stress in India ?

- **Rapid Economic Growth and Urbanisation:** India's population has grown rapidly, from 361 million in 1951 to over 1.3 billion in 2024.
 - This has led to a significant increase in water demand for both domestic and industrial uses, putting a strain on already stressed resources. Industries, major water consumers, further exacerbate the problem by polluting water bodies with their effluents.
- **Declining Water Availability:** According to the Ministry of Jal Shakti, India's average annual water availability per capita is likely to drop to 1,367 cubic metres by 2031 from an already-low 1,486 cubic metres in 2021.
 - A level below 1,700 cubic metres indicates water stress, with 1,000 cubic metres being the threshold for water scarcity.
- **Climate Change and Weakening Monsoon Patterns:** The Indian Ocean has been warming at a rate of 1.2

degrees Celsius per century during 1950-2020, and this is expected to intensify to 1.7-3.8 degrees Celsius during 2020-2100.

- This warming is leading to a narrowing gap between land and sea temperatures, weakening the monsoon circulation and resulting in more severe and frequent droughts.
- Changing weather patterns and melting glaciers in the Himalayas are altering the availability and distribution of water resources.
- **Agricultural Practices and Inefficient Usage:** Agriculture accounts for over 80% of India's total water usage.
 - Inefficient irrigation techniques, such as flood irrigation, cultivation of water-intensive crops like rice and sugarcane in water-scarce regions further strains water resources.
- **Groundwater Depletion:** According to the Central Ground Water Board, 54% of India's groundwater resources are overexploited due to excessive and unregulated groundwater extraction for irrigation and other purposes.
- **Poor Water Infrastructure and Management:** India's water management system suffers from deficiencies in infrastructure and governance. Inadequate storage, distribution, and treatment facilities lead to significant water losses and inefficiencies.
 - Additionally, weak water management policies, monitoring, and enforcement worsen these issues.
- **Water Pollution:** Industrial effluents, agricultural runoff, and domestic sewage have polluted many of India's surface and groundwater resources. This has reduced the availability of clean, usable water for various purposes.

What are the Implications of Water Scarcity in India?

- **Health Impacts:** Lack of access to safe drinking water can lead to various health issues like dehydration, infections, and waterborne diseases. The **NITI Aayog** reports that around 200,000 people die in India annually due to inadequate water supply and related issues.
- **Ecological Damage:** Water scarcity poses a threat to wildlife and natural habitats, as animals are forced to venture into human settlements, leading to conflicts and endangerment.

Note:

- It has also disrupted the biodiversity and ecological balance of ecosystems.
- **Reduced Agricultural Productivity:** Agricultural sector, which consumes 85% of India's water resources, has been negatively affected with water scarcity leading to reduced crop yields, **affecting food security, and increasing poverty among farmers.**
- **Economic Losses:** Water scarcity can hamper India's economic growth and development by **affecting industrial production, reducing energy generation,** and increasing the cost of water supply and treatment.
 - The **World Bank's 'Climate Change, Water and Economy' report** (2016) warns that countries with water shortages may face a significant setback in economic growth by 2050.
- **Effect on India's Climate Goal:** India targets generating **50% of its electricity from non-fossil fuel sources by 2030** and lower hydropower output would lead to **relying heavily on solar and wind power** to fulfil its climate pledge.

Initiatives Related to Water Management

- [National Water Policy, 2012](#)
- [Pradhan Mantri Krishi Sinchayee Yojana](#)
- [Jal Shakti Abhiyan- Catch the Rain Campaign](#)
- [Atal Bhujal Yojana](#)

Summer Solstice 2024

Why in News?

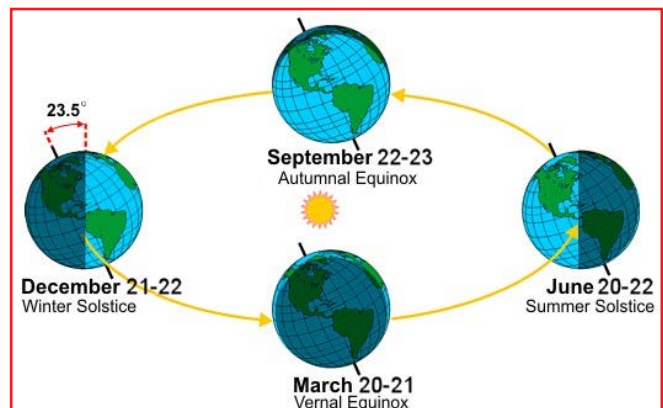
Recently, **21st June** has been marked as the day of the summer solstice in the **northern hemisphere** of the world.

- The **summer solstice** is celebrated as the beginning of summer, or midsummer when one of Earth's poles is at its maximum tilt towards the sun.

What is the Summer Solstice?

- **Origin:**
 - Origin of Summer Solstice can be traced to around **200 BC** when ancient Greek scholar **Eratosthenes**, conducted an experiment to measure the Earth's circumference.
 - He observed that **on the summer solstice, sunlight shone directly down a well in Aswan, Egypt,** indicating the sun was directly overhead.

- By calculating the difference in shadow lengths between Awan and Alexandria cities and the distance between them, Eratosthenes was able to **provide an early and accurate estimate of the Earth's circumference.**
- **About:**
 - The **summer solstice** marks the longest day of the year, when the **sun reaches its highest point in the sky.**
 - During the solstice, the **Earth's axis** (around which the planet spins, completing one turn each day) is tilted in a way that the **North Pole is tipped towards the sun** and the South Pole is away from it.
 - Typically, **this imaginary axis** passes right through the middle of the Earth from top to bottom and is **always tilted at 23.5 degrees with respect to the sun.**
 - At the **Arctic Circle (66°33' north latitude)**, the sun never sets during the solstice.
 - The amount of light received by a specific area in the **Northern Hemisphere** during the summer solstice depends on the latitudinal location of the place.
- **Effect:**
 - During this, countries in the **Northern Hemisphere** are nearest to the Sun and the Sun shines overhead on the **Tropic of Cancer (23.5° North).**
 - The Earth rotates on its axis, causing the Northern Hemisphere **to receive more direct sunlight between March and September.**
 - The amount of **incoming energy the Earth receives** from the sun on this day is **30% higher at the North Pole than at the Equator.**



- **Cultural Significance:**
 - In many cultures, summer Solstice is a significant time of the year which marks festivals and rituals across the globe.

Note:

Note:

- **Summer solstice in the Southern Hemisphere** occurs on **22nd December** each year.

Cold Lava

Why in News?

Recently, a cold lava erupted at **Mt. Kanlaon Natural Park** in the **Philippines** has sent rivers of **cold lava**, or "**lahar**", flowing through a village miles away from the summit on the Negros Island.

What is Cold Lava?

➤ **About:**

- Cold lava, known as **lahar in Indonesian**, is a phenomenon where rain mixes with volcanic materials like **ash, sand, and pebbles**, forming a concrete-like substance.
- Lahar primarily **travels along river valleys** and can reach **extremely high speeds** of up to **75-80 kilometers per hour** or even faster.
- Its flow can be **either hot or cold**, depending on its source and origin, and is primarily associated with **stratovolcanoes**.
 - **Stratovolcanoes** are also called composite volcanoes because of their stratified layers of deposits that form the **flanks of the volcano**.
- Cold lava is considered more **destructive and deadlier**, due to its **high density, abrasive nature, and ability** to cause significant damage to structures and infrastructure.

➤ **Formation:**

- It can occur without **volcanic eruptions**, often triggered by **heavy rainfall or landslides** on the slopes of volcanoes covered in loose volcanic material.
- Volcanic eruptions themselves can generate lahars by **melting snow** and ice present on the volcano or through **pyroclastic flows** that mix with water.
 - Eruptions often generate **scorching hot clouds of gas** and debris known as pyroclastic flows.

- **Lake breakout** floods caused by volcanic landslides can also transform into lahars as they erode and incorporate more **debris and water**, significantly increasing their volume and destructive potential.

What is the Difference Between Cold Lava and Normal Lava?

- **Temperature Variation:** Normal lava is extremely **hot molten rock**, while lahars are not molten and can vary greatly in temperature.
- **Mixtures:** Lava consists solely of **molten rock**, whereas lahars are a **mixture of water and volcanic debris** like ash, rocks, and sand.
 - The composition of lahars, being a dense slurry rather than pure molten rock, allows them to flow faster and further from the volcanic source.
- **Impact:** Lahars can be **more destructive and deadlier compared to regular lava flows** because they can affect and devastate a **much larger area due to their fluid**, flowing nature and ability to incorporate more debris as they travel.
 - This mobility and incorporation of extra material gives lahars the potential to increase massively in volume, compounding their destructive force.

Magma vs Lava

- Magma is the term used to denote the **molten rocks** and related materials **seen inside the earth**. A weaker zone of the mantle called the **asthenosphere**, usually is the source of **magma**.
- **Lava is nothing but the magma above the earth's surface**. Once this magma comes out to the earth's surface through the vent of a volcano, it is called the **Lava**.

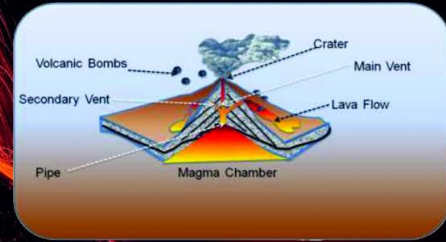
Mud Volcano

- A **mud volcano** or **mud dome** is a landform created by the eruption of mud or slurries, water and gases.
- Mud volcanoes are not **true igneous volcanoes** as they do not produce lava and are not necessarily driven by **magmatic activity**.
- Mud volcanoes may range in size from merely **1 or 2 meters high and 1 or 2 meters wide**, to 700 meters high and 10 kilometers wide.

Note:

VOLCANOES

A volcano is a vent or a fissure in the crust from which lava (molten rock), ash, gases, rock fragments erupt from a magma chamber below the surface



Types: On basis of -

Periodicity of Eruption:

- Active volcano: Recently Erupted
- Dormant Volcano: Potential for eruption, no imminent signs
- Extinct: No recent eruptions, low possibility in future

Nature of Eruption:

- Hawaiian: Calmest types (low gaseous content)
- Strombolian: Formation of large gas bubbles in magma
- Vulcanian: More explosive
- Plinian eruptions: Magma's volatile gases rise via a narrow conduit
- Icelandic: Often build lava plateaus

Shape of Volcanoes:

- Shield volcanoes: Composed of basaltic lava, low slope
- Cone volcanoes (Cinder Cones): Most abundant
- Composite cones (stratovolcanoes): Formed by layers of diverse materials.

Volcanic Features:

Extrusive :

- Crater: Cone-shaped vent for magma
- Caldera: Large, crater-like depression
- Volcanic Plateaus: Leveled areas from fissure eruptions

Intrusive:

- Batholiths: Central core of a volcanic mountain.
- Dyke: Vertical intrusion cutting across country rock bedding.
- Sills: Tabular intrusions along sedimentary bedding.
- Laccoliths: Magma injection along horizontal sedimentary bedding.

Minor:

- Geysers: Underground water above 100°C, powered by magma, results in powerful eruptions with steam and diluted minerals.
- Hot Springs: Heated water flows quietly along fault zones.

Distribution of Volcanoes:

- Subduction zones (Circum Pacific Belt)
- Divergence zones (Mid Atlantic Ridge)
- Intra-plate oceanic volcanism (Hawaiian chain)
- Mid-continental belt and volcanoes in Mediterranean region

Volcanoes in India:

- No volcanoes in Himalayans
- Barren Island (Only active volcano)

Products of Volcanic Eruption:

- Gases: H, C, O, S, N, CH₄, NH₃
- Solid: Pyroclastic materials
- Liquid: Lava



[Cold Lava | Mount Marapi | Indonesia | Latest update | Drishti IAS English](#)

Note:

Disaster Management

Highlights

- Heatwaves as a Notified Disaster

Heatwaves as a Notified Disaster

Why in News?

India's recent heatwave crisis has resurfaced the debate about adding **heat waves** to the list of **notified disasters** covered by the **Disaster Management (DM) Act of 2005** instead of only a natural disaster.

What are Heat Waves?

➤ About:

- A Heat Wave is a period of **abnormally high temperatures** that occurs during the summer season in India.
- Heat Waves typically occur **between March and June**, and in rare cases extend till July.

➤ **IMD** Criteria for Defining Heatwaves:

Criteria	Details
Based on Physiography of the Region	<ul style="list-style-type: none"> ➤ Maximum temperature: <ul style="list-style-type: none"> ○ In Plains at least 40°C or more. ○ in Hilly Regions at least 30°C or more. ○ in Coastal Areas 37°C or more.
Based on Departure from Normal Maximum Temperature	<ul style="list-style-type: none"> ➤ When normal maximum temperature of a station is less than or equal to 40°C: <ul style="list-style-type: none"> ○ Heat Wave: Departure from normal is 5°C to 6°C ○ Severe Heat Wave: Departure from normal is above 7°C. ➤ When normal maximum temperature of a station is more than 40°C: <ul style="list-style-type: none"> ○ Heat Wave: Departure from normal is 4°C to 5°C ○ Severe Heat Wave: Departure from normal is 6°C or more
Based on Actual Maximum Temperature	<ul style="list-style-type: none"> ➤ Heat Wave: When actual maximum temperature is above 45°C (Severe Heat Wave at above 47°C)
Declaration Criteria	<ul style="list-style-type: none"> ➤ The above conditions must be met in at least two stations within a Meteorological sub-division. ➤ The conditions must persist for at least two consecutive days.

