



drishti

# Current Affairs (CONSOLIDATION)

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**(PART – II)**

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# Polity and Governance

## Highlights

- Registration of Births and Deaths Act (RBD), 1969
- Seven New Defence Public Sector Units (DPSUs)
- PM's 60-Point Action Plan
- Krishi UDAN 2.0
- Deputy Speaker Election
- Pegasus Case
- Traffic Management Framework for Drones
- National Steering Committee: NIPUN Bharat Mission
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- Indian Telegraph Right of Way (Amendment) Rules, 2021

## Registration of Births and Deaths Act (RBD), 1969

### Why in News

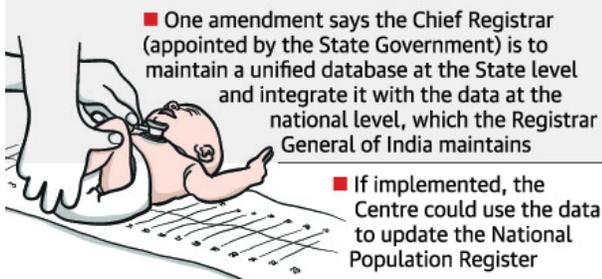
Recently, the Centre has proposed amendments to the **Registration of Births and Deaths Act (RBD), 1969**.

- It will enable it to “maintain the database of registered birth and deaths at the national level”.

### Key Points

- **Registration of Birth and Death:**
  - Registration of Births and Deaths in India is **mandatory with the enactment of Registration of Births and Deaths (RBD), Act 1969** and is done as per the place of occurrence of the event.

**Repository of data** | A look at some of the proposed amendments to the Registration of Births and Deaths Act (RBD), 1969



- With a view to **simplify the provisions of various sections** of the existing RBD Act, 1969 and to **make it people friendly**, the amendment has been proposed.

### ➤ Proposed Amendments:

- **Chief Registrar to maintain Unified Data:**

- The **Chief Registrar (appointed by the States)** would maintain a unified database at the State level and integrate it with the data at the “national level,” maintained by the **Registrar General of India (RGI)** (under the Ministry of Home Affairs).

- **Presently**, the registration of births and deaths is done by the **local registrar appointed by States**.

- **Special Sub-Registrars:**

- The appointment of “**Special Sub-Registrars**, in the event of **disaster**, with any or all of his powers and duties for on the spot registration of deaths and issuance of extract thereof, as may be prescribed.”

### ➤ Expected Use of the Data:

- To update the **National Population Register** (Citizenship Act, 1955) and the electoral register (Registration of Electors Rules, 1960), and **Aadhaar** (Aadhaar Act, 2016), **ration card** (National Food Security Act, 2013), passport (Passport Act)

Note:

and driving licence databases (**Motor Vehicles (Amendment) Act, 2019**).

- The NPR already has a **database of 119 crore residents** and under the Citizenship Rules, 2003, it is the first step towards the creation of the **National Register of Citizens (NRC)**.
- The **NPR update** and the **first phase of Census** will be conducted simultaneously by the RGI.

## Seven New Defence Public Sector Units (DPSUs)

### Why in News

The Prime Minister dedicated the **seven defence Public Sector Undertakings (PSUs)**, created through the **restructuring of the Ordnance Factory Board (OFB)**, to the nation.

- India's goal under '**Atmanirbhar Bharat**' (self-reliant India) is to make the country, on its own, into a big military power.

### Key Points

- **About:**
  - **Dissolution and Amalgamation:**
    - The Union government **ordered the dissolution of the four-decade-old Ordnance Factory Board (OFB) and amalgamated 41 factories under seven new state-owned companies** to manufacture defence hardware ranging from munitions to heavy weapons and vehicles.
      - These new companies are headquartered in five cities.
    - OFB was an umbrella body for the ordnance factories and related institutions, and was a subordinate office of the Ministry of Defence (MoD). It was a conglomerate of 41 factories, 9 training Institutes, 3 regional marketing centres and 5 regional controllers of safety.
      - It was headquartered at Kolkata.
    - All **employees of the erstwhile OFB** (Group A, B and C) belonging to production units will be transferred to the corporate entities on deemed deputation for a period of two years without any change in their service conditions as central government staff.

### ○ Seven New Companies:

- Munitions India Limited, Armoured Vehicles Nigam Limited, Advanced Weapons and Equipment India Limited, Troop Comforts Limited, Yantra India Limited, India Optel Limited, and Gliders India Limited.

### ○ Significance:

- The concerns have been raised regarding **high costs, inconsistent quality and delay in supply of OFB products** by the armed forces.
- The new structure will help **overcome these various shortcomings** in the existing system of OFB and **encourage these companies to become competitive** and **explore new opportunities** in the market including exports.

### ➤ Self-Reliance in Defence Sector:

- **Corporatisation of OFB**
- **Revised FDI Limit:** The **Foreign Direct Investment (FDI) limit** in defence manufacturing **under automatic route is raised from 49% to 74%**.
- **Defence Industrial Corridor:** The government has proposed to establish two **Defence Industrial Corridors** in Uttar Pradesh and Tamil Nadu each.
- **Project Management Unit (PMU):** The government is expected to begin time-bound defence procurement and faster decision making by setting up a Project Management Unit (for contract management purposes).
  - The **Defence Acquisition Procedure (DAP) 2020** has been unveiled.
- **Reduction in Defence Import Bill:** The government will **notify a list** of weapons/platforms banned for imports and thus such items can only be purchased from the domestic market.
  - Separate budget provision for domestic capital procurement.

## PM's 60-Point Action Plan

### Why in News

Recently, the Centre has prepared a comprehensive **60-point action plan**.

- The action plan is targeted at **specific ministries and departments**, but a closer analysis suggests they fall under **broadly three buckets**: leveraging IT

Note:



and technology for governance, improving business climate, and upgrading the civil services.

### Key Points

- **Leveraging IT and Technology for Governance:**
  - There are several actionable **inputs for the Ministry of Electronics and Information Technology** from **streamlining disbursement of scholarships to bridging digital divide** for underprivileged students by **developing indigenous tablets and laptops**.
  - **Digitising all land records by 2023** under the **central database called 'Matribhumi.'** **Integration with the e-Courts system** will provide transparency on title/ possession related issues.
  - **Citizenship** may be linked to birth certificates through technology and mainstreamed.
- **Improving Business Climate:**
  - It includes **doing away completely with certain permissions, reducing the cost of starting a business in 10 sectors** and bringing it on a par with Vietnam and Indonesia, automatic notification of clearances, single-point access to all government services.
  - Incentives to states for timely land acquisition and forest clearances, one **comprehensive Environment Management Act** that subsumes various laws in the sector.
  - Mentoring platform for **start-ups** and **skilling programmes** for emerging sectors.
  - **Using Geographic Information System (GIS) mapping** for decision making to increase the country's **GDP (Gross Domestic Product)**.
  - **Pushing for jobs** while negotiating **trade pacts**.
- **Upgrading the Civil Services:**
  - **Capacity building (Mission Karamyogi)** - training of officers on various aspects of infrastructure in both the Centre and states, infusion of expertise and exposure to latest technologies for higher civil services.
  - Performance-based working, **clear and specific targets for ministries and departments** just like that for public sector undertakings, **institutional mechanisms** for addressing issues of states given their limited capacities and restructuring of departments through **Government Process Re-engineering (GPR)** every 10 years.
    - **GPR** is undertaken to address 'problems' or 'needs' of the organization or its customers

with an objective to improve the overall quality of the services.

- **Appointment of more Chief Information Officers (CIOs) and Chief Technology Officers (CTOs)** as data is not being used efficiently. **All government data should be made accessible to all ministries.**
- **Other Agendas:**
  - **NITI Aayog** has also been asked to target **poverty eradication** within five years.
  - Asks the **Ministry of Housing and Urban Affairs** to **ab initio plan residential facilities** for service staff engaged in construction to **prevent formation of slums**.
  - **Using Aadhaar** for **"bringing together beneficiary oriented schemes of different ministries"** and also adds that a **'family database design'** has been developed by the **Ministry of Social Justice and Empowerment** and **"may be promoted like Aadhaar."**
    - Directs the culture and tourism ministries to identify and **develop 100-200 iconic structures** and sites.
    - **"Centres of excellence"** may be set up in rural areas through PPP (**Public Private Partnership**), taking a cue from such centres in Singapore.

## Krishi UDAN 2.0

### Why in News

Recently, the **Union Minister of Civil Aviation** has released **Krishi Ude Desh Ka Aam Naagrik (UDAN) 2.0** to facilitate movement of agricultural produce by air.

- It lays out the **vision of improving value realization** through better **integration and optimization of agri-harvesting and air transportation** and contributing to agri-value chain sustainability and resilience under different and dynamic conditions.
- Earlier, ahead of **UDAN Day (21<sup>st</sup> October)**, the Ministry of Civil Aviation **flagged off 6 routes**, expanding the aerial connectivity of North-East India, under the **UDAN Scheme**.

### Key Points

- **About:**
  - **Krishi UDAN** was launched in **August 2020**, on **international and national routes** to assist farmers in transporting agricultural products so that it improves their value realisation.

Note:

- Krishi UDAN 2.0 will focus on transporting **perishable food products** from the **hilly areas, northeastern states and tribal areas**.
- It will be **implemented at 53 airports across the country** mainly focusing on northeast and tribal regions and is likely to benefit farmers, freight forwarders and airlines.
  - Opted airports not only **provide access to regional domestic markets** but also **connect them to international gateways of the country**.
- **Main Features:**
  - **Waiver:**
    - Facilitate and **incentivize movement of agri-produce** by air transportation by giving a full waiver of landing, parking, Terminal Navigation and Landing Charges and Route Navigation Facilities Charges for domestic airlines.
  - **Hub and Spoke Model:**
    - Strengthen Cargo related infrastructure at airports and off airports by facilitating the development of a **hub and spoke model** and a freight grid.
      - The hub and spoke model refers to a **distribution method** in which a centralized “hub” exists.
  - **Resource Pooling:**
    - Resources-Pooling through **establishing a convergence mechanism i.e. collaboration with other government** departments and regulatory bodies.
      - It will provide freight forwarders, airlines and other stakeholders with Incentives and concessions to enhance air transportation of Agri-produce.
  - **E-KUSHAL:**
    - An online platform named **E-KUSHAL (Krishi Udaan for Sustainable Holistic Agri-Logistics)** would also be developed to **facilitate information dissemination** to all stakeholders regarding the transportation of agricultural produce.
    - The ministry has also proposed **convergence of E-KUSHAL** with the **National Agriculture Market (e-NAM)**.
- **Expected Benefits:**
  - **New Avenues of Growth for Agriculture:**
    - This scheme will open up **new avenues of growth** for the agriculture sector and help

attain the goal of **doubling farmers' income** by removing barriers in supply chain, logistics and transportation of farm produce.

- **Decrease Food Wastes:**
  - It will help solve the **problem of wastage** of agricultural food wastes in the country.
- **Other Initiatives Related to Farmers:**
  - **Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)**
  - **Green India Mission**
  - **Soil Health Card (SHC)**
  - **Paramparagat Krishi Vikas Yojana (PKVY)**
  - **Rainfed Area Development (RAD)**
  - **Sub-mission on AgroForestry (SMAF)**
  - **Mission Organic Value Chain Development for North Eastern Region (MOVCDNER)**.

#### Convergence of Agriculture and Aviation

- The convergence between the two sectors (**A2A – Agriculture to Aviation**) is possible because of three primary reasons:
  - Evolutionary possible use of **biofuel** for aircraft in future
  - Use of **drones** in the agriculture sector
  - Due to greater integration and value realisation of agricultural products through schemes like Krishi UDAN.

## Deputy Speaker Election

### Why in News

Recently, an MLA from UP was elected Deputy Speaker of the Uttar Pradesh Assembly.

- **Article 93** of the Constitution provides for the election of both the **Speaker and the Deputy Speaker of the Lok Sabha**.
- **Article 178** contains the corresponding position for **Speaker and Deputy Speaker of the Legislative Assembly of a state**.

### Key Points

- **Deputy Speaker:**
  - **Elected By:**
    - The **Deputy Speaker is elected by the Lok Sabha** from amongst its members right after the election of the Speaker has taken place.

