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Topic 1. OVER 75% OF EUROPEAN BUMBLEBEE SPECIES THREATENED IN THE NEXT 40-60 YEARS

Important for the subject: Environment

More than 75% of European bumblebee species may be threatened in the next 40- 60 years according to worst-case-scenario projections of bumblebee populations.

Key drivers for declining population: **Degradation of habitats** and **alterations of climate** due to **human activity**.

- **Suggestion of the report:** Adhere to the global climate change mitigation policies.
- Around 90% of all wild plants and most crop plants benefit from pollination by animals.
- Observational data cover the periods **1901-1970 (past)** and **2000-2014 ('present day')**, and projections are made up to **2080**. Around **38-76%** of **European bumblebee species** currently considered as **non-threatened** are **projected to see their ecologically suitable territory shrink by at least 30%** by **2061-2080**.
- Species from **Arctic** and **alpine environments** may be at the **verge of extinction** in **Europe**, with an expected loss of at least **90%** of their territory in the same period.
- Parts of **Scandinavia** may potentially become **refuges for displaced or threatened species**.

Bumblebee:

- The **bumblebee (Bombus)** is a **genus of bees** considered to be especially important for the **pollination of crops** in the **cold and temperate regions** of the northern hemisphere.
- Found primarily in **higher altitudes** or **latitudes in the Northern Hemisphere**, although they are also found in **South America**, where a few lowland tropical species have been identified.
- **European bumblebees** have also been introduced to **New Zealand** and **Tasmania**. **Female bumblebees** can **sting** repeatedly, but generally ignore humans and other animals. Most bumblebees are **social insects** that form colonies with a **single queen**.

Topic 2. MERCEDES-BENZ CLEARS 46,000 KG OF WASTE, 85 LAKH LITRES OF POOLED WATER FROM NANDI HILLS AS PART OF FIVE-YEAR PROJECT

Important for the subject: Environment

Mercedes-Benz Research and Development India Pvt. Ltd. (MBRDI) said it cleared **46,000 kg** of waste, collected **85 lakh litres** of pooled water, and constructed **11 check dams** at **Nandi Hills** in the last five years.

Clean-Green Nandi project:

- A 5 year project, initiated by **Mercedes-Benz Research and Development India Pvt. Ltd. (MBRDI)** in **2018**.
- Aimed at restoring the natural splendor of **Nandi Hills, Karnataka**. These efforts have

resulted in a 3% reduction in plastic generation at **Nandi Hills**.

- The project was in response to the **heightened tourist footfall at the hills**, which led to pressing issues of **pollution, soil erosion, and deforestation**, resulting in the drying up of life-sustaining rivers and the accumulation of plastic waste in the area.
- The project cleared 60 acres of **lantana**, an **invasive weed** that poses a critical threat to biodiversity, and empowered women to earn sustainable livelihoods through a **self-help group**.

Nandi hills:

- Nandi Hills is an ancient hill station built by the **Ganga Dynasty** in the **Chikkaballapur** district of **Karnataka state**.
- The hills are near the **town Nandi**. In traditional belief, the hills are the **origin of the Arkavathy river, Ponnaiyar River, Palar River, Papagni River and Penna River**.
- The **first ever SAARC summit** hosted by **India** was held at **Nandi Hills** in **1986**. It was also used by **Tipu Sultan** as a summer retreat.
- The hill is notable for the peculiarity of **Hypericum mysorensis**: a species of flowering & medicinal plant found at high elevations in the Western Ghats of India and the mountains of Sri Lanka.

Topic 3. BUY, USE, RETURN, AND CLAIM A SMALL REFUND

Important for the subject: Environment

The Deposit Refund Scheme (DRS), part of the E-Waste Management Rules 2016 never took off. There is now an attempt to resurrect its potential.

What is DRS?

- Deposit Refund Scheme (DRS) and was seen as an effective e-waste management solution for India.
- It worked like this: as a consumer you deposited a small fee when you bought a product, say a laptop or a mobile phone. After having used the **product through its lifecycle** you dropped it off at a collection centre and claimed a refund on your deposit.
- The product went back for recycling and thus encouraged a circular economy.

Benefits:

- The scheme aims to ensure that e-waste is **collected and properly recycled in the formal sector**, helping to enhance **resource conservation** and **environment protection**.
- The scheme not only promotes responsible disposal but also encourages consumers to return their electronic products, reducing the environmental impact of e-waste.
- Responsible disposal in turn facilitates safe recovery of valuable resources from e-waste.

Major challenges:

- Lack of awareness about depository schemes is a core challenge. Many producers may

not understand how these schemes work thus hampering the refunding process.

- Issues related to documentation, verification, and processing of refunds can arise, causing delays and inconvenience for producers and consumers.
- Regulatory changes or updates of the scheme also leads to confusion among producers.

Way ahead:

- A clear mechanism to resolve disputes related to depository receipts or refund schemes is also essential. Besides, if the scheme is not mandatory for producers and consumers, there is very little chance of it working.

Topic 4. G20 SUMMIT: BIG PUSH TOWARDS ACHIEVING NET ZERO

Important for the subject: Environment

In News: G20 summit held under India’s Presidency has been significant for the global fight against climate change.

The G20 estimated the need for **\$5.8-5.9 trillion** before 2030 to achieve climate goals and an additional **\$4 trillion per annum to touch net zero by 2050.**

- The Delhi Summit **obtained a commitment from developed countries** on increasing **low-cost financing** and reiterated the **\$100-billion commitment from developed countries starting 2023** and then scaling it up.
- The G20’s **2023 action plan to accelerate SDGs** (Sustainable Development Goals) will spearhead the future direction.

G-20 Leader’s Declaration:

- For the first time formally recognises the quantum jump in finance necessary for the world to transition to a renewable energy economy.
- The Declaration recognises the **need to reduce global greenhouse gas emissions by 43% by 2030** (relative to 2019 levels) and notes that global peaking must occur before 2025.
- Encourages **tripling of renewable energy capacity by 2030**, and **voluntary doubling** the rate of **energy efficiency improvement by 2030.**
- Summit underlined the **need to make funds available for developing nations** struggling to balance their developmental goals and climate challenges.
- G-20 statement **didn’t further moves to transition away from the use of coal** — the main source of energy for most of the G-20 countries.
- The declaration leaves it to **individual countries to choose their own** pathway to achieve net zero.
- There has been **no new commitment** to phasing down coal fired thermal power plants.

Initiatives:

Green Development Pact

- The global leaders also adopted a ‘green development pact’ to speed up measures to tackle the challenges of environment and climate change.
- Addressed a key issue related to climate mitigation goals, namely climate finance.

Global Biofuels Alliance (GBA):

- It is a grouping of over 30 countries and international institutions, launched by G20 leaders on September 9 recognised the **importance of biofuels in the energy transition mix**.
- The GBA said it would focus on sustainable and low emission development. GBA will serve as a central repository and a catalytic platform, fostering global collaboration for the advancement and adoption of biofuels.

Other announcements:

- The UK government announced its decision to provide **\$2 billion to the Green Climate Fund**
- A **joint investment fund** of up to **\$1 billion** was announced by the US and India to support India’s energy transition through green technologies.
- As a part of this development, **National Investment and Infrastructure Fund** and **US Development Finance Corporation** have agreed to each provide \$500 million to support a **Renewable Infrastructure Investment Fund**.

Green Climate Fund (GCF)

- The Green Climate Fund (GCF) is a fund established within the framework of the UNFCCC as an operating entity of the Financial Mechanism to assist developing countries in adaptation and mitigation practices to counter climate change.
- One of the largest vehicles for climate finance connected to the UNFCCC is GCF, which was born out of the Copenhagen Accord of 2009. It offers financing through “a flexible combination of grants, concessional debt, guarantees or equity instruments”.
- And part of its mandate is “to invest 50 per cent of its resources to mitigation and 50 per cent to adaptation in grant equivalent”. At least half of its adaptation resources must be invested in the most climate vulnerable countries (small island developing states or SIDS, least developed countries or LDCs, and African States).
- This makes 154 countries eligible for funding, of which 84 received \$2.5 billion GCF adaptation funding between 2015 and 2019, according to the new study.
- Since 54 per cent of the funds went to countries who are LDC, SIDS and / or African countries, the GCF met its mandate.
- The GCF is based in Incheon, South Korea. It is governed by a Board of 24 members and supported by a Secretariat.

National Investment and Infrastructure Fund (NIIF):

- NIIF is India’s first sovereign wealth fund set up by the Government of India in 2015.

- It is an investor-owned fund manager, anchored by the Government of India (GoI) in collaboration with leading global and domestic institutional investors.
- NIIF's mandate includes investing in areas such as energy, transportation, housing, water, waste management and other infrastructure-related sectors in India.

Functioning:

- It is being operationalized by establishing three Alternative Investment Funds (AIFs) under the SEBI Regulations.
- The proposed corpus of NIIF is Rs. 40,000 Crores funded of 49% from Government of India.
- Rest from strategic anchor partners (Overseas sovereign / quasi sovereign / multilateral / bilateral investors).

NIIF and Three Funds:

- NIIF currently manages three funds each with its distinctive investment mandate.
- **Master Fund:** A fund focused on creating scalable sectoral platforms in core infrastructure and in collaboration with strong and reputed operating and financial partners.
- **Fund of Funds:** A fund focused on anchoring and investing incredible and reputed third-party managers with a strong track record across diversified sectors within infrastructure services and allied sectors.
- **Strategic Investment Fund:** A fund focused on investing in strategic assets and projects with longer-term horizon across various stages of development.

Topic 5. CATS ARE KILLING INDIA'S BIRDS. ARE WE PAYING ATTENTION?

Important for the subject: Environment

The **State of Birds in India 2023 report** highlighted that the bird population in India is declining. And one of the reasons is a silent bird-killer in urban areas of India **Cat**.

Landscape of fear:

- One study found that cats may be the **single greatest source of anthropogenic mortality** for birds and mammals in the U.S.
- Worldwide, **free-ranging domestic cats** have caused or contributed to dozens of extinctions of bird species recorded in the **IUCN Red List**.
- A survey found that **pet cats hunted birds the most**, followed by **reptiles, insects, rodents, and amphibians**. Due to their ability to climb, they hunt the nests of birds also.
- Cat saliva is also more likely to contain bacteria (*Pasteurella multocida*) that are lethal to birds.

Trap, neuter, return:

- **Domestic cats (*Felis catus*)** are one of the world's 100 worst invasive alien species.
- **'Trap-neuter-return' (TNR) policy** is adopted to control the population of cats and dogs.
- There is **no definite data** of how many birds are being killed by cats annually or a specific time-period.

What makes Domestic cats a good hunter?

- Its **night vision** and **sense of smell** are well developed.
- It has a strong flexible body, quick reflexes, sharp teeth, and retractable claws adapted to killing small prey like mice and rats.
- Although the cat is a social species, it is a **solitary hunter**. As a predator, it is **crepuscular**, i.e. **most active at dawn and dusk**.
- It can hear sounds too faint or too high in frequency for human ears, such as those made by mice and other small mammals. It also secretes and perceives **pheromones**.

Topic 6. SUPREME COURT UPHOLDS HC BAN ON PLASTER OF PARIS GANESH IDOLS

Important for the subject :Environment

There have been efforts to **ban the sale of plaster of Paris (PoP) idols** for Ganesh Chaturthi festival in the past, but these have proved futile. NGT has ordered state pollution control boards to constitute expert committees to study the impact of PoP on water bodies.

There is **no definitive and comprehensive scientific study on the impact of PoP** on the environment. Studies have been carried out in some places like Bhopal, Jabalpur and Bengaluru.

Results find the impacts including **steep rise in concentration of heavy metals, dissolved solids, and acid content**, and **a drop in dissolved oxygen**.

Plaster of Paris (POP):

- PoP is made by **heating gypsum** at temperatures in the range of **300°F**. When it comes in contact with water, the material regains the form of **gypsum**.
- Since **gypsum is a naturally occurring substance**, and is used as a **soil conditioner** to reclaim **saline-sodic soils**, it has been argued by idol-makers' associations that it is **harmless to the environment**.

Properties of Plaster of Paris:

- Usually **white in color** and available in **powder form**. When water is added, gypsum crystals are formed, leading it to achieve a **solid state**.
- The **exothermic setting process** can be catalyzed by **sodium chloride**. The plaster of Paris is retarded by alum or borax.
- Plaster of Paris forms **anhydrous calcium sulfate** at **473 K**. This is sometimes known as

the dead burnt plaster of Paris.

Impact of POP idol immersion:

- Some other activists argue that PoP idols are non-biodegradable. PoP's reaction with water is **exothermic**—it releases **heat when in contact with water**. There are **no studies** on what kind of impact the heat thus generated has on aquatic life in water bodies. PoP idol immersion makes the water cloudy.
- The idol is painted with **oil paint**. Common pigment types in those oil paints include mineral salts such as **white oxides: zinc oxide, titanium dioxide**, and the **red to yellow cadmium pigments**. Paints used for colouring the idols consist of various heavy metals pigments such as white lead, lithopone, chrome yellow, cadmium sulphide, barium chromate, vermilion, red lead etc.
- Chemicals used in the idols are also harmful for the aquatic environment. They contain heavy metals like **lead, mercury, copper and cadmium**.
- Adding large quantities of gypsum to water will raise its **hardness** and reduce its **life-carrying capacity**.
- It flows into landfills and unused quarries around the cities. Many aquatic animals die because of **overload of bacteria** resulting from the immersed flowers and sweets given as offerings.

Topic 7. OZONE DAY 2023: WHY THE SOUTH POLE HAS SET ALARM BELLS RINGING THIS YEAR

Important for the subject: Environment

September 16 is celebrated as **World Ozone day**. The 2023 winter season for the Antarctica region ended with a record-low sea ice cover in August. This coincided with the early opening of the ozone hole above the continent.

Antarctica sea ice:

- This July, when the continent is in its peak winter, the sea ice extent was around 13.5 million sq km, the lowest since 1978.
- Some scientists have statistically called it a **five-sigma event**, which means that without changes in the climate, such low sea ice cover would have happened once in **7.5 million years**.
- **Sea ice forms and exists in the polar regions** due to an **interaction between the ocean and the atmosphere**, both of which are showing changes due to global warming.
- **Global warming** has also **altered the position of the polar vortex**, a large area of **low pressure and cold air** surrounding both of the **Earth's poles**, which now has an **increased southerly flow** over the **Antarctic sea ice**, pushing more sea ice to the south.

Meridional overturning circulation:

- The meridional overturning circulation is an underwater phenomenon where warm ocean

water from the Equator travels to the North Atlantic and cold water flows back towards the Equator and then to Antarctica.

- It completes the loop by travelling back to the tropics and becomes warm again. This circulation brings warmth to various parts of the globe and also carries nutrients necessary to sustain ocean life.

Ozone hole over Antarctica:

- The **Antarctic ozone hole** is an **annual thinning of the stratosphere's ozone layer**, which has a high concentration of ozone molecules that absorb ultraviolet radiation from the sun.
- Every year, the **ozone hole** over Antarctica begins to form at the **end of September**, peaking in **October** before **closing in November or December**. This year the **hole opened in August** itself, triggering a fear that the **world could see a larger-than-average hole**.
- The ozone hole is usually smaller during El Nino years. The **early opening up of the Antarctic ozone** could be due to the **eruption of the Hunga-Tonga volcano** in January 2022.
- The **increased water vapour** in the **stratosphere** can lead to an **enhanced formation of polar stratospheric clouds** on which **chlorofluro carbons** can react to **speed up ozone depletion**.
- The water vapour could contribute to cooling the Antarctic stratosphere, enhancing the formation of these polar stratospheric clouds and resulting in a stronger polar vortex.

Ozone hole recovery:

- The hole in the ozone layer has been **gradually healing since the 1987 Montreal Protocol**.
- In **October 2022**, the **World Meteorological Organization** predicted that the entire world, barring the poles, would recover from the **ozone hole by 2040**. The **poles** should bounce back by **2066**.

Topic 8. SIBERIA WITNESSES OVER 150% RISE IN AIR POLLUTION

Important for the subject: Environment

Decadal data analysis has suggested that newer geographies are now experiencing **high levels of fine particulate matter 2.5 (PM2.5)** emissions.

PM 2.5 pollution:

- Quantification of **PM2.5** geospatial data — **Monthly Global Estimates of Fine Particulate Matter and Their Uncertainty** — shows the **polar regions**, which are sparsely populated, are reporting much **higher levels of PM2.5** when compared to a decade back as seen in the map.
- **PM 2.5** is defined as particulate matter with a diameter less than or equal to 2.5 microns

and is linked to significant health concerns.

- The **Central and Eastern Siberian Taiga (CEST) region** has reported the **maximum decadal increase in pollution levels**, percentage-wise.
- In **2010**, the **annual mean PM_{2.5} levels** were a little **less than six micrograms per cubic metre of air ($\mu\text{g}/\text{m}^3$)**. By **2021**, the levels had shot up to **over 16 $\mu\text{g}/\text{m}^3$** — a rise of over 180 per cent.

CEST has experienced a gradual rise in PM_{2.5} emission since 2011.

- **Causes of rise in PM 2.5 level:** Influence of emissions from fires in Siberia. The **total area burnt annually** due to **wildfires in Siberia** has increased over **150 per cent** — from over six megahectares (Mha) of land (2005-2011 average) to a little over 16 Mha in the 2016 to 2020 average.

Central and Eastern Siberian Taiga (CEST):

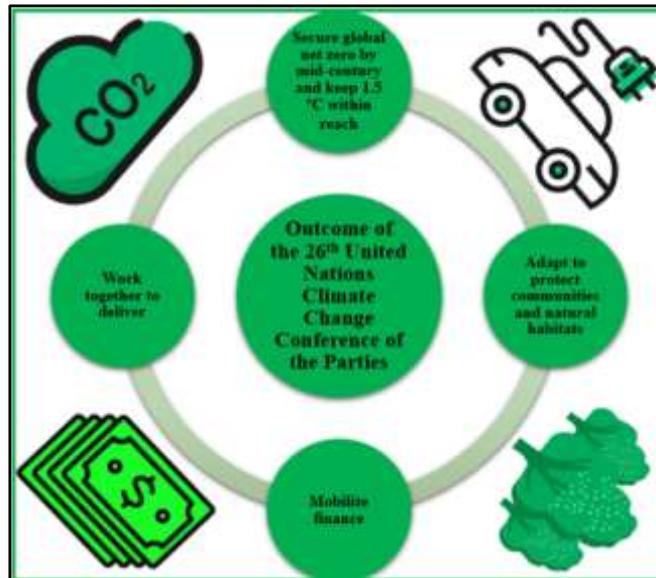
- This **vast ecoregion** is located in the heart of **Siberia**, stretching over **20°** of latitude and **50°** of longitude.
- The **climate** in the **CEST** is **subarctic** (the trees growing there are **coniferous** and **deciduous**) and displays **high continentality**, with **extremes ranging from 40 °C** (104 °F) to **-65 °C** (-85 °F) and possibly lower.
- **Winters are long and very cold**, but **dry**, with **little snowfall** due to the effects of the **Siberian anticyclone**.
- **Summers are short**, but can be quite warm for the northerly location. **Precipitation is low**, ranging from **200 to 600 millimetres** (8 to 24 in), decreasing from east to west.
- The topography of this ecoregion is varied, consisting of wide, **flat plains** and areas of **karst topography**.
- In contrast to the neighboring **West Siberian taiga**, large bogs and wetlands are conspicuously absent. Some trees also shed their leaves annually, a characteristic of deciduous forests.

Protected areas in this ecoregion include:

- Stolby Nature Sanctuary
- Olyokma Nature Reserve
- Tunguska Nature Reserve
- Central Siberia Nature Reserve

Topic 9. IS THE UN CARBON NEUTRAL? NO, FINDS AN INVESTIGATION.

Important for the subject: Environment



Carbon neutrality means **every ton of anthropogenic CO2 emitted is compensated with an equivalent amount of CO2 removed**, according to World Resources Institute.

In order to **limit global warming to 1.5 degrees Celsius, carbon neutrality by mid-21st century is essential**. This target is also **laid down in the Paris agreement** signed by 195 countries, including the EU.

- Carbon sink is any system that absorbs more carbon than it emits.
- The main **natural carbon sinks are soil, forests and oceans**. To date, no artificial carbon sinks are able to remove carbon from the atmosphere on the necessary scale to fight global warming.
- The **carbon stored in natural sinks such as forests is released into the atmosphere through forest fires, changes in land use or logging**.
- Another way to reduce emissions and to pursue carbon neutrality is to offset emissions made in one sector by reducing them somewhere else. This can be done through investment in **renewable energy, energy efficiency or other clean, lowcarbon technologies**.

Topic 10. SDG SUMMIT 2023: POLITICAL DECLARATION FOR MASSIVE INCREASE IN INVESTMENTS TO ATTAIN SDGS ADOPTED

Important for the subject: Environment

Leaders from around the world gathered on September 18, 2023 for the **High-level Sustainable Development Goals (SDG) Summit** and agreed to intensify their efforts to deliver SDGs by 2030.