Note:



What are the Causes of Heatwaves?

- **Prevalence of Hot and Dry Air:** A large region of **hot and dry air** acts as a **reservoir of heat**. Prevailing winds then transport this hot air to other areas, further elevating temperatures.
- **Absence of Moisture:** Moisture in the air **retains heat and prevents it from escaping** while **dry air allows solar radiation to reach the ground more readily and radiate back out at night** with minimal trapping, resulting in a quicker increase in daytime temperatures.
- **Cloudless Skies:** Clouds act as a shield, reflecting sunlight back into space and preventing it from heating the Earth's surface. **A clear, cloudless sky allows for maximum solar radiation to reach the ground, intensifying heating.**
- **Large Amplitude Anticyclonic Flow:** **Anti-cyclones** are large-scale atmospheric circulation patterns **characterized by sinking air**.
 - This **sinking air compresses and warms adiabatically** (heats up without gaining heat), contributing to rising temperatures at the surface.
- **Geographical Considerations:** Heat waves are more **frequent in regions with arid or semi-arid climates**, such as Northwest India. Prevailing **westerly winds during summer months can spread heat waves eastward and southward.**
- **Climate Change:** Global warming is increasing the **frequency and intensity of heat waves**. Rising baseline temperatures create a more conducive environment for these events to occur.

What are the Impacts of Heatwaves?

- **On Health:** Heat waves can lead to **dehydration, heat cramps, heat exhaustion, and heat stroke**.
 - Symptoms include **swelling, fainting, fever, fatigue, weakness, dizziness, and excessive sweating**. Heat stroke can cause **high body temperatures, delirium, seizures, or coma** and can be fatal.
 - As per the data from the **National Crime Records Bureau (NCRB)**, **730 deaths** occurred due to heat-related causes in 2023.
- **On Water Resources:** These can exacerbate **water scarcity** issues in India by quickly **drying up water bodies**, reducing water availability for agriculture and domestic use, and increasing competition for water resources.

- **Example:** Most of the **major reservoirs in the southern States** are filled to **only 25% of their capacity or less**.
- **On Energy:** Heatwaves can **increase electricity demand** for cooling purposes, leading to **strain on power grids and potential blackouts**.
 - This can disrupt economic activities, **affect productivity, and impact vulnerable populations** who may not have access to reliable electricity for cooling during heat waves.
- **Crops and Livestock:** Heat stress is a major problem for agriculture, **negatively affecting both crops and livestock**.
 - In crops, high **temperatures hinder their ability to use sunlight** for energy, reducing growth and overall yield.
 - For livestock, **heat stress disrupts various physiological functions and behaviours**, with the severity depending on the animal's breed and environment.
- **Wild/Forest Fires:** The **Forest Survey of India** has estimated that **21.4%** area under forest is vulnerable to forest fires.

NDMA Guidelines for Heatwaves:

- **Avoid going out in the sun**, especially between 12.00 noon and 3.00 p.m.
- **Drink sufficient water** as often as possible.
- Wear **lightweight, light-coloured, loose, and porous cotton clothes**. Use protective goggles, an umbrella/hat, shoes or chappals while going out in sun.
- **Avoid alcohol, tea, coffee** and carbonated soft drinks, which dehydrate the body.
- **Avoid high-protein food and do not eat stale food.**
- **Use ORS, homemade drinks like lassi, torani** (rice water), lemon water, buttermilk, etc. which helps to rehydrate the body.
- **Keep animals in the shade** and give them plenty of water to drink.
- **Keep your home cool, use curtains, shutters or sunshade** and open windows at night.
- **Use fans, damp clothing and take bath** in cold water frequently.

Note:

What are Needs and Challenges Related to Heat Waves as a Notified Disaster?

➤ Notified Disasters:

- **Disaster** refers to a catastrophic event arising from **natural or human-made causes**. This event results in **significant loss of life, property damage, environmental degradation, or a combination** of these.
- A **notified disaster** is one that has been **officially recognized by the government**, typically **defined in a legal framework** like the **Disaster Management Act, of 2005**.
 - Currently, **13 categories of disasters** are notified under this Act. These include **cyclones, drought, earthquakes, fire, flood, tsunami, hailstorm, landslide, avalanche, cloudburst, pest attack, frost and cold waves** and **Covid-19**.
- **Financial Assistance:** Being designated a notified disaster makes the affected region eligible for **financial aid** from the 2 funds set up under the DM Act, the **National Disaster Response Fund (NDRF)** at the national level and the **State Disaster Response Fund (SDRF)** at the state.

➤ Challenge in Adding Heat Waves in DM Act:

- **Finance Commission Reluctance:** The Finance Commissions have not been entirely convinced about including heatwaves as a notified disaster.
 - The **15th Finance Commission** allows states to utilise up to **10% of SDRF funds** for **“local disasters”** such as lightning or heatwaves, which states can notify on their own.
- **Huge Financial Implications:** The government has to provide **monetary compensation (Rs 4 lakh) for every life lost due to a notified disaster**. This could be a huge burden given the large number of heat-related deaths.
- **Estimating Deaths:** In most cases, **heat itself does not claim lives directly**. Most people **die due to other pre-existing conditions** made worse by extreme heat, making it difficult to ascertain the exact cause.
- **Potential Exhaustion of Disaster Funds:** The financial allocations to **SDRF and NDRF, though substantial, may become insufficient if heatwaves and other local disasters like lightning are added to the notified list**.

➤ Need for Notifying Heatwaves as Natural Disaster:

- **Improved Resource Allocation:** Notifying heatwave would **unlock dedicated funding and resources for mitigation strategies**, early warning systems, and improved healthcare preparedness.
- **Effective Action Plans:** It would encourage states to develop **comprehensive Heat Action Plans**, outlining clear protocols for public awareness, cooling centres, and support for vulnerable populations.
 - **Notifying heat waves can lead to reporting more death** cases due to financial incentives (Rs 4 Lakh).
- **Increasing Intensity and Frequency:** Heatwaves are becoming more common and severe. The IMD reports a rise in “heatwave days” across the country. **There are 23 states, which are vulnerable to heatwaves.**

What is a Heat Action Plan?

- A **Heat Action Plan (HAP)** is a **comprehensive strategy** developed by governments or organisations to **mitigate the health risks associated with extreme heat events**.
 - It includes **measures to protect vulnerable populations**, provide information and resources, and coordinate responses during heatwaves.
- They outline **short-term measures**, including alerts and inter-departmental coordination, **to reduce human casualties**. HAPs **entail long-term strategies like infrastructure upgrades such as cool roofs and enhanced greenery** to prepare for future heat waves based on data analysis.
- **Odisha** first developed a **Heat Action Plan in 1999** following more than 2,000 Heat Wave deaths in 1998. Following this, **the first city-level Action Plan was developed by Ahmedabad in 2013** following the severe Heat Wave in 2010.
- The **NDMA and IMD are working with 23 States to develop HAPs**. There is no centralised database on HAPs, **but at least 23 HAPs exist at the State and city level**, with a few States, such as **Odisha and Maharashtra, laying out district-level HAPs**.



Note:

Miscellaneous

Highlights

- Kavli Prize

Kavli Prize

Why in News?

Recently, eight scientists were awarded with **2024 Kavli Prize** for their contributions to **astrophysics, neuroscience, and nanoscience**.

- All eight scientists awarded the Prize this year are professors at leading American universities.

Kavli Medal

- The Kavli Medal, distinct from the Kavli Prize, is **awarded annually** for excellence in **environmental science and engineering**.
- It is open to **UK, Commonwealth, or Irish Republic** citizens or residents with at least three years of residency.
- The award **targets early career scientists within 15 years of their PhD**, excluding career breaks.
- Recipients are chosen by the Royal Society Council based on recommendations from the Joint Physical and Biological Sciences Awards Committee. Nominations remain valid for five years, after which candidates must wait a year before being re-nominated.

What is the Kavli Prize?

- **About:**
 - The Kavli Prize is an **international award** that recognizes **scientists** for their outstanding achievements in the fields of **astrophysics, nanoscience, and neuroscience**.
 - This prize, awarded **biennially**, was started in **2008**. It is named after Norwegian-American businessman and philanthropist **Fred Kavli**.
 - Awarded by the **Norwegian Academy of Science and Letters** in partnership with the **Kavli Foundation** and the **Norwegian Ministry of Education and Research**.
- **Comparison with Nobel Prize:**
 - The Kavli Prize is similar to the Nobel in the fields of astrophysics, neuroscience, and nanoscience.
 - The key difference is that the Nobel Prize is awarded for achievements made **"during the preceding year,"** while the Kavli Prize recognises achievements without the restriction of being made in the preceding year.
- **Winners 2024:**

Field	Winners	Contribution
Astrophysics	David Charbonneau of Harvard University, and Sara Seager , of the Massachusetts Institute of Technology.	<ul style="list-style-type: none"> ➤ Achievements: Discoveries and characterisation of exoplanets and their atmospheres. ➤ Contributions: Pioneered methods for detecting atomic species in planetary atmospheres and measuring thermal infrared emissions, crucial for identifying molecular fingerprints in planetary atmospheres.

Note:



Nanoscience	Robert Langer of MIT, Armand Paul Alivisatos of the University of Chicago, and Chad Mirkin of Northwestern University	<ul style="list-style-type: none">➤ Langer: Nano-engineering for controlled drug delivery systems.➤ Alivisatos: Development of semiconductor quantum dots for bio-imaging.➤ Mirkin: Concept of spherical nucleic acids (SNAs) for applications in gene regulation and immunotherapy.
Neuroscience	Nancy Kanwisher (MIT), Winrich Freiwald (Rockefeller University), Doris Tsao (University of California, Berkeley)	<ul style="list-style-type: none">➤ Mapping brain functions related to facial recognition using neuroimaging and neuronal recording techniques, identifying brain centres and neural architectures involved in face processing.

Read more: [Nobel Prize-2023](#)



Note:

Rapid Fire Current Affairs

Highlights

- Cohabitation
- High Speed Expendable Aerial Target 'ABHYAS'
- India's Largest Leopard Safari
- GST on Employee Stock Option Plan (ESOP)
- Treaty of Versailles
- Bankim Chandra Chattopadhyay
- World Drug Day 2024
- 64th International Sugar Organization Council Meeting
- Ladakh Achieves Full Functional Literacy
- India Africa Postal Leaders Meet
- Rise of India's External Debt
- Honours to India's Hansa Mehta
- 21st Livestock Census
- Srinagar Recognised as 'World Craft City'
- 350th Anniversary of Chhatrapati Shivaji's Coronation
- Kerala Seeks Renaming to "Keralam"
- Balon Protein
- 647th Birth Anniversary of Sant Kabir Das
- Kanishka Tragedy
- World Medical and Health Games
- Digital Payments Intelligence Platform
- Odisha Extended Hockey Sponsorship
- Striped Caecilian
- US to Train Indian Astronauts at NASA
- Iberian Lynx
- e-Shram Portal Showcased at International Labour Conference
- Pro-tem Speaker
- Viability Gap Funding (VGF) Scheme
- International Day of Yoga 2024
- India-Australia CECA Negotiations
- Security in Parliament
- IPBES wins Blue Planet Prize
- DDT Levels on Decline, POPs on Rise
- Heater Organs in Marsupials
- Russia Ships Equipments to Kudankulam NPP
- SEBI Expands Promoter Definition for IPO Companies
- Mifepristone
- Impact of Rising Sea Level on Delos Island
- HelpAge India Report
- Expansion of DigiYatra Services
- Dark Patterns
- IFC's Investment in Solar Project
- Phenome India-CSIR Health Cohort Knowledgebase (PI-CheCK)
- Tarang Shakti-2024
- MoU to Convert 10,000 FPOs into CSCs
- Global Wind Day 2024
- Monsoon Croaks Bioblitz
- FSSAI Cracks Down on Misleading "100% Fruit Juice" Claims
- Musankwa Sanyatiensis
- India's TB Diagnostics Tech Wins Acclaim at WHA

Cohabitation

Recent **opinion polls** for the **French legislative elections** suggest the possibility of a **cohabitation** in the French **Parliament**.

- **Cohabitation** is a situation where the **President** and the **Prime Minister** (leader of the **National Assembly**) come from **different political parties**.
 - This occurs when the **President's party does not have a majority in the National Assembly**, leading to the appointment of a **Prime Minister from the opposition party or coalition**.