Note:



- The **date of election of the Deputy Speaker is fixed by the Speaker** (date of election of the Speaker is fixed by the President).
- The institutions of **Speaker and Deputy Speaker originated in India** in 1921 under the provisions of the **Government of India Act of 1919 (Montague-Chelmsford Reforms)**.
  - At that time, the Speaker and the Deputy Speaker were called the President and Deputy President respectively and the same nomenclature continued till 1947.
- **Time Frame & Rules of Election:**
  - The practice in **both Lok Sabha and the State Legislative Assemblies** has been to **elect the Speaker during the (mostly short) first session of the new House** usually on the third day after oath-taking and affirmations take place over the first two days.
  - The **election of the Deputy Speaker usually takes place in the second session**, even though there is no bar on having this election too in the first session of the new Lok Sabha/Assembly.
  - But the **election of Deputy Speaker is generally not delayed** beyond the second session without genuine and unavoidable constraints.
  - In Lok Sabha, the **election of Deputy Speaker** is governed by **Rule 8 of The Rules of Procedure and Conduct of Business in Lok Sabha**.
    - Once elected, the **Deputy Speaker usually continues in office** until the dissolution of the House.
- **Term of Office and Removal:**
  - Like the Speaker, the Deputy Speaker **remains in office usually during the life of the Lok Sabha (5 years)**.
  - The **Deputy Speaker may vacate his/her office earlier** in any of the following three cases:
    - If he ceases to be a member of the Lok Sabha.
    - If he resigns by writing to the Speaker.
    - If he is **removed by a resolution passed by a majority of all the then members of the Lok Sabha**.
      - (i) Such a resolution can be moved only after giving 14 days' advance notice.
  - **In the case of the State Assembly**, the removal process is the same as that of the Speaker and Deputy Speaker of the Lok Sabha.
- **Responsibilities and Powers (Deputy Speaker of the Lok Sabha):**
  - Under **Article 95** of the constitution, the Deputy Speaker **performs the duties of the Speaker's office** when it is vacant.
    - He/She also **acts as the Speaker when the latter is absent** from the sitting of the House.
    - He/She also **presides over the joint sitting** of both the Houses of Parliament, in case the Speaker is absent from such a sitting.
  - The Deputy Speaker has one special privilege, that is, **whenever he/she is appointed as a member of a parliamentary committee**, he/she automatically becomes its chairman.
- **Deputy Speaker and Tenth Schedule (Exception):**
  - **Para 5 of the Tenth Schedule** (commonly known as the anti-defection law) says that **a person who has been elected Speaker/ Deputy Speaker shall not be disqualified:**
    - If he, by reason of his election to that office, **voluntarily gives up the membership of the political party** to which he belonged immediately before such election,
    - **And does not**, so long as he continues to hold such office thereafter, **rejoin that political party** or become a member of another political party.
  - This **exemption applies to the** Rajya Sabha Deputy Chairman, Chairman/ Deputy Chairman of a state Legislative Council, and Speaker/ Deputy Speaker of a state Legislative Assembly as well.

## Pegasus Case

### *Why in News*

Recently, the **Supreme Court (SC)** has appointed an expert committee (to be overseen by a retired apex court judge (**Justice Raveendran Committee**)) in the **Pegasus case**.

- Under the case, the Union Government is alleged to have used **spyware for surveillance on private citizens**.

### *Key Points*

- **Supreme Court Judgment:**
  - **Judicial Principle Against Bias:**
    - The court rejected the government's plea to set up its own probe.

Note:

- The court asserted that the government appointment of probe would **violate the settled judicial principle against bias**, i.e., that **'justice must not only be done, but also be seen to be done'.**
- **Formation of Expert Committee:**
  - On account of the government's inaction to file a detailed response to the allegations made by the petitioners, the Court has constituted a panel of experts under former **SC judge Justice R V Raveendran**.
- **Terms of Recommendation:**
  - The court has also asked the Raveendran committee to **make recommendations on a legal and policy framework to protect citizens against surveillance and enhance cyber security of the country**.
  - The court has set seven terms of reference for the committee, which are essentially facts that need to be ascertained to decide the issue.

### TO MAKE RECOMMENDATIONS

**1** Regarding enactment or amendment of law and procedures on surveillance, and to secure improved right to privacy.

**2** Regarding enhancing and improving cyber security of nation and its assets.

**3** To ensure prevention of invasion of right to privacy, other than lawfully, by State and/or non-State entities using such spyware.

**4** Regarding establishment of a mechanism to flag suspicion of

illegal surveillance of devices.

**5** Regarding setting up a well-equipped independent premier agency to investigate cyber security vulnerabilities and cyberattacks, and assess cyberattack threats.

**6** Regarding any *ad hoc* arrangement for protection of citizen's rights until Parliament is able to fill the lacunae.

**7** On any ancillary matter the Committee may deem fit and proper.  
(From SC order, edited)

#### ➤ Issues Addressed by the SC:

- **Right to Privacy:**
  - The court reiterated that **right to privacy** is as **sacrosanct as human existence** and is **inalienable to human dignity and autonomy**.
    - The **Right to Privacy** was held as a part of **fundamental rights** by the Supreme Court in ***K S Puttaswamy case, 2017***.
  - Any surveillance or snooping done on an individual by the state or any outside agency is an **infringement of that person's right to privacy**.
- **Surveillance on Free Speech:**
  - The Court has drawn a **link between surveillance and self-censorship**.

- The knowledge that one is under the threat of being spied on leads to **self-censorship** and **potential chilling effect**.
- The **chilling effect surveillance** can produce is an assault on the vital **public-watchdog role of the press**, which may undermine the ability of the press to provide accurate and reliable information (Free Speech).
- It further held that, an important and necessary corollary of such a right is to ensure the **protection of sources of information**.
- **National Security as a Ground to Block Citizen's Rights:**
  - The Court has ruled that the state does not get a **"free pass every time the spectre of 'national security' is raised"**.
  - This also means **"no omnibus prohibition can be called for against judicial review"** if the matter impinges on national security.
  - Hence, any violation of that right by the state, even in national interest, has to follow **procedures established by the law**.
  - Further, the order is a strong **rebuttal of the government's specious and self-serving use of national security** as a ground to criminalise the forms of dissent.

## Traffic Management Framework for Drones

### Why in News

Recently, the **Ministry of Civil Aviation** has notified a **traffic management policy framework for drones**. This could be regarded as the first step towards allowing **Beyond Visual Line of Sight (BVLOS) drone operations**.

### Key Points

- **Traffic Management Framework:** The rules envisages private, third-party service providers for ensuring safe operations.
  - Under the framework, Unmanned Traffic Management Service Providers (UTMSP) will extend automated, algorithm-driven software services instead of voice communication as in the traditional Air Traffic Management (ATM) systems.

Note:

- **Scope of Regulation:** All drones (except **nano drones operating in the green zone**) shall be required to share their real-time location through the network to the Centre.
  - Law enforcement and security agencies will also have access to some information in the UTM ecosystem on a need-to-know basis.
- **Responsibility of UTMSP:** They will primarily be responsible for segregating and separating a drone from other drones and manned aircraft in the airspace below 1,000 feet in the country.
  - The UTMSP will be assisted by Supplementary Service Providers (SSPs), who will maintain data about terrain, weather, location of manned aircraft and provide services such as insurance, data analytics and drone fleet management.
- **Approval Authority: DigitalSky platform** shall continue to be the interface for government stakeholders to provide approvals and permissions to drone operators.
  - DigitalSky platform provides end-to-end governance of drones related activities in India.
- **Financial Provisions:** The policy also allows UTMSPs to levy a service fee on users, a small portion of which will also be shared with the Airports Authority of India.
- **Significance of the Rules:** India has started taking steps towards enabling advanced use cases like delivery of goods using unmanned aircraft and is also looking at human transportation using unmanned aircraft.

## National Steering Committee: NIPUN Bharat Mission

### Why in News

Recently, a **National Steering Committee (NSC)** has been formed **for the implementation of NIPUN Bharat Mission**.

- **NIPUN** (National Initiative for Proficiency in Reading with Understanding and Numeracy) Bharat Scheme was launched earlier this year as part of the **National Education Policy (NEP) 2020**.

### Key Points

- **Roles and Responsibilities of NSC:**
  - To oversee the progress of the **National Mission on Foundational Literacy and Numeracy** and provide guidance on policy issues.

- To arrive at the target to be **achieved nationally in 2026-27**.
- To disseminate tools for measurement of yearly progress in the form of guidelines.
- To prepare and approve a **National Action Plan** (based on the State's Action Plans).
- To **review programmatic and financial norms** periodically to ensure they are synchronised with targets to be achieved.
- **NIPUN Bharat Mission:**
  - **Objective:**
    - To create an **enabling environment** to ensure universal acquisition of foundational literacy and numeracy, so that **every child achieves the desired learning competencies** in reading, writing and numeracy by the **end of Grade 3, by 2026-27**.
  - **Focus Areas:**
    - It will **focus on** providing access and retaining children in foundational years of schooling; teacher capacity building; development of high quality and diversified Student and Teacher Resources/Learning Materials; and tracking the progress of each child in achieving learning outcomes.
  - **Implementation:**
    - NIPUN Bharat will be **implemented by the Department of School Education and Literacy, Ministry of Education**.
    - A **five-tier implementation mechanism** will be set up at the National- State- District- Block- School level in all States and UTs, under the aegis of the centrally sponsored scheme of **Samagra Shiksha**.
      - **'Samagra Shiksha' programme** was launched subsuming three existing schemes: Sarva Shiksha Abhiyan (SSA), Rashtriya Madhyamik Shiksha Abhiyan (RMSA) and Teacher Education (TE).
      - The aim of the scheme is to treat school education holistically, from pre-school to Class XII.
    - A special package for Foundational Literacy and Numeracy (FLN) under **NISHTHA** (National Initiative for School Heads and Teachers Holistic Advancement) is being developed by NCERT.

Note:



- **NISHTHA is a capacity building programme** for “Improving Quality of School Education through Integrated Teacher Training”.
- Stage-wise targets are being set in a continuum from the pre-primary or balvatika classes.

➤ **Other Recent Initiatives:**

- **Samagra Shiksha Scheme 2.0**, Vidyanjali portal, Indian Sign Language Dictionary, etc.

## Sovereign Gold Bond Scheme

### *Why in News*

Recently, the Central government announced the **calendar for Sovereign Gold Bonds (SGB)** that will be issued in **four tranches**, from October 2021 to March 2022.

### *Key Points*

➤ **Launch:**

- The SGB scheme was launched in **November 2015** with an objective **to reduce the demand for physical gold** and shift a part of the domestic savings - used for the purchase of gold - into financial savings.

➤ **Issuance:**

- The Gold Bonds are issued as Government of India Stock **under the Government Securities (GS) Act, 2006**.
- These are issued by the **RBI (Reserve Bank of India)** on behalf of the Government of India.
- Bonds are **sold through** Commercial banks, Stock Holding Corporation of India Limited (SHCIL), designated post offices and recognised stock exchanges viz., **National Stock Exchange of India Limited** and Bombay Stock Exchange, either directly or through agents.

➤ **Eligibility:**

- The bonds are restricted for sale to resident individuals, Hindu Undivided Families (HUFs), trusts, universities and charitable institutions.

➤ **Features:**

- **Issue Price:** Gold bond prices are linked to the price of gold of 999 purity (24 carats) **published by India Bullion and Jewellers Association (IBJA), Mumbai**.
- **Investment Limit:** Gold bonds can be **purchased in the multiples of one unit**, up to certain thresholds for different investors.

- The upper limit for retail (individual) investors and HUFs is 4 kilograms (4,000 units) each per financial year. For trusts and similar entities, an upper limit of 20 kilograms per financial year is applicable.

- **Minimum permissible investment is 1 gram** of gold.

- **Term:** The gold bonds come with a **maturity period of eight years**, with an **option to exit the investment after the first five years**.

- **Interest Rate:** A fixed rate of **2.5% per annum** is applicable on the scheme, **payable semi-annually**.

- The interest on Gold Bonds **shall be taxable** as per the provision of Income Tax Act, 1961.

➤ **Benefit:**

- Bonds can be used as **collateral for loans**.
- The **capital gains tax** arising on redemption of SGB to an individual **has been exempted**.

- Redemption is the act of an issuer repurchasing a bond at or before maturity.

- Capital gain is the profit earned on the sale of an asset like stocks, bonds or real estate. It results in when the selling price of an asset exceeds its purchase price.

➤ **Disadvantages of Investing in SGB:**

- This is a **long term investment unlike physical gold** which can be sold immediately.

- Sovereign gold bonds are **listed on exchange but the trading volumes are not high**, therefore it will be difficult to exit before maturity.

## Right to Protest

### *Why in News*

The Supreme Court said **farmers had the right to protest**, but **roads cannot be blocked indefinitely** (impeding the **right of citizens to commute without hindrance**).

### *Key Points*

➤ **Right to Protest:**

- Although the Right to Protest is **not an explicit right under the Fundamental rights**, it can be derived from the **Right to Freedom of Speech and Expression under Article 19**.

Note:

- **Article 19(1)(a):** The Right to free speech and expression transforms into the right to freely express an opinion on the conduct of the government.
  - **Article 19(1)(b):** The Right to association is required to form associations for political purposes.
    - These can be formed to collectively challenge government decisions.
  - **Article 19(1)(c):** The Right to peaceably assemble allows people to question and object to acts of the government by demonstrations, agitations and public meetings, to launch sustained protest movements.
  - These rights, in cohesion, enable every citizen to assemble peacefully and protest against action or inaction of the State.
- Right to Protest ensures that **people can act as watchdogs** and constantly monitor governments' acts.
- It provides feedback to the governments about their policies and actions after which the concerned government, through consultation, meetings and discussion, recognizes and rectifies its mistakes.

➤ **Restriction on Right to Protest:**

- **Article 19(2)** imposes reasonable restrictions on the right to freedom of speech and expression. These reasonable restrictions are imposed in the interests of the following:
  - Sovereignty and integrity of India,
  - Security of the State,
  - Friendly relations with foreign States,
  - Public order,
  - Decency or morality
  - Contempt of court,
  - Defamation
  - Incitement to an offence.
- Further, resorting to violence during the protest is a violation of a key fundamental duty of citizens.
  - Enumerated in **Article 51A**, the Constitution makes it a fundamental duty of every citizen **“to safeguard public property and to abjure violence”**.