High-level Sustainable Development Goals (SDG) Summit:

- Held in **New York, USA**
- **Outcome:** They endorsed a **resolute political declaration** outlining their **shared commitment to create a sustainable and inclusive world by 2030**.
- The **annual SDG funding gap** has **risen** from **\$2.5 trillion** before the pandemic to an estimated **\$4.2 trillion**.
- In the declaration, leaders recommitted to **full implementation of the Sendai Framework for Disaster Risk Reduction**.
- To address the finance for SDGs, the leaders in the declaration reiterated that the **Addis Ababa Action Agenda** is a crucial component of the **2030 Agenda**.

Addis Ababa Action agenda:

- In **2015**, the **Addis Ababa Action Agenda** had emphasized on **efficient use of all financial flows**, both public and private, **for sustainable development** and the need for integrated national financing frameworks.
- An **SDG stimulus** is proposed by the **UN Secretary- General** that would significantly increase funding for SDG implementation by **\$500 billion annually**.
- The summit has urged for scaling up **debt swaps for SDGs**, including **debt swaps for climate and nature**.

What is the Debt-for-nature swaps deal?

- **Debt-for-nature swaps** allow heavily indebted developing countries to seek help from financial institutions in the developed world with paying off their debt if they agree to spend on conservation of natural resources.
- Usually **banks in developed countries** buy the debts of such countries and replace them with new loans which mature later. These have **lower interest rates**.
- **There is now enough scientific evidence that establishes linkages between the climate impacts and SDGs**.
- For instance, midway to **2030**, **climate change and extreme weather events** threaten the achievement of SDGs, the **WMO** warned recently.
- Recent research had argued for **stronger integration of climate action and UN Sustainable Development Goals** to achieve the ambitious goals of the **Paris Agreement**.

Sendai Framework for Disaster Risk Reduction (DRR): 2015-2030

- It was the **first major international agreement post-2015** and is the next step from **Hyogo Framework (2005-15)** for concrete steps for protecting development gains from disasters. It talks of **4 priorities** for actions and **7 global targets**.

Priority actions

Global targets (Till 2030)

- Understand Disaster Risk in all its dimension (hazard, risk, capacity)
- Reduce mortality from disasters
- Strengthen disaster Risk Governance. Ex- DN, Act 2005 in India providing institutions for governance at three levels.
- Reduce and control number of people affected by disasters.
- Invest in DRR for resilience, enhancing preparedness for effective response
- Reduce economic loss w.r.t global GDP due to disasters
- Build Back Better (i.e. Reducing future vulnerabilities for future and create community resilience) in recovery, rehabilitation and reconstruction
- Increase number of countries with the DRR strategies
- Enhance international cooperation in disaster management.
- Ease of access to multi hazard Early Warning System for countries.
- Reduce damage to critical infrastructure and basic services

Topic 11. 'GREEN SHOULD BE THE COLOR OF THE FUTURE': GLOBAL BODIES LAUNCH CAMPAIGN TO PROTECT FORESTS

Important for the subject: Environment

The **Collaborative Partnership on Forests (CPF)**, a partnership of **16** global organizations chaired by the **United Nations Food and Agriculture Organization (FAO)**, has launched the **Joint Call to Action for Forests towards 2030**.

- **Collaborative partnership on Forests (CPF):** CPF is an **innovative voluntary interagency partnership on forests** that was established in **April 2001** in response to an invitation issued in the resolution by the **Economic and Social Council of the UN (ECOSOC)** that established the **International Arrangement on Forests and the UN Forum on Forests (UNFF)**.
- The Partnership is currently composed of **fifteen international organizations, institutions and secretariats** that have substantial programmes on forests.
- **Aim:** To highlight the need for increased action and political commitment to implement forest solutions in pursuit of the **United Nations-mandated Sustainable Development Goals (SDG)**.

Mission:

- To help enhance the contribution of all types of forests and trees outside forests to the **2030 Agenda for Sustainable Development** and other internationally agreed development goals, promote the sustainable management of all types of forests and to strengthen long-term political commitment to that end.

Four focal areas of the Joint Call to Action for Forests towards 2030:

- Implementation and action; data, science and innovation; finance for forests; and communication and awareness-raising.

- The CPF members committed to “reinforcing action to strengthen efforts at all levels to fully unlock the contributions of forests to sustainable development and achieve our joint vision for forests towards 2030”.

FAO’s Global Forest Resources Assessment (FRA):

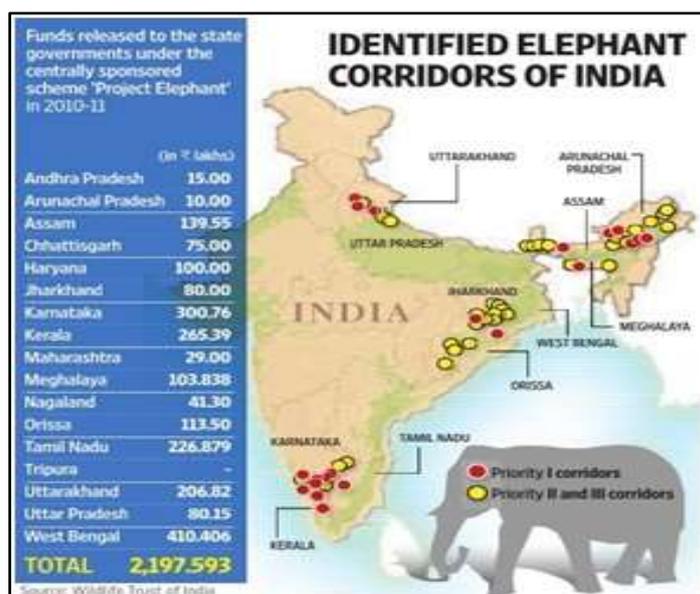
- FRA provides essential information for understanding the extent of forest resources, their condition, management and uses.
- The ongoing assessment, **FRA 2025**, examines the status of, and trends in, more than **60 forest-related variables in 236 countries and territories** in the period **1990–2025**.
- **FRA 2025** data are collected using commonly agreed terms and definitions through a transparent, traceable reporting process and a well-established network of officially nominated national correspondents that covers 188 countries and territories.
- The world has lost **420 million hectares of forest** through **deforestation** since **1990**, and deforestation continues, although the rate slowed from 12 million hectares per year during 2010-2015 to 10 million hectares per year during 2015- 2020.

Global Forest Goals outlined in the UN Strategic Plan for Forests 2017-2030:

- The **United Nations Strategic Plan for Forests 2017–2030** provides a **global framework for action to sustainably manage all types of forests and trees outside forests**, and to halt deforestation and forest degradation. At the heart of the Strategic Plan are **six Global Forest Goals (GFGs)** which directly support the UN Sustainable Development Goals.

Topic 12. CENTRE IDENTIFIES 62 NEW ELEPHANT CORRIDORS; TOTAL NOW 150

Important for the subject: Environment



A new elephant corridor report released by the central government showed a **40 per cent increase in elephant corridors across 15 elephant range states in India.**

Elephant corridors in India:

- **Elephant corridors** can be described as a **strip of land that enables elephant movement between two or more friendly habitats.**
- The corridors were **reported by respective state governments** and ground validation methods were used to verify them.
- The number of elephant corridors have **increased to 150** against **88** registered by the Government of India in **2010**. The elephant population in the country is estimated to be over **30,000**.

Regional analysis:

- **West Bengal** has the **most elephant corridors (26)** amounting to **17 per cent** of the total corridors.
- **East central region** contributed to **35 per cent**, that is **52 corridors**, while **North East region** was **second largest** with **32 percent**, number meaning **48** corridors in total.
- **Southern India** registered **32**, that is **21 percent** of the elephant corridors, while **northern India** was **lowest** with **18** corridors or **12 per cent**.
- **Majority of the corridors were noted to be within state boundaries** and the **intensity of the use of corridors has increased by 40 per cent.**
- However, it showed that **19 percent** of the corridors, that is **29**, showed a **decrease in use** while **10** others were seen **impaired** and demanding restoration for facilitating elephant movement.
- The **decrease in corridor use** is attributed to the **habitat fragmentation, shrinkage and destruction.**
- The **increase in the elephant corridors** also reflected that elephants have expanded their ranges in **Vidarbha region** of **Maharashtra** neighboring
- **Chhattisgarh** and **southern Maharashtra** bordering **Karnataka**. **Elephants** have also seen **increased presence** in **Madhya Pradesh** found in **Sanjay Tiger reserves** and **Bandhavgarh.**
- Ranges have also **increased** in **northern Andhra Pradesh** where the **elephants access movement from Odisha.**
- **Data on elephant movement** remains sketchy in many **northeastern states** that harbor relatively small population of elephants.

Topic 13. CAN GREEN NUDGES IN ONLINE FOOD DELIVERIES LEAD TO LESSER POLLUTION? A STUDY CONDUCTED IN CHINA THINKS SO

Important for the subject: Environment

Why in the news?

A study conducted in collaboration with an **online food delivery platform (Eleme)** in China

found that making “**no disposable cutlery**” the default choice for orders and rewarding customers with “**green points**” led to a **648% increase in the share of nocutlery orders**. This step could have significant benefits for the environment.

What are green nudges?

- In **behavioral economics**, **nudges** are interventions that **influence people’s choices** to make certain decisions without restricting the choices available to them.
- **Green nudges** are gentle persuasions to **influence environment-friendly behaviour in people**.
- **Nudges have been criticized** in the past for being **manipulative**: they are not always transparent and can sometimes bank on ignorance or lack of awareness in people to work.
- But researchers working on the study have said that the **green nudges that they implemented are easy to understand and transparent to users**.

About the study:

- The study was conducted by **Alibaba** using a **difference-in-differences model**. Historically, **nudges focus on short-term impacts**, but the **Alibaba study** showed its **persisting effect through individuals’ ordering behaviour**.

Method used:

- The Alibaba platform provides “**Green points**” for choosing “**No single use cutlery (SUCs)**”, and also allows its users to **collect green points** through other activities like **walking more, taking more public transportation, selling used items, etc**.

Findings of the study:

- Under the study, the **share of no-cutlery orders increased in the cities** where it was conducted, but **remained relatively unchanged throughout the study period in the control cities**.
- The **Green Nudgedid not negatively impact** Alibaba’s business. **Women** placed more ‘**no cutlery**’ orders than that of **men**. **Middle-aged** and **elderly** placed more orders with “**no cutlery**” than that of **youth** and **adults aged 18-24 years**.
- Over **18 months** in **Shanghai**, eight months in **Beijing**, and one month in **Tianjin**, the number of SUCs was **reduced by more than 225.33 million sets**.

The purpose of Green Nudge:

- The **green nudges** were a result of Chinese regulations that prohibited online food delivery platforms from including SUCs in orders unless explicitly requested.
- In early **2020**, **China** announced ambitious plans to **phase out single-use plastics** from the country, beginning with a **country-wide ban on single-use straws** by the end of the year.

Do green nudge work in India:

- **China** is the world's largest producer and consumer of SUCs.
- **Zomato**, an **online food delivery platform** in **India** that occupies **over 50%** of market share in the space, also has similar nudges on its app.
- While the company says that **the option to skip cutlery was always available on its platform**, it changed the **default selection to "no-cutlery" in August 2021**.
- Zomato's no-cutlery initiative was designed to reduce not just plastic but overall material waste.
- The data suggests that **three out of every five orders** choose to opt out of receiving cutlery, which has resulted in an estimated **1,000 metric tonne reduction in cutlery waste till now**.

Topic 14. UN GENERAL ASSEMBLY 2023: CRUCIAL BIODIVERSITY FUND GETS ENOUGH MONEY TO BE OPERATIONAL

Important for the subject: Environment

At a high-level event, **Nature and People: From Ambition to Action**, at the ongoing **78th session** of the **United Nations General Assembly** in **New York**, the government of **Germany** pledged to contribute **40 million euros** to the **Global Biodiversity Framework Fund (GBFF)**.

- The **GBFF** was **ratified** in **August** at the **Global Environment Facility Assembly** but needed **\$200 million** from **at least three donors** by **December 2023** to be operational.
- At the Assembly, **Canada** committed **200 million Canadian dollars** and the **United Kingdom** committed **10 million GBP** and now **\$40 million** is contributed by **Germany**. Thus the **GBFF** will become **operational**.
- **Germany's** contribution was made through its **International Climate Initiative**.
- Under **Target 3**, the world has to **protect and conserve 30 per cent of land and ocean** by **2030** (known as **30×30 target**).

Contributions to fulfill 30×30 target of GBF:

- **The new contributions for fulfillment of target 3 includes:** the pledge by **New Caledonia** to **strictly protect 10 percent of its maritime space** by the end of the year.
- An additional **114,900 hectares of marine ecosystems** across **Comoros, St Lucia** and **Vanuatu** would be restored under the **Small Island Developing States (SIDS) Ecosystem Restoration Flagship project** announced at the **high-level event**.
- An **indigenous-led** finance mechanism, **Community Land Rights and Conservation Finance Initiative (CLARIFI)**, received funds — **5 million euros** — from **German Federal Ministry for Economic Cooperation and Development (BMZ)** to boost the role of **indigenous peoples and local communities (IPLC)** in decision-making on nature conservation.
- **IPLCs** manage over at least **43.5 million square kilometres** (32 per cent of global land)

in **87 countries** but **less than 1 percent** of funding for climate and biodiversity protection actually reaches them.

Community Land Rights and Conservation Finance Initiative (CLARIFI):

- **CLARIFI** is a new **international funding mechanism** led by **RRI** and **Campaign for Nature**.
- It **aims** to contribute to raising **US\$10 billion by 2030** and strategically deploying public and private funds to scale up the formal recognition of Indigenous Peoples’, Afro-descendant Peoples’, and local communities’ land rights, conservation, and sustainable management of their territories.

It will contribute to raising USD \$10 billion between now and 2030 to achieve the following goals:

- Help protect at least 30% of the planet by 2030 by adding 400 million hectares to Indigenous Peoples’, Afro-descendant Peoples’, and local communities’ legally recognized territories.
- Reduce deforestation to help reach the goals of the Paris Climate Agreement. Increase these communities’ legal land ownership to at least 50% of all tropical forests.

Topic 15. WILDLIFE INSTITUTE’S BIODIVERSITY STUDY FOR RAIL PROJECT IN WESTERN GHATS RAISES CONFLICT OF INTEREST CONCERNS

Important for the subject: Environment

In August 2017, the **Indian Institute of Science (IISc)** prepared a **biodiversity and environment assessment report** for a project proposed by **Rail Vikas Nigam Ltd (RVNL)** to **double the railway track between Kulem in Goa and Castlerock in Karnataka**.

- The **report of IISc** was peer reviewed by a group of **31 scientists** who found **misidentification and under-reporting of the region’s biodiversity, faulty methodology** like **sparse usage of camera traps** and the **selection of a time period when herpetofauna are relatively inactive**, that is, **winter**, and also omissions of information.
- In May 2022, the Supreme court set aside the wildlife clearance of the project. Now the **Wildlife Institute of India** will assess the **wildlife impact of the project**.
- **National Board for Wildlife (NBWL)** is the apex statutory body in India that is primarily responsible for wildlife conservation in the country.

What is the concern now?

- The scope of work of the study by **WII** is set by **RVNL**, the railway company which is the project proponent. So there is a clear **conflict of interest**.
- The **second issue** is that the **project will be developed and tries to mitigate rather than avoid** any possible impact arising due to the project, when the **first rule in impact assessment is the principle of avoidance**.

- **About the proposed project of doubling the railway track by Rail Vikas Nigam Ltd (RVNL):**

Location: Kulem in Goa and Castlerock in Karnataka

- The project seeks to cut through the **Bhagwan Mahavir Wildlife Sanctuary** and **Mollem National Park** in the **Western Ghats** in **Goa**; and will also impact connectivity across the border with **Kali Tiger Reserve** in **Karnataka**.
- The project also includes **laying of a 400-kV transmission line**, which will involve the expansion of a national highway from **Belagavi to Panaji** from the existing two lanes to four lanes.

Bhagwan Mahaveer Sanctuary and Mollem National Park:

- It is a 240 square kilometers (93 sq mi) protected area located in the **Western Ghats** of West India, in **Dharbandora taluka, Goa State**, along the **eastern border with Karnataka**.
- The area is situated near the town of **Molem**.
- **National Highway 4A** divides it into two parts and the **Mormugao – Londa railway line** passes through the area.
- It contains several important temples dating to the **Kadambas of Goa**, and home to waterfalls, such as **Dudhsagar Falls** and **Tambdi Falls**.

Devils Canyon:

- This is an eerie canyon of water carved crevices downstream from **DudhSagar Falls**, created from solid rock by serpentine underwater currents.
- The parkland is also home to a community of nomadic buffalo herders known as the **Dhangar**.

Threats to the sanctuary:

- This protected area is threatened by **extensive surface mining and transport of manganese and iron ores**. A serious threat is the deposit of toxic wastes.

Amche Mollem campaign:

- The campaign was in response to the clearance of the **project of doubling the railway track** by

Rail Vikas Nigam Ltd (RVNL).

- The **Amche Mollem campaign** won the **Wildlife Service Award in 2021** for organizing Goans from all walks of life, from students and lawyers to fisherfolk, farmers and artists to send letters and petitions to the concerned officials, including the **NBWL, the Goa government** and the **Central Empowered Committee (CEC) of the Supreme Court**.

Topic 16. IUCN TAKES UP \$15B INDIAN OCEAN HABITAT PROJECT AS PART OF THE GREAT BLUE WALL INITIATIVE

Important for the subject : Environment

Citigroup and BNP among banks exploring \$15 billion Indian Ocean project.

Citigroup Inc., BNP Paribas SA and Standard Chartered Plc are among the banks looking into providing financing for a new \$15 billion program to protect Indian ocean habitats.

- The private capital would feed into the Great Blue Wall initiative, which aside from the IUCN is also backed by the United Nations. The project has already raised \$100 million.
- As much as a fifth of the \$15 billion will be raised through debt-for-nature swaps.
- The program, which was first announced at the COP26 climate summit in Glasgow in 2021, is the latest to tap debt-for-nature swaps to fund ocean preservation and sustainable development.
- **Debt-for-nature swaps** are gaining traction, with Barclays Plc analysts estimating the market could reach \$800 billion. Banks meanwhile are vying to arrange the deals, which yield lucrative fees and can bolster a firm's ESG credentials.

Great Blue Wall Initiative

- At the UNFCCC COP26 in Glasgow, Western Indian Ocean states and partners including **International Union for Conservation of Nature (IUCN)** have launched the Great Blue Wall initiative.
- The **Great Blue Wall Initiative** is a project for the **western Indian Ocean** countries that intends to adopt an action-driven, oriented and focused approach.
- The initiative sets out to help countries reach the following targets: protect 30% of the ocean by 2030; achieve net gain of critical blue ecosystems – such as mangroves, corals, seagrasses – by 2030; develop a regenerative blue economy and create millions of jobs by supporting local communities through funding, training and technical assistance.
- It aims to establish a **network of marine and coastal conserved areas** to benefit biodiversity and local livelihoods, empowering communities to become stewards of the ocean.
- Under the initiative countries will designate seascapes as **IUCN Category VI conserved areas**, which allow for sustainable use of natural resources to benefit local communities.
- Countries will also identify sites for conservation and restoration to achieve net gain of critical ecosystems like mangroves, seagrass meadows and coral reefs by 2030.
- Led by Western Indian Ocean countries, and supported by IUCN and a coalition of partners, the Great Blue Wall initiative has called upon innovators to help enable the regeneration of the WIO while creating economic opportunities for the 70 million people currently dependent on it.
- Under the project, seascapes and conservation/restoration sites will be identified based on country priorities, opportunities, existing efforts, local partners' needs, and availability of

funding as well as on the already available science and knowledge.

What are we doing to protect our oceans?

- **More than half of the world's oxygen** is generated by our oceans, and they **absorb 50 times more** CO₂ than our atmosphere. So it is important to protect them against overfishing, plastic and noise pollution, coastal development, poaching and unsustainable tourism.
- Protecting our oceans is a key goal in the UN's sustainable development goals And the World Economic Forum's Ocean Action Agenda and Friends of Ocean
- Action recently launched an appeal – known as Ocean Action in 2023 – for continued ambitious progress to achieve ocean health through the suite of opportunities ahead.
- A healthier, more sustainable and profitable ocean may still be within reach with initiatives like the Great Blue Wall and many other efforts that aim to protect our oceans and ensure they are utilized sustainably for generations to come.

Debt-for-nature swap

- A debt-for-nature swap is a financial arrangement in which a portion of a country's foreign debt is forgiven or restructured in exchange for that country's commitment to invest in conservation and environmental protection projects.
- This **innovative mechanism** allows debtor nations to alleviate their debt burden while simultaneously addressing environmental and conservation challenges.
- The funds redirected from debt payments are used to finance initiatives such as protecting endangered ecosystems, preserving biodiversity, and mitigating climate change, contributing to both environmental sustainability and debt relief.
- World's small island developing States (**SIDS**) see this as a new opportunities to service their debts and at the same time build resilience to the mounting costs from a changing climate.

Topic 17. HOW CAN I LOWER MY CHOLESTEROL? DO SUPPLEMENTS WORK? HOW ABOUT PSYLLIUM OR PROBIOTICS?

Important for the subject: Science and tech

Why are we so worried about cholesterol?

There are **two main types of cholesterol**, both affecting your risk of heart disease and stroke. Both types are carried in the **bloodstream** inside molecules called **lipoproteins**.