- In this **power-sharing arrangement**, the President handles foreign policy and defense, while the Prime Minister focuses on domestic policy and day-to-day governance.
- It **requires cooperation and compromise** between the two leaders to ensure effective governance.
- It has occurred **3 times** in the French Fifth Republic since 1958.
 - The **French Fifth Republic** refers to the **current republican system of government** in France, established by Charles de Gaulle in **1958**, replacing the former parliamentary **Fourth Republic**.

Note:



- France is a **semi-presidential, double-headed executive, representative parliamentary democracy**, with clearly defined roles for the President and the Prime Minister.
Read more: [Laïcité: Principle of Secularism in France](#)

High Speed Expendable Aerial Target 'ABHYAS'

Recently, **Defence Research and Development Organisation (DRDO)** has completed developmental trials of the **High Speed Expendable Aerial Target (HEAT)'ABHYAS'**.

- The trials took place at the **Integrated Test Range (ITR)**, Odisha.
- **ABHYAS** is a **HEAT** being developed at **Aeronautical Development Establishment (ADE)** of DRDO.
 - It is designed to provide a **realistic threat scenario** for practicing the use of **weapon systems**.
 - Abhyas is made for **autonomous flight with the assistance of an autopilot**.
 - It is equipped with systems like **RCS (Radar Cross Section), Visual, and IR (Infrared) augmentation, a laptop-based ground control system, pre-flight checks, and data recording for post-flight analysis** to support weapon practice.
- An expendable aerial target is a low-cost, replaceable drone or **Unmanned Aerial Vehicles (UAVs)** that is used to simulate aerial threats and enable military training, testing, and evaluation activities.




Read More: [ABHYAS: High-speed Expendable Aerial Target](#)


India's Largest Leopard Safari

Recently, **India's largest leopard safari** has been inaugurated at **Bannerghatta Biological Park (BBP)** in Bengaluru, Karnataka.

- The leopard safari at BBP **covers an area of 20 hectares**. It features an undulating terrain with naturally occurring rocky formations and partially **deciduous forests**, and is currently home to 8 leopards.
- **Bannerghatta Biological Park (BBP)** was separated from **Bannerghatta National Park (BNP)** in **2004** and gained its status as a **national park** in **1974**.
 - It is home to free ranging **leopards** (*Panthera Pardus*).
 - It has 4 sections: the **zoo**, the **safari**, the **butterfly park**, and the **rescue center**.
 - The park also includes the valley of the **Champakadhama hills** within its boundaries.



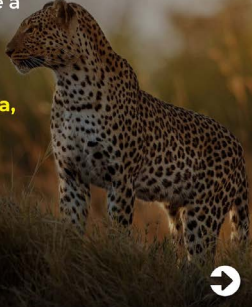
Drishti IAS



Drishti IAS

LEOPARD

- The leopard is the **smallest of the Big Cat family** and is known for adapting in various habitats.
- A **nocturnal animal** feeds on smaller species of herbivores found in its range, such as the chital, hog deer and wild boar.
- A **melanistic leopard** is often called a **black panther** and is mistakenly thought to be a different species.
- **Madhya Pradesh** has the **highest number of leopards (3,907)**, followed by **Maharashtra, Karnataka, and Tamil Nadu**.



Read More: [Status of Leopards in India 2022, International Leopard Day 2023](#)

GST on Employee Stock Option Plan (ESOP)

Recently, **Central Board of Indirect Taxes & Customs (CBIC)** mandated that no **Goods and Services Tax (GST)** will be levied on **Employee Stock Option Plan (ESOP)** issued by Indian subsidiaries of **Multi-National Companies (MNCs)**.

- Based on recommendations by **GST Council**, **CBIC** has mandated that, subject to some conditions, **Employee Stock Option Plan (ESOP), Employee Stock Purchase Plan (ESPP), Restricted Stock Unit (RSU)** issued by foreign firms will **not attract GST**.

Note:

- **ESOP** is an employee benefit plan that gives workers ownership interest in the company in the form of shares of stocks.
- **ESPP** is a plan where employees can purchase company stock directly at a discounted price.
- **RSU** is a plan where employees get incentives from equity stocks in the future (only after vesting period).
- This will **benefit the likes of Google, Microsoft, Oracle, and Walmart**, as well as a large number of tech companies and other MNCs whose Indian employees were getting the benefit from **ESOP plans**.
- **CBIC** which is a part of the **Department of Revenue** under the Ministry of Finance deals with the tasks of formulation of policy concerning levy and collection of **customs, central excise duties, Central GST (CGST) and Integrated GST (IGST)**.

Read More: [Goods and Services Tax \(GST\)](#)

Treaty of Versailles

Recently, the anniversary of the **Treaty of Versailles** was observed which was signed on **28th June 1919**, at the **Palace of Versailles**, in Paris, France.

- It was one of the treaties that officially ended **five years** of conflict known as the **World War I (1914-18)**.
- The Treaty mentioned the conditions of peace between **Germany and the victorious Allies**, led by the **United States, France, and the United Kingdom**.
- The **war guilt clause** of the treaty forced **Germany and other Central Powers** (like **Austria-Hungary**) to take all the blame for **World War I**.
- This led to the **loss of territories, reduction in military forces, and reparation payments** to **Allied powers** by **Germany**.
- **Disintegration of the German population** was later used by **Hitler** to justify German aggression and expansion.
- It further posed severe risks to the entire European economy which led to the **Great Depression of 1929**.
- The treaty caused resentment among Germans who saw it as a **dictated peace** and is considered one of the reasons for **World War II**.
- Also, the treaty led to the formation of the **League of Nations**.

Read more: [World War I](#)

Bankim Chandra Chattopadhyay

Recently, the **185th birth anniversary** of **Bankim Chandra Chattopadhyay** was celebrated.

- Born on **27th June 1838**, **Bankim Chandra Chattopadhyay** was an **exemplary novelist, social satirist, journalist** and the face of the **Bengal Renaissance**.
- He composed **Vande Mataram** in Sanskrit, of which the **first two verses** were adopted as **National song**, and it was a source of inspiration to the people in their freedom struggle.
- One of his and Indian literature's finest texts, **Anandamath (1882)**, which is set in the background of the **Sanyasi Rebellion (1770-1820)**, also contains **Vande Mataram**.
 - **The Sanyasis** rose in rebellion after the great famine of **1770** in **Bengal** which caused acute chaos and misery.
- He also founded a monthly literary magazine, **Bangadarshan**, in **1872**, through which Bankim is credited with influencing the emergence of a Bengali identity and nationalism.
- His other notable works include **Durgeshnandini (1865)**, **Kapalkundala (1866)**, **Krishnakanter Will (1878)**, **Devichaudhrani (1884)**, **Bishabriksha (The Poison Tree)**, **Chandrasekhar (1877)** and **Rajmohan's wife**.
 - He also served as a **lawyer and district judge**.

Read more: [Bankim Chandra Chattopadhyay](#)

World Drug Day 2024

Every year **International Day Against Drug Abuse and Illicit Trafficking**, popularly known as **World Drug Day**, is observed on **26th June**.

- This day was established in **December 1987** by the **United Nations General Assembly**, to raise awareness about the global fight against drug abuse and illicit drug trafficking.
- The **theme for 2024** was **"The evidence is clear: invest in prevention"**.
- The illicit trafficking of narcotic drugs and their abuse is an international problem and as per the **United Nations Office on Drugs and Crime (UNODC)**, around **269 million people worldwide** used drugs in **2018**.

Note:

- Established in 1997, **UNODC** acts as the Office for Drug Control and Crime Prevention globally.
- In India, according to the **Ministry of Home Affairs**, **Uttar Pradesh**, **Maharashtra**, and **Punjab** are the top three states with the highest number of FIRs registered under the **NDPS Act** in three years between 2019 and 2021.

Read more: [International Day Against Drug Abuse and Illicit Trafficking](#)

64th International Sugar Organization Council Meeting

India is hosting the 64th **International Sugar Organization (ISO)** Council Meeting in June 2024 in New Delhi.

- A workshop titled **"Sugar and Biofuels-Emerging Vistas"** was organised in which international delegates, Indian sugar mill executives, industry associations, and technical experts participated.
- It discussed the **future of the global sugar sector, biofuels, sustainability, and the role of farmers.**
- India is the **world's largest consumer of sugar and the second-largest producer after Brazil.**
- **Sugarcane** is the 2nd major feedstock for **ethanol** production (after corn) in the world.
- ISO:
- ISO is a **United Nations (UN)** affiliated body headquartered in **London.**
- It has about **85 member countries** covering **90% of global sugar production** and is mandated to bring major **sugar-producing, consuming and trading nations** together.
- Many member countries of **ISO** and **Global Biofuel Alliance** are common and this can be **another forum to expand the alliance and promotion of biofuels.**

Read more: [Sugarcane Production in India, Sugar Industry](#)

Ladakh Achieves Full Functional Literacy

Recently the **Union Territory (UT) of Ladakh** has been declared to **achieve Full Functional Literacy** under the

ULLAS-Nav Bharat Saksharta Karyakram after having achieved over **97% literacy.**

- **Functional literacy** refers to a person's ability to effectively engage in activities that require reading, writing and calculation **for personal and community development.**

- **Basic literacy** focuses majorly on the acquisition of **3Rs, i.e. reading, writing and arithmetic skills.**

ULLAS-Nav Bharat Saksharta Karyakram or **New India Literacy Programme (NILP):**

- **ULLAS (Understanding Lifelong Learning for All in Society)** is a **centrally sponsored scheme** implemented from **2022-2027.**

- It aims to **empower adults aged 15 years and above** who could **not receive proper schooling.** It aligns with the recommendations of the **National Education Policy (NEP) 2020.**

- ULLAS has benefitted more than **77 lakhs** people across the country.

- **The 5 Components of ULLAS Scheme:** Foundational Literacy and Numeracy, Critical Life Skills, Basic Education, Vocational Skills, and Continuing Education.

- **Other Government Initiatives Related to Education:**

- [National Programme on Technology Enhanced Learning.](#)
- [Sarva Shiksha Abhiyan](#)
- [PRAGYATA](#)
- [Mid Day Meal Scheme](#)
- [Beti Bachao Beti Padhao](#)
- [PM SHRI Schools](#)



Read more: [Akhil Bharatiya Shiksha Samagam and ULLAS Initiative, National Education Policy \(NEP\) 2020.](#)

Note:

India Africa Postal Leaders Meet

Recently, with the aim of strengthening ties among the administrations of African countries and India in the postal sector, the 'India Africa Postal Leaders Meet' was organised in India.

- It is an initiative under the "[South-South and Triangular Cooperation](#)" programme of the [Universal Postal Union](#) and is organised with the support of [India Post](#) and the [United States Postal Service](#).
 - The **key theme** of the meet is **capacity building, through study visits**.
- During the study visits [India Post](#) demonstrated the delivery of services through India Post, including **e-commerce parcels, Dak Niryat Kendras, postal financial services** by the [IndiaPost Payments Bank](#), [Aadhaar enabled services](#), [Passport services](#) and [Digital Life Certificate](#).
- The meet is also significant in the backdrop of Indian led farsighted initiatives like '[Voice of Global South Summit](#)', the [India-Africa forum](#), and inclusion of the [African Union](#) in the [G20](#) during India's Presidency in 2023.
- 42 heads of postal administrations and other senior management personnel as delegates from the postal organisations of **22 African countries** in the [Global South](#) attended the meet.

Read more: [India-Africa Partnership: Achievements, Challenges, and Roadmap 2030](#)

Rise of India's External Debt

India's [External debt](#) increased by **USD 39.7 billion** from March 2023 to reach **USD 663.8 billion** as of end-March 2024.

- **External Debt** is **money borrowed from a source outside the country**, which needs to be **repaid** in the borrowed currency.
 - It can be obtained from foreign commercial banks, international financial institutions such as the [IMF](#) and the [World Bank](#), and from foreign governments.
- The **external debt-to-GDP ratio** declined from 19.0% at end-March 2023 to **18.7% at end-March 2024**.

- There was a **USD 45.6 billion increase in long-term debt** (maturing in over a year) to reach USD 541.2 billion in March 2024.
 - Proportion of **short-term debt** (maturing in up to a year) **decreased** from 20.6% to 18.5%.
 - The ratio of short-term debt to [forex reserves](#) declined from 22.2% to **19%**.
 - India's external debt as of March 2024 was primarily in **US Dollars (53.8%)**, followed by Indian rupees (31.5%), yen (5.8%), [SDR](#) (5.4%), and euro (2.8%).
 - There was an **increase in debt** of both **government and non-government sectors**.
 - [Non-financial corporations](#) held the **highest share** of outstanding debt (37.4%) followed by deposit-taking corporations (except the central bank) (28.1%), general government (22.4%) and other financial corporations (7.3%).
 - **Loans** constitute **33.4% of external debt**, followed by **currency and deposits (23.3%)**, **trade credit and advances (17.9%)**, and **debt securities (17.3%)**.
- Read more:** [Debt Sustainability and Exchange Rate Management](#)

Honours to India's Hansa Mehta

Recently, the President of the [United Nations General Assembly \(UNGA\)](#) honoured [Hansa Mehta](#) on the [International Day for Women in Diplomacy \(24 June\)](#).