➤ **Related Supreme Court's Judgements:**

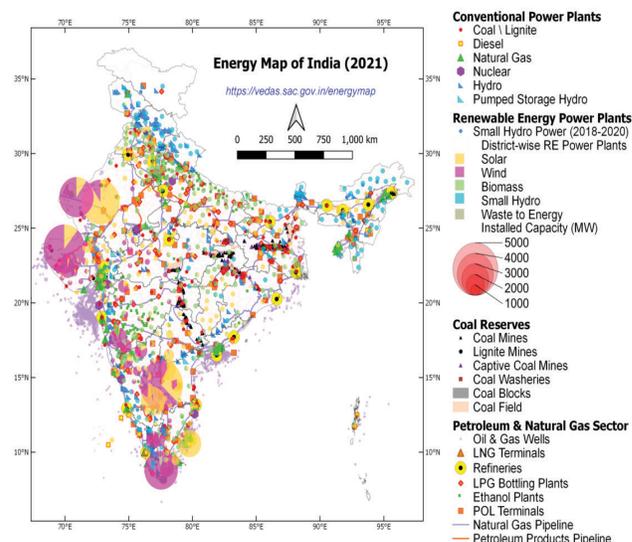
- The Supreme Court hearing the plea regarding **Shaheen Bagh Protests in 2019**, upheld the right to peaceful protest against the law but also cleared that public ways and public spaces cannot be occupied and that too indefinitely.
- SC referred to its **2018 judgment in the Mazdoor Kisan Shakti Sangathan vs Union of India and Another case**, which dealt with demonstrations at Delhi's Jantar Mantar.
  - The judgment **tried to balance the interests of local residents with those of protesters** to hold demonstrations and directed the police to devise a proper mechanism for limited use of the area for peaceful protests and demonstrations and to lay down parameters for this.
- In **Ramlila Maidan Incident v. Home Secretary, Union Of India & Ors. case (2012)**, the Supreme Court had stated, “Citizens have a fundamental right to assembly and peaceful protest which cannot be taken away by an arbitrary executive or legislative action”.

## Geospatial Energy Map of India

### Why in News

Recently, **NITI Aayog** launched a comprehensive **Geographic Information System (GIS)-based Geospatial Energy Map of India**.

- Earlier in July 2021, the Association of Geospatial Industries released a report titled **“Potential of Geospatial Technologies for the Water Sector in India”**.



Note:

**Key Points**

- **About:**
  - It is developed by the **NITI Aayog** in collaboration with **Indian Space Research Organisation (ISRO)** with the support of **Energy Ministries**.
  - It **provides a holistic picture of all energy resources** of the country.
  - It **enables visualisation of energy installations** such as **conventional power plants, oil and gas wells, petroleum refineries, coal fields and coal blocks, district-wise data on renewable energy power plants and renewable energy** resource potential through 27 thematic layers.
- **Geographic Information System:**
  - A GIS is a **computer system for capturing, storing, checking, and displaying data** related to positions on Earth's surface.
  - It **can show many different kinds of data on one map**, such as streets, buildings, and vegetation.
    - It **enables people to more easily see, analyze, and understand** patterns and relationships.
- **Significance:**
  - **Aims to Identify Sources of Energy:**
    - It attempts to **identify and locate all primary and secondary sources of energy** and their transportation/transmission networks to provide a comprehensive view of energy production and distribution in a country.
  - **Integrate Scattered Data:**
    - It is **aimed at integrating energy data scattered** across multiple organizations and to present it in a consolidated, visually appealing graphical manner.
  - **Advancements in Web-GIS Technology:**
    - It leverages the **latest advancements in web-GIS technology** and open-source software to make it interactive and user friendly.
  - **Helpful in making Investment Decisions:**
    - It will be useful in **planning and making investment decisions**.
    - It will also aid in **disaster management** using available energy assets.

**Geospatial Mapping**

- It is a **type of spatial analysis technique** that typically employs software capable of rendering maps, processing spatial data, and applying analytical methods to terrestrial or geographic datasets, including the use of geographic information systems.
- It is **different from traditional mapping**, as geospatial mapping provides us with computerized data that can be used to create a custom map designed for your needs.

**One Health Consortium****Why in News**

Recently, the **Department of Biotechnology** has launched the **country's first One Health consortium**.

- The Department of Biotechnology is an Indian government department, **under the Ministry of Science and Technology**

**Key Points**

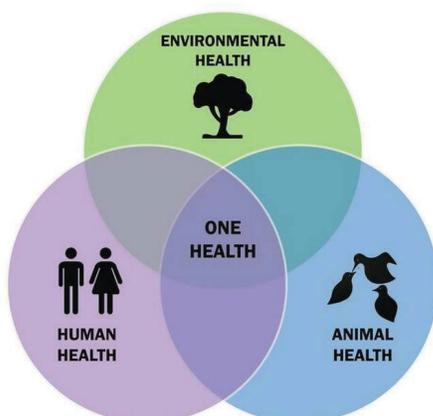
- **About:**
  - This **Consortium consisting of 27 organisations** is one of the biggest one health programs launched by India in post-Covid times.
  - It **envisages carrying out surveillance** of important bacterial, viral and parasitic infections of zoonotic and transboundary pathogens in India.
  - It also **looks into the use of existing diagnostic tests** and the development of additional methodologies for the surveillance and understanding the spread of emerging diseases.
- **Significance:**
  - It will provide a **holistic approach** to understand the health of human, animals and wildlife to minimise the damage caused by **future pandemics**.
- **Related Government Steps:**
  - **National Expert Group on 'One Health':**
    - A **National Expert Group on 'One Health'** as a multi-sectoral, transdisciplinary, collaborative group was set up by India in May 2019.
      - Recently in **April 2021**, the Group submitted its report with inclusion of **Subject Specific Health Action Plans** on identified **Climate Sensitive Diseases and 'One Health'**.

Note:

- **Malé Declaration in 2017:**
  - In the context of **Green and Climate Resilient Healthcare Facilities**, India became signatory to the **Malé Declaration in 2017** and agreed to **promote climate-resilient healthcare facilities** to be able to withstand any climatic event.
- **Universal Health Coverage:**
  - Its goal as stated in the **UN Sustainable Development Goals (SDGs no. 3)** is one of the most significant commitments to equitable quality healthcare for all.
    - India moved a step closer towards its commitment to the SDGs, when in 2018 the country launched a **national health protection scheme, Ayushman Bharat**, to achieve UHC.

### One Health Concept

- **About:**
  - One Health is an **approach that recognizes that the health of people** is closely connected to the health of animals and our shared environment.
  - **One Health' vision** derives its blueprint from the agreement between the **tripartite-plus alliance** comprising the **Food and Agriculture Organization of the United Nations (FAO)**, the **World Organisation for Animal Health (OIE)**.
  - It's purpose is to **encourage collaborations in research and sharing of knowledge** at multiple levels across various disciplines like **human health, animal health, plants, soil, environmental and ecosystem health** in ways that improve, protect and defend the health of all species.



- **Increasing Significance:** It has become more important in recent years because **many factors have changed**

**interactions** between people, animals, plants, and our environment.

- **Human Expansion:** Human populations are growing and expanding into new geographic areas due to which close **contact with animals and their environments provides more opportunities for diseases to pass** between animals and people.
  - Of the contagious diseases affecting humans, **more than 65% are of zoonotic or animal to man origin.**
- **Environmental Disruptions:** Disruptions in environmental conditions and habitats can provide new opportunities for diseases to pass to animals.
- **International Travel & Trade:** The movement of people, animals, and animal products has increased from international travel and trade due to which diseases can spread quickly across borders and around the globe.
- **Viruses in Wildlife:** Scientists have observed that there are more than 1.7 million viruses circulating in wildlife, and many of them are likely to be zoonotic.
  - This implies that unless there is timely detection, India risks facing many more pandemics in times to come.

## Medical Termination of Pregnancy Rules

### Why in News

Recently, the Government has **notified new rules** under the **Medical Termination of Pregnancy (Amendment) Act, 2021**.

- The **2021 Act** was passed to **amend the Medical Termination of Pregnancy (MTP) Act, 1971**.

### Key Points

- **About the Rules:**
  - **Increased Gestational Limit:** The gestational limit for termination of a pregnancy has been **increased from 20 to 24 weeks for certain categories** of women. The **seven specific categories** are:
    - Survivors of sexual assault or rape or incest;
    - Minors;
    - Change of marital status during the ongoing pregnancy (widowhood and divorce);

Note:

- Women with physical disabilities;
  - Mentally ill women;
  - Foetal malformation that has a substantial risk of being incompatible with life or if the child is born, he/ she may suffer from serious physical or mental abnormalities;
  - Women with pregnancy in humanitarian settings or disaster or emergency situations.
- **State-level Medical Board:** A state-level medical board **will be set up to decide if a pregnancy may be terminated after 24 weeks** in cases of foetal malformation.
- The medical boards are to **either accept or reject** the proposal for medical termination of pregnancy **within three days** of receiving the request.
  - The **abortion procedure has to be done with five days** of the board receiving the request for the same.

#### ➤ Significance:

- The new rules will contribute towards **ending preventable maternal mortality** to help meet the **Sustainable Development Goals (SDGs) 3.1, 3.7 and 5.6**.
- **SDG 3.1** pertains to reducing **maternal mortality ratio** whereas **SDGs 3.7 and 5.6** pertain to universal access to sexual and reproductive health and rights.
- The new rules will increase the ambit and access of women to safe abortion services and will ensure dignity, autonomy, confidentiality and justice for women who need to terminate pregnancy.

#### ➤ Related Issues:

- Although the new rules have increased access to abortions to some extent, they **fail to correct a fundamental flaw in the MTP Act** that a woman does not have the basic right to terminate a pregnancy if and when she decides.
- The **formation of a state medical board** raises additional concerns around their access, particularly to women from rural areas.
- The Act requires abortion to be **performed only by doctors** with specialisation in gynaecology or obstetrics.
  - As there is a **75% shortage of such doctors in community health centres in rural areas**,

## The MTP Act 1971 and The MTP Act Amendments 2021

	MTP Act 1971	The MTP Amendment Act 2021
Indications (Contraceptive failure)	Only applies to married women	Unmarried women are also covered
Gestational Age Limit	20 weeks for all indications	24 weeks for rape survivors Beyond 24 weeks for substantial fetal abnormalities
Medical practitioner opinions required before termination	One RMP till 12 weeks Two RMPs till 20 weeks	One RMP till 20 weeks Two RMPs 20-24 weeks Medical Board approval after 24 weeks
Breach of the woman's confidentiality	Fine up to Rs 1000	Fine and/or Imprisonment of 1 year

pregnant women may continue to find it difficult to access facilities for safe abortions.

- The society is still **unable to ensure reproductive autonomy to the women**, many of whom not only lack the freedom to plan pregnancies but also face multiple barriers when they seek abortions.

## World Food Day 2021

### Why in News

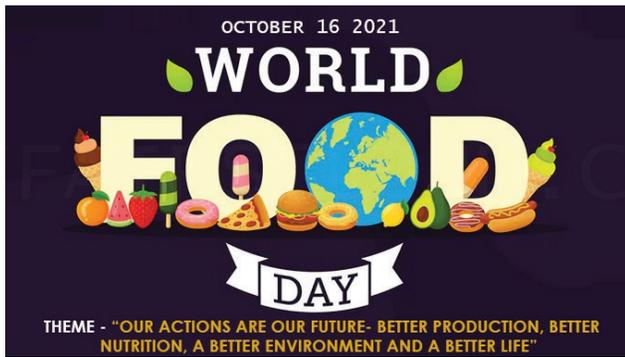
**World Food Day** is celebrated every year on **October 16<sup>th</sup>** to commemorate the date of the founding of the **United Nations (UN) Food and Agriculture Organisation** in 1945.

- **FAO** is a **specialised agency of the UN** that leads international efforts to **defeat hunger**.
- In **2021**, the UN Secretary-General also convened the very **first Food Systems Summit** to discuss ways to transform the production and consumption of food.

### Key Points

- **About:**
  - It is observed annually to **address the problem of global hunger**.
    - The day is also observed by organisations like **World Food Programme** (Was awarded **nobel peace prize 2020**) and **International Fund for Agricultural Development**.
  - It emphasises on the **Sustainable Development Goal 2 (SDG 2)** i.e. Zero Hunger.
- **Need of the Hour:**
  - The **Covid-19 pandemic** has underlined that an **urgent change of route is needed**.

Note:



- It has made it even **harder for farmers** - already grappling with climate variability and extremes - to sell their harvests, while **rising poverty** is pushing an increased number of city residents to use food banks, and millions of people require **emergency food aid**.
- World **needs sustainable agri-food systems** that are capable of **nourishing 10 billion people by 2050**.
- **FAO's Contribution in India:**
  - It has closely watched India's fight against **malnutrition** in the past decades but its scope had many constraints.
    - Due to reasons such as pregnancy at a young age, lack of education and information, inadequate access to drinking water, lack of cleanliness, etc. **India is lagging behind in achieving the expected results of "malnutrition free India" by 2022**, envisaged under the National Nutrition Mission (**POSHAN Abhiyaan**).
  - FAO supported India's proposal to declare 2023 as the **International Year of Millets**.
    - The move will **encourage intake of nutritious food, increase their availability further and benefit small and medium farmers** who mostly grow coarse grains on their land where there is a problem of water and the land is not so fertile.
- **FAO's Hunger Index, India's Opposition and Farmers Protest:**
  - India has slipped to 101<sup>st</sup> position in the **Global Hunger Index (GHI) 2021**.
  - However, the **Indian government has questioned the poll-based assessment and methodology** used by the FAO.
    - India claims the methodology to be unscientific.
  - On the other hand the **food producers (farmers) of the country are on the roads for close to a year**

and are on warpath **against the central government** while vehemently opposing the **farm laws**.