Low-density lipoprotein or LDL cholesterol

- Also called "**bad**" **cholesterol**. This **lipoprotein** carries **cholesterol** from the liver to cells throughout the body. **High levels of LDL cholesterol** in the blood can lead to the **build-up of plaque in arteries**, which leads to an **increased risk of heart disease and stroke**.

High-density lipoprotein or HDL cholesterol

- Also called “**good**” **cholesterol**. This **lipoprotein** helps **remove excess cholesterol from the bloodstream** and transports it back to the **liver** for processing and excretion. **Higher levels of HDL cholesterol** are linked to a **reduced risk of heart disease and stroke**.

Soluble fibre:

- Consuming soluble fiber reduced the LDL cholesterol.
- Soluble fiber is a type of fiber that **dissolves in water to form a gel-like substance** in our gut. The gel can bind to cholesterol molecules preventing them from being absorbed into the bloodstream and allows them to be eliminated from the body through your faeces.
- **Soluble fiber rich foods are:** fruits, vegetables, oats, barley, beans and lentils.
- **Natural soluble fibers**, such as inulin (for example, Benefiber) or psyllium (for example, Metamucil) or beta-glucan (for example, in ground oats)
- **Synthetic soluble fibers**, such as polydextrose (for example, STA-LITE), wheat dextrin (also found in Benefiber) or methylcellulose (such as Citrucel)
- **Natural insoluble fibers**, which bulk out your faeces, such as flax seeds.

Probiotics:

- **Probiotics are live microorganisms** (bacteria and yeast) that are thought to have **health benefits** when consumed in adequate amounts. Human body contains both good and bad bacterias. These **good bacteria** are referred to as **probiotics**.
- **Inside the human body**, they can live in the gut (mainly), mouth, vagina, urinary tract, skin, and lungs. Probiotics help in lowering cholesterol but are not based on fiber.
- Probiotics help to incorporate cholesterol into cells, and adjust the microbiome of the gut to favor elimination of cholesterol via the feces.

Red yeast rice:

- **Red yeast rice** is a **type of fermented rice** that is produced using **specific species of mold, Monascus ruber or Monascus purpureus** (1Trusted Source, 2Trusted Source).
- It’s been used in **traditional Chinese medicine** for centuries for its powerful health promoting properties.
- **Red yeast rice** contains the compound **monacolin K** — the same active ingredient found in prescription cholesterol-lowering medications like **lovastatin** (2 Trusted Source).
- For this reason, it’s often used as a **cost-effective alternative to pricey medications to help reduce cholesterol levels** and support heart health.

Topic 18. FROM NEUTRINOS AND TB BACTERIA TO QUAKE-RESISTANT BUILDINGS: HOW WORKS OF THESE YOUNG SCIENTISTS HAVE THE POTENTIAL TO CHANGE THE WORLD

Important for the subject: Science and technology

Introduction:

Earlier this week, the **Council of Scientific and Industrial Research (CSIR)** announced its flagship Shanti Swarup Bhatnagar Prizes for 2022, after holding it back for a year.

About Shanti Swarup Bhatnagar Awards

- Founded in **1958**, the Awards are **India's top science and technology honors**. Named in honor of renowned Indian scientist **Dr. Shanti Swarup Bhatnagar, a pioneer in chemistry**.
- Presented annually by the **Council of Scientific and Industrial Research (CSIR)** to **Indian scientists under 45** for exceptional contributions.
- Recognizes achievements in various fields, including **physics, chemistry, biology, mathematics, engineering, medical, and earth sciences (7 disciplines)**
- The rigorous selection process with **nominations from peers and experts**, followed by **expert committee evaluation**.

Discipline Scientist Affiliation Research Details

PHYSICAL SCIENCES

Physics

- Basudeb Dasgupta
- TIFR, Mumbai
- Investigating **neutrinos and dark matter** detection, including their behavior, state changes, and implications for star explosions and element formation.
- Additionally, exploring theorized dark matter.

Physics

- Anindya Das
- IISc, Bengaluru
- Researching **Anyons** and their role in **quantum computing**, using **graphene** for detection.

CHEMICAL SCIENCES

Organic Chemistry

- AT Biju

- IISc, Bengaluru
- Developing **eco-friendly methods for synthesizing biologically important compounds.**

Organic Chemistry

- Debabrata Maiti
- IIT-Bombay
- Enhancing **C-H bond activation using transition metals and ligands for efficient chemical transformations.**

BIOLOGICAL SCIENCES

Microbiology

- Ashwani Kumar
- CSIR Institute of Microbial Technology, Chandigarh
- Investigating **Mycobacterium tuberculosis** behavior, biofilm formation, and their implications for TB treatment.
- Cell Biology Maddika Subba Reddy Centre for DNA Fingerprinting Diagnostics, Hyderabad.
- Studying **protein complexes' role in maintaining cell stability and their implications for diseases.**

ENGINEERING SCIENCES

Civil Engineering

1. Dipti Ranjan Sahoo
2. IIT-Delhi
3. Advancing **earthquake-resistant building designs, including energy dissipating devices and construction materials** to enhance building safety.

Chemical Engineering

1. Rajnish Kumar
2. IIT-Madras
3. Innovating methods for **methane recovery from marine gas hydrates, carbon capture, and industrial effluent purification.**

MATHEMATICAL SCIENCES

Mathematics

1. Apoorva Khare
2. IISc, Bengaluru
3. Advancing **matrix analysis and algebra**, with applications in **climate change analysis and disease detection.**

Mathematics and Computing

- Neeraj Kayal
- Microsoft Research Lab India, Bengaluru
- Exploring **complexity theory**, computer algorithm efficiency, algebra, number theory, and geometry.

EARTH, ATMOSPHERE, OCEAN AND PLANETARY SCIENCES

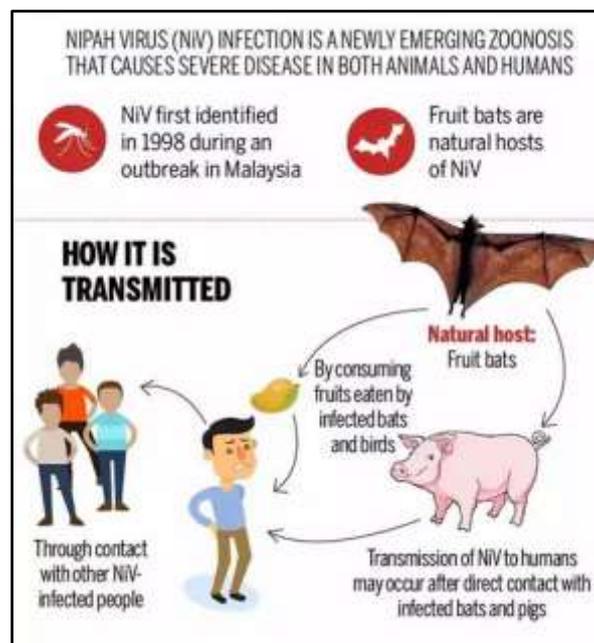
- Environmental Science
- Vimal Mishra
- IIT Gandhinagar
- Investigating **climate change's impact** on water resources, including hydrological cycles, groundwater, and extreme weather events.

MEDICAL SCIENCES

- Immunology
- Dipyaman Ganguly
- CSIR-Indian Institute of Chemical Biology, Kolkata
- Understanding **autoimmune diseases, autoreactive inflammations, and immune cell responses to advance clinical insights.**

Topic 19. WHY NIPAH VIRUS OUTBREAKS ARE OCCURRING ONLY IN KERALA

Important for the subject: Science and technology



Kerala experienced **four Nipah outbreaks** since May 2018: **three in Kozhikode** and **one in**

Ernakulam in 2019.

Presence of Nipah Virus in Fruit Bats

- A **2021 study** confirmed Nipah virus in **Pteropus fruit bats** across Kerala districts.
- **NIV Pune** found Nipah virus antibodies in *Pteropus medius* bats in nine states, including Kerala.

Kerala's Proactive Healthcare System

- Kerala's **virologist-led teams** quickly identified the **Nipah virus in undiagnosed fever cases**.
- Advanced healthcare infrastructure and suspicion enhance rapid diagnosis.

Nipah Virus Infectivity

- Nipah has **lower infectivity than SARS-CoV-2 (R0 of 0.2-0.3 compared with R0 of over 1.5 in the case of SARS-CoV-2 virus)**, with **index cases posing higher transmission risk**.
- **Not all index cases become superspreaders**, and secondary cases may be limited, depending on symptoms.

Basic Reproduction Number:

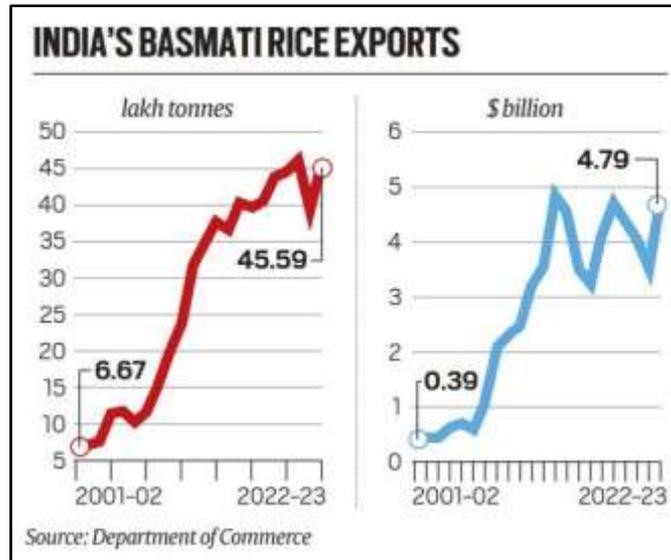
- **R0 (pronounced "R naught")** is a basic reproduction number used in **epidemiology** to measure the **contagiousness** or **transmission potential** of an infectious disease.
- It represents the **average number of secondary infections** that one infected individual can produce in a completely susceptible population.

About Nipah Virus

- **Nipah virus** is a **highly contagious** and **often deadly virus** that can infect **both humans and animals**.
- It belongs to the family **Paramyxoviridae**, genus **Henipavirus**.
- Nipah virus was **first identified in Malaysia in 1998** when it caused an outbreak of **severe respiratory and neurological illness in pigs and a subsequent outbreak in humans**.
- **Transmission:** It spreads through contact with **infected animals**, contaminated food, or **direct human-to-human contact**.
- **Symptoms:** It causes fever, headache, and vomiting, and can lead to severe **encephalitis** with a high mortality rate.
- **Geographic Distribution:** Nipah virus outbreaks have occurred in South and Southeast Asia, primarily in **Malaysia, Singapore, Bangladesh, and India**.
- **Animal Reservoir:** **Fruit bats**, especially **flying foxes**, are natural carriers of the virus.

Topic 20. HOW BASMATI IN INDIA IS REAPING THE REWARDS OF RESEARCH

Important for the subject: Science and technology



Basmati rice’s annual exports from India have soared, from **0.3-0.35 million tonnes (mt)** valued at \$200-250 million to **4.5-4.6 mt** worth \$4.7-4.8 billion, in the past three decades.

Much of this has been courtesy of scientists at the **Indian Agricultural Research Institute (IARI)** in New Delhi.

Globally, the **top rice-producing country** is China, followed by India. India, the world’s **biggest rice exporter**, accounted for **nearly 40 percent** of global rice trade in 2022, exporting **22 million tonnes** worth \$9.66bn to 140 countries.

The first revolution:

- **Till 1980s:** Traditional rice varieties have been grown which were prone to **lodging** (bending over when heavy with well-filled grains) and **yielding barely 10 quintals of paddy an acre**.
- These rice varieties include **Taraori** (also called **Karnal Local** or **HBC-19**) and **Dehraduni (Type-3)**.
- **Pusa Basmati-1:** introduced in **1989**. Developed by **IARI** scientists led by **E.A.**
- It was a **cross** between **Karnal Local** and **Pusa-150**, a **high-yielding non basmati line**. **PB-1** didn’t lodge, yielded **25-26 quintals grain per acre**. **PB-1** delivered a yield revolution and helped double India’s basmati exports.

The second revolution:

- In **2003: Pusa Basmati-1121 (PB-1121)** was released.
- **PB-1121** yielded less (20-21 quintals/acre) with a **slightly longer maturity** (140- 145 days). But it has an excellent grain quality: The kernel length averaged 8 mm that elongated 2.7 times to about 21.5 mm on cooking. This variety is being sold under the

India Gate Classic brand.

The third revolution:

- **In 2013: IARI released Pusa Basmati-1509 (PB-1509).** It yielded just as much as **PB-1**, with the **milled rice length before and after cooking comparable to PB- 1121's**. But **PB-1509's seed-to-grain duration** was just **115-120 days**.
- Being an early-maturing high-yielding variety made PB-1509 advantageous for farmers.

Breeding for disease resistance:

- **PB-1121** has become susceptible to **bacterial leaf blight**. To control it, the scientists have sought to **transfer genes from landrace cultivars** and wild relatives of paddy that are resistant to this bacterial disease. Such genes have been identified through a technique called **marker-assisted selection**.
- **In 2021, IARI released Pusa Basmati-1885 and Pusa Basmati-1847.** These were basically **PB-1121** and **PB-1509** having **“in-built resistance” against bacterial blight** as well as **rice blast fungal disease**. Both of them incorporated two bacterial blight resistant genes **Xa21** and **xa13**, derived from a **wild rice species** (*Oryza longistaminata*) and a **traditional indica landrace (BJ1)** respectively.
- They also carried **two other genes Pi2 and Pi54** against **blast**.
- Now farmers no longer have to use **streptomycin** or **tetracycline** combinations and **fungicides** such as **tricyclazole, azoxystrobin** and **picoxystrobin**.

Risk factors

- There's **no minimum support price (MSP)** for **basmati paddy**. Also, its rice is mostly exported with only a limited domestic market.
- Basmati grain yields, at **25 quintals per acre**, are only marginally below the **30 quintals for normal Parmal (non-basmati) varieties**.
- The market price of **Basmati rice** is **Rs 3,000/quintal** (against the **Rs 2,203 MSP for Grade A non-basmati paddy**) and corresponding **cultivation costs of Rs 30,000 per acre** (Rs 25,000).
- **Export ban of basmati rice** is another challenge.

Topic 21. HIGH COSTS MAY DERAILED GLOBAL BIOFUEL ALLIANCE AMBITIONS BUT TECH CAN HELP

Important for the subject: Science and technology

Global Biofuels Alliance (GBA):

Established during the **annual G-20 summit** in **New Delhi**. **Founding members** include **India, the U.S., Brazil, Argentina, Canada, Italy, and South Africa**. Focuses on **promoting biofuel production and use, especially in the transport sector**.

Defining Biofuels:

- The **International Energy Agency (IEA)** defines biofuels as “**liquid fuels derived from biomass and used as an alternative to fossil fuel-based liquid transportation fuels such as gasoline, diesel, and aviation fuels.**”

Biofuels Types:

- Biofuels can be categorized into **1G (first-generation)** and **2G (second generation)** types:
- **1G** biofuels are produced from **specific crops like sugarcane, corn, and soybean.**
- **2G** biofuels are derived from **agricultural waste, used cooking oil, and animal residues.**

High cost of biofuels:

- The world seeks to transition from fossil fuels to biofuels, but **non-edible feedstock biofuels are relatively expensive.**
- **First-generation biofuels (corn and soya-based)** cost **₹65 per litre**, while **nonedible feedstock biofuels** cost **₹110 per litre.**

The Need for 2G Biofuels:

- Agricultural land cannot be diverted from food production to produce biomass for biofuels.
- The **solution** lies in 2G (second-generation) biofuels.

Technology’s Role in Cost Reduction:

- **Breakthrough technology** is essential to lower biofuel production costs. Biomass consists of **lignin, hemicellulose, and cellulose.**

Two key technological avenues:

- **Better catalysts** for increased yield
- **Other chemical production from biomass**

Enhanced Catalysts for Higher Yields:

- Improved catalysts are essential for **optimizing the conversion of lignocellulosic biomass into biofuels.**
- Focuses on increasing **conversion efficiency**, resulting in **higher biofuel yields from the same amount of feedstock.**

Diversification of Chemicals from Biomass:

- The conversion of biomass into a **range of valuable chemicals.** **Hemicellulose** can be transformed into **valuable platform chemicals, reducing costs.**
- These “**platform chemicals**” derived from biomass offer **additional revenue streams,**

offsetting production costs.

- For instance, **furan dicarboxylic acid (fdca)** can replace **petroleum-derived terephthalic acid**, serving as a valuable product for industries like **PET bottle manufacturing**.

Nanoparticle Applications:

- Nanoparticles, including **metallic, ceramic, and semiconductor varieties**, have proven indispensable in biofuel production.
- **Metallic oxide nanoparticles**, facilitate **electron transfer and enhance enzymatic activity**, increasing biofuel yields.
- **Magnetic nanoparticles**, in particular, assist in making the biomass conversion process more economical.

Nanoarchitectonics:

- Nanoarchitectonics involves **deliberate customization of nanoparticles**, including **modifying composition, size, shape, and properties**.
- For example, structuring **niobium pentoxide (Nb₂O₅) nanoparticles** into **flowerlike forms (florets)** enhances their catalytic properties, contributing to cost reduction.

Research into Enzymatic Hydrolysis:

- Biofuel production often involves **enzymatic hydrolysis to convert cellulose into sugar monomers** and, subsequently, into **biofuels**. **Nanoparticles**, especially magnetic ones, can assist in optimizing enzymatic hydrolysis processes.

Lignin Utilization:

- Innovative technology explores applications for lignin, **traditionally considered waste**.
- Lignin can be **mixed with bitumen for road surfacing**, offering a practical way to **lock in carbon and generate additional value from biomass**. ‘**Lignin-first approach**’ separates lignin for industrial use.
- The remaining cellulose and hemicellulose-rich biomass becomes **ideal feedstock for biorefineries**. **Start-ups like X2Fuels** aim to convert industrial waste into crude oil-like fuel.

Challenges in Commercialization

- While **technology exists in labs**, commercialization, especially of new catalysts, **remains distant**.
- **Mass production of catalysts** presents a significant challenge. Scaling up nanoparticles in biofuel production requires **intensive research**.

Government Support

- The **Ministry of External Affairs** emphasizes “**facilitating technology advancements**”

in the Global Biofuels Alliance.

- The **government** can **mandate oil marketing companies** to **purchase** a portion of **2G biofuels from the market**. Similar to renewable energy and compressed biogas, **biofuels need government backing to break the cost-demand cycle**.

Topic 22. GLOBAL ANTIBIOTIC USE IN ANIMALS DIP BY 13% IN 3 YEARS; BUT REGIONAL DISPARITIES EXIST

Important for the subject: Science and technology

The **global usage of antimicrobials in animals** has **dropped by 13 per cent** in three years from **2017 to 2019**, the **World Organisation for Animal Health (WOAH)** said in its **seventh report on antibiotic use** released recently.

Report findings:

- The report also pointed out **regional differences**: While **49 countries** from **Asia, Far East, Oceania** and **Europe** reported an **overall reduction** in antimicrobials used, the remaining **31** from **African** and **American regions** reported an **overall increase**.
- Approximately **half** of the users of antimicrobial growth promoters are in the regions of **America, Asia, Far East** and **Oceania**.

Antimicrobial growth promoters are:

- flavomycin, bacitracin, avilamycin, tylosin, fosfomycin, amoxicillin, apramycin and neomycin. While **flavomycin** and **avilamycin** are currently **excluded from human use**, **bacitracin** is **not classified** among **WHO's critically important antimicrobials (CIAs)**.
- **High priority- critically important antimicrobials (HP- CIAs)**: Tylosin, Colistin, erythromycin, kitasamycin and spiramycin.

ANIMALANTI-MICROBIAL USE (ANIMUSE):

WOAH also introduced an interactive online platform called the **Global Database for ANIMALANTI-MICROBIAL USE (ANIMUSE)** to expedite data accessibility and contribute towards evidence-based decision-making.

- ANIMUSE plays a **key role** in supporting members' actions to achieve this target, helping veterinary workforces to understand and monitor AMU in a harmonized and comparable way.

Third Global High-Level Ministerial Conference on Antimicrobial Resistance:

- Held in Oman in November 2022
- During the ministerial conference, **47 countries** committed to reduce the total amount of antimicrobials used in animals and agriculture by at least **30-50 per cent by 2030**.
- **Around 107 of 157 participants (68 per cent)** have **discontinued** the use of antimicrobials as growth promoters, with or without legislation

Topic 23. ADITYA L1 TAKES STEPS TO COLLECT INFO ON ENERGETIC PARTICLES FROM SPACE

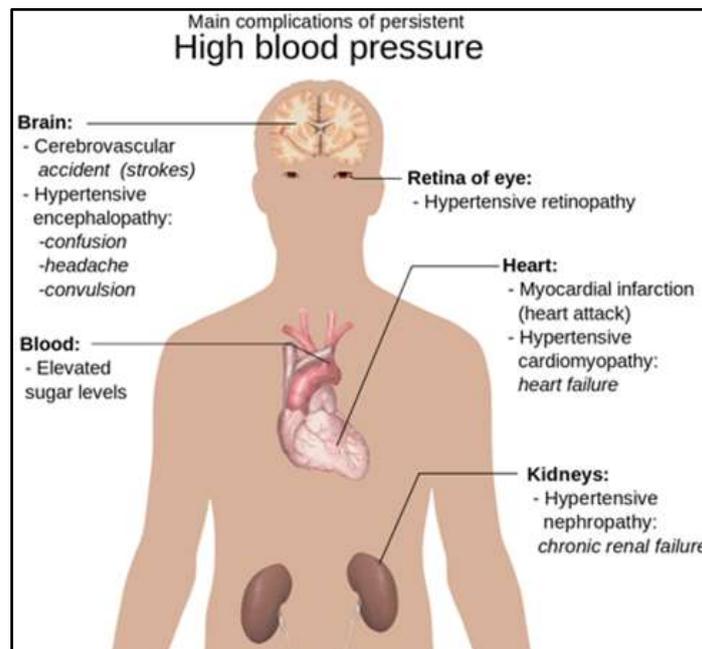
Important for the subject: Science and technology

After India’s solar mission Aditya L1 began its journey towards Lagrange point 1 following a key manoeuvre, it has started studying energetic particles in the solar wind from space, and will continue to do so for the rest of its life, a senior astrophysicist said.