- This day honors and acknowledges the contributions and accomplishments of women in the **realm of diplomacy**.
Hansa Mehta:
- She was a prominent **Indian scholar, educator, social reformer, writer and diplomat from India**.
- She was born on **3rd July 1897** and was a **champion of women's rights**.
- Mehta played a pivotal role in revising the [Universal Declaration of Human Rights \(UDHR\)](#) to include **gender-inclusive language**.
 - She successfully changed the phrase, "**All men are born free and equal**," to "**All human beings are born free and equal**" in **Article 1** of the UDHR.
- As the President of [All India Women's Conference \(AIWC\)](#) in **1946**, she led the drafting of the "**Indian Women's Charter of Rights**", which demanded **gender equality, civil rights and justice for women** in India.

Note:



- She was also part of the **Constituent Assembly of India**, a member of its **Advisory Committee** and sub-Committee on **Fundamental Rights**.
 - She was the **only other female delegate**, apart from Eleanor Roosevelt to the **United Nations Commission on Human Rights**.
- Read more: [Empowering Women, Elevating India](#)

21st Livestock Census

Recently, the **Department of Animal Husbandry & Dairying (DAHD)** hosted a workshop for the upcoming **21st Livestock Census** scheduled for **September to December 2024**.

- This aimed to equip State and Union Territory officers with the necessary tools, including a **mobile app** and **software**, for **efficient data collection** during the census.
- Officials were trained on **data collation strategies** and familiarized with various registered breeds of **livestock**.
- A livestock census has been conducted across the country **every 5 years since 1919**.
 - As per the 20th Census conducted in 2019, **total Livestock population** in India is **535.78 million**.
 - The total Bovine population (Cattle, Buffalo, Mithun and Yak) was 302.79 Million.
- For development of livestock, the **National Livestock Mission (NLM)** scheme launched in the **2014-15** consists of 3 sub-missions as **Breed Development of Livestock & Poultry, Feed & Fodder Development and Innovation & Extension**.

Read more: [India's Livestock Sector, 20th Livestock Census](#)

Srinagar Recognised as 'World Craft City'

Recently, Srinagar has become the **fourth Indian city** to be recognised as a **'World Craft City'** by the **World Crafts Council (WCC)**.

- **Jaipur, Malappuram and Mysore** are the other three Indian cities that have earlier been recognised as **World Craft Cities**.
- In 2021, Srinagar city was designated a **creative city** as part of the **UNESCO Creative City Network (UCCN)** for crafts and folk arts.

- **Papier-maché, walnut wood carving, carpets, Sozni embroidery and Pashmina and Kani shawls** are some of the crafts from Srinagar.
- WCC-World Craft City Programme:
- It was launched in 2014 by the **World Crafts Council AISBL (WCC-International)** to recognise the pivotal role **local authorities, craftspeople, and communities** play in **crafts development across the world**.
 - The **WCC-International** was founded in 1964 and **Smt Kamaladevi Chattopadhyay**, being one of the founding members, attended the **1st WCC General Assembly**.
 - **Smt Kamaladevi Chattopadhyay** founded the **Craft Council of India** in 1964 to protect and enhance **India's craft heritage**.

Read More: [Srinagar: UNESCO Creative Cities Network](#)

350th Anniversary of Chhatrapati Shivaji's Coronation

Recently, the exhibition depicting 115 oil paintings of **Shivaji Maharaj** was organised by the **Indira Gandhi National Centre for the Arts (IGNCA)** and the **National Gallery of Modern Art (NGMA)** to mark the **350th anniversary** of the coronation of **Chhatrapati Shivaji**.

- The paintings at the exhibition were created under the guidance of **Padma Vibhushan Babasaheb Purandare**.
- **Chhatrapati Shivaji Maharaj** was crowned as the **king of the Marathas** on **6th June 1674**, at **Raigad**.
 - He was born on **19th February 1630** at **Shivneri Fort** in **District Pune**.
 - His father **Shahaji Bhonsle** was a **Maratha general** under the **Bijapur Sultanate** and his mother was **Jijabai**. He took on the titles of **Chhatrapati, Shakakarta, Kshatriya Kulavantas and Haindava Dharmodhhaarak**.

Read More: [Chhatrapati Shivaji Maharaj](#)

Kerala Seeks Renaming to "Keralam"

Recently, the **Kerala Assembly** unanimously passed a resolution asking the Centre to rename the state as **"Keralam"** in the Constitution.

Note:

- **Article 3** of the Indian Constitution empowers the Centre to change the name of existing states which also needs amendment in the **name of the state listed under Article 1** of the constitution.
- **Kerala** is the **English word** for the **Malyali Keralam** and the earliest mention of the word can be found in **Emperor Ashoka's Rock Edict II** of 257 BCE which mentions "**Keralaputra**".
 - **Keralaputra** in Sanskrit literally means "**son of Kerala**" which refers to the dynasty of the **Cheras**, one of the three main kingdoms of southern India (the other two dynasties being **Chola and Pandya**).
- The demand for a **united Malayalam-speaking state was first raised in the 1920s** and after independence, in 1949, the state of **Travancore-Cochin** was formed by integrating the **two Malayalam-speaking princely states of Travancore and Cochin**.
- Based on the recommendation of the **State Reorganisation Commission**, the state of **Kerala** was finally created on a linguistic basis.
Read more: [Statehood Demand](#)

Balon Protein

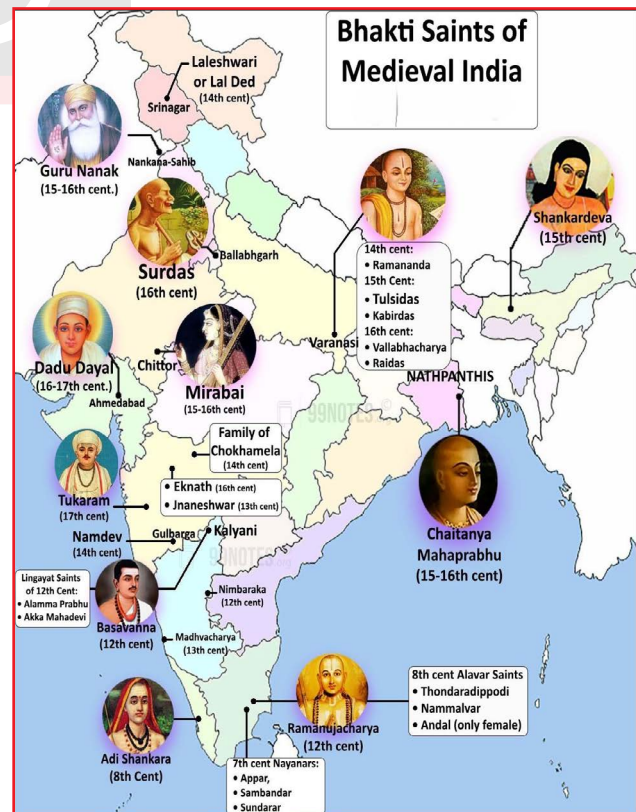
Recently, scientists have discovered a **protein**, called **Balon**, that allows a bacterium, *Psychrobacter urativorans* to inhibit its cellular activities in **unfavourable living conditions** and resume it when such living conditions improve.

- Scientists found **Balon** to be bound to the bacterial ribosome's active protein synthesis centres which prevented the ribosomes from making new proteins.
- Functioning of **Balon** is different from other proteins that helped cells slow or shut down.
- In the case of **Balon**, when the bacteria's external conditions improved, cells resumed protein synthesis.
- The discovery could help our understanding of how bacteria survive harsh environments like the **Arctic permafrost**.
- It will also help how members of the **Psychrobacter group** of bacteria that cause rotting refrigerated food survive extreme cold temperatures.
Read more: [Arctic permafrost](#)

647th Birth Anniversary of Sant Kabir Das

On 22nd June 2024, the **Prime Minister** commemorated the **647th birth anniversary** of **[Sant Kabir Das](#)**.

- Sant Kabir Das, a **15th-century Indian mystic poet and saint**, was born in **Varanasi**, Uttar Pradesh to a **Muslim** family but was **raised by a Hindu** weaver couple.
- He was a notable figure in the **Bhakti movement**, which emphasised **devotion and love for the divine**.
 - The Bhakti movement started in the **7th century in South India** and spread to **North India during the 14th and 15th centuries**.
 - Popular poet-saints of the Bhakti movement, like **Ramananda** and **Kabir Das**, sang devotional songs in vernacular languages.
- Kabir sought spiritual guidance from teachers such as **Ramananda** and **Sheikh Taqi**, shaping his unique philosophy.
- Kabir is revered by both Hindus and Muslims, and his followers are known as "**Kabir Panthis**."
- His popular literary works include **Kabir Bijak** (poems and verses), **Kabir Parachai**, **Sakhi Granth**, **Adi Granth (Sikh)**, and **Kabir Granthawali (Rajasthan)**.
- His works, written in the **Brajbhasha** and **Awadhi dialects**, significantly influenced Indian literature and the development of the Hindi language.



Read More: [Sant Kabir Das Jayanti](#)

Note:

Kanishka Tragedy

Recently, Canada has said that the investigation into the **1985 bombing of Air India Flight 182** is still “active and ongoing”.

- On **23rd June 1985**, **Montreal-New Delhi Air India ‘Kanishka’ Flight 182** travelling from **Canada to India** via **London**, exploded off the **Irish coast** killing all **329 people** on board, mostly **Indians**.
- Another explosion at **Tokyo’s Narita airport** killed two Japanese baggage handlers while the flight was still in the air.
 - Investigators later revealed that this bomb was connected to the attack on Flight 182 and was meant for **another Air India flight to Bangkok**, but it **detonated prematurely**.
- The bombing was attributed to **Sikh militants (Khalistanis)** in retaliation for **‘Operation Bluestar’** by the Indian Army in **1984**.
 - **‘Operation Bluestar’** was a **military operation** ordered by the Indian government to remove Sikh militants from the **Golden Temple in Amritsar**.
 - The **Khalistan movement** is a **separatist movement** seeking to **create a homeland for Sikhs** by establishing an **ethno-religious sovereign state** called **Khalistan** in the **Punjab region**.

Read More: [36th Anniversary of Operation Blue Star](#)

World Medical and Health Games

Recently, four **Armed Forces Medical Service (AFMS)** Officers have made India proud by winning a record **32 Medals** in the **43rd World Medical and Health Games** held in **Saint-Tropez, France**.

- **The World Medical and Health Games** also called the **Olympic Games for Health Professionals**.
- It is the most prestigious global sporting event within the medical community. The legacy of the **World Medical and Health Games** dates back to **1978**.
- Over **2500 participants** from more than **50** different nations participate in this event annually.
- **Lt Col Sanjeev Malik, Maj Anish George, Capt Stephen Sebastian, and Capt Dania James**, made history by winning **19 Gold Medals, 09 Silver Medals and 04 Bronze Medals** at the event.

Digital Payments Intelligence Platform

The RBI has formed a committee chaired by **A.P. Hota** to explore a proposal to set up a **Digital Payments Intelligence Platform** that will harness **advanced technologies** to **mitigate payment fraud risks**.

- Domestic payment frauds surged by **70.64%** to **Rs 2,604 crore** in the six months ending **March 2024**, with the number of cases rising to **15.51 lakh** from **11.5 lakh**.
Other Proposals:
- **Bulk Deposits Limit Raised:** The RBI also plans to increase the threshold for bulk deposits from **Rs 2 crore** to **Rs 3 crore** for **commercial banks** and **small finance banks**, with local area banks set at **Rs 1 crore**.
 - It also allows banks flexibility in setting interest rates based on their needs and **Asset-Liability Management (ALM)** projections.
- **Automatic e-Mandate:** The RBI plans to allow **automatic balance replenishment** for **Fastag** and **NCCM** under the e-mandate framework, exempting the need for a **24-hour pre-debit notification**.
- **UPI Lite e-Mandate:** The RBI plans to integrate **UPI Lite** into the **e-mandate framework**, enabling automatic reloads of the wallet when its balance drops below a user-set threshold, eliminating the need for extra authentication or pre-debit notifications.
- **Export-Import Norms:** The Reserve Bank plans to **update rules for exporting and importing** goods and services to streamline procedures and make business easier for everyone involved.

Read more: [Digital Public Infrastructure](#)

Odisha Extended Hockey Sponsorship

Recently, the **Odisha government** decided to extend its **hockey sponsorship** until **2036**, which marks the centenary of **Odisha’s formation** as a state in **1936**.

- The **Odisha Mining Corporation Ltd (OMC)**, initially committed to sponsoring **Hockey India** from **2018** to **2023**, later extended to **2033**.
- Now, the **Odisha government** has added **three more years** to this commitment, stretching it **until 2036**.
 - This new end date aligns with the **2036 Olympic games** year.