- Farmers are terming the **laws to be anti-peasant (food producers)** and saying these laws will provide alarming loss to them which could further impact India's ranking in combating hunger and nutrition.

➤ **Related Indian Initiatives:**

- The **Eat Right India** and **Fit India Movement** along with **Swachh Bharat Abhiyan, Jal Jeevan Mission** and other efforts will improve the health of Indians and heal the environment.
- Introduction of 17 new **biofortified varieties** of crops to overcome the shortcomings of the common variety of crops which lacks important micronutrients.
  - Example: **MACS 4028 Wheat, Madhuban Gajar**, etc.
- Increased ambit and effective implementation of the **Food Security Act, 2013**.
- **Amendments to the APMC (agricultural produce market committee) Acts** to make them more competitive.
- Steps to ensure that farmers get one and a half times the cost as **Minimum Support Price (MSP)**, which along with the government procurement, is an important part of ensuring the country's food security.
- Development of a large network of **Farmer Producer Organisations (FPOs)**.
- **Amendments in the Essential Commodities Act, 1955** to deal with the issue of grain wastage in India.
- Government is making efforts to make India Trans Fat free by 2022, a year ahead of the **World Health Organisation (WHO)** target, in synergy with the vision of New **India @75** (75 years of India's independence).
  - **Trans Fat** is a food toxin present in Partially Hydrogenated Vegetable Oils (PHVOs) (e.g. vanaspati, shortening, margarine, etc.), baked and fried foods.
  - It is a major contributor to the rise in **non-communicable diseases** in India and also a modifiable risk factor for **Cardio-Vascular Diseases (CVD)**. Eliminating CVD risk factor is especially relevant during **Covid-19** as people with CVD are predisposed to have serious conditions having an impact on mortality.

Note:



## UDAN Scheme

### Why in News

Ahead of **UDAN Day** (21<sup>st</sup> October), the Ministry of Civil Aviation flagged off 6 routes, expanding the aerial connectivity of **North-East India**, under the **UDAN Scheme**.

- The Government of India has acknowledged the contribution of the scheme and has identified 21<sup>st</sup> October as UDAN Day, the day on which the scheme document was first released.

### Key Points

- **Launch:**
  - Ude Desh Ka Aam Naagrik (UDAN) was **launched as a Regional Connectivity Scheme (RCS)** under the Ministry of Civil Aviation in **2016**.
- **Objectives:**
  - To develop the **regional aviation market**.
  - To provide **affordable, economically viable and profitable air travel** on regional routes to the **common man** even in small towns.
- **Features:**
  - The scheme envisages **providing connectivity to un-served and underserved airports of the country** through the revival of existing air-strips and airports. The scheme is **operational for a period of 10 years**.
    - Under-served airports are those which do not have more than one flight a day, while unserved airports are those where there are no operations.
  - **Financial incentives from the Centre, state governments and airport operators are extended to selected airlines** to encourage operations from unserved and under-served airports, and keep airfares affordable.
- **Achievements So Far:**
  - Till date, **387 routes and 60 airports have been operationalised** out of which 100 routes are awarded in the North East alone.
  - Under the **KRISHI UDAN Scheme**, 16 airports have been identified to enhance the export opportunities of the North East region establishing dual benefits of enhancement of cargo movements and exports.

### UDAN 1.0

- Under this phase, **5 airlines companies were awarded 128 flight routes** to 70 airports (including 36 newly made operational airports).

### UDAN 2.0

- In 2018, the Ministry of Civil Aviation **announced 73 underserved and unserved airports**.
- For the first time, **helipads were also connected** under phase 2 of the UDAN scheme.

### UDAN 3.0

- **Inclusion of Tourism Routes** under UDAN 3 in coordination with the Ministry of Tourism.
- **Inclusion of Seaplanes** for connecting Water Aerodromes.
- Bringing in **a number of routes in the North-East Region** under the ambit of UDAN.

### UDAN 4.0

- In 2020, **78 new routes were approved under the 4<sup>th</sup> round** of RCS-UDAN to further enhance the connectivity to remote & regional areas of the country.
- Kavaratti, Agatti, and Minicoy islands of Lakshadweep will be connected by the new routes of UDAN 4.0.

### UDAN 4.1

- The UDAN 4.1 **focuses on connecting smaller airports, along with special helicopter and seaplane routes**.
- Some new routes have been proposed under the **Sagarmala Seaplane services**.
  - Sagarmala Seaplane Services is an ambitious project under the Ministry of Ports, Shipping and Waterways with potential airline operators.

### KRISHI UDAN

- It was launched by the Ministry of Civil Aviation in August 2020, on international and national routes **to assist farmers in transporting agricultural products** so that it improves their value realisation.

### International UDAN

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

Note:

## Child Sexual Abuse

### Why in News

Recently, a report titled the **Global Threat Assessment Report 2021**, released by **We Protect Global Alliance** has revealed that **Covid-19** had contributed to a significant spike in **child sexual exploitation and abuse** online.

- The report **outlines the scale and scope of child sexual exploitation and abuse online**, as well as an overview of the global response to the issue.
- **WeProtect Global Alliance** is a global movement of more than 200 governments, private sector companies and civil society organisations working together to transform the global response to child sexual exploitation and abuse online.

### Percentage of People Affected by Online Sexual Harm



### Key Points

- **Highlights of the Report:**
  - In the past two years, the reporting of child sexual exploitation and online abuse has reached its highest level.
    - Covid-19 created a 'perfect storm' of conditions that fuelled a rise in child sexual exploitation and abuse across the globe.
  - According to the **Internet Watch Foundation**, the rise in child 'self-generated' sexual material is another worrying trend.
  - **Transgender/non-binary, LGBTQ+ and/or disabled** were more likely to experience online sexual harms during childhood.
  - **Indian Scenario:**
    - During the pandemic, the **National Center for Missing and Exploited Children (NCMEC)** indicated 106% increase in reports of suspected child sexual exploitation to its global CyberTipline.

- NCMEC is a **non-profit organization (NGO)** established by the **United States Congress**.

- Further, during the Covid-19 **lockdown** in India, there was a **95% rise in searches for child sexual abuse material**.

### ➤ Problems Related to Child Sexual Abuse:

- **Multi-layered Problem:** Child sexual abuse is a multi-layered problem which negatively impacts children's physical safety, mental health, well-being and behavioural aspects.
- **Amplification Due to Digital Technologies:** Mobile and digital technologies has further amplifies child abuse and exploitation. New forms of child abuse like online bullying, harassment and **Child Pornography** have also emerged.
- **Ineffective Legislaton:** Although Government of India has enacted the **Protection of Children against Sexual Offences Act 2012 (POCSO Act)**, it has failed to protect child from sexual abuse. The reasons for this can be following:

- **Low Conviction Rate:** The rate of conviction under the POCSO act is only about 32% if one takes the average of the past 5 years and the percentage of cases pending is 90%.
- **Judicial Delay:** The Kathua Rape case took 16 months for the main accused to be convicted whereas the POCSO Act clearly mentions that the entire trial and conviction process has to be done in one year.
- **Unfriendly to Child:** Challenges related to age-determination of the child. Especially laws that focus on biological age and not mental age.

### Indian Initiatives for Preventing Child Sexual Abuse

- **Child Abuse Prevention and Investigation Unit**
- **Beti Bachao, Beti Padhao**
- **Juvenile Justice Act/Care and Protection Act, 2000**
- **Child Marriage Prohibition Act (2006)**
- **Child Labour Prohibition and Regulation Act, 2016**
- **Operation Smile**

## Saksham Centres: DAY-NRLM

### Why in News

Recently, as part of **Azadi ka Amrit Mahotsav**, a total of 152 **Centre for Financial Literacy & Service Delivery**

Note:



(SAKSHAM Centres) across 77 districts of 13 states were launched.

- The centres were launched under **Deendayal Antyodaya Yojana - National Rural Livelihoods Mission (DAY-NRLM)** of the **Ministry of Rural Development**.

### Key Points

#### ➤ SAKSHAM Centres:

##### ○ About:

- Centre for Financial Literacy & Service Delivery (CFL&SD) would act as a **one stop solution/single window system** for basic financial needs of **Self-Help Groups (SHGs)** households in rural areas.

##### ○ Objective:

- To **provide financial literacy & facilitate delivery of financial services** (savings, credit, insurance, pensions etc.) to SHG members and rural poor.

##### ○ Managed By:

- SHG network, largely at the level of the Cluster Level Federations (CLFs), with the help of trained Community Resource Persons (CRPs).

#### ➤ SAKSHAM Application:

- A **mobile & web-based application** called "**SAKSHAM**" has also been developed.
  - It will be used by the **community resource person of the Centre** to know the penetration of various financial services for each SHG & village, identify major gaps and accordingly provide training and deliver the required financial services.

### Deendayal Antyodaya

#### Yojana-National Rural Livelihood Mission

#### ➤ About:

- It is a **centrally sponsored programme**, launched by the Ministry of Rural Development in June 2011.

#### ➤ Aim:

- To **eliminate rural poverty** through the promotion of multiple livelihoods and improved access to financial services for the rural poor households across the country.

#### ➤ Functioning:

- It **involves working with community institutions** through community professionals in the spirit of self-help which is a unique proposition of DAY-NRLM.
- It impacts the **livelihoods through universal social mobilization** by inter alia organising one-woman

member from each rural poor household into **Self Help Groups (SHGs)**, their training and capacity building, facilitating their micro-livelihoods plans, and enabling them to implement their livelihoods plans through accessing financial resources from their own institutions and the banks.

#### ➤ Implementation:

- It is **implemented in a Mission mode by special purpose vehicles** (autonomous state societies) with dedicated implementation support units at the national, state, district and block levels, using professional human resources in order to provide continuous and long-term handholding support to each rural poor family.

#### ➤ Sub-Schemes:

- **MKSP:** In order to promote agro-ecological practices that **increase women farmers' income** and reduce their input costs and risks, the Mission has been implementing the **Mahila Kisan Shashaktikaran Pariyojana (MKSP)**.
  - **SVEP and AGEY:** As part of its non-farm livelihoods strategy, DAY-NRLM is implementing **Start-Up Village Entrepreneurship Programme (SVEP)** and **Aajeevika Grameen Express Yojana (AGEY)**.
    - SVEP aims to support entrepreneurs in rural areas to set up local enterprises.
    - AGEY, launched in August 2017, to provide safe, affordable and community monitored rural transport services to connect remote rural villages.
  - **DDUGKY:** Deendayal Upadhyaya Grameen Kaushalya Yojana (DDUGKY) aims at building placement-linked skills of the rural youth and placing them in relatively higher wage employment sectors of the economy.
  - **RSETIs:** The Mission, in partnership with 31 Banks and State Governments, is supporting **Rural Self Employment Institutes (RSETIs)** for skilling rural youth to take up gainful self-employment.
- #### ➤ Outcomes:
- Today, ten years since the NRLM was first launched, **India has the largest network of women's SHGs across the world**. As of May 2021, there are 6.9 million SHGs in India with 75 million members across 7,83,389 villages.
  - The Mission has achieved significant success in **improving the last mile delivery of credit services** through the agency of SHGs.

Note:

- The NRLM has **enabled rural families to negotiate for greater access to essential services** such as education and healthcare. It has had an impact on food security, improved school enrolment, access to land for women to grow food, and on gender issues with women's groups taking on issues like dowry, child marriage, and discrimination against girls.

## Public Safety Act: J&K

### Why in News

Ahead of the Home Minister's visit, around 700 people have been detained in the union territory of Jammu and Kashmir (J&K) and a few under the stringent **Jammu & Kashmir Public Safety Act (PSA), 1978**.

### Key Points

#### ➤ About:

- Under PSA, an individual **can be detained on the basis of an executive order for a maximum of two years, without trial**, if their act is prejudicial to the security of the State or the maintenance of public order.

#### ➤ Enforcement:

- Detention order is **passed either by the Divisional Commissioner or the District Magistrate**.

#### ➤ Challenging the Detention:

- The only way the **administrative preventive detention order can be challenged** is through a **habeas corpus** petition filed by relatives of the detained person.
  - The **High Court and the Supreme Court have jurisdiction** to hear such petitions and pass a final order seeking quashing of the PSA.
  - However, if the order is quashed, there is **no bar on the government passing another detention order** under the PSA and detaining the person again.
  - There can be **no prosecution or any legal proceeding against the official who has passed the order**.

#### ➤ Issues with PSA:

##### ○ Detention Without Trial:

- The PSA allows for the detention of a person without a formal charge and without trial.

- It can be slapped on a person already in police custody; on someone immediately after being granted bail by a court.
- Unlike in normal circumstances, a person who is detained under the PSA need not be produced before a magistrate within 24 hours of the detention.

##### ○ No Right to File Bail Application:

- The detained person does not have the right to move a bail application before the court, and cannot engage any lawyer to represent him or her before the detaining authority.

##### ○ Section 8 of the PSA:

- It provides a **vast number of reasons for detention**, ranging from "promoting, propagating, or attempting to create, feelings of enmity or hatred or disharmony on grounds of religion, race, caste, community, or region" to incitement, instigation, abetment and actual commission of such acts.
- It **leaves it to district collectors or district magistrates** to decide, giving a 12-day period within which an advisory board has to approve the detention.

##### ○ No Distinction Between Minor and Major Offences:

- It allows detention for up to 1 year for disturbance of public order and 2 years for actions prejudicial to the security of the State.