- The study of the solar wind, the continuous flow of charged particles from the sun which permeates the solar system, will be carried out with the help of a device named Supra Thermal & Energetic Particle Spectrometer (STEPS), a part of the
- Aditya Solar wind Particle EXperiment (ASPEX) payload.
- The key aim of STEPS is to study the environment of energetic particles from the spacecraft’s position on the L1 point till it will function
- STEPS was developed by the PRL with support from the Space Application Centre (SAC) in Ahmedabad.
- Lagrange points

Topic 24. GLOBAL IMPACT OF HIGH BLOOD PRESSURE

Important for the subject: Science and technology



WHO releases its **first-ever report on the global impact of high BP.**

Report: **Global Impact of High Blood Pressure**

Released by: **World Health Organisation (WHO)**, during the **78th** Session of the **United Nations General Assembly.**

Findings:

- Approximately **four out of every five people with hypertension** are not adequately treated, but if countries can scale up coverage, **76 million deaths** could be averted between **2023** and **2050**.
- **Less than one-fourth of hypertensive patients** in India had their blood pressure under control during **2016–2020**, though this rate has improved compared to previous years, substantial differences exist across regions.
- **Hypertension** affects **one in three adults worldwide**. This common, deadly condition leads to **stroke, heart attack, heart failure, kidney damage** and many other health problems.
- The **number of people living with hypertension (blood pressure of 140/90 mmHg or higher or taking medication for hypertension)** **doubled** between **1990** and **2019**, from **650 million** to **1.3 billion**.
- **Nearly half of people with hypertension globally** are currently unaware of their condition. More than **three-quarters** of adults with hypertension live in **low- and middle-income countries**.
- **Older age and genetics** can **increase** the risk of having high blood pressure, but modifiable risk factors such as eating a high-salt diet, not being physically active and drinking too much alcohol can also increase the risk of hypertension.

Recommendations of WHO:

- **Lifestyle changes** such as eating a healthier diet, quitting tobacco and being more active can help lower blood pressure. Some people may need medicines that can control hypertension effectively and prevent related complications.

HEART programme of WHO:

- **WHO's HEARTS technical package** for **cardiovascular disease management** in primary health care and the **Guideline for the pharmacological treatment of hypertension in adults** provide proven and practical steps to deliver effective hypertension care in primary health care settings.
- The **HEARTS technical package** provides a **strategic approach** to improving cardiovascular health in countries. It comprises **six modules** and an implementation guide. This package supports **ministries of health** to **strengthen CVD management** in primary health care settings.
- The **HEARTS modules** were developed under the auspices of the **Global Hearts Initiative**, led by **WHO** and the **US Centers for Disease Control and Prevention**.

Hypertension:

- Hypertension is the **most important risk factor for death and disability in India**. The **2019–2020 National Family Health Survey (NFHS-5)** reported a **hypertension prevalence** of **24%** in **men** and **21%** among **women**, an **increase** from **19%** and **17%**

respectively from the previous round (2015–16).

- **India** runs the **India Hypertension Control Initiative programme** which is a **largescale hypertension intervention** under the **National Health Mission** and has been recognised for its positive work done within the country’s existing primary healthcare system.
- **Prevention, early detection and effective management of hypertension** are among the most cost-effective interventions in health care. The economic benefits of improved hypertension treatment programmes outweigh the costs by about 18 to 1, as per the WHO.

Topic 25. SCIENCE AND TECH AWARDS TO GET PADMA-STYLE MAKEOVER INTO RASHTRIYA VIGYAN PURASKAR

Important for the subject :Science and technology

The **Union Government** is consolidating **nearly 300 science awards** from various science-affiliated Ministries into **56 centrally-administered Rashtriya Vigyan Puraskar (RVP) awards**.

- These awards will **no longer include cash prizes**; instead, they will offer a **certificate and medallion to the awardee**.

Annual Announcement and Award Dates:

- **Announced** annually on **May 11, coinciding with National Technology Day**. Will be awarded on **National Space Day**, which falls on **August 23**.

Categories of RVP Awards:

- The RVP awards will comprise:
- **3 Vigyan Ratna** awards, **25 Vigyan Shri** awards, **25 Vigyan Yuva-Shanti Swarup Bhatnagar** awards, and **3 Vigyan Team** awards.
- These awards will cover various disciplines, including **physics, chemistry, biological sciences, mathematics and computer science, earth science, medicine, engineering science, agricultural science, environmental science, technology and innovation, atomic energy, space science and technology**, and a category called ‘**Others**’.
- The proposal emphasizes **fair representation and gender diversity** among awardees.
- Eligibility extended to **Persons of Indian Origin (PIOs)** with **category-specific quotas**.

Award Criteria:

- **Vigyan Ratna** awards will recognize “**lifetime contributions along with excellence made in any field of science**”.
- **Vigyan Shri** awards will honor “**distinguished contribution to any field**” **Vigyan Yuva-Shanti Swarup Bhatnagar Awards** will celebrate “**exceptional contribution by young scientists**”.
- **Vigyan Team** awards will be for **three or more researchers** who have made an “**exceptional contribution as a team**”.

PIOs will not be eligible for the Vigyan Team awards.

- There are **no age limits for most prizes**, except the **Vigyan Yuva-Shanti Swarup Bhatnagar awards**, which have a **maximum age limit of 45 years** for recipients.

Commencement and Administration:

- The RVP awards will begin in **2024** and will be conferred by the **President of India or the Vice President**.

A committee will be constituted annually consisting of:

- **Secretaries from six science Ministries Presidents of science and engineering academies, and Distinguished scientists and technologists** from various fields.
- **The Council of Scientific and Industrial Research (CSIR)** will manage awards **initially for two years**, then oversight shifts to the **National Research Foundation**.

Topic 26. WRONG TO ASSESS ECONOMIC ACTIVITY ON GDP ALONE: FINMIN

Important for the subject: Economy

In News: Finance ministry defends economic performance of India with quarterly growth at 7.8%, emphasizing some limitations of GDP calculation.

Finance Ministry defends GDP performance after questions were raised on credibility of the quarterly growth of 7.8%.

According to Finance Ministry it is wrong to look at the underlying economic activity **based on GDP indicators alone** look at several other growth indicators to see if other data match their conclusions.

The main points raised were:

- Indian GDP data is **not seasonally adjusted** and they are also revised multiple times before they are finalised three years after the close of the relevant financial year
- India's GDP deflator is dominated by the **Wholesale Price Index (WPI)** which peaked in the first quarter of 2022-23 due to the oil and food price increases in the wake of the war in Ukraine and supply-side disruptions.
- MoSPI calculates quarterly **Gross value added (GVA)** in real terms first, and then, using the deflator, nominal values are obtained.
- Because of this nominal growth rates have slowed, with WPI contracting in recent months.
- Purchasing Managers' Indices indicate that the manufacturing and services sectors are growing. Bank credit growth is in double digits.
- Consumption is improving, and the government has vigorously ramped up capital expenditure.
- India's growth numbers **might understate the reality** because manufacturing growth indicated by the Index of Industrial Production (IIP) is far lower than what manufacturing

companies are reporting”.

- Prices began to come down from August 2022 onwards. Hence, **WPI is now contracting year on year**. It will soon pass once the statistical base effect disappears.
- GDP is calculated as per the **Income or Production Approach**. As per the **expenditure approach**, it would have been lower. So, a balancing figure – **statistical discrepancy** is added to the expenditure approach estimate.
- These discrepancies are both positive and negative. Over time, they wash out in FY23 and FY22, the ‘statistical discrepancy’ was negative. In other words, growth as per the Income Approach was lower.

Statistical discrepancy

- Statistical discrepancy refers to the **difference between two theoretically equal aggregates** arising as a result of basic statistics and estimation techniques.
- National accounting of macroeconomic aggregates, such as gross domestic product can often be calculated in two or more ways, notably **income and expenditure approach**.
- In principle, all the measures of an aggregate are equal. In practice, differences invariably arise due to imperfections in basic statistics and estimation techniques.
- This difference is called a statistical discrepancy and serves as the balancing item between two theoretically equal aggregates

Seasonal Adjustment

- Economic variables are influenced by systematic and recurrent within-a-year patterns due to weather and social factors, commonly referred to as the **seasonal pattern** (or seasonality).
- When seasonal variations dominate period-to-period changes in the original series (or seasonally unadjusted series), it is difficult to identify nonseasonal effects, such as long-term movements, cyclical variations, or irregular factors, which carry the most important economic signals.
- **Seasonal adjustment** is a **statistical technique** that attempts to measure and remove the influences of predictable seasonal patterns to reveal how employment and unemployment change from month to month.

Topic 27. WHY GOOGLE’S LATEST ANTITRUST TRIAL IN THE US MAY BE MOST CONSEQUENTIAL OF THE INTERNET ERA

Important for the subject :Economy

The **US Department of Justice and 37 states** claim **Google** illegally stifles competition by **paying companies like Apple and Mozilla** to remain the **default search provider** on mobile devices and browsers.

US Government’s Case Against Google

- Alleges **Google unlawfully stifles competition**.

- Google pays about **\$10 billion annually** to **Apple and Mozilla** to secure **default search provider status**.
- Accuses Google of **exclusionary practices**, denying competitors access to search queries and clicks.

Google holds a 90% market share in US search engines.

- These agreements drive billions of queries to Google, **limiting consumer choices and harming competition**.

Google's Response

- Google **denies illegal use of agreements** and claims to provide a **superior product**.
- Argues its **"browser agreements"** support **legitimate competition**. Highlights **evolving search habits**, such as **shopping on Amazon or finding entertainment on Instagram**, **reducing monopoly concerns**.

Legal Position

The Sherman Act of 1890 governs competition law in US:

- **Prohibits contracts, combinations, or conspiracies in restraint of trade**. Violations can lead to **finances and imprisonment**.
- **Exclusive deals are generally legal but scrutinized if they harm competition**. The case tests the **adaptability of antitrust laws to 21st-century markets**.

What Happens Next

- The trial is expected to **last 10 weeks**, featuring **key testimonies from industry leaders**.
- Possible outcomes of the trial include the **issuance of an injunction against Google**, suggestions for the **company's breakup**, and broader implications for other ongoing antitrust cases.

Google in India

- **CCI (Competition Commission of India)** ordered Google to change **anticompetitive practices in the Android ecosystem**.
- Imposes a fine of **Rs 1,338 crore (\$161.95 million)** for **abuse of dominance**. Google appeals to the **NCLAT (National Company Law Appellate Tribunal)**, which upholds the penalty.
- Google **petitions the Indian Supreme Court**; the case remains pending.

NCLAT (National Company Law Appellate Tribunal):

- NCLAT was established under the **Companies Act, 2013**, to hear appeals against orders of the **National Company Law Tribunal(s) (NCLT)**.
- It serves as the Appellate Tribunal for appeals against orders of NCLT(s) related to the

Insolvency and Bankruptcy Code, 2016 (IBC).

- NCLAT is also the Appellate Tribunal for appeals against orders issued by the **Insolvency and Bankruptcy Board of India**.
- It functions as the Appellate Tribunal for appeals against directions, decisions, or orders of the **Competition Commission of India (CCI)**.
- NCLAT additionally handles appeals against orders of the **National Financial Reporting Authority**.

CCI (Competition Commission of India):

- CCI enforces competition laws under the **Competition Act, 2002**, promoting fair competition.
- It covers **anti-competitive agreements, abuse of dominance, and Mergers and Acquisitions proposals'** anti-competitive effects, investigating practices harming competition or consumers.
- CCI conducts **investigations** and **can impose fines**.

Topic 28. NABARD TO ISSUE SOCIAL BONDS

Important for the subject: Economy

In News: Nabard to list **Social Bonds** under sustainability bond framework.

In a first-of-its-kind borrowing instrument, the **National Bank for Agriculture and Rural Development (NABARD)** has said it will be listing the first of its social bonds on September 29 with a size of **Rs 3,000 crore**.

This is the first such issue by an AAA-rated entity. It will be followed by **sustainability and green bonds**.

The bank recently announced a Sustainability Bond Framework:

- It seeks to finance and refinance new or existing eligible **green** and **social** projects.
- The key criteria to make a project eligible to get financing from green bonds include **contribution to the environment to mitigate climate change effects, conservation of natural resources and biodiversity, and prevention and control of pollution**.
- Projects that promise energy efficiency, including green buildings, energy storage, and smart grids, would also be eligible to get funding through the new breed of bonds that NABARD.
- In the **social sphere**, ventures that fall into the **categories: affordable basic infrastructure; access to essential services** (health, education, and vocational training); **food security, and employment generation**.

NABARD

- It is an **apex development and specialized** bank established on **12 July 1982** by an act by the parliament of India.

- Its main focus is to uplift rural India by increasing the credit flow for elevation of agriculture & rural non farm sector.
- It was established based on the recommendations of the Committee set up by the Reserve Bank of India (RBI) under the chairmanship of **Shri B. shivaraman**.
- It replaced the Agricultural Credit Department (ACD) and Rural Planning and Credit Cell (RPCC) of Reserve Bank of India, and Agricultural Refinance and Development Corporation (ARDC).
- It has been accredited with “matters concerning policy, planning and operations in the field of credit for agriculture and other economic activities in rural areas in India”.
- The Reserve Bank of India (RBI) recently sold its entire stakes in the National Bank for Agriculture & Rural Development (NABARD) and National Housing Bank.
- The decision to divest its entire stake was taken based on the recommendations of the **second Narasimham Committee**. The government now holds a 100 per cent stake in both NHB and NABARD.

Topic 29. DEPOSIT TAKING NBFCs DOWN TO RECORD LOW OF 34

Important for the subject: Economy

In News: The number of deposit-taking NBFCs has fallen to a record low of 34 in FY23, from 69 in pre-pandemic FY20.

The number of deposit-taking NBFCs has fallen to a record low of 34 in FY23, from 69 in pre-pandemic FY20, and 254 a decade ago, as per data from RBI’s Handbook of Statistics on the Indian Economy for FY23.

Number of NBFCs collecting deposits decreased consistently due to the **changed norm of acceptance of deposits**.

Why the number has fallen?

- **RBI has been cautious in allowing NBFCs to public deposits** citing the objective of **protection of depositors’ interest**.
- The RBI has not allowed any new NBFC to accept public deposits for more than 15 years.

Which NBFCs can accept public deposits?

- Only NBFCs and HFCs, **registered** with RBI as **deposit-taking entities**, can accept public deposits. This includes only those entities that have an investment grade rating.

Why is the matter getting focus now?

- The **merger of Housing Finance Development Corporation with HDFC Bank**, has resulted in a vacuum in the NBFC deposit taking space.
- Now there are increasing voices in the industry to allow more NBFCs to accept public deposits.
- NBFCs of the country are said to have sought the RBI to grant more deposit accepting

licences.

- This was in response to the central bank's concerns regarding NBFCs' high **reliance on bank borrowings** and the **need to diversify their fundraising**.
- NBFCs' **share in overall bank credit** increased to **9.9 per cent** from 8.5 per cent a year ago.
- **Total public deposits of NBFCs** accounted for a small portion of their borrowings, at **₹85,256 crore** as of March 2023.

How are NBFC deposits different?

- NBFCs lend and invest, therefore their operations are similar to those of banks; nevertheless, there are a few differences, as listed below:
- NBFCs are unable to accept demand deposits.
- NBFCs are not part of the payment and settlement system, so they are unable to issue checks drawn on themselves.
- Unlike banks, NBFC depositors do not have access to the Deposit Insurance and Credit Guarantee Corporation's deposit insurance facility.
- The Reserve Bank of India does not assume any responsibility or guarantee for the company's current financial soundness, or for the accuracy of any of the company's statements, representations, or opinions, or for the return of deposits/discharge of liabilities. NBFCs cannot accept deposits for a period less than 12-months and more than 60 months and the maximum interest rate that an NBFC can pay to a depositor should not exceed 12.5%.

Topic 30. GOVERNMENT BONDS SURGE ON TALK OF JOINING INDICES

Important for the subject : Economy

G-Secs rally on reports of India joining JP Morgan's emerging market bond index. Government Securities (G-Secs) rallied on Friday on reports that India is tipped to join **JP Morgan's** widely tracked **emerging-market bond index**.

- JPMorgan is **sounding out big investors on adding India to its widely tracked emerging-market bond index**, setting the stage for tens of billions of dollars of inflows as the country's domestic market opens up to foreign capital.
- The price of the benchmark **10-year G-Sec** (coupon rate: 6.54 per cent) jumped almost 50 paise to close at ₹95.43 (previous close: ₹94.935).
- Yield of this paper declined sharply by about 8 basis points to close at 7.2173 per cent (7.2929 per cent). This paper is the most traded in the G-Sec market.
- Note: Bond prices and yields are inversely co-related and move in opposite directions.

Emerging markets bond index (EMBI)

- The emerging markets bond index (EMBI) **tracks the performance of emerging market bonds** and was first published by investment bank JP Morgan.

- Emerging market bonds are **debt instruments issued by developing countries**, which **tend to carry higher yields** than government or corporate bonds of developed countries.
- Emerging markets bond indexes are used as **benchmarks for bond performance** in emerging markets.
- Emerging market debt or bonds are considered **sovereign debt**. These government bonds are typically issued in **foreign currencies**, either in US dollars, euros, or Japanese yen.
- Because of the increased economic and political risk present in these countries, the **credit rating on emerging market bonds tend to be lower** than that on developed market bonds. Due to the perceived higher risk of investing in these assets. Alternately the **sovereign bonds have higher yields for investors than that of more stable bonds in developed countries**.
- The index is **weighted on the basis of the market capitalization of government bonds**, but it is the sub-index with the greatest liquidity requirements, so some markets are excluded.
- When one puts money in an index fund, that **cash is then used to invest in all the companies that make up the particular index, which gives you a more diverse portfolio than if you were buying individual stocks**.

Topic 31. FM STRESSES URGENT NEED FOR RELIABLE CROP YIELD ESTIMATES

Important for the subject: Economy

In News: Finance Minister makes a strong pitch for generating real-time **assessments of likely yields for all essential crops**, starting with pulses and oilseeds that India often needs to import. Finance Minister made a strong pitch for generating real-time **assessments of likely yields for all essential crops**, starting with pulses and oilseeds that India often needs to import.

This was noted in the context of a **new automated real-time yield estimation system** called **Yes-Tech** put in place from this **kharif season** for the wheat and rice crop. The system, created with assistance from **ISRO and ICAR**, must be ramped up to cover other crops as soon as possible, particularly pulses and oils.

Why is estimating yield important?

- Farmers experience fluctuation in the remuneration of their crop as based on final output, import or export may be allowed or restricted.
- It will give a better price signal to farmers before sowing season. So the farmers can diversify their crops accordingly. India being a diverse country the cropping pattern varies across States. The Ministry of Agriculture has a detailed exercise to arrive at the crop production estimates. The Ministry of Agriculture comes out with five estimates of crop production.
- The **First Advance Estimate** of area and production of kharif crops is announced in September when the South-west monsoon season comes to a close and sowing would

have begun in most States. The National Conference of Agriculture for Rabi Campaign is held around this time when the States come up with rough estimates of their respective kharif crops.

- These estimates are validated on the basis of inputs from the proceedings of Crop Weather Watch Group (CWWG) meetings, and other feedback such as relevant availability of water in major reservoirs, availability/supply of important inputs including credit to farmers, rainfall, temperature, irrigation etc.
- The **Second Advance Estimate** is announced in January by which time the estimates of the kharif crops would undergo revision and the area and production figures announced for kharif crops is called the second assessment.
- By this time the first estimate of the rabi crops is also announced based on the feedback received from the States where sowing for rabi crops would have commenced during November- December.
- The **Third Advance Estimates** is announced in March last /April first week. At this time the National Conference on Agriculture for Kharif campaign is convened and the second estimate of kharif crops and the first estimate of rabi crops are further firmed up/validated with information available with State Agricultural Statistical Authorities (SASAs), remote sensing data available with Space Application Centre, Ahmedabad as well as the proceedings of the Crop Weather Watch Group meetings held every week in the Ministry.
- The **Fourth Advance Estimates** are announced in June/July when the National Workshop on Improvement of Agricultural Statistics is held.
- By this time the rabi crop harvest is also over and SASAs are in a position to supply the estimates of both kharif and rabi seasons as well as the likely assessment of summer crops which are duly validated with information available from other sources.
- The **Final Estimate** for the preceding crop year is announced in December/January.
- The main reason for almost four advance estimates before arriving at the final estimate is due to the large variations in crop seasons across the country and the resulting delay in the compilation of yield estimates based on crop cutting experiments.
- Agriculture is a State Important for the subject and the Central Government depends on the State Governments for accuracy of these estimates.
- For this purpose State Governments have set up High Level Coordination Committees (HLCC) comprising, inter-alia, senior officers from the Department of Agriculture, Economics & Statistics, Land Records and NSSO (FOD), IASRI, DES from Central Government for sorting out problems in preparation of these estimates in a timely and orderly manner.
- In October 2015. Government launched KISAN Project [C(K)rop Insurance using Space technology And geoiNformatics] which envisages use of Space Technology and geoinformatics (GIS, GPS and Smartphone) technology along with high resolution data from Unmanned Ariel Vehicle (UAV)/Drone based imaging for improvement in yield estimation and better planning of Crop Cutting Experiments (CCEs), needed for crop insurance programme.
- The Pilot Study is proposed to be launched in one District each of Haryana, Karnataka,

Madhya Pradesh and Maharashtra during Kharif season of 2015 and two Districts each of these States during Rabi season of 2015-16, which if successful, will be extended to the other parts of the country.