Note:

- OMC is a **wholly owned** government corporation in Odisha that was established in 1956.
- Odisha Chief Minister inaugurated **Birsa Munda** Hockey Stadium, one of the largest hockey stadiums in Rourkela on **5th January 2023**.
- On **29th August**, India observes **National Sports Day** to commemorate the birth anniversary of hockey legend **Major Dhyan Chand**.

INDIA'S MEN'S HOCKEY MEDAL WINS AT THE OLYMPICS		
Olympics Games	Year	Medal Won
Amsterdam	1928	Gold
Los Angeles	1932	Gold
Berlin	1936	Gold
London	1948	Gold
Helsinki	1952	Gold
Melbourne	1956	Gold
Rome	1960	Silver
Tokyo	1964	Gold
Mexico City	1968	Bronze
Munich	1972	Bronze
Moscow	1980	Gold
Tokyo	2020	Bronze

Striped Caecilian

Recently, a limbless **amphibian** called the **Striped Caecilian (*Ichthyophis spp*)** has been discovered for the first time in the **Kaziranga National Park and Tiger Reserve**, during a rapid herpetofauna survey.

- **Reptiles and amphibians are collectively called herpetofauna.** Caecilians belong to the family of Ichthyophiidae.
 - It is characterised by its **worm-like body**. They have a **limited sense of vision** and primarily rely on **touch and smell** to navigate their environment.
 - They spend most of their lives **burrowed under soil** and are **carnivorous**.
 - Their presence provides critical insights into the **evolution and intercontinental speciation** due to their **ancient lineage**.

- They are **indicator species** for the environment and play a crucial role in **controlling pests**.

Kaziranga National Park:

- **Located** between the **Brahmaputra River** and the **Karbi (Mikir) Hills**.
- It was declared as a **National Park** in **1974**, and a **World Heritage Site** by **UNESCO** in **1985**.
- **"Big 5" Species:** Rhinoceros, Tiger, Elephant, Wild Water Buffalo, and Swamp deer.
- **Major vegetation types:** Alluvial inundated grasslands, Tropical wet evergreen forests and Tropical semi-evergreen forests.



Read more: [Kaziranga National Park](#), [Amphibians Threatened by Climate Change](#)

US to Train Indian Astronauts at NASA

NASA has stated that it will increase cooperation with India, which will involve a joint project on the **International Space Station (ISS)** that includes an Indian astronaut.

- The two countries have concluded a **Strategic Framework for Human Spaceflight Cooperation**, which will involve advanced training for **ISRO** astronauts at NASA's Johnson Space Center.
- Both countries are also exploring opportunities for India's participation in the **Lunar Gateway Programme**, which is part of the collaborative **Artemis programme** led by the US.
- The U.S. and India are also preparing for the launch of the **NASA-ISRO Synthetic Aperture Radar (NISAR)**, a

Note:



jointly developed satellite that will **map the entirety of the Earth's surface twice every 12 days** as part of efforts to combat **climate change**.

- The India-US **initiative on Critical and Emerging Technology (iCET)** was launched in **May 2022** to forge **greater collaboration** between the two countries in areas of **critical technologies** such as **artificial intelligence**, semiconductor, critical minerals, advanced telecommunication and defence space.
 - The iCET Dialogue was held on 17th June 2024, in New Delhi in which the US Space Force partnered with Indian startups **114ai** and **3rdiTech**.

Read more: [NISAR Mission](#)

Iberian Lynx

Recently, the **Iberian lynx** (*Lynx pardinus*), one of the rarest cat species globally, has moved from being 'endangered' to 'vulnerable' on the **International Union for Conservation of Nature (IUCN) Red List**.

- Since 2001, the number of mature Iberian lynxes has risen from 62 to 648 in 2022. Currently, there are over 2,000 lynxes, including young ones, across Spain and Portugal.
- **About Iberian Lynx:**
 - It belongs to the family **Felidae**.
 - It is the most dangerous offline species (family of flesh-eating mammals).
 - **Distribution:** The Iberian Lynx is restricted to two separate regions of southwestern Spain, namely eastern Sierra Morena and the coastal plains west of the lower Guadalquivir.
 - **Protection Status:** These are protected under **Appendix II of IUCN Red List** and it is listed on **CITES Appendix I**.
 - **Threats:** Poaching, road accidents, habitat loss and **climate change**.
- **IUCN created in 1948 is the global authority on the status of the natural world** and the measures needed to safeguard it.



Read More: [International Union for Conservation of Nature \(IUCN\) Red List](#).

e-Shram Portal Showcased at International Labour Conference

Recently, the **e-Shram portal** was showcased by an Indian delegation led by the Secretary, Ministry of Labour & Employment during the **112th International Labour Conference** held on 4th June 2024 at Geneva, Switzerland.

- The **International Labour Conference** is the **ILO's** highest decision-making body. It sets international labour standards and broad policies of the ILO. It meets annually.
 - It brings together representatives of **governments, workers, and employers** from all **187** ILO member States.
- **eShram** portal was launched in **2021** as "**One-Stop-Solution**" for **unorganised workers** to create a **National Database for migrant or unorganised workers** across India and facilitating access to various social security schemes.
 - It is integrated with **National Career Service (NCS) Portal**, **Skill India Digital Hub (SIDH)**, **myScheme portal**, and **Pradhan Mantri Shram Yogi Mandhaan (PMSYM) scheme**.
- Government aims to integrate other schemes such as **Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY)**, **Pradhan Mantri Suraksha Bima Yojana (PMSBY)**, and **Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB-PMJAY)**, **PM-SVANidhi**, into the e-Shram portal.
- India's informal labour market comprises nearly 85% of the nation's workers, with over 90% of them being self-employed or casual labourers.


Note:

e-SHRAM Portal

National Database of Unorganized Workers


Category of Unorganized Workers covered

- Construction Worker
- Migrant Worker
- Gig & Platform Worker
- Street Vendor
- Domestic Worker
- Agriculture Worker
- Other Unorganized Workers



Benefits of e-SHRAM

- ▶ eSHRAM Card to be acceptable across the country
- ▶ Accidental Insurance Coverage through PMSBY for a year
- ▶ Rs 2 lakh for accidental death and permanent disability and Rs. 1 lakh for partial disability
- ▶ Social security benefits to be delivered through this portal
- ▶ Helpful for State & Central Governments while providing assistance during calamities/pandemics



Read More: [Reforming India's Informal Labour Market](#)

Pro-tem Speaker

Bhartruhari Mahtab has been appointed and administered oath by the **President of India** as the **pro-tem Speaker** of the **18th Lok Sabha**.

- Speaker *Protem* is appointed by the President under **Article 95(1)** of the **Constitution** to perform the duties of the Speaker till the election of the Speaker.
- *Pro-tem* is a Latin phrase which means **"for the time being"**.
- The **pro-tem speaker** is appointed to preside over the sittings of the newly elected house. Usually, the **senior most member** of the house is made the *pro-tem* speaker.
- When the new Speaker is elected by the House, the office of the Speaker *Pro Tem* ceases to exist.
- Duties of pro tem speaker:
 - The Pro-tem Speaker presides over the **first sitting** of the Lok Sabha and administers the oath of office to the newly elected MPs.

LOK SABHA SPEAKER





The Constitutional/Ceremonial Head of LS who presides over its day-to-day functioning

What Speaker/Deputy Speaker is for LS, the Chairman/Dy Chairman is for RS

<p>ORIGIN IN INDIA</p> <ul style="list-style-type: none"> ● 1921 (Gol Act of 1919) under the name President and Dy President <p style="text-align: center; font-size: 0.7em; border: 1px solid white; padding: 2px;">Gol Act of 1935 changed this nomenclature to Speaker and Deputy Speaker</p> <p>ELECTION (BOTH SPEAKER & DY SPEAKER)</p> <ul style="list-style-type: none"> ● Article 93, Part V ● By a simple majority ● Re-election - Eligible <p>ELECTION CRITERIA</p> <ul style="list-style-type: none"> ● Should be a member of LS ● No specific qualifications ● Generally, belongs to the ruling party <p>TENURE</p> <ul style="list-style-type: none"> ● 5 years (till immediately before first meeting of the next LS) <p style="text-align: center; font-size: 0.7em; border: 1px solid white; padding: 2px;">Speaker does not vacate his/her office upon dissolution of LS</p>	<p>POWERS</p> <ul style="list-style-type: none"> ● Final interpreter of Constitutional provisions in LS; his/her rulings are binding in nature ● Presides over a joint sitting of the two Houses of Parliament ● Can adjourn the House/suspend the meeting in absence of Quorum ● Power of Casting vote to resolve a deadlock ● Decides: <ul style="list-style-type: none"> ○ if a bill is (not) a money bill ○ Disqualification of LS members (under 10th Schedule) (granted via 52nd Amendment 1985) <p>REMOVAL (CONDITIONS)</p> <ul style="list-style-type: none"> ● If s/he ceases to be a member of LS ● Written Resignation to Dy Speaker ● Removed by Effective Majority
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Note:

- To conduct the vote for the speaker and deputy speaker. He also administers the floor test.

Read more: [The Office of Speaker of Lok Sabha](#)

Viability Gap Funding (VGF) Scheme

The Union Cabinet has recently approved the [Viability Gap Funding \(VGF\) scheme](#) for offshore wind energy projects with a total outlay of **Rs.7453 crore**.

- The scheme includes the installation and commissioning of 1 GW (Gigawatt) of offshore wind energy projects **with an outlay of Rs. 6853 crore, featuring 500 MW wind energy projects off the coasts of Gujarat and Tamil Nadu**.
- Offshore wind is a source of [renewable energy](#) which offers several advantages such as higher adequacy & reliability, lower storage requirement.
- The VGF scheme, **overseen by the Ministry of New and Renewable Energy**, is a major step towards implementing the National Offshore Wind Energy Policy **notified in 2015**.
- VGF is a government **grant of up to 40% of the total project cost**, provided to support infrastructure projects that are economically justified but not financially viable.
- The VGF support from the Government will reduce the cost of power from offshore wind projects and make them viable for purchase by [Distribution Companies \(DISCOMs\)](#).

Read more: [Viability Gap Funding Scheme for Battery Energy Storage Systems](#)

International Day of Yoga 2024

The **10th International Day of Yoga (IDY)** is being celebrated on **21st June 2024** with the theme of **“Yoga for Self and Society”**.

- **21st June** was declared as the **IDY by the United Nations** in **2014**, by resolution 69/131.
 - The resolution to establish this day was proposed in the **69th session** of the UN by India and was endorsed by 175 member states.
- The **first International Day of Yoga (IDY)** was celebrated in **2015** with the theme **“Yoga for Harmony and Peace”**.

- The **inaugural IDY event in New Delhi set two Guinness World Records**: one for the largest yoga session with 35,985 participants and another for the most nationalities (84) participating in a single session.

- The [World Health Organisation \(WHO\)](#) recognises yoga as a powerful tool for promoting a healthier lifestyle, improving both physical and mental health, and controlling [Noncommunicable Diseases \(NCDs\)](#).
- Yoga can **play a crucial role in achieving the Sustainable Development Goals (SDGs)**, including a 15% relative reduction in physical inactivity **by 2030**.
- The Ministry of Youth Affairs and Sports recognised **Yoga as a sports discipline and placed it in the ‘Priority’ category in 2015**.

Read more: [International Yoga Day \(IDY\)](#)

India-Australia CECA Negotiations

Australia is pushing to finalise the **Comprehensive Economic Cooperation Agreement (CECA)** with India by the next 6-7 months, ahead of their federal elections scheduled for mid-2025.



- CECA is a **comprehensive trade agreement** between India and Australia.
 - It is more **comprehensive** than earlier [India-Australia Economic Cooperation and Trade Agreement \(ECTA\)](#).

Note:

- The ECTA is a **limited trade agreement** that came into force in **December 2022**.
 - **CECA** negotiations were launched in **May 2011**, which were **suspended in 2016** and again **re-launched in 2021** with the intention of **quickly concluding an ECTA** to liberalise and **deepen bilateral trade in goods and services**, and to then use this foundation to resume negotiations on the **more ambitious CECA**.
 - The CECA is intended to cover 5 main tracks i.e. **goods, services, digital trade, government procurement** and **Rules of Origin/Product Specific Rules Schedule**.
 - New areas of interest include **competition policy, MSMEs, innovation, agri-tech, critical minerals** and **sports**.
 - In 2023-24, **India's imports** from Australia **declined 15%** to USD 16.15 billion, while **India's exports increased 14.23%** to USD 7.94 billion. Australia is India's 13th largest export destination and 14th largest import source for India.
- Read more: [India-Australia Economic Cooperation and Trade Agreement](#).

Security in Parliament

In April 2024 the **Central Industrial Security Force (CISF)** was handed over to the security of the Parliament after an extraordinary security breach at Parliament House on **13th Dec 2023**.