#### ➤ Supreme Court on Public Safety Act:

- The **Supreme Court** (SC) has held that while detaining a person under the PSA, the **DM has a legal obligation to analyse all the circumstances** before depriving that person of his/her personal liberty.
- It has also held that when a person already under police custody is slapped with the PSA, the **DM has to record "compelling reasons"** for detaining that person.
- While the DM can detain a person multiple times under the PSA, he or she has to **produce fresh facts** while passing the subsequent detention order.
- Also, all the **material** on the basis of which the detention order has been passed, **should be provided to the detained person** for making an effective representation.

Note:



- The **grounds of detention** have to explain and communicate to the person **in the language understood by the detained person**.

### Habeas Corpus

- It is a Latin term which literally means **'to have the body of'**. This writ is a **bulwark of individual liberty** against arbitrary detention.
- It can be issued against **both public authorities as well as private individuals**.
- The writ, on the other hand, is **not issued where the:**
  - detention is lawful,
  - the proceeding is for contempt of a legislature or a court,
  - detention is by a competent court, and
  - detention is outside the jurisdiction of the court.

## Ayushman Bharat Health Infrastructure Mission

### Why in News

Recently, the Prime Minister launched the **Ayushman Bharat Health Infrastructure Mission**.

### Key Points

- **About:**
  - It is one of the **largest pan-India schemes for strengthening healthcare infrastructure** across the country.
    - It is **in addition to the National Health Mission**.
  - It will provide **support to 17,788 rural Health and Wellness Centres in 10 'high focus' states** and **establish 11,024 urban Health and Wellness Centres** across the country.
  - Through this, **critical care services will be available in all the districts of the country with more than five lakh population** through exclusive critical care hospital blocks, while the **remaining districts will be covered through referral services**.
  - Under the scheme, a **national institution for one health**, four new national institutes for virology, a **regional research platform for WHO (World Health Organization) South East Asia Region**, nine **biosafety level-III laboratories**, and five new **regional national centres for disease control** will be set up.

### Objectives:

- To **ensure a robust public health infrastructure in both urban and rural areas**, capable of responding to public health emergencies or disease outbreaks.
- To **establish an IT-enabled disease surveillance system** through a network of surveillance laboratories at block, district, regional and national levels.
  - All the public health labs will be connected through the **Integrated Health Information Portal**, which will be expanded to all states and UTs.

### Significance:

- India has long been **in need of an extensive healthcare system**. A study ('State of Democracy in South Asia (SDSA)–Round 3') by Lokniti-CSDS in 2019 highlighted how access to public health care remained elusive to those living on the margins.
    - The study found that 70% of the locations have public healthcare services. However, availability was less in rural areas (65%) compared to urban areas (87%).
  - Schemes like **Swachh Bharat Mission, Jal Jeevan Mission, Ujjwala, Poshan Abhiyan, Mission Indradhanush** have saved crores of people from disease. More than 2 crore poor people got free treatment under **Ayushman Bharat Yojana** and many health related issues are being solved through **Ayushman Bharat Digital Mission**.
- ### Other Related Initiatives:
- **PM Atmanirbhar Swasth Bharat Scheme**.
  - **Pradhan Mantri Swasthya Suraksha Yojana**.
  - **Jan Aushadhi Yojana**.

## Indian Telegraph Right of Way (Amendment) Rules, 2021

### Why in News

- Recently, the Central Government has notified the **Indian Telegraph Right of Way (Amendment) Rules, 2021**.
- The rule aims to incorporate the provisions related to **nominal one-time compensation and uniform procedure for establishment of Overground Telegraph Line** in the Indian Telegraph Right of Way Rules, 2016.

Note:

### Key Points

#### ➤ About:

- **Compensation:** The amount of one-time compensation for establishment of an overground telegraph line will be a **maximum one thousand rupees per kilometre**.
- **Right of Way (RoW):** These amendments will ease RoW related permission procedures for establishment and augmentation of digital communications infrastructure across the country.
  - Earlier, the RoW Rules had covered only underground Optical Fibre Cable (OFC) and mobile towers.
- **Fees:** There will be **no fee other than Administrative fee and Restoration charges** for establishing,

maintaining, transferring or shifting the underground and overground telegraph infrastructure.

#### ➤ Significance:

- The **digital divide** between **rural-urban** and **rich-poor** will be bridged, in line with the **Digital India mission** and **BharatNet project**.
- **E-governance** and financial inclusion will be strengthened.
- **Doing business** will be easy.
- **Information and communication needs** of citizens and enterprises will be fulfilled (including **5G**).
- The dream of India's transition to a **digitally empowered economy** and society will be translated into reality.



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Note:



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# Economic Scenario

## Highlights

- Shortage of Di-Ammonium Phosphate
- Tea Exports Decline
- Green Day-Ahead Market
- Liberal Regime for Insurance Businesses in GIFT City: IFSCA
- Global Agricultural Productivity Report (GAP Report)
- G7 Digital Trade Principles
- Price Stabilisation Fund (PSF)
- World Energy Outlook Report 2021: IEA
- Economic Slowdown in China
- High Crude Oil Prices

## Shortage of Di-Ammonium Phosphate

### Why in News

Farmers from several states including **Rajasthan, Punjab, Haryana and Karnataka** are facing a severe shortage of fertilizers mainly of **Di-ammonium Phosphate (DAP)** ahead of the **Rabi season**.

- Earlier, the government had increased the subsidy to 140% on **Di-Ammonium Phosphate (DAP)** fertiliser.

### Key Points

- **About DAP:**
  - DAP is the **second most commonly used fertiliser in India** after urea.
  - Farmers normally **apply this fertiliser just before or at the beginning of sowing**, as it is high in phosphorus (P) that stimulates root development.
  - DAP (**46% P, 18% Nitrogen**) is the preferred source of Phosphorus for farmers.
    - This is **similar to urea**, which is their preferred nitrogenous fertiliser containing 46% N.
- **Cause of Shortage:**
  - **Disruption in the Global Supply:**
    - Because of disruption in the global supply and logistic chain caused by the **pandemic**. This has also led to a rise in fertiliser prices globally.

- The increase in global prices has **resulted in India lowering its imports**, leading to further depletion of fertiliser stocks in the country.

### ○ Increased Prices of Raw Materials:

- Given **spiraling global prices — of fertilisers as well as inputs** such as phosphoric acid, ammonia and sulphur — imports were viable only if companies could pass these on to farmers here.

### ○ Fixed Subsidies to Companies:

- The Centre gives fixed **subsidies** to the fertilizer companies which feel that it is **not sufficient**.
- So, they have scaled down the DAP production that hit the supplies.

### ➤ Implication of Shortage:

- It can **hamper the sowing of rabi crops** in states that are largely dependent on soil moisture and water availability in reservoirs.
- Non-availability of the nutrient inadequate quantity during the sowing season may also **impact the production target**, which is likely to be missed.

## STATUS OF KEY RABI FERTILISERS

UREA (IN LAKH METRIC TONNES OR LMT)						
State	Total requirement till March 31, 2022	Requirement from October 1 to 19	Supply from October 1 to 19	Sale from October 1 to 19	Remaining requirement from Oct 1 to 19 to March 31, 2022	Stock availability as on October 19
Punjab	14.50	2.146	4.167	0.62	13.88	3.45
Haryana	11	1.226	2.344	0.56	10.44	1.76
DAP (IN LAKH METRIC TONNES OR LMT)						
Punjab	5.50	1.69	1.72	0.54	4.96	1.135
Haryana	3	0.67	1.07	0.77	2.23	0.29

Note:



## Tea Exports Decline

### Why in News

Recently, the exports of **tea from India registered a decline** of around 14.4% in the first seven months (January-July) of 2021 as compared to the same period in 2020.

### Key Points

- **About:**
  - Total exports during January to July of 2021 was 100.78 million kilograms as against 117.56 million kilograms in the same period of 2020.
  - The **CIS (Commonwealth of Independent States) block remained the largest importer** of tea at 24.14 million kilograms, down from 30.53 million kilograms in the previous similar period.
    - The only exceptions are **USA and UAE where exports registered an increase** this period of 2021.
- **Reasons of Decline:**
  - **US Sanctions on Iran:**
    - Exports to Iran, which was once a big buyer of Indian tea, was lower due to the **sanctions by the U.S.**
  - **Non-Availability of Containers:**
    - The other prime reason is **non-availability of shipping containers** which have become very expensive during the **Covid** times.
  - **Availability of Low-Cost Varieties:**
    - Due to the availability of low-cost varieties in the global market **and amid trade restrictions in countries** that have traditionally been strong importers.
  - **Low Prices of Other Tea:**
    - Indian exports have suffered in the last two-three years due to very **low prices of Kenyan and Sri Lankan tea.**
    - Kenyan tea auction price average is much less than the Indian auction average.
  - **Domestic Consumption:**
    - About **80% of it produced in India is sold for domestic consumption**, as per a 2018 'Executive Summary of Study on Domestic Consumption of Tea' published by the Tea Board.

### ○ Stopping Exports to Pakistan:

- Exports to Pakistan, a major market for Indian tea, have also stopped since the last three years following escalation of tension between the two countries.

### ○ Pandemic-Induced Economy:

- The **coronavirus**-induced economy has resulted in several commodities' **low production and imbalance mechanisms** of the Indian economy. This has impacted exports of India's tea along with other significant reasons.

### Tea

#### ➤ About:

- Tea is a **beverage made from the Camellia sinensis plant**. It is the world's **most consumed drink**, after water.

#### ➤ Origin:

- It is believed that **tea originated in northeast India, north Myanmar and southwest China**, but the exact place where the plant first grew is not known. There is evidence that tea was consumed in **China 5,000 years ago**.

#### ➤ Conditions of Growth:

- **Climate:** Tea is a tropical and sub-tropical plant and **grows well in hot and humid climates**.
- **Temperature:** The ideal temperature for its growth is **20°-30°C and temperatures above 35°C and below 10°C are harmful** for the bush.
- **Rainfall:** It requires 150-300 cm annual rainfall which should be well distributed throughout the year.
- **Soil:** The most suitable soil for tea cultivation is **slightly acidic soil (without calcium) with porous sub-soil** which permits a free percolation of water.

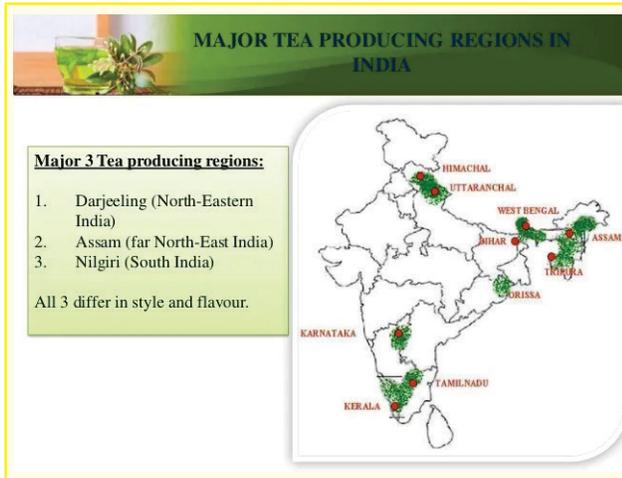
#### ➤ India and Tea Production

- The **largest consumer** of tea in the world.
- The **second largest producer** of tea in the world.
  - **China** is the largest producer.
- The **fourth largest exporter** of tea in the world.

#### ➤ International Tea Day:

- It is **observed on 21<sup>st</sup> May** every year after it was designated by the **United Nations General Assembly** in December 2019.

Note:



## Green Day-Ahead Market

### Why in News

Recently, the **Union Minister of Power & New and Renewable Energy** has launched the new market segment, **Green Day Ahead Market (GDAM)** at the **Indian Energy Exchange**.

- **India is the only large electricity market** in the world to implement a **Green Day Ahead Market (GDAM)** exclusively for renewable energy.

### Indian Energy Exchange

- **Indian Energy Exchange** is the **first and largest energy exchange in India providing a nationwide, automated trading platform** for physical delivery of electricity, **Renewable Energy Certificates** and **Energy Saving Certificates**.

### Day-Ahead Market (DAM)

- It is a **physical electricity trading market** for deliveries for any/some/all 15 minute time blocks in **24 hours of the next day starting from midnight**.

### Term-Ahead Market (TAM)

- The contracts under TAM cover a **range for buying/selling electricity** for duration **up to 11 days**.
- It enables participants to purchase electricity for the same day through intra-day contracts, for the next day through day-ahead contingency, on a daily basis for **rolling seven days through daily contracts**.

### Key Points

- **About:**

- It is a **marketplace for trading renewable power** on a day-ahead basis.
- **National Load Despatch Center (NLDC)**, Power System Operation Corporation Limited (POSOCO) as the **nodal agency** has set up the requisite technologies and infrastructure for the launch of the GDAM.
- With GDAM, any renewable energy generating company **can set up and sell renewable energy on the exchange**.

### ➤ Working of the GDAM:

- It will operate in an **integrated way** with the **conventional day-ahead market**.
  - The Exchanges will **offer the market participants to submit bids together** for both conventional and renewable energy through the separate bidding windows.
- This **mechanism will allow renewable energy sellers** to subsequently bid in the conventional segment should their bids remain uncleared in the green market.
- There will be **separate price discoveries** for both the conventional and renewables.