- The KISAN project is implemented by Mahalanobis National Crop Forecast Centre (MNCFC), an attached Office of Department of Agriculture, Cooperation, in collaboration with ISRO Centres (Space Applications Centre, Ahmedabad & National Remote Sensing Centre, Hyderabad), India Meteorological Department, CCAFS, State Agriculture Departments and State Remote Sensing Centres.

Government also launched an Android App.

- Designed by ISRO (National Remote Sensing Centre, Hyderabad). This App will help real time data collection about hailstorm occurrences along with photographs and geographical coordinates (longitude and latitude) to help Government to get real time data about the Hailstorms which will be collected through the Agriculture Department officials of different States. This will support in deciding the crop loss more objectively and in a very fast manner
- **Directorate of Economics and Statistics (DES)**, an attached office of the Department of Agriculture, Cooperation and Farmers Welfare (DAC&FW), is headed by Senior Economic & Statistical Adviser.
- DES collects, disseminates and publishes statistics on diverse facets of agriculture and related sectors required for policy formulation by the Government.
- The main objective of the Directorate is to provide important statistics on area, production, land use, cost and yield of principal crops, minimum support prices, to implement schemes related to improvement of agricultural statistics, and carrying out agro-economic research as well as generation and dissemination of agricultural statistics and research and analysis. The Directorate provides inputs to DAC&FW, CACP and also places a large volume of data and information in the public domain for use of all researchers and stakeholders.

Major Divisions of the DES are :

- Cost Studies (CS)
- Special Data Dissemination Standards (SDDS)
- Commercial Crops (CC)
- Food Economics (FE)
- Coordination
- Prices & Markets (P&M)
- Indian Agriculture & Compilation (IAC)
- Crop Forecast Coordination Centre (CFCC)
- Agro Economic Research (AER)
- Agricultural statistics (AS)
- Publications.

Topic 32. IS BIMA SUGAM A ‘UPI MOMENT’ FOR INSURANCE SECTOR

Important for the subject: Economy

In News: IRDAI claims that the proposed **Bima Sugam** is a “game changer” and a “UPI moment” for the insurance segment.

- IRDAI claims that the proposed Bima Sugam is a “**game changer**” and a “**UPI moment**” for the insurance segment, with ambitions of becoming the largest online market for insurance products and services which has not been practiced anywhere in the world.
- Initially it will provide details about insurance schemes **acting as an insurance repository** initially. This will be followed by a listing of policies. The platform is likely to be implemented by **June 2024**.
- Identifying the right policy, buying it, settling the claims and renewals will be streamlined in an online process. The process will be **mostly on the lines of demat accounts and online trading** in the case of stock markets.

What will the platform ‘Bima Sugam’ offer?

- The proposed platform is expected to help customers **identify the right scheme** from hundreds of products and services, with reduced paperwork.
- It’s an online platform where customers can choose a suitable scheme from multiple options given by various companies.
- **All insurance requirements, including those for life, health, and general insurance** (including motor and travel) will be met by Bima Sugam.
- This platform will help in the **settlement of claims**, whether it’s health coverage or death claims, in a paperless manner on the basis of policy numbers.

How will it benefit customers?

- The proposed platform would act as a **single window** for the policyholder to **manage his/her insurance coverage**.
- It will provide **end-to-end solutions** for customers’ insurance needs i.e., purchase, service, and settlement in a seamless manner.
- **Commissions on policies** are expected to **come down**, benefiting the customers. The cost of buying policies will come down.
- The **paperwork** involved in buying a policy **will also come down**. **Settlement of claims and renewal of policies** will also **become faster**.

How will it benefit insurance providers?

- It will facilitate insurance companies to access the validated and authentic data from various touch points on a real-time basis.
- The platform will **interface for the intermediaries and agents** to sell policies and provide services to policyholders, among others, and reduce paperwork. Will help in the

penetration of insurance products in uncovered markets.

Who will own the platform?

- The overall budget for Bima Sugam has been hiked to Rs 200 crore from around Rs 85 crore.
- RDAI has appointed a committee for the creation of the platform and now plans to go for requests for proposals (RFPs) soon to appoint a service provider for the platform.
- The service providers will be the technological partners for creating and running a platform to provide all the services in one place.
- **Life insurance and general insurance companies** will each own a **47.5 per cent** stake, while **brokers and agent bodies** will own **2.5 per cent each**.

Integration with India Stack

- The protocol of the Sugam platform will be connected with **India Stack**, which is a **set of APIs (application programming interface)** that allows **governments, businesses, startups, etc.** to utilise the unique digital infrastructure to enable seamless delivery of services.
- It is envisioned that this e-Market place would enable and empower all insurance stakeholders across insurance value chain.

Topic 33. US ECONOMY HEADING TOWARDS A ‘HARD LANDING’

Important for the subject :Economy

US economy likely to experience a hard landing in view of inflation and unemployment numbers.

The recent inflation and employment data point to two things:

- First, **inflation** continues to remain **elevated** vis-à-vis the **US central bank’s goal** of keeping the annual **PCE price index increase to 2%**. Second, falling unemployment, is putting upward pressure on wages and, in turn, driving up inflation.

Why is a hard landing likely?

- Given the inflation scenario, the Federal Reserve has no choice but to **raise interest rates further**. As credit becomes more expensive, businesses and consumers will hire and spend less.
- Economic activity slowing would then reduce overall demand, help cool overheated labour markets, and eventually bring inflation under control.
- Fed has already substantially hiked its funds rate from a target range of 0-0.25% till March 16, 2022 to 4.5-4.75% in the last Federal Open Market Committee meeting on January.
- Hiking further would risk what economists term a “hard landing”. When inflation is persistent at 5% and the target is 2%, interest rates will have to be increased high and fast

enough, and kept at those levels until economic activity moderates sufficiently.

- It is the opposite of subdued growth or a mild recession (“soft landing”), which follows the Fed having to raise rates only slowly and in small amounts to reduce inflation from, say, 3% and cool an economy not that overheated.

Difference between hard and soft landing

- A hard landing in economics signifies a rapid and severe economic downturn, often triggered by **factors like financial crises, bursting asset bubbles, or abrupt policy changes**.
- This scenario results in a sharp decline in economic growth, possibly leading to a recession.
- Hard landings typically have **significant adverse effects**, including rising unemployment, business investment declines, and financial stress for individuals and companies.
- Recovery from a **hard landing can be challenging and prolonged, necessitating aggressive policy responses** like interest rate cuts and fiscal stimulus.
- In contrast, a soft landing is an economic scenario characterized by a gradual and controlled slowdown in economic growth:
- This transition aims to move from a period of rapid expansion to a more sustainable and stable growth rate.
- Policymakers proactively implement measures to moderate economic growth and prevent overheating, often involving less disruptive policy actions.
- Soft landings are preferred as they seek to **maintain economic stability, avoiding severe disruptions**, and are typically associated with a **more balanced and sustainable economic environment**.

Topic 34. INFRA NEEDS GREEN RATINGS

Important for the subject :Economy

Infrastructure while growth promoting has negative effects for environmental and social (E&S) outcomes. The National Infrastructure Pipeline (NIP) outlines an investment of ₹111-lakh crore by 2025.

- These investments carry significant economic potential, with a rupee spent on **infrastructure** yielding a potent **multiplier effect of 2.45** in the following year, and 3.14 in subsequent ones.
- The government is also equally committed to India’s environmental and social (E&S) goals.

What is the trade-off?

- An inherent flipside of infrastructure development is its significant negative E&S impact, creating conflict with India’s **Nationally Determined Contribution (NDC)** and **SDG goals**.

- For instance, cement and steel are amongst the largest emitting sectors and could increase their carbon emissions six-fold by 2050. Large-scale infrastructure development will likely exacerbate India's climate risks and socio-economic vulnerabilities.

Green rated projects:

- Economic growth can still be achieved without compromising on E&S goals by adopting a **sustainable infrastructure development model**.
- Institutions such as the **International Finance Corporation (IFC)** and **Asian Development Bank (ADB)** have their own infrastructure project assessment frameworks for determining their E&S risks.
- These, however, are **adopted only by projects they fund** and not by others. The current project development approach globally is compliance-led without considering the larger E&S goals.
- **India presently does not have sustainable infrastructure guidelines**. **NaBFID** can be made the implementing agency for a similar framework.

National Bank for Financing Infrastructure and Development (NaBFID)

- The principal idea behind the setup of NaBFID is **to provide a dedicated and specialized institution focused on addressing the long-term financing needs of the infrastructure sector in India**.
- NaBFID was set up in 2021 **by an Act of the Parliament** to address the gaps in long-term non-recourse finance for infrastructure development, strengthening the development of bonds and derivatives markets in India, and sustainably boosting the country's economy.
- The entire shareholding of the institution is held by the Central Government, which has invested equity of ₹20,000 crore and provided a grant of ₹5,000 crore.
- NaBFID shall be regulated and supervised by RBI as an All India Financial Institution (AIFI).
- NaBFID has received AAA credit rating from credit rating agencies. Recently in June , 2023 it raised ₹10,000 crore via maiden issuance of listed bonds of 10-year duration at a coupon rate of 7.43 per cent.

Topic 35. FRANCE AND GERMANY, THE TWO LARGEST ECONOMIES IN THE EUROPEAN UNION, PUSHED NEW PROPOSALS FOR THE ENLARGEMENT OF THE 27 MEMBER BLOC

Important for the subject :International Relations

The European Union must radically overhaul its decision-making and funding before it can accept more countries to join the 27-nation bloc by 2030, a paper commissioned from experts by the French and German governments said, polarising EU countries.

Eight countries currently have official EU candidate status – Turkey, Ukraine, Moldova, Albania, Bosnia and Herzegovina, Montenegro, North Macedonia and Serbia – while two,

Georgia and Kosovo, are potential candidate countries.

- The authors envision an model EU in four concentric circles. The inner circle; 2. The EU; 3. Associate members; 4. The European Political Community the study also examines several options on how to run a larger EU, including a bigger budget; linking EU payouts more strictly to rule-of-law conditions; and moving toward majority voting instead of unanimity in the European Council.
- In a move that could prove controversial to France and Germany, the experts also propose to reapportion more voting weight in the Council to smaller EU countries in order to balance the loss of national vetoes.

EU

- The European Union is a unique economic and political union between 27 EU countries that together cover much of the continent.
- 19 of these countries use EURO as their official currency. 8 EU members (Bulgaria, Croatia, Czech Republic, Denmark, Hungary, Poland, Romania, Sweden) do not use the euro.
- The EU grew out of a desire to form a single European political entity to end centuries of warfare among European countries that culminated with World War II and decimated much of the continent.
- The EU has developed an internal single market through a standardised system of laws that apply in all member states in matters, where members have agreed to act as one.

Origin of the European Union:

- Despite not being officially formed until 1993, the European Union's foundations actually reach further back to 1957, when the European Economic Community was established.
- The EEC was formed out of a previous group called the European Coal and Steel Community – which had its own start in 1951.
- In 1993, the EEC morphed into the European Union following the new Maastricht Treaty (also known as the Treaty on European Union).
- Additionally, the Treaty of Lisbon, enacted in 2009, gave the European Union more broad powers that included being authorized to sign international treaties, increase border patrol, and other security and enforcement provisions.

Topic 36. INDIA-MIDDLE EAST–EUROPE CORRIDOR (IMEC) SIGNIFICANT FOR INFRA-FINANCE REFORMS

Important for the subject: International Relations



India’s presidency of G20 saw two major initiatives in the field of developmental finance that were announced as part of the Delhi Declaration.

- The first is the launching of an alternative **model** for **inter-continental infrastructure creation** through the proposed **India-Middle East–Europe Corridor (IMEC)**.
- Second is building an early consensus on **strengthening multilateral development banks (MDB)**.
- The two initiatives may address partly the reasons behind the **worldwide debt crisis** and may create a framework to **bail out debt-ridden nations**. Both will bring major **strategic benefits** to India vis-à-vis China.

Why the need for reforming MDBs felt?

- According to available estimates, nearly 60 per cent of low-income countries are either in debt distress or at high risk.
- Infrastructure rush in emerging economies over the last two decades, inadequate safe financing options and **China’s debt-trap diplomacy** are major reasons behind this mess.

When will the initiatives be implemented?

- The initiatives will get final shape under Brazil’s G-20 presidency. However, part of the reforms — like relaxing the capital adequacy norm — may come into effect sooner.
- It would pave the way to release more funds to the emerging economies. India is keen for

an early decision in this regard.

Benefits of reforming MDBs:

- If rightly developed, infrastructure brings tremendous indirect benefits to the economy. However, the long gestation and low direct returns make it unsuitable for regular private finance.
- The collaborative finance model of IMEC which may show the world an escape route from China's neo-colonialism and may set up bigger and better trade links than promised by BRI.

Significance of IMEC:

- IMEC is a bigger proposition. Apart from **rail and shipping** options, IMEC would also offer **electricity and energy (gas and hydrogen) pipeline connectivity** options.
- **India, Saudi Arabia, European Union, India, the UAE, France, Germany, Italy and the US** have entered an MoU, on the sidelines of the G20 summit, to create the corridor.
- The possibility for success is high as IMEC banks on **India's thriving bilateral relations with Saudi Arabia, UAE** have healthy bilateral relations with Saudi

Arabia, UAE and Israel to get the project through.

- Like its success in bringing Russia and the US to a consensus at G20, India may also help IMEC connect with the International North-South Corridor (INSTC). It would help trade in the vast region between the Caspian and the Mediterranean seas.
- Most critically, IMEC would open new connectivity options to debt-ridden Africa without much extra cost and ensure better utilisation of assets already built.
- **IMEC links major ports of western India including JNPT, Kochi, Kandla and Mundra with majors shipping ports of the Gulf, including Jebel Ali, Fujairah, Ras Al-Khair, Dammam, Duqm, and Salalah.**
- From these ports, cargo will be transported by the Saudi rail network on their north-south line to the port of Haifa in Israel through Jordan.
- Haifa, being a deep seaport, can handle bulk container trains and post Panamax ships which after transshipment, carry cargo to European ports **like Piraeus, Kavala (Greece), Trieste, LaSpezia (Italy), Marseille-Fos (France), Barcelona, and Valencia (Spain).** Road container trailers or container cargo trains will thereafter transport goods across Europe

Topic 37. INDIA WORKING ON CONNECTING SOUTH EAST ASIA POWER GRIDS UNDER OSOWOG

Important for the subject: International Relations

In News: India is working on connecting South East Asian power grids to Europe via Middle East Power under OSOWOG.

As part of **One Sun One World One Grid (OSOWOG)**, India, Saudi Arabia, the UAE and

Singapore are in advanced stages of creating a **mega grid infrastructure**, which will enable **trade in renewable energy from South East Asia to Europe via the Middle East.**

- India recently signed a **memorandum of Understanding (MoU)** with **Saudi Arabia**, which includes grid interconnection.
- It will enable us to exchange electricity based on our requirements. It will also extend our reach to the Middle East grid and the European grid.
- Any deficits in power supply in those areas can be provided by us. Similarly, the reach of Saudi Arabia can be extended through us to the South East Asian grid, to which we will be connected. Grid interconnection from South East Asia to Europe is part of the OSOWOG initiative.
- It will be beneficial to all the countries participating in the sense that these countries will be able to access renewable energy (RE) at the least cost.
- **OSOWOG** initiative is to introduce a **transnational electricity grid that supplies** power worldwide. It was first proposed by Prime Minister Narendra Modi, during the assembly of the **International Solar Alliance (ISA) in 2018.**
- India has had **preliminary discussions** with **Singapore** to have an undersea cable to Singapore and through Singapore to the ASEAN grid.
- The only requirement would be to see if there is enough traffic because if there is sufficient traffic between the regions then the transmission cost per unit will become affordable
- OSOWOG will change the power trading dynamics in Asia as the interconnected grid will help reduce battery storage, which is costly.

Topic 38. EU PARLIAMENT VOTES IN FAVOR OF CRITICAL RAW MATERIALS ACT

Important for the subject: International Relations

The **Critical Raw Materials Act** was voted on in the **European Parliament** during the September 11-14, 2023, plenary session in **Strasbourg, France**. It was approved with a large majority of 515 Members of the European Parliament (MEP) backing it.

Critical Materials Act:

- The regulation **aims** to “diversify the Union’s imports of strategic raw materials with a view to ensure that, by 2030, the Union’s annual consumption of each strategic raw material at any relevant stage of processing can rely on imports from several third countries, none of which provide more than 65 per cent of the Union’s annual consumption”.
- By **2030**, the **Union extraction capacity** should be such that the ores, minerals, or concentrates needed to produce **at least 10 percent** of its annual consumption of strategic raw materials can be extracted.
- The **EU aims** to **increase** its **processing capacity** along the value chain and be able to produce at least **40 percent** of its **annual consumption of strategic raw materials**. The

aim is to **manufacture at least 50 per cent annual consumption of strategic raw materials.**

- Collecting, sorting, and processing **45 per cent** of each strategic raw material contained in the Union's waste.

EU's dependence on China for critical minerals:

- The **European Union**, the world's largest trading bloc, **aims to reduce** its dependence on China and **increase** its domestic capacity for critical minerals through this legislation.
- The EU was 99 percent dependent on China for rare earth metals.

The raw materials listed as critical include:

- Aluminum [Am. 5], Bismuth, Boron — metallurgy grade, Cobalt, Copper, Gallium, Germanium, Lithium — battery grade, Magnesium metal, Manganese — battery grade, Natural Graphite — battery grade, Nickel — battery grade, Platinum group metals, Rare earth elements for magnets, Silicon metal, Titanium metal, Tungsten.

IEA assessment of critical mineral market:

- The **first annual International Energy Agency (IEA) Critical Minerals Market Review**, said rapid deployment of clean energy technologies has led to a huge demand for minerals such as **lithium, cobalt, nickel, and copper.**
- Over a **five-year period** between **2017** and **2022**, the energy sector contributed to a **70 per cent rise** in demand for **cobalt** and a **40 per cent rise** in demand for **nickel**, the demand for **lithium tripled** in the same period.
- In 2021, China manufactured more than 80 per cent of different stages of solar panels (such as polysilicon, ingots, wafers, cells, and modules), more than double China's global Photovoltaic demand.

Critical Minerals for India:

- **Expert Committee** under the **Ministry of Mines** has identified a set of **30 critical minerals** for India.
- These are Antimony, Beryllium, Bismuth, Cobalt, Copper, Gallium, Germanium, Graphite, Hafnium, Indium, Lithium, Molybdenum, Niobium, Nickel, PGE, Phosphorous, Potash, REE, Rhenium, Silicon, Strontium, Tantalum, Tellurium, Tin, Titanium, Tungsten, Vanadium, Zirconium, Selenium and Cadmium.
- **India** has set up **KABIL (Khanij Bidesh India Limited)**, a joint venture of **three public sector companies**, to ensure a consistent supply of critical and strategic minerals to the Indian domestic market.
- It ensures the **mineral security** of the nation; it also helps in realizing the overall objective of import substitution.

Topic 39. WHO RELEASES FIRST-OF-ITS-KIND PATIENT SAFETY RIGHTS CHARTER AHEAD OF PATIENT SAFETY DAY

Important for the subject: International Relations

The World Health Organization (WHO) released the **first-ever patient safety rights charter** outlining the **core rights of all patients** in the context of safety of health care on September 14, 2023.

The charter also sought to **assist governments** and other stakeholders to ensure the voices of patients are heard and their right to safe health care is protected.

- The mistakes in patient safety occur due to system or process failures, underlining the importance of understanding the underlying causes of errors in medical care.
- The **WHO** unveiled **two new resources** at the **conference for patient safety** — a **storytelling toolkit** to guide patients and families in sharing their experience related to harmful events within health care and **Global Knowledge Sharing**
- **Platform** that will support the exchange of global resources, best practices, tools and resources related to patient safety.
- The upcoming **World Patient Safety Day**, to be celebrated on **September 17, 2023** this year, **aims** to emphasize the crucial role of listening to patients, families and caregivers.