- **Parliament security** is a part of the Lok Sabha Secretariat. Earlier, security responsibilities were with the **Parliament Security Service (PSS)** and **Watch and Ward committee**.
- The **Watch and Ward Committee** was set up on the initiative of **Vithalbhai Patel**, president of the **Central Legislative Assembly**.
 - The committee was set up after the incident of **8th April 1929**, when revolutionaries **Bhagat Singh** and **Batukeshwar Dutt** threw bombs and pamphlets into the **Assembly**.
- The committee's name was changed in 2009 to **PSS**, which is under the control of the **Speaker**.

Read more: [Security Breach in Parliament](#)

CENTRAL ARMED POLICE FORCES (CAPF)

The CAPF includes the seven security forces in India functioning under the Ministry of Home Affairs.

Assam Rifles (AR)

- ⌚ **Origin:** 1835, as militia called 'Cachar Levy'
 - ⌚ **Erstwhile objective:** To protect British Tea estates
- ⌚ **Current Objectives:**
 - ⌚ Conducting anti-terrorist operations in NER
 - ⌚ Ensuring security at India-China and India-Myanmar borders
- ⌚ **Imp Role in:**
 - ⌚ Sino-India War 1962
 - ⌚ Indian Peace Keeping Force (IPKF) to Sri Lanka (1987)

Due to long association with tribal belts, Assam Rifles are also called 'Friends of the North East'

Border Security Force (BSF)

- ⌚ **Origin:** 1965
- ⌚ **Objectives:**
 - ⌚ Securing land borders with Pakistan and Bangladesh
 - ⌚ Also performing Anti-Infiltration in Kashmir Valley
 - ⌚ Counter Insurgency in NER
 - ⌚ Anti-Naxal Operations in Odisha and Chhattisgarh
- ⌚ **Wings:** Air wing, marine wing, an artillery regiment, and commando units

BSF is India's First Line of Defence and the world's largest border guarding force

Central Reserve Police Force (CRPF)

- ⌚ **Pre-Independence Origin:** 1939 (Crown Representative's Police)
- ⌚ **Post Independence:** 1949 - under CRPF Act, became Central Reserve Police Force
- ⌚ **Objective:** Crowd control, riot control, counter militancy/insurgency operations, etc.

CRPF is the principle central police force for internal security

Indo-Tibetan Border Police (ITBP)

- ⌚ **Origin:** 1962
- ⌚ **Objectives:**
 - ⌚ Deployed on border from Karakoram Pass (Ladakh) to Jachep La (Arunachal Pradesh) (~3488 km of Indo-China Border)
 - ⌚ Manning Border Outposts on altitudes 9000 ft - 18700 ft in Western, Middle and Eastern sectors of Indo-China Border

ITBP is India's specialised mountain force & the first responder to natural disasters

National Security Guard (NSG)

- ⌚ **Origin:** 1984 (came into being in 1986), following **Operation Blue Star**
- ⌚ **Objectives:** Counter-terrorism unit/Federal Contingency Force
- ⌚ **Task-oriented Force - Two complementary elements:**
 - ⌚ Special Action Group (SAG)
 - ⌚ Special Ranger Groups (SRG)

Sashastra Seema Bal (SSB)

- ⌚ **Origin:** 1963
- ⌚ **Objectives:**
 - ⌚ Guarding Indo-Nepal and Indo-Bhutan borders
 - ⌚ Enhance border security, curb trans-border crimes, prevent unauthorised entry/exit, halt smuggling, etc.

Central Industrial Security Force (CISF)

- ⌚ **Origin:** Central Industrial Security Force Act, 1968
- ⌚ **Objectives:** Ensuring security of major critical infrastructure installations

CISF is the sole CAPF unit with a specialised fire wing



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Note:

IPBES wins Blue Planet Prize

Recently, the [Intergovernmental Platform on Biodiversity and Ecosystem Services \(IPBES\)](#) won the **Blue Planet Prize** for 2024.

- IPBES was awarded as “the leading global authority on the state of knowledge and science about biodiversity, ecosystem services and nature’s contributions to people”.
 - The other awardee is **Robert Costanza** from the Institute for Global Prosperity, University College

➤ About IPBES:

About	An independent intergovernmental body aimed at strengthening the science-policy interface for biodiversity and ecosystem services.
Established	In Panama City in 2012 by 94 Governments (including India) Currently has more than 145 Member States. Secretariat - Bonn, Germany.
Goal	To provide the best expertise from across all scientific disciplines and knowledge communities to provide policy-relevant knowledge and to catalyse the implementation of knowledge-based policies at all levels in government, the private sector and civil society.
Relations with UN	It is not a United Nations body, however, the United Nations Environment Programme (UNEP) provides secretariat services to IPBES.

Read More: [Intergovernmental Negotiating Committee: UNEP, Environmental Conventions \(Climate Change\)](#).

DDT Levels on Decline, POPs on Rise

A recent study reported that since 2004, the insecticide [Dichloro-diphenyl-trichloroethane \(DDT\)](#) along with 11 other [Persistent Organic Pollutants \(POPs\)](#), has **decreased** significantly in both **humans and the environment** due to **stringent global regulations**.

- **Other POPs** and replacements for banned lethal POPs with similar properties have increased to **high levels**.
 - POPs are **organic compounds (i.e. carbon-based)** that **resist degradation** by environmental processes such as chemical breakdown, biological processes, and sunlight. They can **remain in the environment for long periods** for decades and centuries.
 - They can cause **cancer, liver damage, reduced fertility**, and higher risk of **asthma** and **thyroid** as they can **disrupt the endocrine system**.

London, for his contributions to the field of ecological economics.

➤ About Blue Planet Prize:

- It was established in **1992**, the year of the [Rio Earth Summit](#).
- This award is given annually by **Japan’s Asahi Glass Foundation** for **outstanding achievements in scientific research** and its application which have helped to solve **global environmental problems**.
- Two winners are chosen every year and the prize includes an award of USD 500,000.

- The **Global Monitoring Plan for POPs** has been implemented by the [UN Environment Programme \(UNEP\)](#) and funded by the [Global Environment Facility \(GEF\)](#).

- The study was conducted in 42 countries in Africa, Asia, Latin America and the Caribbean, and the Pacific Islands with limited data on POPs to monitor 30 POPs listed under the **Stockholm Convention** as of 2021.

- [Stockholm Convention \(2001\)](#) is an international environmental treaty effective from 2004 that aims to **eliminate or restrict the production and use of POPs**.

- DDT is the **first modern synthetic insecticide** developed in the 1940s which is a **colourless, tasteless, and odourless** compound.

- It is still used in some countries (such as **South Africa, Namibia, Botswana, Zimbabwe**) for malaria control under strict regulations.

Read more: [Supply of DDT to South Africa for Malaria Control Program](#)

Note:

Heater Organs in Marsupials

Recent research reveals that around 100 million years ago, **placental mammals** developed brown fat to survive cold and spread worldwide, and this **fat** evolved only in modern placental mammals.

- **Placentals are mammals** excluding marsupials and monotremes, and they form one of the three main groups of living mammals, alongside **Monotremata and Marsupialia**.
- **Marsupials** are the group of mammals commonly thought of as **pouched mammals**.
 - They give live birth, but they **do not have long gestation times** like **placental mammals**.

- They are **quite structurally diverse** and range from **small four-footed forms** like the marsupial mole, *Notoryctes*, to the **large two-legged kangaroos**.
- **Marsupials**, which diverged from placental mammals about 120-180 million years ago, possess a less developed form of brown fat.
- **Brown fat/Brown adipose tissue (BAT)** is an exquisitely designed **tissue/organ system** that has evolved for the maintenance of body temperature.
- **Brown fat's ability to burn fat and sugars to produce heat** has implications for treating obesity, diabetes, and other metabolic disorders.

Feature	Marsupial animals	Placental mammals
Placenta	Small and simple placenta	Large and complex placenta
Scrotum	Present in the front of penis	Present behind the penis
Marsupium	Present	Absent
Teeth	Monophyodont (one set of teeth)	Diphyodont (two sets of teeth: baby and adult)
Corpus callosum	Lack	Have
Development of Young	Delivered without complete development	Developed but immature at the time of delivery

Read more: [Mammals](#)

Russia Ships Equipments to Kudankulam NPP

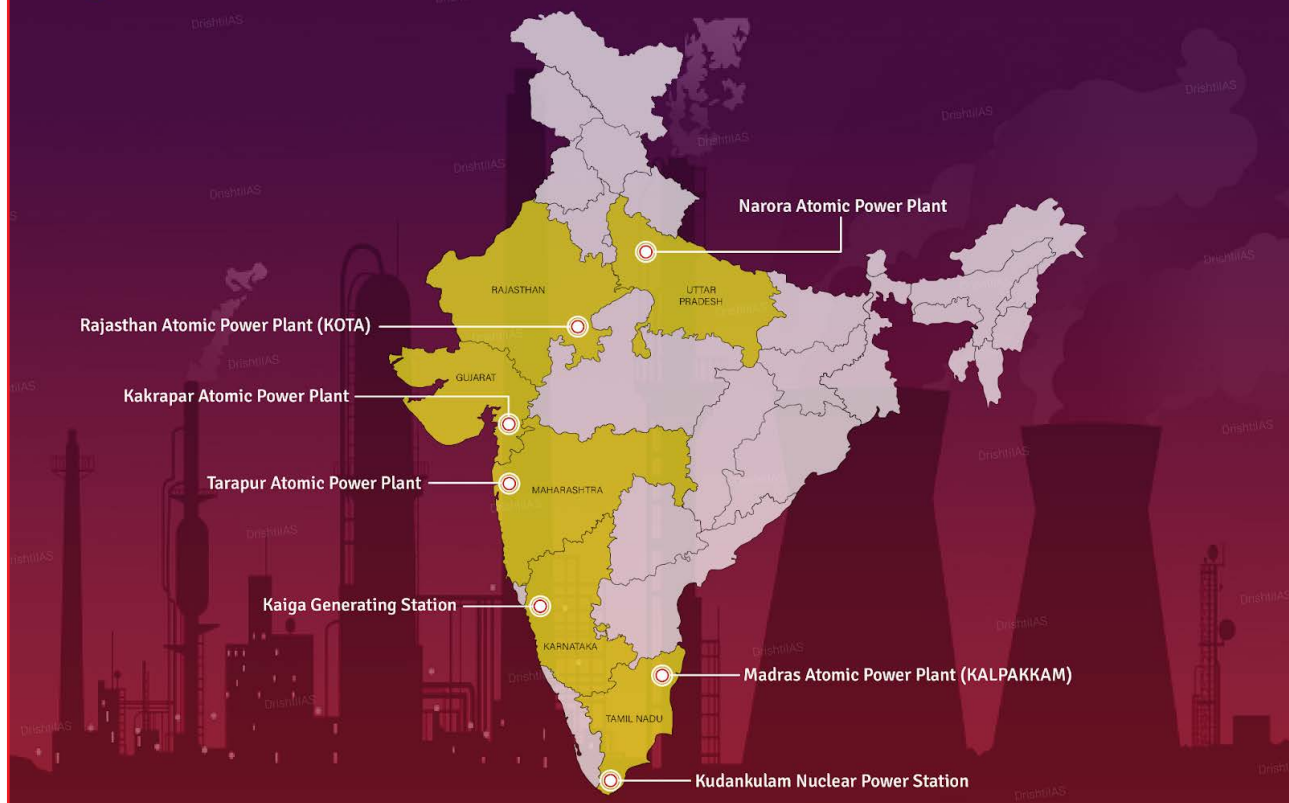
Russia has shipped the first batch of 26 **turbine hall pipeline valves** (High-pressure and low-pressure gate valves) for the **Kudankulam Nuclear Power Project's (KNNP)** reactors 5 and 6

- Their key function is a **tight shut-off of the fluid or gas flow** to ensure **reliable operation of the system**.
- It currently has 2 x 1,000 MWe WWER reactors generating power, with 4 more reactors of similar capacity under construction.
 - WWER are "**Water-Water Power Reactor**". These reactors use **water as both the coolant and the moderator** for the nuclear reactions that produce energy.
- **KNNP** has been modernised jointly by **Russia's Rosatom** and the **Nuclear Power Corporation of India Limited (NPCIL)**. It is the **largest nuclear power plant** in India.
 - It is India's first nuclear plant to use **imported PWR (Pressurised Water Reactor) technology**.
 - Its construction **began in 2002** and it is expected to operate in **full capacity by 2027**.
- The share of nuclear power in the total electricity generation in the country was about **2.8%** in the year 2022-23.

Note:



Operational Nuclear Power Plants in India



FACTS

- Presently, India has 22 nuclear power reactors operating in 6 states, with an installed capacity of 6780 MegaWatt electric (MWe).
- Activities concerning the establishment and utilization of nuclear facilities and use of radioactive sources are carried out in India in accordance with the Atomic Energy Act, 1962.
- Atomic Energy Regulatory Board (AERB) regulates nuclear & radiation facilities and activities.
- **Newest & Largest Nuclear Power Plant:** Kudankulam Power Plant, Tamil Nadu.
- **First & Oldest Nuclear Power Plant:** Tarapur Power Plant, Maharashtra.