### ➤ Expected Benefits:

- **Deepen Green Market:**
  - It will **deepen the green market and will provide competitive price signals**, besides offering an opportunity to the market participants to trade in **green energy**, in the most transparent, flexible, competitive, and efficient manner.
- **Accelerate the Renewable Capacity Addition:**
  - It will **provide another option to renewable generators** to sell power as well as accelerate the renewable capacity addition towards India's vision as a sustainable and efficient energy economy.
  - The distribution utilities would also be **able to sell surplus renewable power generated in their area**.
- **Shift from PPA based Contract to Market-Based Models:**
  - It will create a **domino effect that will lead to a gradual shift from Power Purchase Agreements (PPAs) based contracts to market-based models**.
    - It will build and deepen the markets to the next level, paving the way for India to

Note:

meet its ambitious target of **450 GW green capacity by 2030**.

- **Reduction of Curtailment of Green Power:**
  - It would **reduce the curtailment of green power**, unlock untapped renewable energy potential, ensure instant payment to **Renewable Energy** generators i.e. on the day of delivery itself.
- **Renewable Energy in India:**
  - India is the **world's third largest consumer of electricity** and the **world's third largest renewable energy producer** with 38% (136 GW out of 373 GW) of total installed energy capacity in 2020 from renewable sources.
  - In 2016 under the **Paris agreement**, India made the commitment of producing 450 GW, or 40% of its total electricity, from non-fossil fuel sources by 2030.
    - The GDAM comes at a time when the **country is facing a shortage of coal**.
    - The country **needs to decrease its dependence** on imported sources of fossil fuel.
- **Related Initiatives:**
  - **National Solar Mission (NSM)**
  - **National Biofuels Policy and SATAT**
  - **Small Hydro Power (SHP)**
  - **National Hydrogen Energy Mission (NHEM)**
  - **Production-Linked Incentive (PLI) Scheme**
  - **National Biofuels Policy and SAYAY**

## **Liberal Regime for Insurance Businesses in GIFT City: IFSCA**

### **Why in News**

Recently, the **International Financial Services Centre Authority (IFSCA)** announced a new liberal regulatory regime for facilitating formation of various international and Indian insurance businesses in the **Gujarat International Finance Tec-City (GIFT City)**.

- The regulations for setting up **International Financial Services Centre (IFSC) Insurance Offices (IIOs)** and **IFSC Insurance Intermediaries Offices (IIIOs)** were notified by the IFSCA earlier, in October 2021.

### **Key Points**

- **About:**
  - **Entities that can set Insurance Businesses:**
    - Even **non-insurance entities can incorporate public companies in IFSC** and undertake insurance or reinsurance business.
      - **Insurance** is a means of protection from financial loss. It is a form of risk management, primarily used to hedge against the risk of a contingent or uncertain loss.
      - **Reinsurance** is the practice whereby insurers transfer portions of their risk portfolios to other parties by some form of agreement to reduce the likelihood of paying a large obligation resulting from an insurance claim.
    - Similarly, **Indian insurance companies can set up subsidiaries** to undertake insurance or reinsurance business as IIO.
    - Foreign intermediaries will also be allowed to set up IIOs alongside **IRDAI (Insurance Regulatory and Development Authority of India)** registered intermediaries like insurance brokers and corporate agents.
  - **Paid Up Capital Requirement:**
    - In the case of a branch, a player doesn't have to bring in any capital and with regard to subsidiaries, **new insurance or reinsurance companies will require a paid-up capital (as per Insurance Act, 1938)** of Rs 100 crore for insurance and Rs 200 crore for reinsurance.
    - The new rules specify that **no local\domestic capital will be required for foreign insurers** or foreign reinsurers setting up IIOs as branches. The assigned capital of USD 1.5 million can be maintained in home jurisdictions.
    - Further, there's no local\domestic solvency (ability to pay one's debts) requirement for IIO in the IFSC.
      - The assigned capital solvency margin will have to be maintained in the home jurisdiction.
      - A **solvency capital requirement** is the total amount of funds that insurance and reinsurance companies are required to hold.
- **Significance:**
  - The new regulations have the **potential of unlocking opportunities for global insurers and reinsurers**.

Note:



- The regulatory framework is **very friendly and addresses the aspirations and expectations of the players.**
- The new facilities **will help India to develop a global reinsurance hub** in the country, competing with offshore financial centres like Singapore, Dubai and Hong Kong, which currently dominate the insurance business in Asia.

#### International Financial Services Centres Authority

##### ➤ Establishment:

- It was **established in April 2020 under the International Financial Services Centres Authority Act, 2019.**
  - It is headquartered at GIFT City, Gandhinagar in Gujarat.

##### ➤ Functions:

- The Authority shall **regulate all such financial services, financial products and Financial Institutions in an IFSC.** It may also recommend to the Central Government such other financial products, financial services and financial institutions which may be permitted in the IFSCs.

##### ➤ Powers:

- All powers exercisable by the respective financial sector regulatory (viz. **Reserve Bank of India, Securities and Exchange Board of India, IRDAI, and Pension Fund and Regulatory Development Authority** etc.) under the respective Acts shall be solely exercised by the Authority in the IFSCs in so far as the regulation of financial products, financial services and FIs that are permitted in the IFSC are concerned.

##### ➤ Processes and Procedures:

- The processes and procedures to be followed by the Authority shall be governed **in accordance with the provisions of the respective Acts of Parliament** of India applicable to such financial products, services or institutions, as the case may be.

##### ➤ Grants by the Central Govt.:

- The Central Govt. may, after due appropriation made by Parliament by law on this behalf, make to the Authority grants of such sums of money as the Central Government may think fit for being utilized for the purposes of the Authority.

##### ➤ Transactions in Foreign Currency:

- The **transactions** of financial services in the IFSCs **shall be done in the foreign currency** as specified by the Authority in consultation with the Central Govt.

#### International Financial Services Centre

- An IFSC **enables bringing back the financial services and transactions that are currently carried out in offshore financial centres** by Indian corporate entities and overseas branches/subsidiaries of Financial Institutions (such as banks, insurance companies, etc.) to India.
  - It **offers a business and regulatory environment that is comparable to other leading international financial centres** in the world like London and Singapore.
- IFSCs **are intended to provide Indian corporates with easier access to global financial markets**, and to complement and promote further development of financial markets in India.

## Global Agricultural Productivity Report (GAP Report)

### Why in News

According to a new report, **Global agricultural productivity is not growing as fast as the demand for food**, amid the **impact of climate change.**

- The report was released in conjunction with the **World Food Prize** Foundation's annual conference.

### Key Points

#### ➤ Findings of the Report:

- **TFP Growth:**
  - **Total Factor Productivity (TFP) is growing at an annual rate of 1.36% (2020-2019).**
    - This is **below the Global Agricultural Productivity Index** that has **set an annual target of 1.73% growth** to sustainably meet the needs of consumers for food and bioenergy in 2050.
- **Factors Responsible for Low TFP Growth:**
  - **TFP growth is influenced by** climate change, weather events, changes in fiscal policy, market conditions, investments in infrastructure and agricultural research and development.

Note:

### Difference between TFP and Yield

#### ➤ Yield:

- Yield measures output per unit of a single input, for example, the amount of crops harvested on a hectare of land. Yields can increase through productivity growth, but they can also increase by applying more inputs, called **input intensification**. Therefore, an increase in yield **may or may not represent improvements in sustainability**.

#### ➤ TFP:

- Total factor productivity captures the interaction between multiple agricultural inputs and outputs.
- TFP growth indicates that more farmers generate more crops, livestock, and aquaculture products with the same amount or less land, labor, fertilizer, feed, machinery, and livestock. As a result, TFP is a powerful metric for evaluating and monitoring the sustainability of agricultural systems.

#### ○ Situation in Different Regions:

- **Drier Regions** (Africa and Latin America): Climate change has **slowed productivity growth by as much as 34%**.
- **High-Income Countries** (in North America and Europe): **Modest TFP** growth.
- **Middle Income Countries** (India, China, Brazil and erstwhile Soviet republics): **Strong TFP** growth rates.
- **Low-Income Countries** (Sub-Saharan Africa): TFP is **contracting by an average of 0.31% per year**.

#### ➤ Significance of Productivity Growth:

- **Destruction of Forest Areas:** 36% of the world's land is used for agriculture. Forests and biodiverse areas will be destroyed for planting or pasture.
- **Diet-Related Diseases:** **USD 2T in economic losses and 4 million deaths** are attributed to diet-related diseases each year.
- **Soil Degradation:** 90% of the earth's soils could be degraded by erosion by 2050.
- **Methane Emissions:** 37% of methane emissions from humans influenced activity come from cattle and other ruminants.
- **Loss of Irrigation Water:** 40% of irrigation water is lost due to inefficient irrigation.
  - Water sources will be depleted, making prime agricultural land unusable.

#### ➤ Suggestions:

- Invest in agricultural research and development
- Embrace science-and-information-based technologies
- Improve infrastructure for transportation, information and finance
- Cultivate partnerships for sustainable agriculture, economic growth and improved nutrition
- Expand and improve local, regional and global trade
- Reduce post-harvest loss and food waste

### Indian Scenario

#### ➤ About:

##### ○ Strong TFP Growth:

- India has seen strong TFP and output growth this century.
- The most recent data shows an **average annual TFP growth rate of 2.81%** and output growth of 3.17% (2010–2019.)

##### ○ Impact of Climate Change:

- By the end of the century, the **mean summer temperature** in India **could increase by five degrees Celsius**.
- This rapidly rising temperature, combined with changes in rainfall patterns, could **cut yields for India's major food crops by 10% by 2035**.

##### ○ Other Challenges:

- In addition to the challenges for environmental sustainability, India's small-scale farmers **face significant obstacles to economic and social sustainability**.
- Of the 147 million landholdings in India, **100 million are less than two hectares in size**. Nearly 90% of farmers farming less than two hectares participate in a government food ration program.

#### ➤ Initiatives Taken:

- **Soil Health Card Scheme:** To create awareness for farmers about the appropriate amount of nutrients for the crop depending on the quality and strength of the soil.
- **National Mission for Sustainable Agriculture (NMSA):** It is envisaged as one of the eight Missions outlined under **National Action Plan on Climate Change (NAPCC)**, which is aimed at promoting Sustainable Agriculture through climate change adaptation measures.

Note:



- **Pradhan Mantri Krishi Sinchai Yojana (PMKSY):** It was launched during the year 2015-16 with the motto of 'Har Khet Ko Paani' for providing end-to-end solutions in irrigation supply chain, viz. water sources, distribution network and farm level applications.

## G7 Digital Trade Principles

### Why in News

Recently, the **Group of Seven (G7)** wealthy nations agreed on a **joint set of principles to govern cross-border data use and digital trade**.

- The deal is a **first step in reducing trade barriers**, and could lead to a common rulebook of **digital trade**.
- Earlier, **India attended the 47<sup>th</sup> G7 Summit as a guest country**.



### Key Points

- **Digital Trade:** It is broadly defined as **trade in goods and services that is either enabled or delivered digitally**, encompassing activities from the distribution of films and TV to professional services.
- **G7 Digital Trade Principles:**
  - **Open Digital Markets:** Digital and telecommunications markets should be competitive, transparent, fair, and accessible to international trade and investment.
  - **Cross Border Data Flows:** To harness the opportunities of the digital economy and support the trade of goods and services, data should be able to flow freely across borders with trust, including the trust of individuals and businesses.
  - **Safeguards for Workers, Consumers, and Businesses:** Labour protections must be in place for workers who are directly engaged in or support digital trade, providing decent conditions of work.

- **Digital Trading Systems:** To cut red tape and enable more businesses to trade, governments and industry should drive forward the digitisation of trade-related documents.

- **Fair and Inclusive Global Governance:** Common rules for digital trade should be agreed and upheld at the **World Trade Organization (WTO)**.

- These rules should benefit workers, consumers, and businesses in developing economies, as well as those in developed economies, while safeguarding each country's right to regulate for legitimate public policy objectives.

### ➤ Significance:

- **Middle Ground:** The deal sets out a middle ground between highly regulated data protection regimes used in **European countries** and the more open approach of the **United States**.

- The deal envisages removing unjustified obstacles to cross-border data flows, while continuing to address privacy, data protection, the protection of **intellectual property rights**, and security.

- **Liberalise Digital Trade:** The agreement reached by the elite global group is considered to be significant as **it could liberalise hundreds of billions of dollars of digital trade**.

- Enabling cross border data flows and clarifying the framework for processing and storing data will be required to further expand the contribution of digital exports.

### ➤ Associated Concerns:

- The G7 countries have **raised concerns about situations where data localisation requirements are being used for protectionist and discriminatory purposes**.

- The statement assumes significance as **India has been contemplating measures for data localisation**.

- Recently, India has scored **90.32% in UNESCAP Global Survey on Digital and Sustainable Trade Facilitation**.

- In **2018**, the **economic value of digital trade-enabled benefits to the Indian economy** is estimated to be worth up to **USD 35 billion**.

### Data Localisation

- **About:** Data localisation is the **practice of storing data on any device that is physically present within the borders of the country** where the data is generated.

Note:

As of now, most of this data is stored, in a cloud, outside India.