Patient safety:

- Patient safety is the avoidance of unintended or unexpected harm to people during the provision of health care.
- Around **1 in every 10 patients** is harmed in health care and more than **3 million deaths occur annually due to unsafe care**, according to **Organisation for Economic Co-operation and Development (OECD)**.
- In **low-to-middle income countries**, as many as **4 in 100 people** die from unsafe care. Some of the most common sources of patient harm are **medication errors, surgical errors, health care-associated infections, sepsis, diagnostic errors** and **patient falls**.
- The **Global Patient Safety Action Plan 2021-2030** is in a poor state of execution. **Investing in patient safety positively impacts health outcomes, reduces costs related to patient harm, improves system efficiency**, and helps in **reassuring communities** and restoring their trust in health care systems.

Topic 40. INDIA-MIDDLE EAST-EU CORRIDOR TO HAVE MULTIPLE ROUTES, BUT HURDLES REMAIN

Important for the subject: International Relations

India, U.S., Saudi Arabia, UAE and other countries launched the **India-Middle East-Europe Economic Corridor (IMEC)**.

Ports that will be connected through the corridor are:

- **India:** Mundra (Gujarat), Kandla (Gujarat), and Jawaharlal Nehru Port Trust (Navi Mumbai).
- **Middle East:** Fujairah, Jebel Ali, and Abu Dhabi in the UAE and Dammam and Ras Al Khair ports in Saudi Arabia. Haifa port (privately controlled port) of Israel is also proposed.

Railway line will connect:

- Fujairah port (UAE) to Haifa port (Israel) via:
- Saudi Arabia (Ghuwaifat and Haradh) and Jordan.
- Europe: Piraeus port in Greece, Messina in South Italy, and Marseille in France.

Topic 41. MILITARY LEADERS OF MALI, NIGER, AND BURKINA FASO SIGN MUTUAL DEFENCE PACT

Important for the subject: International Relations

Mali, Burkina Faso, and Niger signed the Liptako-Gourma Charter, forming the Alliance of Sahel States (AES).

- The goal of the pact is to establish **collective defense and mutual assistance**, primarily focused on **combating terrorism** within these countries.

Political Turmoil and Coups

- **All three nations** have experienced **political turmoil and coups** since 2020. Following the recent coup in Niger, tensions arose with the **West African regional bloc ECOWAS**, which threatened **military intervention**.
- **Mali and Burkina Faso** warned that such intervention would be viewed as a “**declaration of war**”.

Commitments Under the Liptako-Gourma Charter

- The charter **obligates signatory countries to assist each other**, including **military support**, in case of an attack.
- It also mandates **cooperation to prevent or resolve armed rebellions**.

Tuareg Armed Groups and Other Threats

- In addition to **jihadi threats**, Mali has experienced renewed hostilities by predominantly **Tuareg armed groups**.
- These groups had **previously signed a peace agreement** with the state in 2015 but have **resumed** military activities.
- The region faces threats, primarily from the **Al-Qaeda-linked jihadist alliance Support Group for Islam and Muslims (GSIM)**.

Withdrawal of Foreign Troops

- Mali's junta removed France's anti-jihadist force in 2022. The UN peacekeeping mission MINUSMA was withdrawn in 2023. French troops were also withdrawn from Burkina Faso.
- Niger's coup leaders canceled several military cooperation agreements with France.

Region of Liptako-Gourma

- **Location:** It is a region in West Africa, straddling parts of Mali, Burkina Faso, and Niger.
- **Mali:** Northern Mali, particularly the Gao and Menaka regions, is part of Liptako Gourma and has been affected by conflict and jihadist groups.
- **Burkina Faso:** The eastern part of Burkina Faso, has experienced violence and terrorism.
- **Niger:** The western region of Niger, faces security threats, including attacks by extremist groups.

Topic 42. EU CHIEF PROMISES A PLAN OF ACTION AS MIGRANTS FLOCK TO ITALIAN ISLAND

Important for the subject: International Relations

Ursula von der Leyen, President of the European Commission, and Italian Prime Minister Giorgia Meloni visited Lampedusa in response to a surge in migrant arrivals.

Migrant Arrivals in Italy

- Italy has seen a substantial increase in migrant arrivals, with nearly **126,000 migrants arriving in the country this year**, almost **double** the figure for the same period in 2022.
- **Challenges in Lampedusa** Lampedusa, a small Italian island, has witnessed a sharp rise in migrant landings, **exceeding its permanent population**. Locals are **protesting** against the growing burden on the island.

European Union's Action Plan

- Ursula von der Leyen introduced a **10-point plan** to assist Italy with the migrant crisis.
- The plan includes utilizing **Frontex**, the EU's border agency, to identify and **repatriate ineligible asylum seekers** among migrants.
- Frontex will **intensify surveillance of migrant boats**, both at sea and from the air, and collaborate in **combatting human smugglers**.
- The plan expedites the supply of **equipment to Tunisia's coastguard**, the **main departure point for sea migrants**, and **accelerates fund transfers**.
- Ursula von der Leyen is committed to **improving legal channels for migrants**.

Lampedusa

- **Location:** Lampedusa is a small Italian island in the Mediterranean Sea, southwest of

Sicily and east of **Tunisia**.

- **Geography:** It covers about **20 square kilometers**, the **largest of the Pelagic Islands**.
- **Population:** Small, with seasonal variations due to **tourism**; **Italian and North African communities**.
- **Economy:** Primarily reliant on **tourism**, with **fishing** and **agriculture** contributing.
- **Immigration:** Known for being a **destination for migrants and refugees in the Mediterranean**.
- **Historical Significance:** Influenced by **Phoenicians, Romans, Arabs, and Normans** due to its strategic location.

Topic 43. AZERBAIJAN LAUNCHES OPERATION AGAINST NAGORNO-KARABAKH AND DEMANDS SURRENDER

Important for the subject: International Relations

Why has fighting broken out in Nagorno-Karabakh?

- For the past nine months, Azerbaijan has imposed an effective blockade on the only route into the enclave from Armenia, known as the Lachin Corridor.
- Azerbaijan said it had launched its operation in response to the deaths of six people, including four police officers, in two landmine explosions on Tuesday morning.

Nagorno-Karabakh Region

- Nagorno-Karabakh is a **mountainous and heavily forested region that under international law is recognised as part of Azerbaijan**.
- **The landlocked mountainous region of Nagorno-Karabakh is the Important for the subject of an unresolved territorial dispute between Azerbaijan, in which it lies, and its ethnic Armenian majority, backed by neighbouring Armenia**.
- It is **internationally recognized as part of Azerbaijan** but much of it is governed by the unrecognised Nagorno-Karabakh Republic, also known as the Republic of Artsakh.
- In 1988, towards the end of Soviet rule, fighting between Azerbaijani troops and Armenian secessionists left the de facto independent state in the hands of ethnic Armenians when a truce was signed in 1994.
- Russian peacekeepers have been deployed since 2020 to monitor a new Moscowbrokered ceasefire, and also to ensure safe passage through the so-called “Lachin corridor” – which separates Nagorno-Karabakh from Armenia.
- While Armenia itself has never officially recognised the region’s independence, it has become its main financial and military backer and the breakaway territory functions as a de facto part of Armenia.
- Talks have so far failed to produce a permanent peace agreement. Russia, France and the US co-chair the OSCE’s Minsk Group, which had been attempting to end the dispute but this has been thrown into doubt by Russia’s 2022 invasion of Ukraine, The EU is also seeking to aid a peaceful resolution of the issue.
- However, **ethnic Armenians who constitute the vast majority of the population there**

reject Azeri rule (the legal system of Azerbaijan).

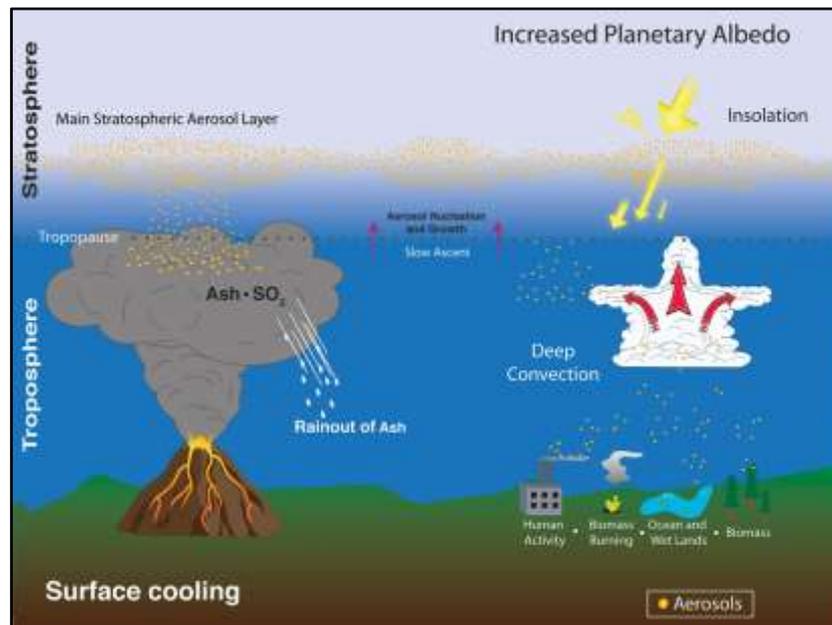
- After Azerbaijan's troops were pushed out of the region following a war in the 1990s, these **ethnic Armenians have been in administrative control of Nagorno-Karabakh, with support from Armenia.**

Strategic Significance:

- The energy-rich Azerbaijan has built several gas and oil pipelines across the Caucasus (the region between the Black Sea and the Caspian Sea) to Turkey and Europe.
- Some of these pipelines pass close to the conflict zone (within 16 km of the border).
- In an open war between the two countries, the pipelines could be targeted, which would impact energy supplies and may even lead to higher oil prices globally.

Topic 44. HUMAN-LED CLIMATE IMPACT RAPIDLY COOLING UPPER ATMOSPHERE EVEN AS LOWER ATMOSPHERE WARMS

Important for the subject: Geography



The **Earth's upper atmosphere**, called **stratosphere**, has been dramatically cooling in response to **human-induced climate change** since **1986**, according to a recent study. This is in complete contrast to the effects on the lowermost part of the atmosphere, the troposphere.

- Temperatures in the **stratosphere** were **12 to 15 times** greater than what would have occurred naturally, without human influence.
- The **greenhouse gasses** released from **human activities** led to a **mean cooling** of about **1.8 to 2.2 degrees Celsius** in the **middle and upper stratosphere** globally from **1986-2022**.
- Natural variations include **changes in solar activity, volcanic activities and climate patterns** such as **El Nino** and **La Nina**.
- Another study showed the **summer mesosphere** (extending 50 to 85 km above Earth's

surface, sitting above the stratosphere) over **Earth's poles is also cooling.**

- The air in the stratosphere and mesosphere is thin and carbon dioxide molecules are not in close proximity. So they do not transfer Earth's heat. Abundance of CO₂ molecules in the lower atmosphere leads to trapping of heat.

Atmospheric layers:

Troposphere:

- Extends from Earth's surface to, on average, about 12 kilometers in height, with its height lower at Earth's poles and higher at the equator.
- Tasked with holding all the air that plants need for photosynthesis and animals need to breathe, and also contains about **99% of all water vapor and aerosols.**
- The **temperature** in the troposphere also **decreases with height.** The top of this layer is referred to as **tropopause.**
- Most of Earth's weather happens here, and almost all clouds that are generated by weather are found here.
- Most aviation takes place here, including in the transition region between the troposphere and the stratosphere.

Stratosphere:

- Located between approximately **12** and **50 kilometers** above **Earth's surface**, the stratosphere contains the ozone layer.
- The temperature **increases** with height. Heat is produced in the process of the formation of Ozone, and this heat is responsible for temperature increase.
- It is nearly **cloud- and weather-free**, but **polar stratospheric clouds** (occur mainly at high latitudes during the winter) are sometimes present in its **lowest, coldest altitudes.**

Mesosphere:

- Located between about **50** and **80 kilometers** above Earth's surface, the mesosphere gets progressively **colder** with altitude.
- The top of this layer is the **coldest place** found within the Earth system, with an average temperature of about minus 85 °C (-120 °F).
- Most meteors burn up in this atmospheric layer. Sounding rockets and rocketpowered aircraft can reach the mesosphere.
- The transition boundary which separates the mesosphere from the stratosphere is called the **stratopause.**

Thermosphere:

- It is located between about **80** and **700 kilometers** above Earth's surface, whose lowest part contains the **ionosphere.**
- It can reach temperatures **up to 2,000 °C** (3,600 °F)

- It is both cloud- and water-vapor-free.
- The **aurora borealis (Northern lights)** and **aurora australis (Southern lights)** are sometimes seen here.
- The **International Space Station (ISS)** orbits in the thermosphere.

Ionosphere:

- It is not a distinct layer as the others mentioned above. Instead, the ionosphere overlaps the mesosphere, thermosphere, and exosphere.
- It is an **electrically conducting region capable of reflecting radio signals back to Earth.**
- The electrically charged atoms and molecules that are formed in this way are called ions, giving the ionosphere its name and endowing this region with some special properties.

Exosphere:

- It is located between about **700 and 10,000 kilometers** above **Earth's surface**, the exosphere is the **highest layer of Earth's atmosphere** and, at its top, merges with the solar wind.
- Molecules found here are of **extremely low density**, so this layer doesn't behave like a gas, and particles here escape into space.
- The aurora borealis and aurora australis are sometimes seen in its lowest part. Most Earth satellites orbit in this layer.

Topic 45. WHY IS 2023 SO HOT? A RARE PACIFIC VOLCANO IS AMONG THE SUSPECTS

Important for the subject: Geography

Scientists say an underwater volcanic eruption off Tonga in the South Pacific last year is majorly responsible for the unusual warming this year.

It is an **Undersea Volcanic Eruption** consisting of two small uninhabited islands, **Hunga-Ha'apai** and **Hunga-Tonga**.

- The **Tonga Islands** occur along the **Ring of Fire**—a perimeter of heightened volcanic and seismic activity that encircles the Pacific Ocean basin.
- The **Hunga-Tonga-Hunga-Ha'apai volcano** has erupted regularly over the past few decades.
- During events in **2009** and **2014-15**, hot jets of magma and steam exploded through the waves, but these eruptions were small, dwarfed in scale when compared to the **January 2022** events.
- The eruption in the **Polynesian archipelago** ejected **150mn-odd tonnes of water vapor** into the stratosphere. **Water vapor** is a **natural greenhouse gas**, trapping heat as it swirls around the globe.

By contrast.

- The **eruption** also blew about **500,000 tonnes of sulfur dioxide** into the **stratosphere**, which tends to cool the planet. That **mix of water and sulfur** complicates the **volcano's impact**.
- One of the reasons for it being highly explosive is the **Fuel-Coolant interaction**.

Fuel-Coolant Interaction

- If magma rises into sea water slowly, even at temperatures of about **1200 degrees Celsius**, a thin film of steam forms between the magma and water.
- This provides a **layer of insulation** to allow the outer surface of the magma to cool. But this process doesn't work when magma is blasted out of the ground full of volcanic gas.
- When magma enters the water rapidly, any steam layers are quickly disrupted, bringing hot magma in direct contact with cold water.
- It is akin to **weapons-grade chemical explosions**. Extremely violent blasts tear the magma apart.
- A **chain reaction begins**, with new magma fragments exposing fresh hot interior surfaces to water, and the explosions repeat, ultimately jetting out volcanic particles and causing blasts with supersonic speeds.

Impact:

- Huge volcanic eruptions can sometimes cause **temporary global cooling** as **sulfur dioxide** is pumped into the stratosphere.
- But in the case of the **Tonga eruption**, initial satellite measurements indicated the amount of **sulfur dioxide** released would only have a tiny effect of perhaps **0.01 Celsius global average cooling**.
- The eruption altered atmospheric pressure that may have briefly helped clear out the fog in Seattle, in the United States. The waves crossed the **Pacific ocean**.
- The **US Geological Survey** estimated the eruption caused the equivalent of a magnitude **5.8 earthquake**.

Undersea Volcano:

- The undersea volcanic eruption happens in a volcano which is located under the ocean surface.
- There are an estimated **one million undersea volcanoes**, and most of them are located near the **tectonic plates**.
- Apart from **lava**, these openings also spew out ash.
- These deposit on the ocean's floor and lead to the formation of **sea mounds** – underwater mountains that are formed on the ocean floor but do not reach the water surface.

Topic 46. MAHARASHTRA UNVEILS ₹45000 CRORE DEVELOPMENT PACKAGE FOR MARATHWADA REGION

Important for the subject: Geography

Maharashtra unveiled a development package amounting to **₹45,000 crore** for the **Marathwada region** within the state. Additionally, the CM announced **revised administrative approvals for irrigation projects** valued at **₹14,000 crore**.

Marathwada region:

- Historically, Marathwada was a part of the **Nizam-ruled Hyderabad kingdom**.

September 17:

- Marathwada Liberation Day, or Marathwada Mukti Sangram Din.
- The **Marathwada region** encompasses **eight districts**, including **Chhatrapati Sambhaji Nagar** (formerly known as Aurangabad), **Dharashiv** (formerly known as Osmanabad), **Jalna, Beed, Latur, Nanded, Hingoli, and Parbhani**.
- It borders the states of **Karnataka** and **Telangana**. The region is a water scarce region and sees high instances of farmer suicides.

Topic 47. MOONQUAKES: TESTAMENT TO LUNAR ORDEAL

Important for the subject: Geography

What are Moonquakes?

An earthquake is caused when **tectonic plates shift**. But quakes themselves aren't restricted to the earth.

- **Small tremors** have also been **detected on the moon**. But they are not because of tectonic plates.
- Instead, the **moon is groaning from extreme temperature differences**– from 121o to -133ocelsius- of **250ocelsius**. The resulting strain leads to seismic activities called the **moonquakes**.
- They can also occur due to **meteors striking** the lunar surface. Researchers found that the **Apollo 17** lunar lander module, launched in 1972, may also have triggered some tremors.

Marsquakes and its cause:

- Mars does not have tectonic plates, and its crust is a giant plate. Marsquakes are caused due to stresses that cause rock fractures or faults in its crust.
- This Marsquake is estimated to have hit magnitude 5 on the scale used on Earth.

Topic 48. QUEEN OF RAIN NO MORE: HOW KARNATAKA’S AGUMBE LOST TO LITTLE-KNOWN UDUPI TOWNS

Important for the subject: Geography



Agumbe Rainforest Complex (ARC):

Located in **Shivamogga district** of **Karnataka** Known as ‘**Cherrapunji of Karnataka**’ for its phenomenal rainfall of **more than 8000 mm** during monsoon.

For the past two years **Agumbe** is receiving less rainfall, and some towns in **Udupi district** of **karnataka** are receiving more rainfall than **Agumbe**.

- **Nadpal, Mudradi and Hulikal (hassan district)** have got more rain than **ARC** and were closely followed by **Amagaon** in **Belagavi district**.
- **Rain** in **Agumbe** feeds hundreds of water bodies that nurture scores of rivers originating in the **Western Ghats**.
- **Agumbe rainforests: World’s only natural habitat** of the **King Cobra**. It is approximately **55 km** from the **Arabian Sea**. As part of the **Western Ghats mountain range**, **Agumbe** lies in a **UNESCO World Heritage Site** and holds **one of the last surviving low-land rainforests of India**.
- A **Medicinal Plants Conservation Area (MPCA)** was established in **1999** to protect the important medicinal plants of the region.
- It comprises a large area of forests from **Someshwara Wildlife Sanctuary, Kudremukh National Park, Kodachadri** and **Mookambika hill ranges** and reserve forests around **Kundapur, Shankaranarayana, Hosanagara, Sringeri** and **Thirthahalli**.
- These regions foster **thick bamboo groves**, which are **endemic** to the **Western Ghats**. These groves need more rain to grow to such girths that can house the nests of **King Cobras**.

Topic 49. OLDEST YET FOSSILS OF A PLANT-EATING DINOSAUR FOUND IN RAJASTHAN

Important for the subject: Geography

Scientists from **IIT Roorkee** have characterized **dinosaur fossils** from the **Middle Jurassic period**, found in the **Thar desert** near the **Jaisalmer Basin** by the **Geological Survey of India**.

What have the scientists found?

- They have uncovered remains of a **sauropod dinosaur**, which happened to be the **oldest known fossils** of this particular kind of **sauropod**.
- The **fossils** were found by **Triparna Ghosh, Pragya Pandey, and Krishna Kumar** from the **Geological Survey of India**.

Sauropods- Tharosaurus indicus:

- **Sauropods** first appeared on the earth during the **Jurassic period**, about **200 million years ago**. They were one of the most dominant clades of dinosaurs, surviving until the late Cretaceous period **65 million years ago**, when dinosaurs went extinct.
- Belonging to the family **Dicraeosauridae** and from the **superfamily Diplodocoidea**, these **fossils** are the **first dicraeosaurid sauropods** to have been found in **India**.
- The scientists named the dinosaur **Tharosaurus indicus**, with **Tharo** deriving from the **Thar desert**; **saurus** from the Greek ‘**sauros**’, or **lizard**; and **indicus** from its **Indian origin**.
- At **167 million years old**, they are the **oldest known diplodocoid fossils in the world**.
- They can grow more than a **hundred feet**. There are many sauropod groups that are even **longer than the blue whale**.
- **India** has also been home to a few early, more **primitive sauropods**, like **Kotasaurus** and **Barapasaurus**. They were both discovered in the **Kota Formation**, a geological rock unit in **Telangana**, from the **Early Jurassic period**.