Read more: [India's Nuclear Power Capacity.](#)

SEBI Expands Promoter Definition for IPO Companies

The **Securities and Exchange Board of India (SEBI)** has expanded the **promoter definition** for companies tapping the market for an **initial public offering**.

- Under the new guidelines, founders with a combined 10% stake who are also **key managerial personnel (KMP)** or directors will all be considered promoters.
 - **Immediate relatives** of the promoter on the company board or as KMP, or holding 10%+ in the company, **directly or indirectly**, will also be classified as promoters.
 - However, once someone is part of the promoter group, it's not easy to be declassified as a public shareholder due to **rule 31A of Listing Obligations and Disclosure Requirements (LODR) Regulations**.
 - Declassification means officially removing the status or label of being a promoter or a specific classification.

Note:

- According to **current SEBI regulations**, a promoter is someone who **controls the affairs of the company** or can appoint the majority of directors or is named as such in an offer document.
- An **IPO** is an **initial public offering**, in which shares of a **private company** are made available to the public for the first time.
 - An IPO allows a company to **raise equity capital** from public investors.

Read more: [Proposal for Changing Promoters to Person in Control: SEBI, SEBI](#)

Mifepristone

Recently, The **US Supreme Court** rejected a petition from anti-abortion groups aiming to overturn the **Food and Drug Administration's (FDA)** approval of an abortion pill "mifepristone".

- Mifepristone is a medication used to **end pregnancies** by **blocking the hormone progesterone** and **dilating the cervix**.
- It is typically taken with **misoprostol** to induce contractions and end a pregnancy within **10 weeks**. The success rate of this pill is **97.4%**.
- India's Abortion Law:
 - **Section 312** of **IPC** criminalises causing a **miscarriage**, except to save the woman's life. The woman who attempts to cause her own miscarriage also falls under this section.

- The **Medical Termination of Pregnancy (MTP) Act, of 1971** was introduced to allow safer abortions. As per the **amended act (2021)** for pregnancy **up to 20 weeks**, the opinion of one doctor is required and for pregnancy **of 20 to 24 weeks**, the opinion of two doctors is required.
- Unmarried women seeking abortions after 20 weeks face challenges due to a lack of specific provisions.
- The term '**abortion**' is used only when an ovum is expelled within the **first three months of pregnancy**.
 - On the other hand, '**miscarriage**' is used when a fetus is expelled from the **fourth to the seventh month of gestation**, before it is viable.

ABORTION LAW

Abortion is the deliberate termination of a pregnancy, typically performed during the first 28 weeks of gestation

Abortion Law in India

- **Indian Penal Code (IPC), 1860 (Section 312)**
 - ⌚ **Criminalized:** Voluntarily abortion
 - ⌚ **Exception:** To save mother's life
 - ⌚ **Punishment:** Imprisonment or fines or both
- **The Medical Termination of Pregnancy Act (MTP), 1971**
 - ⌚ **Based on:** Shantilal Shah Committee, 1964
 - ⌚ **Ground for Legalised Abortion:**
 - ⌚ Marital rape
 - ⌚ Safeguarding women's physical & mental health
 - ⌚ Reduce maternal mortality
 - ⌚ Children with physical or mental abnormalities
 - ⌚ Pregnancies from rape or contraceptive failure

The MTP Amendment Act, 2021

- ⌚ Allowed abortion irrespective of marital status
- ⌚ **Eligibility Criteria for Legal Abortion:**
 - ⌚ Survivors of sexual assault, rape, incest or minors
 - ⌚ Change of marital status during pregnancy (widowhood & divorce)
 - ⌚ Women with physical or mental disabilities (as per Rights of Persons with Disabilities Act, 2016)
 - ⌚ Foetal malformation or risk abnormalities in child
 - ⌚ Pregnant women in disasters/ emergencies

Justice K.S. Puttaswamy (Retd.) vs. the Union of India Case, 2017

- ⌚ The Supreme Court recognized reproductive choices of women as **part of personal liberty under Article 21**.

Time Since Conception	MTP Act, 1971	MTP (Amendment) Act, 2021
Up to 12 weeks	On the advice of one doctor	On advice of one doctor
12 to 20 weeks	On advice of two doctors	On advice of one doctor
20 to 24 weeks	Not allowed	On advice of two doctors for special categories of pregnant women
More than 24 weeks	Not allowed	On advice of medical board in case of substantial fetal abnormality
Any time during the pregnancy	On advice of one doctor, if immediately necessary to save pregnant woman's life	On advice of one doctor, if immediately necessary to save pregnant woman's life

Abortion in Other Countries

- **Countries Criminalized Abortion**
 - ⌚ **Total Ban:** Andorra, Malta & the Vatican State
 - ⌚ **Ban with Certain Exceptions:** Poland, Brazil, Chile and Argentina
- **Countries Legalized Abortion**
 - ⌚ **France** is only country to **guarantee voluntarily abortion as constitutional right**

- ⌚ **Ireland:**
 - ⌚ **Condition:** Within 12 weeks of pregnancy
 - ⌚ **Punishment:** 14 years of imprisonment
- ⌚ **New Zealand:**
 - ⌚ **Condition:**
 - ⌚ Within 20 weeks of pregnancy (if life at risk)
 - ⌚ Approval of two doctors mandatory

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Read More: [Abortion](#).

Note:

Impact of Rising Sea Level on Delos Island

Scientists caution that **climate change-induced rising sea levels** could cause **Delos**, a tiny **Aegean Sea island** near bustling Mykonos, to vanish within the next 50 years.

- **Delos** is described as one of the most important sanctuaries of the **ancient Greek and Roman world**.
 - It is a **UNESCO World Heritage site** and provides valuable insights into daily life during the **Hellenistic and Roman periods**.
 - Research indicates that **increasing temperatures and humidity** can **alter the chemical composition** of materials used in **cultural heritage monuments**.
 - The threat is exacerbated by **visible structural damage** caused by seawater erosion, particularly affecting areas like **trade and storage buildings** from the first and second centuries BCE.
- The **Aegean Sea** is an arm of the **Mediterranean Sea**.
 - It is located in the **East Mediterranean Basin** with the Greek peninsula to its west and Anatolia (consisting of the Asian side of Turkey) to its east.
 - The Aegean is connected through the **straits of the Dardanelles**, the Sea of Marmara, and the **Bosphorus to the Black Sea**, while the island of Crete can be taken as marking its boundary on the south.



Read more: [Aegean Sea](#)

Note:

HelpAge India Report

HelpAge India's report, "Ageing in India: Exploring Preparedness & Response to Care Challenges," was recently released to commemorate 'World Elder Abuse Awareness Day (WEAAD)' on 15th June, 2024.

➤ **Key findings from the report include:**

Findings	Details
Illiteracy and Income Sources	Around 40%, who are illiterate reported not having access to any income sources, compared to 29% of literate respondents.
Elder Abuse	7% faced elder abuse, with no variation across gender and age groups.
Work Participation	Only 15% of elderly persons reported currently working (24% males, 7% females).
Social Security	Only 29% reported having access to social security schemes
Income Levels	32% had an annual income below Rs 50,000, and 1 in 3 elders reported no income in the past year.

➤ WEAAD was officially recognised by the [United Nations General Assembly](#) in its resolution 66/127 in 2011.

- Theme for 2024 is **Spotlight on Older Persons in Emergencies**.
- The aim is to raise awareness about the plight of elderly people who are abused and harmed.

Read more: [World Elder Abuse Awareness Day, No Age Bar for Health Insurance in India](#)

Expansion of DigiYatra Services

Recently, the CEO of Digi Yatra Foundation has proposed that the [DigiYatra technology](#) used at airports, could be implemented at hotels and public places such as historical monuments.

- The 'DigiYatra' is a **Biometric Enabled Seamless Travel experience (BEST)** based **facial-recognition technology**.
 - It provides **check-in service** at airports by using **biometrics for paperless movement** through airport checkpoints.
 - It is an industry-led initiative co-ordinated by the **Ministry of Civil Aviation**.
 - It was rolled out in 2022, currently covers **14 airports** and will include 15 more by the end of 2024.
- The potential application of Digi Yatra in hotels and other public venues suggests that its role may expand beyond just air travel.
- **Concerns:**
 - **Privacy violations:** Government can get access to increasing information about people's travel patterns.
 - **Data security:** Digi Yatra is collecting all facial biometric data of passengers.
- **Digi Yatra Foundation** is a **not-profit private company** with a **consortium of private airports** holding 74% share and **Airports Authority of India** holding 26% share.

Read More: [DIGI YATRA](#)

Dark Patterns

Recently, the [Department of Consumer Affairs](#) participated in an interactive session on "Dark Patterns and Strategies to implement the guidelines".

- The objective was to discuss in detail the issues related to [dark patterns](#), persisting practice of using deceptive designs on online platforms and **effective ways to implement the guidelines on dark patterns**.
- In 2023, the Department had notified Guidelines for Prevention and Regulation of Dark Patterns.

Note:



DARK PATTERNS

"Dark Pattern" refers to a wide variety of practices commonly found in online user interfaces that lead consumers to make choices that often are not in their best interests.

TERM COINED BY

- Harry Brignul, a user experience (UX) designer, in 2010

OBJECTIVE - GETTING CONSUMERS TO

- Purchase more and more
- Spend more money on a purchase or time on a service than desired
- Give up more personal data than desired

Dark Pattern (Category)	Meaning
Forced Action	Disclosure of more personal data than desired
Interface Interference	Visual prominence of options favorable to business
Nagging	Repeated requests to change a setting to benefit business
Obstruction	Making it hard to cancel a service
Sneaking	Adding non-optimal charges to transactions at final stage
Social Proof	Notification of other consumers' purchasing activities
Urgency	Countdown timer indicating the expiry of deal

EFFECTS ON CONSUMER

- Harms to consumer autonomy and privacy
- Time and Financial loss
- Psychological detriment
- Less consumer trust and engagement
- Weaker or distorted competition

TOOLS TO DETECT/MITIGATE/ REMOVE DARK PATTERNS

- Cookie glasses
- Consent-O-Matic extension
- Global Privacy Control
- Truebill

REGULATIONS

International:

- Consumer Financial Protection Act, 2010 (USA)
- Consumer Contracts (Information Cancellation and Additional Charges) Regulations, 2013 (EU and UK)

India:

- Rules: Draft Guidelines for Prevention and Regulation of Dark Patterns, 2023

In India, businesses implementing "dark patterns" in their user interfaces to influence consumer choices counts as infringement on "consumer rights" (Consumer Protection Act, 2019).

STEPS NEEDED

- Addressing consumer vulnerability to dark patterns
- Fostering consumer-friendly digital choice architecture
- Issuing regulatory guidance
- Empowering regulatory authorities to take action on dark patterns



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Read more: [Dark Patterns](#), [Cyber Crime](#)

IFC's Investment in Solar Project

Recently, the International Finance Corporation (IFC), the **private sector lending arm of the World Bank**, has pledged USD 105 million to part-finance a 550 Megawatt peak (MWp) solar power project in Rajasthan.

- MWp refers to the maximum power output capacity of a solar or wind power project that varies depending on wind speed and the strength of sunlight.
- The investment aims to provide affordable prices for solar electricity to businesses and industries across India through long-term energy contracts. This will help support India's efforts to reduce greenhouse gas emissions.
- The Indian government has set an ambitious plan to achieve **500 GW of Renewable Energy (RE) capacity by 2030**, leading to increased investments in the energy transition space.
- World Bank was created in 1944, as the International Bank for Reconstruction and Development (IBRD) along with the IMF. The IBRD later became the World Bank.

Note:

- IFC claims to be the largest global development institution focused on the private sector in developing countries. It also seeks to ensure that private enterprises in developing nations have access to markets and financing.

Read more: [Renewable Energy](#), [World Bank](#)

Phenome India-CSIR Health Cohort Knowledgebase (PI-CheCK)

Recently, the Council of Scientific and Industrial Research (CSIR) announced the successful conclusion of the first phase of the longitudinal health monitoring project, the 'Phenome India-CSIR Health Cohort Knowledgebase' (PI-CheCK).

- Launched in 2023, PI-CheCK aims to assess risk factors in [Non-communicable \(cardio-metabolic\) Diseases](#) within the Indian populace.
 - This unique initiative, which has enrolled nearly 10,000 participants providing extensive health data across various parameters, utilises a **cost-effective Standard Operating Procedure** for sample collection developed by CSIR.
 - A **nationwide longitudinal study** is being conducted for the **first time** to improve prediction models for cardio-metabolic diseases by considering genetic and lifestyle risk factors, to understand their increasing risk in the Indian population and develop better strategies for prevention and management.
- CSIR was **established in September 1942**, headquartered in New Delhi and funded by the Ministry of Science and Technology.

Read more: [Non-Communicable Diseases](#), [Council of Scientific and Industrial Research \(CSIR\)](#)

Tarang Shakti-2024

India will host its **first multinational air exercise** called **Tarang Shakti-2024** in August 2024, with the participation of 10 countries and some others as observers.