- Localisation mandates that companies collecting critical data about consumers must store and process them within the borders of the country.
- **Advantages of Data Localisation:**
  - **Secures citizen's data and provides data privacy and data sovereignty** from foreign surveillance. Example - Facebook shared user data with Cambridge Analytica to influence voting.
  - Unfettered supervisory access to data **will help Indian law enforcement ensure better monitoring.**
- **Disadvantages of Data Localisation:**
  - Maintaining multiple local data centres may lead to **significant investments** in infrastructure and higher costs for global companies.
  - **Splinternet or 'fractured internet'** where the domino effect of protectionist policy can lead to other countries following suit.
- **Indian Scenario:**
  - Recently, the **Reserve Bank of India (RBI) barred three foreign card payment network firms** from taking new customers on board **over the issue of storing data in India.**
  - India is contemplating an umbrella legislation on data protection, the **Personal Data Protection Bill, 2019.**
  - As per the bill, the Central Government shall notify categories of personal data as **critical personal data** that shall **only be processed in a server or data centre located in India.**
  - The **Justice BN Srikrishna committee** has recommended setting up of a data protection authority and placing restrictions on cross-border data flows.
  - India is also opposed to joining any global deal on e-commerce with the Prime Minister **refusing to sign the Osaka Track**, an overarching framework promoting cross-border data flow, at the recently held **G-20 summit.**

## Price Stabilisation Fund (PSF)

### Why in News

Recently, the government has said that **prices of onion, tomato and potato are cheaper than last year (i.e 2020).**

- Onion buffer has been maintained by the **Department of Consumer Affairs** under the **Price Stabilization Fund (PSF)** with the objective of effective market intervention to moderate prices.

### Key Points

- **About PSF:**
  - **Established in 2014-15**, PSF is any fund created to **absorb extreme volatility in selected commodity prices.**
  - Such goods will be procured **directly from farmers or farmers' organisations** at the farm gate/mandi, and made available to consumers at a more affordable price.
  - **Losses sustained, if any, between the Centre and the states must be shared** in the operations.
  - The sum in the fund is **usually used for** activities aimed at bringing down/up the high/low prices say, for example, acquisition of certain goods and distribution of the same as and when appropriate so that costs remain within a range.
- **Provides Loans:**
  - The PSF scheme **provides for the advancement of interest-free loans to State Governments/Union Territories (UTs) and Central Agencies** to finance their working capital and other expenses, which they may incur in the procurement and distribution of such commodities.
  - The PSF scheme was **transferred from the Ministry of Agriculture & Farmers' Welfare to the Ministry of Consumer Affairs, Food & Public Distribution** w.e.f. 1<sup>st</sup> April, 2016.
- **Fund Management:**
  - It is centrally managed by a **Price Stabilisation Fund Management Committee (PSFMC)** that approves all State Government's and Central Agencies' proposals.
- **Maintaining the Corpus Fund:**
  - **Small Farmers Agribusiness Consortium (SFAC)**, a society promoted by the Ministry of Agriculture and Farmers' Welfare for linking agriculture to private enterprises, investment, and technology, maintains the PSF as a central corpus fund.
- **Related Scheme:**
  - Launched in 2018 by the **Ministry of Food Processing Industries, Operation Green (OG)** aims to **build value chains of Tomatoes, Onions, and Potatoes**

Note:

(TOP) on the lines of “Operation Flood” (AMUL model) for milk in such a way that will ensure a higher share of consumer’s rupee goes to farmers and stabilizes their prices.

- While presenting the **Union budget 2021**, the government announced that **Operation Green (OG)** will be expanded beyond TOP to 22 perishable commodities.

## World Energy Outlook Report 2021: IEA

### Why in News

Recently, the **International Energy Agency (IEA)** released the **World Energy Outlook (WEO) Report 2021**.

- **Published every year**, the WEO provides critical analysis and insights on trends in energy demand and supply.
- The 2021 report signaled pressure on governments **to push for greater climate action at the Conference of Parties (COP26) summit** (in Glasgow, UK).
- Earlier, IEA also released its **Net Zero Emissions (NZE) Roadmap** - named ‘**Net Zero by 2050**’.

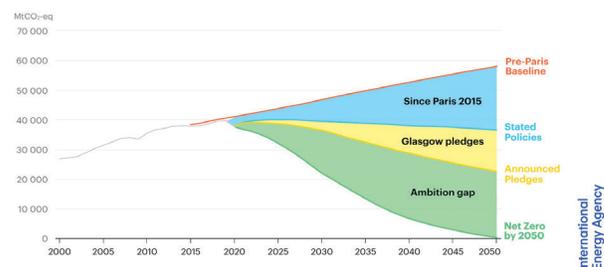
### Key Points

- **Increase Share of Renewables:**
  - **Renewable energy sources**, such as solar, wind, hydropower and bioenergy, need to **form a far bigger share** in the rebound in energy investment after the coronavirus pandemic.
  - World is **not investing enough to meet future energy needs**, and the uncertainties are setting the stage for a volatile period ahead.
  - Demand for renewables continues to grow. However, this **clean energy progress is still far too slow to put global emissions into sustained decline towards net zero by 2050**, which the IEA believes will help limit the increase in global temperatures to 1.5 degrees Celsius.
  - **Initially IEA supported continued investment in fossil fuels**. However it has gradually **moved toward a “more distinct tone urging decision makers to mitigate climate change”**.
- **Emission Reduction Measures:**
  - The extra investment might not be as difficult as it sounds. **More than 40% of the required emissions**

**reductions would come from measures that pay for themselves**, such as:

- Improving efficiency, limiting gas leakage, or installing wind or solar in places where they are now the most competitive electricity generation technologies.
- **Different Scenarios:** The IEA analyzed two possible scenarios:
  - **Stated Policies Scenario (STEPS):**
    - This looks at the **measures and policies that governments have already put in place**. Despite the measures, annual worldwide emissions would still be the same as developing countries build up their infrastructure.
    - Under this scenario, **temperatures in the year 2100 would be 2.6 C higher** than pre industrial levels.
  - **Pledge for Net Zero:**
    - This looks at **governments’ pledges to achieve net-zero emissions**, potentially doubling clean energy investment over the next decade.
    - If countries manage to implement these pledges in time, the global average **temperature increase would be around 2.1 C by the year 2100** — an improvement, but still well above the 1.5 Celsius agreed under the **Paris accord**.

Global CO<sub>2</sub> emissions by scenarios, 2000-2050  
World Energy Outlook 2021



### Major Suggestions:

- **Clean Electrification:**
  - This requires a doubling of solar PV and wind deployment relative to the [announced pledges scenarios].
- **Low-Emission Generation:**
  - A major **expansion of other low-emissions generation**, including the use of nuclear power where acceptable; a huge build-out of electricity infrastructure and all forms of system flexibility, including from hydropower; a rapid phase-out

Note:

of coal; and a drive to expand electricity use for transport and heating.

- **Energy Efficiency:**
  - A relentless **focus on energy efficiency**, together with measures to temper energy service demand through materials efficiency and behavioral change.
- **Reduction in Methane Emissions:**
  - A drive to **cut methane emissions from fossil fuel operations** and a big **boost to clean energy innovation**.
- **Decade of Clean Energy:**
  - Making the 2020s the decade of massive clean energy deployment **will require unambiguous direction from COP26**.

### India Specific Findings

- **Population and Gross Domestic Product (GDP) 2020-2050:**
  - India will become the **most populous nation** surpassing China's population this decade, and by 2050 India crosses 1.6 billion in population whereas China's population is projected to decrease.
  - India's **GDP** will be growing faster than China on average over the next three decades [5.3% vs China's 3.6%].
- **Coal Production:**
  - In India, over 50 GW of **Financially Stressed Coal Assets (NPA's)** has created strains in the banking system.
  - Coal demand in India is **expected to grow by around 30% by 2030**.
  - As per their announced pledges, after China, **India is projected to be the next largest user of unabated coal**, responsible for about 15% of global use for electricity generation in 2030.
- **Air Pollution:**
  - A failure to accelerate clean energy transitions would continue to leave people exposed to air pollution globally.
  - Recently 1.67 million premature deaths in India were linked to air pollution, that's more than three deaths every minute.
- **Appreciated India's Efforts:**
  - Notable examples of developing economies mobilising capital for clean energy projects, such

as **India's success in financing a rapid expansion of solar photovoltaics (pv)** in pursuit of its **450 GW** target for renewables by 2030.

- Recent survey data from the **World Health Organization** for India revised the historic clean cooking access rates.
  - This is due to faster progress than previously assumed, in large part due to the **Pradhan Mantri Ujjwala Yojana** LPG distribution scheme.
- **Recommendation:**
  - Calls for India to **mandate a default set point temperature of 24 degrees Celsius for all room air conditioners** and **tighter minimum performance standards** with the aim to improve efficiencies as the demand for cooling and power increases.

## Economic Slowdown in China

### Why in News

Recently, **China's National Bureau of Statistics** has reported that third-quarter **Gross Domestic Product (GDP) growth** has **slowed to 4.9%**.

- There are concerns that a slowing Chinese economy could **impact the incipient global recovery and regional economies like India as well**.

### Key Points

- **Reasons for Slowdown in Growth:**
  - **Base Effect:** China did well in **reviving economic growth after the Covid-19 pandemic**. Therefore, the **reference point of higher levels of growth rate** in the previous quarter is resulting in a lower growth rate.
    - China is going through a **'mature' stage of economic development** i.e. an economy which has witnessed a double digit growth for two decades is bound to face a slowdown.
    - The **base effect** refers to the effect that the choice of a basis of comparison or reference can have on the result of the comparison between data points.
  - **Fuel/ Power Crisis:** A **surge in coal prices** and a **resultant electricity shortage** prompted provincial governments to cut power supplies.
    - This fuel/power crisis in China continues to affect factories and units across the country's

Note:



industrial heartland in its south east have had to curtail output.

- **Turmoil in the Real Estate Sector:** The Real Estate Sector which accounts for about a quarter of China's GDP, is now beginning to show signs of perceptible slowdown.
  - The reason for this slowdown can be primarily attributed to the **Evergrande fiasco**.
  - Evergrande Group is a real estate giant in China, which is struggling to avoid defaulting on billions of dollars owed to bond holders.

#### About Evergrande Crisis

- The real estate sector, **led by Evergrande**, was the **main driver of the post-pandemic Chinese economic recovery**.
  - However, **progressive slowing down of China's property market and reduced demand for new houses** adversely impacted its cash flows.
- This has led to a condition where **nearly three quarters of the country's household** wealth is locked up in housing.
- Any collapse at the biggest real estate company could have a serious knock-on effect on the entire economy, and potentially setting off a **cascading impact on the global commodities and financial markets**.
- However, several economists say the threat to global financial markets is small.

#### ➤ Impact on Global Economy:

- **Impending Global Recovery:** China's control of pandemic and restarting its industries has played an instrumental role in the post-pandemic global economic recovery.
  - The Chinese economy falling into systemic risks could lead to overall **loss of momentum to the global post-pandemic economic recovery**.
  - **Impact of Trade War: US-China trade war**, has resulted in slowdown in Chinese exports resulting in **losses for the countries** (especially South Asian Countries) **that depend on China for 'Supply Value Chain'** for producing components and other finished goods.

#### ➤ Impact on India:

- **Imports:** India's **bilateral trade** with China has grown nearly 50% in the first nine months of 2021.

- Further, India depends majorly on imports from China including smartphones and automobile components, telecom equipment, **active pharmaceutical ingredients**, and other chemicals.

- Thus, slowing the Indian economy will have an impact on India's consumer market and infrastructure development.

- **Exports:** Further, India's buoyant iron ore exports, much of which is headed to China, could also see an impact if the twin crises in China triggers an extended slowdown in the Chinese real estate market.

- **Investments:** Slowing Chinese economy can trigger an investment outflow from India. If India can expedite the economic reforms, it can become the next global manufacturing hub.

#### Recent Economic Reforms in India:

- **PM Gati Shakti Scheme**
- **National Monetisation Pipeline**
- **Labour Codes**
- **Atma Nirbhar Bharat Scheme**

## High Crude Oil Prices

### Why in News

As the global recovery gains strength, the **price of crude oil is nearing its highest level since 2018**.

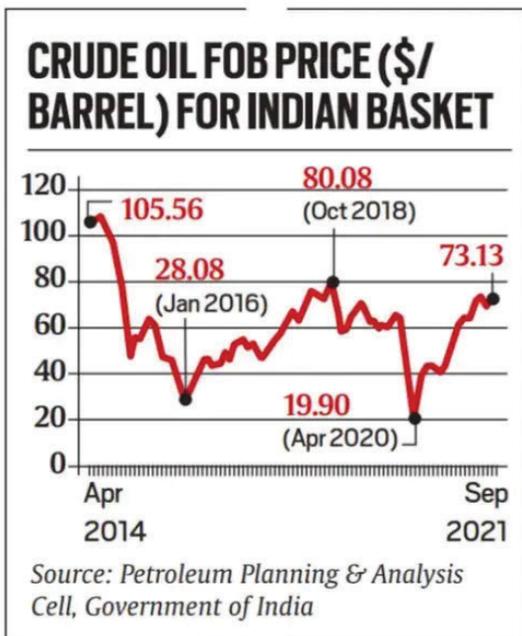
- **Brent crude oil** prices rose to USD 85.89 a barrel, the highest price since October 2018. **US West Texas Intermediate (WTI) crude** prices climbed to USD 83.40 a barrel, highest since October 2014.
- On the other side the **price of natural gas and coal are hitting record highs** amid an **intensifying energy shortage**.

### Key Points

- **Oil Pricing:**
  - Generally, the **Organization of the Petroleum Exporting Countries (OPEC)** used to **work as a cartel** and fix prices in a favourable band.
    - **OPEC is led by Saudi Arabia**, which is the **largest exporter of crude oil in the world** (single-handedly exporting 10% of the global demand).
    - OPEC has a **total of 13 Member Countries** viz. Iran, Iraq, Kuwait, United Arab Emirates (UAE),

Note:

Saudi Arabia, Algeria, Libya, Nigeria, Gabon, Equatorial Guinea, Republic of Congo, Angola, and Venezuela.