Importance of Indian landmass:

- 167 million years ago, India was a part of a group of continents in the **southern hemisphere** with **Africa, South America, Madagascar, and Antarctica**, together called **Gondwanaland**.
- The scientists reasoned that these **diplodocoid sauropods** could have **originated in India** during the **Middle Jurassic period** and used the **land connections** at the time to **migrate to Madagascar, Africa, and South America**. After that they could have made their way to **North America** and the rest of the world.
- The **diplodocoid fossils** in other continents like **Africa, the Americas, and Asia** come from a **younger geological interval**. This increases the possibility that the **Indian**

landmass was the site for the **Tharosaurus**' early radiation.

- Together, the record from **India** suggests that the **Indian landmass was one of the most important places for the early evolutionary history of sauropod dinosaurs.**

Need of more fossils:

- In the **Middle Jurassic**, when **Tharosaurus** lived, the continents were beginning to split apart from the **supercontinent Pangea**, and as these dinosaurs spread, they evolved into new forms.
- More fossils of different parts of the **Tharosaurus skeleton** or of other related skeletons will help us better understand endemic sauropod evolution in India and global sauropod evolution and biogeography.
- In **2006**, an **Indo-German** team found another **middle Jurassic sauropod dinosaur fossil** in the **Kutch basin of Gujarat**, named **Camarasaurus supremus**, which was also the **oldest fossil of that group found at the time**. There have been subsequent finds of extremely old sauropod fossils in the region by the same team since.

Topic 50. ODISHA TO JOIN LIST OF WIND POWER STATES

Important for the subject :Geography

In News: Odisha is all set to join the list of states that are home to the wind energy industry.

At present, wind power plants are operational in **eight states – Tamil Nadu, Gujarat, Karnataka, Maharashtra, Rajasthan, Madhya Pradesh, Telangana and Andhra Pradesh** — with good wind speeds.

- Odisha is offering 500 MW of capacity under the **'feed-in tariff'** mechanism and intends to provide incentives for turbines or components manufactured in the state.
- Feed-in tariff, or FiT, refers to a fixed, per kWhr price for electricity supplied, as opposed to tariffs discovered through competitive bidding. FiT is considered more remunerative for the energy companies.
- The current trend is towards the supply of round-the-clock renewable electricity, which means both wind and solar will have a complementary role to play.

Quick Facts:

- India stands **4th globally in Renewable energy** installed capacity (including Large Hydro), **4th in Wind power and 4th in solar capacity.**
- Total non-fossil capacity is 172.72 GW = 120 GW RE + 47 GW Large Hydro + 7 GW nuclear power.
- India has a little over 44 GW of wind power capacity today. Solar accounts for 40 GW.

Topic 51. EDITORS GUILD OF INDIA HAS RIGHT TO FREE SPEECH, SAYS CJI

Important for the subject: Polity

Chief Justice of India D.Y. Chandrachud said the **Editors Guild of India (EGI)** may be right or wrong in its report about “**partisan media coverage**” of the **Manipur violence**, but it has a **right to free speech** to put forth its views in print.

SC grills complainants:

- **EGI** visited the manipur post violence for “**objective assessment**” of the “**unethical and ex parte reporting**” and published a report manipur violence, against which several FIRs were filed against the President and senior journalists of EGI on the pretext that it violates the **section 153A** and **section 200** of the **IPC**.
- **Section 153A** of the **Indian Penal Code**: promoting enmity between different groups.
- **Section 200 IPC**: giving false declaration to a court.
- **Section 298**: deliberate intent to wound religious feelings.
- **SC said**: Media briefings, editorials and reports may go wrong, it is a part of free speech.

Constitutional bearing of Freedom of Expression:

- Article 19 (a) of the Indian constitution guarantees to every citizen of India the Freedom of speech and expression. It is a fundamental Right of the Indian Constitution.

Freedom of press:

- **Freedom of press** is **not specifically mentioned** in **article 19(1) (a)** of the Constitution and what is mentioned there is only freedom of speech and expression.
- In the **Constituent Assembly Debates** it was made clear by **Dr. Ambedkar**, Chairman of the Drafting Committee, that **no special mention of the freedom of press was necessary at all as the press and an individual or a citizen were the same** as far as their right of expression was concerned.

Press Freedom Index & India’s performance:

- In the **2022 edition of the Press Freedom Index** which is published by **Reporters Without Borders**, **India** ranked at the **150th position**, eight positions lower than last year.

Editors Guild of India (EGI):

- Founded in **1978** with the **twin objectives** of **protecting press freedom** and for **raising the standards of editorial leadership** of newspapers and magazines.
- The **Editors Guild** took up the issues of **abuse of press freedom** with the Parliament and Executive, and campaigned hard for **restoring the press freedom** and other freedoms which had been taken away by amendments to the Constitution, executive orders and judicial pronouncements.

- The freedom to report proceedings of Parliament (Feroze Gandhi Act) which was taken away in 1976 was restored.

National Federation of Indian Women (NFIW):

- NFIW is a women's organisation in India, the women's wing of the Communist Party of India.
- It was established in 1954 June 4 by several leaders from Mahila Atma Raksha Samiti including Aruna Asaf Ali.
- Annie Raja is the current General Secretary and Aruna Roy is the current president of NFIW.
- It is associated with the Women's International Democratic Federation (WIDF) (an international organization with the stated goal of working for women's rights established in 1945).

HQ: Delhi

Topic 52. CM IS DUTY BOUND TO REPLY TO GOVERNOR'S QUARRY

Important for the subject: Polity

Punjab governor Banwari lal purohit accused the CM Bhagwat mann of not giving proper responses to his queries about corruption and various anomalies in governance, and warned that he could invoke Article 356, which provides for President's Rule.

Constitutional mandate:

Article 167 in The Constitution Of India:

- Duties of Chief Minister as respects the furnishing of information to Governor, etc. It shall be the duty of the Chief Minister of each State to communicate to the Governor of the State.
- All decisions of the council of Ministers relating to the administration of the affairs of the State and proposals for legislation to furnish such information relating to the administration of the affairs of the State and proposals for legislation as the Governor may call for;
- and if the Governor so requires, to submit for the consideration of the Council of Ministers any matter on which a decision has been taken by a Minister but which has not been considered by the Council.

Article 356 of the Indian constitution: Provisions in case of failure of constitutional machinery in State:

- If the President, on receipt of report from the Governor of the State or otherwise, is satisfied that a situation has arisen in which the government of the State cannot be carried on in accordance with the provisions of this Constitution, the President may Proclaim:
- assume to himself all or any of the functions of the Government of the State and all or any

- of the powers vested in or exercisable by the Governor or any body or authority in the State other than the Legislature of the State;
- declare that the powers of the Legislature of the State shall be exercisable by or under the authority of Parliament;
 - make such incidental and consequential provisions as appear to the president to be necessary or desirable for giving effect to the objects of the Proclamation, including provisions for suspending in whole or in part the operation of any provisions of this constitution relating to any body or authority in the State.
 - Provided that nothing in this clause shall authorize the President to assume to himself any of the powers vested in or exercisable by a High Court, or to suspend in whole or in part the operation of any provision of this Constitution relating to High Courts.
 - Any such Proclamation may be revoked or varied by a subsequent Proclamation.

Does the governor's power under article 356 come under judicial review?

- The **38th amendment act 1975** made the satisfaction of the President in invoking the **Article 356** final and conclusive which could not be challenged in any court on any ground. But this provision was subsequently deleted by the **44 amendment act of 1978** implying that the **satisfaction of the President is not beyond judicial review.**

Cases of Proper and Improper Use of Article 356:

- Based on the report of the **Sarkaria Commission on Centre-state Relations (1988)**, the **Supreme Court in Bommai case (1994)** enlisted the situations where the exercise of power under **Article 356** could be **proper** or **improper**.

Imposition of President's Rule in a state would be proper, in the following situations:

- Where after general elections to the assembly, **no party secures a majority**, that is '**Hung Assembly**'.
- Where the party having a majority in the assembly declines to form a ministry and the **governor cannot find a coalition ministry commanding a majority** in the assembly.
- Where a ministry resigns After its defeat in the assembly and no other party is willing or able to form a ministry commanding a majority in the assembly.
- Where the **constitutional direction of the Central government is disregarded by the state government.**
- Internal subversion where, for example, a **government is deliberately acting against the Constitution and the law** or is fomenting a violent revolt.
- Physical breakdown where the **government wilfully refuses to discharge its constitutional obligations** endangering the security of the state.

The imposition of President's Rule in a state would be improper under the following situations:

- Where a ministry resigns or is dismissed on losing majority support in the assembly and

the **governor** recommends imposition of President's Rule without probing the possibility of forming an alternative ministry.

- Where the **governor makes his own assessment of the support of a ministry in the assembly and recommends imposition of President's Rule without allowing the ministry to prove its majority** on the floor of the Assembly.
- Where the ruling party enjoys majority support in the assembly has suffered a massive defeat in the general elections to the Lok Sabha such as in 1977 and 1980.
- Internal disturbances not amounting to internal subversion or physical breakdown.

Maladministration in the state or allegations of corruption against the ministry or stringent financial exigencies of the state.

- Where the state government is not given prior warning to rectify itself except in case of extreme urgency leading to disastrous consequences.
- Where the power is used to sort out inter party problems of the ruling party, or for a purpose extraneous or irrelevant to the one for which it has been conferred by the Constitution.

Topic 53. HANGING FIRE FOR 27 YEARS: HOW WOMEN RESERVATION BILL KEPT LAPSING THROUGH ITS TUMULTUOUS JOURNEY

Important for the subject: Polity

Introduction:

The **Women's Reservation Bill**, aimed at **providing 33% reservation for women in the Lok Sabha and state Assemblies**, has been a persistent yet unattained goal for Indian politics.

Since **its inception in 1996**, the bill has faced numerous hurdles, primarily stemming from political resistance and a lack of consensus.

The First Attempt: United Front Government

- In **September 1996**, the Bill was introduced in **Parliament** by the **H.D. Deve Gowda-led United Front government**.
- A **Joint Committee** was formed to assess the bill's provisions.
- **Key recommendations** included changing "**not less than one third**" to "**as nearly as may be, one-third**" to eliminate ambiguity and **reservations** for women in the **Rajya Sabha and Legislative Councils**.
- **Nitish Kumar** voiced dissent, advocating for **OBC women's inclusion** in the reservation.
- The bill faced strong opposition and ultimately **lapsed with the dissolution of the Lok Sabha**.

Second Attempt: NDA Government

- Between 1998 and 2004, the **BJP-led NDA government**, led by **Atal Bihari Vajpayee**,

made multiple attempts to pass the bill.

- Despite several attempts, the bill failed to pass, and it **lapsed again with the fall of the Vajpayee government in 1999.**

Vajpayee Government's Persistence

- After the **reformation** of the **NDA government**, the bill was reintroduced in 1999 but **faced continued resistance** from SP, BSP, and RJD members.
- Subsequent **attempts in 2000, 2002, and 2003 also failed** to gain traction.
- An **all-party meeting in 2003 failed to build a consensus**, leading to the bill's eventual lapse.

UPA Pushes Forward

- The UPA government, led by **Manmohan Singh**, committed to introducing the bill, despite opposition.
- In 2008, the bill was finally introduced.
- The bill was referred to a **Parliamentary Standing Committee**, which **recommended its passage without delay in 2009.**

Red-Letter Day: March 9, 2010

- After 14 years of persistence, the **Bill finally saw a breakthrough in 2010.** The **Rajya Sabha passed the bill with over a two-thirds majority, supported even by the BJP and Left, who were in the Opposition.**
- **Unfortunately, the UPA government didn't demonstrate the political will to pass the bill in the Lok Sabha.**

The 2010 Women's Reservation Bill: Key Amendments Lok Sabha Provisions:

- Proposed a **new Article 330A, mirroring Article 330**, to reserve seats for women in the Lok Sabha.
- Introduced a **rotational system for one-seat states, reserving it for women in every third election.** Allocating **one-third of SC-ST reserved seats to women on a rotational basis.**
- Reserved one of the two seats for Anglo-Indians for women in two of every three consecutive elections.

State Assemblies Provisions:

- Introduced **Article 332A** to reserve **one-third of seats in state Legislative Assemblies for women.**
- Similar to Lok Sabha, **one-third of SC-ST reserved seats** to be allocated to women on a **rotational basis.**

Special Status for Delhi:

- Amended **Article 239AA** to replace “Scheduled Castes” with “Scheduled Castes and women” in Delhi’s Legislative Assembly provisions.

Sunset Clause:

- Proposed an **amendment to Article 334** to introduce a **15-year sunset clause for women’s reservation**, aligning with existing sunset clauses for other reserved seats and special representation.

Topic 54. AS PARLIAMENT TURNS 75, THE ‘BACKBONE’ THAT KEEPS IT GOING — ITS SECRETARIAT

Important for the subject: Polity

The **75-year journey of the Indian Parliament** is marked by various aspects such as statistics, debates, and legislation.

The **Parliament secretariat plays a pivotal role**, often in the background, supporting the functioning of the legislature.

Championing Independence: Vithalbhai Patel

- **Vithalbhai Patel**, the first elected Speaker of the Central Assembly in **1925**, advocated for an **independent secretariat for the legislature**.
- He believed that the **Speaker’s office needed its own staff and security establishment**.
- A **standoff with the British administration in 1929** resulted in the creation of a **separate legislature office under the Speaker’s control**.

Emergence of Parliamentary Reporters

- The **first specialized individuals** in the Parliament secretariat were **parliamentary reporters**. Responsible for **accurately documenting legislative proceedings**.
- Later, **Lok Sabha and Rajya Sabha rules of procedure** mandated the preparation and publication of **full reports of House proceedings**.
- This mandate originated from an **1861 communication emphasizing the importance of sending accurate reports of proceedings to the public**.
- **Professionalization by M.N. Kaul Maheshwar Nath Kaul**, a lawyer, joined the legislative assembly office in 1937.
- He later became the **Secretary of the Constituent Assembly**. Kaul’s efforts **influenced constitutional provisions for legislatures** and supported the **secretariat’s independence**. **Post-independence**, he led the Lok Sabha secretariat.
- Kaul established **Parliament’s research service**. He advocated for **separate office spaces**, realized in 1956.

Simultaneous Interpretation Services

- Demand for simultaneous interpretation arose **due to changing MP profiles**. **Hindi and**

English real-time interpretation started in 1964.

- Interpreters required expertise in **parliamentary language, grammar, idioms, and humor**. Today, **Parliament offers interpretation in 22 languages**.

Structural Changes

- In **1974**, MP's committee recommended restructuring Lok Sabha and Rajya Sabha secretariats **into 11 functional areas**.
- This led to administrative consolidation, with Lok Sabha and Rajya Sabha officers grouped into **eight services**.
- **Recruitment and service conditions** are determined by **rules established by the presiding officers**.

Role of Secretary-Generals

- The **Constitution allows Parliament to create a law** regulating the recruitment and service conditions of secretarial staff. (**Article 98**)
- However, **Parliament has not enacted such a law**. As a result, these matters are governed by **rules established by the presiding officers of Lok Sabha and Rajya Sabha**.
- **Two Secretary-Generals**, one for Lok Sabha and one for Rajya Sabha, lead the respective secretariats.
- The **presiding officers appoint them**, and they assist in discharging constitutional and statutory responsibilities.
- In **1990**, the Secretary-General's position was elevated in importance, **equivalent to the Cabinet Secretary** in the Government of India.

Contrast with State Legislature Secretariats

- Unlike the Lok Sabha and Rajya Sabha secretariats, **state legislature secretariats do not enjoy the same degree of autonomy**.

Topic 55. SHAH DENIES ADHIR'S VIEW THAT UPA-ERA BILL IS STILL ALIVE

Important for the subject : Polity

The **Lok Sabha** saw a dispute between Congress Leader Adhir Ranjan Chowdhury and Union Home Minister Amit Shah regarding the **Women's Reservation Bill**.

Chowdhury asserted that the **Bill introduced by the United Progressive Alliance government in 2010 and cleared by the Rajya Sabha is still relevant**.

Lapsing of bills in parliament:

- **Articles 107 and 108 of the constitution** deal with certain situations under which bills lapse in the Parliament.

When does a Bill lapse?

- With the **dissolution of the House**, a bill that **originated in the Lok Sabha** and is **still pending in the Lok Sabha** is termed lapsed.
- With the **dissolution of the Lok Sabha**, a Bill that **originated in the Rajya Sabha** and was **passed there**, but is **still pending in the Lok Sabha**, lapses.
- Bills that **begin in the Lok Sabha** and are **passed there** but are **still pending in the Rajya Sabha** are deemed lapsed.
- A bill that **originates and is passed in the Rajya Sabha** but is **returned to the Upper House with revisions by the Lok Sabha** and subsequently **does not receive the Rajya Sabha's approval** is regarded to have lapsed on the date of the Lok Sabha's dissolution.

When does a bill not lapse?

- A Bill that is **pending in the Rajya Sabha** but is **not passed by the Lok Sabha**.
- Bills that have **cleared both the Houses** but are **pending assent from the President**.
- If the **president has notified** the holding of a **joint sitting** before the dissolution of Lok Sabha.
- A bill was passed by both Houses but **returned by the president for reconsideration by the Rajya Sabha**.
- **Pending bills and all pending assurances** that are **to be examined by the Committee on Government Assurances**.
- The **fourth statement** mentions a bill that was passed by both Houses but was returned by the President for reconsideration by the Rajya Sabha. **In this case, the bill does not lapse.**

Topic 56. SANTINIKETAN MAKES IT TO UNESCO WORLD HERITAGE LIST

Important for the subject: History

Santi Niketan, the town in **West Bengal**, was included in the **UNESCO World Heritage list** during the **45th Session** of the **World Heritage Committee** in **Saudi Arabia**.

About Shanti Niketan:

- Established in **1901** by the Nobel Laureate **Gurudev Rabindra Nath Tagore**.

Location: Birbhum district, West Bengal.

- Current Vice-chancellor of Santiniketan: **Bidyut Chakrabarti**
- It is the **41st UNESCO World Heritage Site** in **India** and the **third** in **West Bengal**, after the **Sundarbans National Park** and the **Darjeeling Mountain Railways**.
- Last year (2022), the **state's Durga Puja** got space in "**Intangible Cultural Heritage of humanity**" under **UNESCO**.
- **Santiniketan** was a residential school and center for art based on ancient Indian traditions and a vision of the unity of humanity transcending religious and cultural boundaries.

- A ‘world university’ – **Visva Bharati** – was established at **Santiniketan** in **1921**. Santiniketan was the pioneer of the Bengal School of Art. It exhibits the crystallisation of their ideas of internationalism, humanism, inclusiveness, environmentalism and a pan Asian modernism.

Global art movements parallel to Santiniketan:

Bauhaus:

- Founded by architect Walter Gropius in Weimar, the **Staatliches Bauhaus**, or **Bauhaus** (German for ‘building house’), was a **German art school** operational from **1919** to **1933** that combined crafts and the fine arts.
- The school became famous for its approach to design, which attempted to unify individual artistic vision with the principles of mass production and emphasis on function.

Mingei in Japan:

- The concept of mingei, variously translated into English as “**folk craft**”, “**folk art**” or “**popular art**”, was developed from the **mid-1920s** in **Japan** by a philosopher and aesthete, **Yanagi Sōetsu** (1889–1961), together with a group of craftsmen, including the **pottery Hamada Shōji** (1894–1978) and **Kawai Kanjirō** (1890–1966).
- Mingei may be seen as a reaction to Japan’s rapid modernization processes. **Vienna session in Austria:**
- The **Vienna Secession** is an **art movement**, closely related to **Art Nouveau**, that was formed in **1897** by a group of **Austrian painters, graphic artists, sculptors and architects**, including **Josef Hoffman, Koloman Moser, Otto Wagner** and **Gustav Klimt**.

Other sites to find place on the prestigious list include:

- **Ancient Jericho** in **Palestine**; the **Zarafshan-Karakum Corridor of Silk Roads** in **Tajikistan, Turkmenistan, Uzbekistan**; the **Gedeo Cultural Landscape** in **Ethiopia**; and the **Cultural Landscape of Old Tea Forests of the Jingmai Mountain** in **China’s Pu’er**.

Topic 57. CURTAINS FOR OLD PARLIAMENT BUILDING: THE MADHYA PRADESH TEMPLE BELIEVED TO HAVE INSPIRED IT

Important for the subject: History

The **existing Parliament** will be turned into a museum after the inauguration of the new parliament building. A **similar, round and pillared structure in India** predates the Parliament by several centuries, and many believe it **inspired the 20th century building**. This structure is the **Chausath Yogini temple in Mitaoli, Madhya Pradesh**.

The old Parliament and its inspirations:

- **Designed** by British architects **Edwin Lutyens** and **Herbert Baker**.

- The 164-pillared building first housed the **Imperial Legislative Council** from January 18, 1927 to August 15, 1947.
- After Independence, it served as the **Constituent Assembly of India**, and once the Constitution was adopted and **India** became a **republic**, as the **Parliament of India**, housing the **Lok Sabha** and the **Rajya Sabha**.
- There is **no evidence** **Lutyens** or **Baker** ever visited the **Chausath yogini temples**, but the locals believe that the old parliament building was inspired by this temple.