- It is inspired by the **Red Flag exercise** hosted by the US.

- The exercise will be held in 2 phases, with the first phase in southern India and the second in the western sector.
- **Australia, France, Germany, Japan, Spain, the United Arab Emirates, the United Kingdom, and the United States** are expected to participate.
- Germany will showcase the **A-400M aircraft**, which will be displayed for the **Indian Air Force (IAF)** as it is being considered as a potential option for the current open tender seeking medium transport aircraft.
- Recently, IAF participated in the 2nd edition of **air exercise Red Flag 2024** from 4th to 14th June 2024 in Alaska.
 - **Indian Rafales** participated in joint exercises with Singaporean and American **aircraft**. The missions involved **beyond-visual range combat exercises** in offensive counter-air and air defence roles as part of large force engagements.

Read more: [Gagan Shakti-2024](#)

MoU to Convert 10,000 FPOs into CSCs

Recently, the [e-Governance](#) service provider **Common Services Centres Special Purpose Vehicle (CSC SPV)** and the **Ministry of Agriculture & Farmers Welfare** have signed a **Memorandum of Understanding (MoU)** to convert 10,000 [Farmer Producer Organisations \(FPOs\)](#) into [Common Service Centres \(CSCs\)](#).

- It will benefit farmers associated with FPOs registered under the '[Formation & Promotion of 10,000 FPOs Scheme](#)' by providing them **citizen-centric services** and increase **employment opportunities** in rural areas.
- '[Formation and Promotion of 10,000 FPOs](#)' is a **central-sector scheme** launched in **2020**.
 - It aims to **enhance farmers' bargaining power, reduce production costs, and increase farmers' incomes** through aggregation of agricultural produce.
- **CSCs scheme**, which is one of the mission mode projects of the [Digital India Programme](#), are providing various services to farmers, including **tele-consultation, crop insurance, e-veterinary, Kisan Credit Card, and PM Kisan schemes**.

Note:

C C

Benefits of Common Service Centers

BENEFITS TO CITIZENS

- ▶ Delivering government services in urban/rural areas by establishing closer links between Government & Citizens
- ▶ Timely delivery of critical information & services through structured system to manage issues of health, Education etc...
- ▶ Increase administrative efficiency and provide cost-effective access to Government Services

BENEFITS TO Government / Centres

- ▶ Create new/ additional revenue stream for the centre. As the services are rolled out on commission per transaction basis
- ▶ Delivering essential government services such as PAN Card, Election ID, UID etc.
- ▶ Greater exposure to other products & services offered through the centre. E.g. greater awareness of students about the courses offered through the centres

Read More: [Common Services Centres \(CSC\)](#), [Farmers Producer Organisation](#), [Formation & Promotion of 10,000 FPOs](#)

Global Wind Day 2024

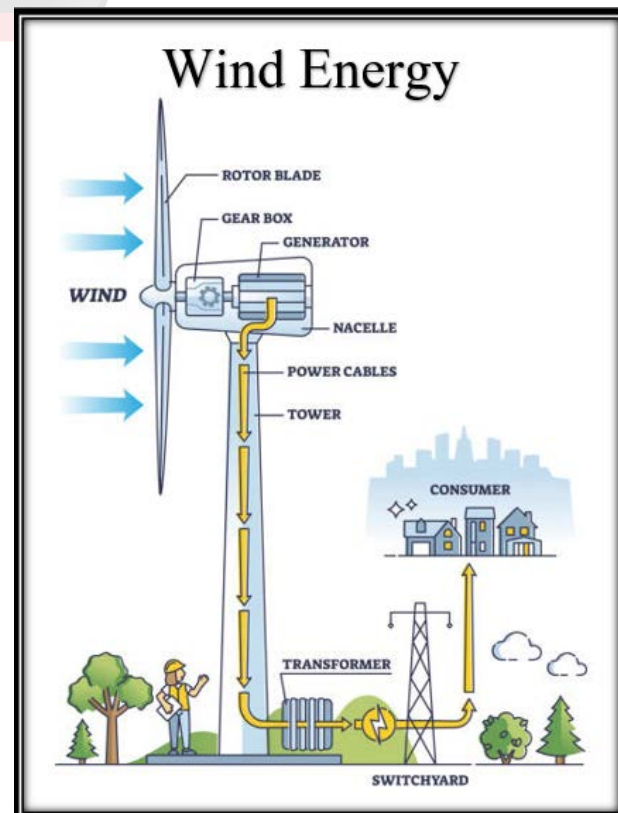
Recently, the **Ministry of New and Renewable Energy (MNRE)** organised 'Global Wind Day' on the 15th June 2024 with the theme of "Pawan Urja: Powering the Future of India".

- ▶ The event aimed at celebrating the success of the **Indian Wind Sector** and discussing ways to accelerate wind energy adoption in India.
- ▶ India has a cumulative **installed wind power capacity of 46.4 GW** by May 2024 (4th largest in the world) after **China, US and Germany**.
- ▶ Wind energy is crucial for India's efforts to achieve **50%** of its electric power installed capacity **from non-fossil fuel-based resources (500 GW renewable energy capacity) by 2030** and **net zero by 2070**.
- ▶ **Gujarat, Karnataka, and TamilNadu** are leading wind-energy producing states in India.

Read more: [India's Wind Energy Potential](#)

Monsoon Croaks Bioblitz

Recently, the Kerala Forest Research Institute (KFRI) is organising **Monsoon Croaks Bioblitz 2024**.



Note:

- The “Monsoon Croaks Bioblitz” is a **four-month-long public participation** science project aimed at **documenting the frogs of Kerala** during the monsoon season, running from June to September.
- The scientific observations will be part of the **Global Biodiversity Information Facility (GBIF)** database, which can be used for biodiversity awareness, habitat conservation, species conservation etc.
- The project aims to identify key habitats to **protect frogs**, which serve as indicators of the ecosystem’s health.
- Factors such as climate change, untimely rainfall patterns, habitat loss, and water pollution are challenging the survival of frogs, leading to **41% of the world’s frogs** being on the **IUCN Red List of endangered species**.
- Kerala alone has more than **200 frog species**, emphasising the importance of conservation efforts.
 - The topmost observed species is the **Wayanad Bush Frog (*Pseudophilautus wynaadensis*)** followed by the **Asian Common Toad (*Duttaphrynus melanostictus*)**.
 - The important amphibian species recorded includes **Critically Endangered Resplendent Shrub frog (*Raorchestes resplendens*)**, **Endangered Malabar Torrent Toad (*Blaira ornata*)**, **Vulnerable Anaimalai Flying Frog (*Rhacophorus pseudomalabaricus*)** and the **Near Threatened Purple Frog (*Nasikabatrachus sahyadrensis*)**.

Global Biodiversity Information Facility (GBIF):

- It is an **international open data infrastructure**, funded by governments. It allows anyone, anywhere to access data about all types of life on Earth.

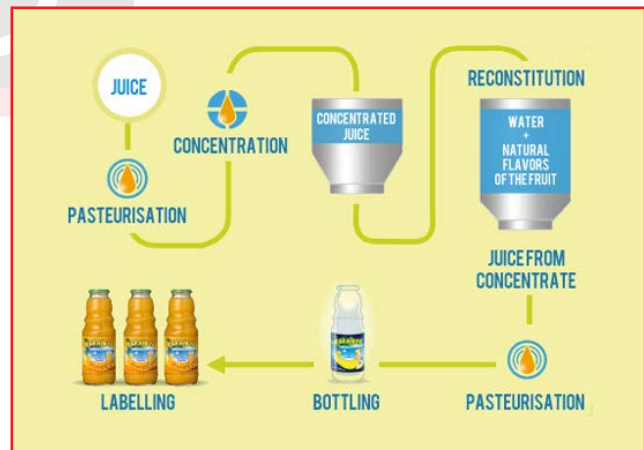
Read more: [Biodiversity Management in India](#)

FSSAI Cracks Down on Misleading “100% Fruit Juice” Claims

Recently, the **Food Safety and Standards Authority of India (FSSAI)** has directed manufacturers (**Food Business Operators (FBOs)**) to remove “**100% fruit juice**” claims from products made with reconstituted juice.

- **Reconstituted juices** are made by adding water back to concentrated fruit juice.

- FSSAI aims to prevent misleading consumers who might believe they’re getting pure, undiluted juice.
- Key Regulations:
 - **No “100% Juice” Claims:** As per **Advertising and Claims Regulations (2018)**, such claims are **not allowed** for any fruit juice product.
 - **“Reconstituted” Labeling:** **Food Products Standards & Additives Regulations (2011)** mandates that reconstituted juices must clearly state “reconstituted” in the ingredient list.
 - **Sweetener Transparency:** Juices with added nutritive sweeteners exceeding 15 gm/kg must be labeled “Sweetened Juice.”
- FSSAI
 - Established under the **Food Safety and Standards Act (2006)**.
 - An autonomous body under the **Ministry of Health and Family Welfare**.
 - **Mission:** Setting world-class food safety standards, promoting good manufacturing practices, and ensuring food businesses adhere to these regulations.



Read more: [Food Safety and Standards Authority of India \(FSSAI\)](#), [FSSAI to Streamline Food Safety Regulations](#)

Musankwa Sanyatiensis

Recently, scientists have discovered fossils of a new dinosaur species, **Musankwa sanyatiensis**, along the shores of **Lake Kariba** in **Zimbabwe**.

- This herbivorous dinosaur weighed around 390 kg and lived in swampy areas during the **Late Triassic period** (about 210 million years ago).

Note:

- It is named after the **houseboat** used during the expeditions and the **Sanyati River** flowing into **Lake Kariba**.
- It is the first dinosaur named from the **Mid-Zambezi Basin** in over 50 years and only the 4th dinosaur species named from the country.
- Africa has a long history of dinosaur discoveries, with the first found in South Africa just 3 years after the term “**dinosaur**” was coined in 1842.
- **Dinosaurs** (a diverse group of reptiles) lived around 243 to 233 million years ago, and diversified into various forms during the **Jurassic and Cretaceous periods**.
 - They include birds, which evolved from theropods, and extinct non-avian dinosaurs.



Read more: [Connection Between Dinosaurs and Birds](#), [Dinosaur Fossil -Thanatotheristes](#)

India's TB Diagnostics Tech Wins Acclaim at WHA

Recently, the **Truenat**, a rapid **molecular diagnostic test** for **pulmonary and extrapulmonary TB and rifampicin-resistant TB**, was hailed at the 77th **World Health Assembly** in Geneva.

Truenat:

- This **portable, battery-operated** machine can deliver results in less than an hour and can **test for over 40 diseases**.
- In India, it is used at over 7,000 primary and community health centres under the **National TB Elimination Programme**, and in around 1,500 private labs.
- **The World Health Assembly** (the decision-making body of the **WHO**) appreciated India's effort to eliminate TB and recognized India's innovative initiatives including the use of Truenat machines and **handheld X-ray devices** as potential global models.
 - **Handheld X-ray devices** are used in India's TB programme to diagnose TB in challenging operational environments.
- The **WHO** reports over 10 million new cases of TB every year.
- India accounts for **27%** of the global TB burden. Over **1,400 patients** die from TB **every day in India**
- Under **Pradhan Mantri TB Mukt Bharat Abhiyan** India aims to eliminate TB by the year 2025.

Note:

Tuberculosis



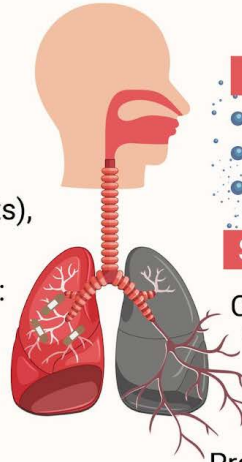
Drishti IAS

Tuberculosis (TB) is an infectious disease that affects the lungs.

Tuberculosis is preventable and curable.

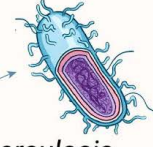
Prevention

- 📱 Seek medical intervention if symptoms persist
- 📱 If at a higher risk (HIV patients), get tested for TB.
- 📱 Practice good cough hygiene: Wear a mask and avoid contact



Causes:

- *Mycobacterium tuberculosis*
- Coughing droplets
- Prolonged exposure from a patient



Symptoms of TB:

- Chest pain
- Weakness
- Weight loss
- Fever
- Night sweats
- Prolonged cough

Facts

- 1.6 million deaths in 2021 Worldwide
- 13th leading cause of death
- India aims to achieve the UN's TB-related SDGs by 2025, five years ahead of the global target to end the TB epidemic by 2030.

#Tuberculosis

Ni-kshay Programme

- Nikshay Mitra are individuals or groups who adopt one TB patient for their treatment for a period of 6 months
- Provision of free drugs and diagnostics
- Ni-kshay Poshan Yojana for nutritional support to TB patients

Read more: [Pradhan Mantri TB Mukh Bharat Abhiyan](#), [India TB Report 2024](#)



Note:



drishti