The Chausath Yogini temple and its mysteries:

- Located in: **Mitaoli**, about 40 kilometers from **Gwalior**, in the **Morena district** of **Madhya Pradesh**.
- Built around **1323** by **King Devapala** of the **Kachchhapaghata dynasty**. Dedicated to the **64yoginis**, its architecture is different from the temples dedicated to one deity. The **64 yoginis** are believed to be **powerful warriors and sorceresses**.
- According to mythology, a demon, **Raktabija**, had a boon that made him almost impossible to kill — everytime a drop of his blood fell on the floor, hundreds of offspring would be born off it.
- However, when **Goddess Durga** went to battle him, she unleashed an army of **64 yoginis** who drank off his blood before it could touch the floor, and Raktabija was finally killed.
- The **Mitaoli temple** is **circular**, with **64 chambers** dedicated to the **64 yoginis**, and a **central shrine** dedicated to **Shiva**.
- The **Mitaoli temple**, like other **Chausath Yogini temples**, is **hypaethral**, which means it has **no roof** and **no shikharas**.
- The **Parliament-like pillars** are on the inside of the stone temple complex. The central shrine has a slab with perforations, for excess rainwater to drain off. The temple has a diameter of 125 feet.
- The idols and carvings that would have once adorned the 64 chambers are all gone, and so not much is known about the temple.

Yogini temple in India:

- The **Yogini temples of India** are **9th to 12th century roofless hypaethral shrines** to the yoginis, female masters of yoga in Hindu tantra, broadly equated with goddesses especially Parvati, incarnating the sacred feminine force.
- The extant temples are **either circular or rectangular in plan**; they are **scattered over central and northern India** in the states of **Uttar Pradesh, Madhya Pradesh, and Odisha**.
- Lost temples, their locations identified from surviving yogini images, are still more widely distributed across the subcontinent, from **Delhi** in the **north** and the **border of Rajasthan** in the **west** to **Greater Bengal** in the **east** and **Tamil Nadu** in the **south**.
- **Hirapur, Odisha**: The 64 Yogini Temple in Hirapur, also known as the Chausath Yogini Temple, is located in a small village about 20 km southeast of Bhubaneswar.
- **Ranipur-Jharia, Odisha**: The Ranipur-Jharia temple complex is located in Balangir

district of Odisha.

- **Khajuraho, Madhya Pradesh:** The Khajuraho temple complex in Chhatarpur district of Madhya Pradesh is home to a 64 Yogini Temple.
- **Mitaoli, Madhya Pradesh:** Here, the temple complex is located in Morena district.
- The temple is also called Ekattarso Mahadeva Temple. If you visit this temple, you will find an open circular courtyard with 65 niches filled with statues of Shiva. These niches once held statues of one deity and 64 yoginis.

Topic 58. THREE HOYSALA TEMPLES OF KARNATAKA INSCRIBED AS UNESCO WORLD HERITAGE SITES

Important for the subject :History

The Hoysala temples at **Belur, Halebidu and Somanathapur** in Karnataka were officially inscribed as UNESCO World Heritage Sites during the **45th session of the World Heritage Committee at Riyadh, Saudi Arabia.**

The Hoysala Temples, will be India's 42nd UNESCO World Heritage Site.

- Chennakeshava temple at Belur and Hoysaleshwara temple at Halebidu — both in Hassan district have been on UNESCO's tentative list since 2014.
- All the three were officially nominated by the Centre as India's entry for 2022-23 in February in 2022.
- **All three temples are protected by the Archaeological Survey of India (ASI) and the nominations were entered as 'The Sacred Ensembles of Hoysalas'.**

Features of Hoysala Temple Architecture

- The **Hoysala dynasty** ruled over much of South India for **close to 200 years** and during this time **they built spectacular temples; both Hindu as well as Jain.**
- The Hoysala temples are known for evolving a **distinct style that is ornate** with temple architecture following a **stellate plan built on a raised platform.**
- The **material used in temple construction is chloritic schist** which is also known as soapstone that is **soft and amiable to carving.**
- An **abundance of figure sculpture** covers almost all the Hoysala temples. The **garbhagriha (sanctum-sanctorum) houses a centrally placed murti (enshrined icon) on a pitha (pedestal).**
- The **shikhara (superstructure), rises over the garbhagriha and together with the sanctum they form the vimana (or mulaprasada) of a temple.**
- A **ribbed stone, amalaka, is placed atop the shikhara with a kalash at its finial.** An **intermediate antarala (vestibule) joins the garbhagriha to an expansive pillared mandapa (porch) in front, chiefly facing east (or north).**
- The temple may be approached via entrances with **gigantic gopurams (ornate entrance towers) towering over each doorway.**
- **In the prakaram (temple courtyard) several minor shrines and outbuildings often**

abound.

Chennakeshava Temple Belur

- The temple was **consecrated by the famous Hoysala king Vishnuvardhana to mark his victories in 1116 AD against the Cholas** and called the Vijaya Narayana.

Chennakesava (“handsome Kesava”) is a form of the Hindu god Vishnu.

- The construction of the Chennakeshava temple at Belur in commenced during the period of king Vishnuvardhana in 1117 CE and **took 103 years to complete**
- Enclosed by a **Prakara** with a **Gopura built in the Vijayanagar style**, the temple stands on a **platform or Jagati** and looks like a huge casket.
- The Chennakesava temple is a **fine example of fine quality work of art in stone**. There are **more than 80 Madanika sculptures** in the temple, dancing, hunting, standing under canopies of trees and so on.
- The **4 Madanika figures (striking elegant dancing poses) on the wonderfully engraved columns of Navaranga** are unique creations of Hoysala workmanship.
- The **Garbhagriha is stellar in shape and its zigzag walls make the figures of 24 forms of Vishnu look different at different times of the day due to light.**
- **The temple artwork depicts scenes of secular life in the 12th century, dancers and musicians, as well as a pictorial narration of Hindu texts such as the Ramayana, the Mahabharata and the Puranas through numerous friezes.**
- **It is a Vaishnava temple that reverentially includes many themes from Shaivism and Shaktism, as well as images of a Jina from Jainism and the Buddha from Buddhism.**
- The temple was built by **master craftsmen – Dasoja and Chavana, a father and son duo, hailing from Balliganve, a centre of Kalyana Chalukya art in Shimoga district.**
- It is said that **Shantaladevi, the accomplished queen of King Vishnuvardhana is the model for one of the sculptures in the Navaranga – Darpana Sundari.**
- The **temples of Kappe Chennigaraya, Soumyanayaki, Andal and other Vaishnava manifestations surround this main temple.**

Belur, Karnataka

- Belur, situated on the **banks of river Yagachi, 38 km from Hassan**, is a world famous tourist destination.
- **Belur also has a samadhi believed to be of Raghavanka, the celebrated Kannada poet of the 13th century.**
- **Belur was the erstwhile capital of the Hoysalas** and referred to as Velapur, Velur and Belahur at different points in history.

Hoysaleshwara Temple, Halebidu

- Hoysaleswara Temple is **situated on the banks of Dwarasamudra tank in Halebidu**, a town which has many protected and unprotected temples, archaeological ruins and

mounds.

- It was **financed by Ketamalla and Kesarasetti, rich merchants who dedicated it to King Vishnuvardhana and his queen Shantaladevi.**
- **Hoysaleswara temple**, also referred simply as the **Halebidu temple**, is a **12th century Hindu temple dedicated to Lord Shiva**. It is the largest monument in Halebidu, in Karnataka and the **former capital of the Hoysala Empire**.

The Hoysaleswara temple was commissioned in 1121 CE.

- The Hoysaleswara Temple **poised on a star-shaped base** on the lawn is an architectural marvel.
- **This twin-shrined temple is perhaps the largest Shiva temple built by the Hoysalas.**
- The **twin shrines are dedicated to Hoysaleswara and Santaleswara Shiva lingas**, named after the masculine and feminine aspects, both equal and joined at their transept.
- Its base consists of 8 rows of friezes **carved with elephants, lions, horses and floral scrolls.**
- Its walls are adorned with intricately carved Hindu deities, sages, stylised animals, birds and friezes depicting the life of Hoysala kings.
- **Imagery from epics like the Ramayana, Mahabharatha and Bhagavad Gita adorn the outer walls with highly ornate temple doorways.**
- **It is believed that no other temple in the country captures the Indian epics as elegantly as Hoysaleswara Temple.**
- The **Nandi Mantapa is positioned right in front of the temple** wherein there is a **huge Nandi richly decorated with stone ornaments.**
- Behind this is a shrine dedicated to Surya with a 2 m tall image. There are **exquisite carvings in the interiors of the temple** as well. The most striking item is the **highly polished lathe-turned pillars.**

Halebidu / Halebeedu / Dwarasamudra

- **Halebeedu (formerly known as Dwarasamudra) was the ancient capital of the Hoysalas just 17 km away from Belur.**
- **In 1311, the army of Alauddin Khilji, led by Malik Kafur defeated the Hoysalas and raided their empire.**
- The Hoysala capital **Halebidu was besieged and sacked for the second time, in 1327**, by an army sent by **Muhammad bin Tughlaq.**
- It is recorded that enormous wealth and riches were looted. **The city never recovered and fell into neglect. In fact, Halebeedu means “old house/ old ruins“.**
- Apart from Hoysaleswara Temple, Halebeedu is also known for **Kedareshwara Temple** and multiple Jain temples.

Keshava Temple at Somanathapura

- Keshava temple at **Somanathapura in Mysuru district** was **commissioned by**

Somanatha Dandanayakaduring the regime of Narasimha III in 1268 CE. It is situated on the left bank of River Kaveri.

- **The 13th century Keshava temple, described as “poetry in stone”, is dedicated to Vishnu.**
- **Like many other Hoysala temples, it is also built on a raised star-shaped platform called Jagati.**
- **It is Trikuta, a temple with three shrines and three vimanas, dedicated to Keshava, Janardhana and Venugopala. All three are a form of Krishna, the eighth avatar of Vishnu.**
- **Built in 16 point star shape, the three shrines in the temple have been built in symmetry.**
- **The temple has a square shaped navaranga (congregation hall) which served as a dance floor to the devadasis. The navaranga is a 3×3 grid of nine rectangular sections. The middle section of the navaranga is known as sabhamantapa (the community hall).**
- **The temple at Somanathapura took 58 years to build with 500 sculptors ceaselessly working on it.**
- **The Keshava temple at Somanathapura faces east and is enclosed in a walled courtyard with a major gate (mahadvara). The courtyard wall frames a rectangular veranda and an array of small shrines.**
- **The temple is carved from soapstone, a green-grey chloritic schist material that is soft in quarry but hardens when exposed to air. This is not locally available and must have been imported from another part of South India. It enabled the artists to shape and carve out intricate details for the artwork.**
- **The walls are covered in beautiful friezes of scenes from the epics, figures of elephants and battle scenes depicting cavalry.**
- **The stellar plan creates several corners and niches that provide different canvases for the sculptor and each row carries a different pattern.**

The ceilings also carry beautiful decorations.

- **The temple is surrounded by galleries on South, West and North Attached to the galleries are 64 mini shrines.**

Topic 59. THE SIX ENTRANCES OF THE NEW PARLIAMENT COMPLEX, AND THEIR GUARDIAN ANIMALS

Important for the subject :History

Vice-President Jagdeep Dhankhar hoisted the national flag at the **Gaja Dwar** of the building on Sunday morning (17th September 2023).

The new Parliament has six entrances, each signifying a different role.

- **In the New Parliament Building, red sandstone sculptures of auspicious animals have**

been installed as **'guardian statues'** on all the six entrances based on their importance in Indian culture, their aesthetic appearance, positive qualities, and the study of Vastu Shastra.

- Out of these six entrances, **three are designed as ceremonial entrances**, to welcome special guests and to mark special events. **These ceremonial entrances display Indian art, culture, ethos, and patriotism.** They have been named as **Gyan, Shakti and Karma**, representing the Indian knowledge system, patriotism and artistic traditions, respectively.

Gaja Dwar

- The sculpture of an **elephant or Gaja** has been installed to **guard the entrance to the north.**
- **Elephant represents wisdom and wealth, intellect, and memory**, and also **embodies the aspirations of the elected representatives of the democracy.**
- According to **Vastu Shastra**, the **northern direction is associated with planet Mercury**, which is the **source of higher intellect.** The **Lord of the direction is Kubera**, the god of wealth. Therefore, the Gaja is placed to the north.

Ashva

- **Ashva or the horse standing alert and ready at the southern entrance** is symbolic of **endurance and strength, power, and speed**, also describing the quality of governance.

Garuda

- The **eagle-like Garuda stands at the eastern ceremonial entrance**, signifying the aspirations of the people and the administrators of the country. In Vastu shastra, the **eastern direction is associated with the rising sun representing hope, the glory of victory, and success.**

Makara

- A mythological aquatic creature, the Makara combines the bodily parts of different animals, **representing unity in diversity among the people of the country.**

Shardula

- Another mythological creature, **Shardula is said to be the most powerful, foremost of all living beings, symbolising the power of the people of the country.**

Hamsa

- The **most important quality of the people of a democracy is the power of discernment and self-realisation born of wisdom.** Reminding the people of this essential feature is the **Hamsa, or swan, at the public entrance to the north east**, as per

the plan.

New Parliament House

- As part of **India's Central Vista Redevelopment Project**, a new parliament building was constructed in New Delhi. It was inaugurated on 28 May 2023 by Prime Minister Narendra Modi.
- It has a **built-up area of about 65,000 sq m**, with its **triangular shape** ensuring the optimum utilization of space.
- The **design** of this Parliament building resembles the **Vijaya Temple of Vidisha**.
- The new building will house a larger **Lok Sabha hall with a capacity of up to 888 seats**, and a larger **Rajya Sabha hall with a capacity of upto 384 seats**. The Lok Sabha may accommodate up to 1,272 seats for joint sessions of Parliament.
- The **Lok Sabha hall is based on the peacock theme**, India's national bird. The **Rajya Sabha is based on the lotus theme**, India's national flower.
- A "**Platinum-rated Green Building**", the new Sansad Bhavan will embody India's commitment towards **environmental sustainability**, The new Parliament will be **divyang-friendly**.
- A **Central Lounge that will complement the open courtyard** will be a place for members to interact with each other. **The courtyard will have a banyan, the national tree**.
- **Construction materials** have been brought in from across the country, including **red and white sandstone from Sarmathura in Dholpur and granite from Lakha village in Jaisalmer, Rajasthan**.
- Similarly, the **wood used in the decor is from Nagpur and craftsmen from Mumbai have led the wooden architecture design**.
- **Bhadoli weavers from Uttar Pradesh have made the traditional hand-knotted carpets for the building**.
- The **building is replete with national symbols, including the national emblem — the Lion Capital of Ashoka** — that weighs 9,500 kg and is 6.5 meters in height, and is visible from a distance. **At the entrance, the Ashoka chakra and the words 'Satyameva Jayate' have been carved in stone**.
- The new building has a **Constitution Hall**, where the journey of Indian democracy has been documented.
- A **golden sceptre (sengol)**, given to Jawaharlal Nehru on the eve of Independence to mark the transfer of power from the British, will sit in the new Lok Sabha chamber, near the Speaker's podium.
- A **gallery called 'Shilp' will exhibit textile installations from across India**, along with pottery items made from the mitti of all Indian states.
- The **gallery 'Sthapatya' will exhibit the iconic monuments of India**, including those from the different states and UTs. Besides monuments, it also amalgamates yoga asanas.

Topic 60. UNIFIED PORTAL FOR AGRICULTURAL STATISTICS LAUNCHED

Important for the subject: Govt Schemes

Introduction

The **Unified Portal for Agricultural Statistics (UPAg Portal)** has been officially launched in India **under the Ministry of Agriculture and Farmers' Welfare**, significantly impacting the country's agriculture sector.

Launch and Significance

- **Official Launch:** Professor Ramesh Chand, a member of NITI Aayog, inaugurated the **UPAg Portal (www.upag.gov.in)** to address governance challenges in India's agriculture sector.

Real-Time, Reliable, and Standardized Information

- **Reduced Search Costs:** Users benefit from reduced search costs and friction when accessing credible, granular, and objective data.

Key Challenges Addressed

- **Data Standardization:** Centralizes and standardizes diverse agricultural data.
- **Verified Data:** Provides timely, verified information to policymakers.
- **Data Aggregation:** Combines data from various sources comprehensively.
- **Real-time Connectivity:** Offers real-time data access, reducing analysis time.

Key Features of UPAg Portal

- **Data Standardization:** Standardizes prices, production, area, yield, and trade data, eliminating the need for compilation from multiple sources.
- **Data Analysis:** Conducts advanced analytics, providing insights into production trends, trade correlations, and consumption patterns, aiding policymaking by the Department of Agriculture & Farmers' Welfare.
- **Granular Production Estimates:** Generates frequent granular production estimates for swift responses to agricultural crises.
- **Commodity Profile Reports:** Utilizes algorithms to produce objective commodity profile reports, reducing subjectivity and providing comprehensive insights.
- **Plug and Play:** Offers user flexibility for report preparation, promoting data-driven decision-making among researchers and stakeholders.

Topic 61. WHAT IS THE VISHWAKARMA SCHEME?

Important for the subject : Government schemes

PM Modi launches PM Vishwakarma scheme

It is a new scheme with an outlay of Rs 13,000 crore and is **fully funded by the Central government (Central Sector Scheme)**

- **Vishwakarma, in Hindu mythology**, is seen as the architect of the gods and was the divine carpenter and master craftsman who fashioned the weapons of the gods and built their cities and chariots.
- Some legends say he was the architect of the mythical city Lanka mentioned in the Hindu epic Ramayana and is also said to have made the great image of Jagannatha at Puri in Odisha. He is considered the **patron deity of workers, artisans, and artists**.

Who is eligible for the Vishwakarma scheme?

- A video from the government that was played at the launch event talked about how the professionals engaged in traditional crafts and skills for centuries, often taught by elders in the family, have faced certain problems.
- These include a lack of professional training for their work, of modern tools, the issue of distance from the markets relevant to them and the availability of little capital for investment.
- Families associated with 18 such different sectors will be helped in all possible ways, the PM said. These include:
 - Carpenters
 - Boat Makers
 - Armourers
 - Blacksmiths
 - Hammer and Tool Kit Makers
 - Locksmiths
 - Goldsmiths
 - Potters
 - Sculptor, Stone breakers
 - Cobblers (Shoemiths/ Footwear artisans)
 - Masons (Rajmistri)
 - Basket/Mat/Broom Makers/Coir Weavers
 - Doll & Toy Makers (Traditional)
 - Barbers
 - Garland makers
 - Washermen
 - Tailors
 - Fishing Net Makes.

What benefits can be availed of through the Vishwakarma Scheme?

- The scheme is to help enhance the skills of workers employed in these fields and help them avail loans easily to aid their earnings.
- Under the scheme, the Vishwakarma workers will be registered for free through Common Services Centres using the biometric-based PM Vishwakarma portal.
- They will then be provided recognition through the PM Vishwakarma certificate and ID card, given skill upgradation involving basic and advanced training, a **toolkit incentive of ₹15,000**, collateral-free credit supports up to **₹1 lakh (first tranche) and ₹2 lakh (second tranche) at a concessional interest rate of 5%**, **incentive for digital transactions** and marketing support.
- A toolkit booklet has also been released in **12 Indian languages**, with accompanying video elements, to aid the knowledge of workers on new technologies in their field.

Topic 62. INDIA MULLS ANNUAL AUDIT OF RAW MATERIAL SUPPLIERS BY DRUGMAKERS

Important for the subject: Schemes

India is considering making it **mandatory** for drugmakers to **audit their raw material suppliers**, at least once a year.

What is the need for mandatory auditing?

- Recently the **World Health Organisation** has flagged **cough syrups made in India** to **death of several children** in **The Gambia** and **Uzbekistan**.

Proposed guidelines by the CDSCO:

- The idea was mooted by the **Central Drugs Standard Control Organisation (CDSCO)** at a meeting on **revised Schedule M (GMP)**.
- The proposed **annual audit** will **replace** the existing **self inspection, quality audits** and **supplier audits** whose frequency is routine and on specific occasions such as product recall or inspection by the **licensing authority (LA)**.
- The **supplier's audit** will cover **raw material and packaging material**.
- The regulator listed excipient compatibility and **stability studies, quality culture at all levels, data integrity** as well as **multi product manufacturing facilities** and **loan licensing** among the concerns and challenges.
- Under the proposed provision on **product recall**, the drugmakers will have to inform the LA and comply with a comprehensive system specified for prompt and effective recall.

Schedule M of Good manufacturing Practices (GMP):

- **Schedule M** guides on **Good Manufacturing Practices** regarding company premises, quality control system, quality check laboratories, production, cleaning of equipment, housekeeping, cross-contamination, and other related topics.

- **Schedule M-I:** Deals with the requirements of factory premises for manufacturing of Homeopathic preparations.
- **Schedule M-II:** Deals with the requirements of premises, plant, and equipment for manufacture of cosmetics.
- **Schedule M-III:** Deals with the requirements of premises, plant, and equipment for manufacture of Medical devices.

About WHO- Good Manufacturing Practice (GMP):

- **Good Manufacturing Practices** (GMP, also referred to as ‘cGMP’ or ‘current Good Manufacturing Practice’) is the aspect of quality assurance that ensures that medicinal products are consistently produced and controlled to the quality standards appropriate to their intended use and as required by the product specification.
- **Complying with GMP** will help avoid mix-ups, contamination, cross contamination, errors while ensuring quality of drugs, patient safety and building trust and confidence.