- OPEC could bring down prices by increasing oil production and raise prices by cutting production.
- The global oil pricing mainly depends upon the partnership between the global oil exporters instead of a well-functioning competition.
- Cutting oil production or completely shutting down an oil well is a difficult decision, because restarting it is immensely costly and complicated.
  - Moreover, if a country cuts production, it risks losing market share if other countries do not follow the suit.
- Recently, OPEC has been working with Russia, as OPEC+ to fix the global prices and supply.
  - In 2016, OPEC allied with other top non-OPEC oil-exporting nations to form an even more powerful entity named OPEC+ or OPEC Plus.
- **Reasons for High Prices:**
  - **Slow Production:**
    - Key oil producing countries have kept crude oil supplies on a gradually increasing production schedule despite a sharp increase in global crude oil prices.
      - OPEC+ had agreed to sharp cuts in supply in 2020 in response to Covid-19 global travel restrictions in 2020 but the organisation has

been slow to boost production as demand has recovered.

- **Supply Side Issues:**
  - Supply side issues in the US including disruptions caused by hurricane Ida and lower than expected natural gas supplies from Russia amid increasing demand in Europe have raised the prospect of natural gas shortages in the winter.
- **Impact on India:**
  - **Current Account Deficit:**
    - The increase in oil prices will increase the country's import bill, and further disturb its current account deficit (excess of imports of goods and services over exports).

#### Difference between Brent and WTI

- **Origin:**
  - Brent crude oil originates from oil fields in the North Sea between the Shetland Islands and Norway.
  - West Texas Intermediate (WTI) is sourced from US oil fields, primarily in Texas, Louisiana, and North Dakota.
- **Light and Sweet:**
  - Both oils are relatively light, but Brent has a slightly higher API gravity, making WTI the lighter of the two.
    - American Petroleum Institute (API) gravity is an indicator of the density of crude oil or refined products.
  - WTI with a lower sulphur content (0.24%) than Brent (0.37%), is considered "sweeter".
- **Benchmark Prices:**
  - Brent crude price is the international benchmark price used by OPEC while WTI crude price is a benchmark for US oil prices.
    - Since India imports primarily from OPEC countries, Brent is the benchmark for oil prices in India.
- **Cost of Shipping:**
  - Cost of shipping for Brent crude is typically lower, since it is produced near the sea and it can be put on ships immediately.
  - Shipping of WTI is priced higher since it is produced in landlocked areas like Cushing, Oklahoma where the storage facilities are limited.

Note:

- **Inflation:**
    - The increase in crude prices could also further increase **inflationary pressures** that have been building up over the past few months.
  - **Fiscal Health:**
    - If oil prices continue to increase, **the government shall be forced to cut taxes on petroleum and diesel** which may cause loss of revenue and deteriorate its **fiscal balance**.
      - The growth slowdown in the last two years has already resulted in a precarious fiscal situation because of tax revenue shortfalls.
      - The revenue lost will **erode the government's ability to spend or meet its fiscal commitments** in the form of budgetary transfers to states, payment of dues and compensation for revenue shortfalls to state governments
- under the **Goods and Services Tax (GST)** framework.
- **Economic Recovery:**
    - Although the rising prices have impacted the world, **India is particularly at a disadvantage** as any increase in global prices can affect its import bill, stoke inflation and increase its trade deficit, which in turn will **slow its economic recovery**.
      - India and other oil importing nations have called on OPEC+ to **boost oil supply faster**, arguing that elevated crude oil prices could undermine the recovery of the global economy.
  - **Natural Gas Price:**
    - The increase in gas prices has put upward pressure on the price of both **Compressed Natural Gas (CNG)** used as a transport fuel and **Piped Natural Gas (PNG)** used as a cooking fuel.



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Note:



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# International Relations

## Highlights

- Defence Joint Working Group: India-Israel
- Indian Military Dependence on Russian Equipments
- Renegotiation of BTIA: India-EU
- APJ Abdul Kalam
- IEA Invites India to be a Full-Time Member
- FATF Retains Pakistan on Grey List
- China Passes New Border Law
- Declaration for Uighur Muslims
- Black Sea
- Normalizing Saudi-Iran Relations
- Review of IMF Role
- New Quad
- 6<sup>th</sup> Annual Meet: AIIB

## Defence Joint Working Group: India-Israel

### Why in News

Recently, at the 15<sup>th</sup> **Joint Working Group (JWG) meeting on Bilateral Defence Cooperation** between India and Israel, has agreed to form a **Task Force** to formulate a comprehensive **Ten-Year Roadmap** to identify new areas of cooperation.

### Key Points

- The JWG is the **apex body** of the **defence ministries of both the countries** meant to “comprehensively review and guide all aspects of **Bilateral Defence Cooperation**.”
- At the meeting, it was also decided to form a **Sub Working Groups (SWG)** on Defence Industry Cooperation. The formation of this SWG would enable
  - Efficient utilisation of bilateral resources,
  - Effective flow of technologies and sharing industrial capabilities.
- It was also decided to schedule the **Service level Staff talks** in a specific time frame.

### India-Israel Defence Cooperation

- **Background:** The strategic cooperation between the two countries began during the **Sino-India War of 1962**.
  - In **1965**, Israel supplied **M-58 160-mm mortar ammunition** to India in the war against Pakistan.

- It was one of the few countries that chose **not to condemn India's Pokhran nuclear tests in 1998**.
- It **continued its arms trade with India even after the sanctions** and international isolation after the nuclear tests.

- **Respective National Interests:** The strong bilateral ties of India and Israel are driven by their respective national interests.

- India's long-sought goals of military modernisation
- Israel's comparative advantage in commercialising its arms industries.

- **Scope:** The **ambit of defence cooperation has widened to include other domains like space, counter-terrorism, and cyber security and intelligence** sharing besides Israeli arms sales to India.

- **India was the largest arms customer of Israel in 2017** with sales worth 715 million USD.

- According to the **Stockholm International Peace**

**Research Institute (SIPRI) report, Israel is the third largest supplier of defence items to India** after Russia and the USA, the first and second respectively.

- **Defence Technologies Imported by India from Israel:**



Note:



- **Unmanned Aerial Vehicles (UAVs):**
  - **Searcher:** It is a multi-mission tactical **Unmanned Air Vehicle (UAV)** for surveillance, target acquisition, artillery adjustment and damage assessment.
  - **Hermes 900:** In December 2018, Adani Defence and Elbit Systems inaugurated the **first India-Israel joint venture in defence at Hyderabad.**
  - **Heron:** It is a **medium-altitude long-endurance UAV** system primarily designed to perform strategic actions .
- **Air Defence Systems:**
  - **BARAK:** The **surface-to-air missile** can be deployed as a low-range air defence interceptor. In India, the **BARAK** version is known as BARAK-8 (for naval vessels).
- **Missiles:**
  - **Spike:** These are the 4<sup>th</sup> generation **Anti-Tank Missiles** with a range of up to 4km, which can be operated in fire-and-forget mode.
    - These are manufactured by the Rafael Advanced Defence Systems, Israel.
  - **Crystal Maze:** It is an Indian variant of the air-to-surface missile AGM-142A Popeye – jointly developed by the Israeli-based Rafael and US-based Lockheed Martin.
- **Sensors:**
  - **Search Track and Guidance Radar (STGR):** India imported the STGR radar to make INS Kolkata, INS Shivalik and Kamorta-class frigates compatible for deploying BARAK-8 SAM missiles.
  - **Phalcon:** This **Airborne Warning and Control System (AWACS)**, is also hailed as Indian Airforce Force's "**eyes in the skies**".
- **Significance of India-Israel Defence Cooperation:**
  - **Patrolling and Surveillance:** The Israeli imports eases the operational ability of armed forces in wartime.
    - For instance, the missile defence systems, and ammunition played a crucial role in controlling the escalation between India and Pakistan **post-Balakot air strikes.**
  - **Make in India:** The export-oriented Israeli defence industry and its openness to establishing joint ventures complement both '**Make in India**' and '**Make with India**' in defence.

- **Trusted Supplier:** Israel has always been a 'no-questions-asked supplier', i.e., it transfers even its most advanced technology without placing limits to its use.
  - Its credibility was reinforced during the **Kargil War of 1999.**

## Indian Military Dependence on Russian Equipments

### *Why in News*

According to the **Military Balance 2021**, India's present military arsenal is heavily stocked with **Russian-made or Russian-designed equipment.**

- The Military Balance is the **International Institute for Strategic Studies'** (global think tank) **annual assessment** of the military capabilities and defence economics of 171 countries worldwide.

### *Key Points*

- **About the Report:**
  - There has been a considerable drop in India's dependence on arms and equipment from Russia.
    - However, the **Indian military cannot operate effectively without Russian-supplied equipment** and will continue to rely on its weapons systems in the near and middle terms.
  - The report is crucial in the pretext of the **US administration's review of Countering America's Adversaries Through Sanctions Act (CAATSA).**
    - The CAATSA seeks to impose sanctions against the country buying military arms from Russia.
    - India's plan to purchase **Russian-made S-400 air defense systems**, which could trigger **US sanctions under Section 231 of CAATSA.**
- **India-Russia's Military Relations:**
  - **Indian Dependence:** According to **Stockholm International Peace Research Institute (SIPRI)**, since 2010, Russia has been the source of nearly two-thirds (62%) of all Indian arms imports.
    - Further, India has been the largest Russian arms importer, accounting for nearly one-third (32%) of all Russian arms exports.
  - **Favourable Russian Military Exports to India:** Much of Russia's influence in India comes through

Note:

its willingness to provide weapons systems and technologies that no other country will export to India.

- The **US only provides non-lethal defence technology** like **C-130j Super Hercules**, **C-13 Globemaster**, **P-8i Poseidon** etc, while **Russia provides high-end technology** like **Brahmos supersonic missile**, **S-400 anti-missile system**.
- Russia also continues to offer advanced weapons platforms **at relatively attractive rates**.
- **Army Cooperation:** Around 10,000 pieces of military hardware are procured from Russia.
  - The **Indian Army's main battle tank** force is composed predominantly of Russian T-72M1 (66%) and T-90S (30%).
  - India is negotiating on the price of **AK103 rifles** for **Make in India**.
- **Naval Cooperation:** Indian Navy's sole operational aircraft carrier is a refurbished Soviet-era ship (**INS Vikramaditya**). The Navy's fighter fleet comprises **43 MiG-29K**.
  - Four of the Navy's 10 **guided-missile destroyers** are **Russian Kashin class**, and six of its 17 frigates are **Russian Talwar class**.
  - The Navy's sole nuclear-powered submarine is on lease from Russia, and eight of the service's 14 other submarines are **Russian-origin Kilo class**.
- **Air Force Cooperation:** The Indian Air Force's 667-plane FGA (Fighter Ground Attack) fleet is 71% Russian-origin (39% Su-30s (**Sukhoi**), 22% MiG-21s, 9% MiG-29s).



**The Russian Front**  
Russia still remains India's top weapons supplier and this complicates the relationship with the US

**INKED DEALS**

**\$5.4 bn** contract for **S-400 missile system**

**\$3 bn** pact to lease another **nuclear attack submarine**

**\$2 bn** contract to buy **4 frigates**

**IN THE PIPELINE**

**\$1 bn+** deal for **AK-203 assault rifles** to be made in partnership with the Ordnance Factory Board

**\$1 bn** for **Kamov Ka-226 choppers** to be made in partnership with Hindustan Aeronautics

**\$1 bn** worth of emergency supplies, including **ammunition, missiles, assault rifles and anti-tank systems**




- All six of the service's air tankers are **Russian-made Il-78s**.
- **Missile Cooperation:** The country's only nuclear-capable supersonic cruise missile, **BrahMos**, is produced by a joint venture with Russia.
  - The S-400 Air Defence Missile Systems is expected to be delivered by 2021.
- **Military Exercises:** India and Russia conduct the **INDRA series** of military exercises, which began in 2003. However, the first joint Tri-Services Exercise was conducted in 2017.

## Renegotiation of BTIA: India-EU

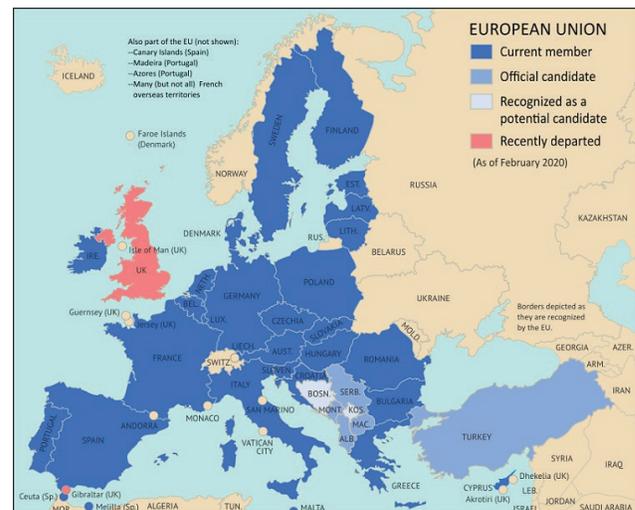
### Why in News

Recently, government officials have revealed that India and the **European Union (EU)** are set to resume negotiations for a **Bilateral Trade and Investment Agreement (BTIA)**. The BTIA talks have been suspended since 2013.

- However, at **India-EU Leaders' Meeting** earlier this year, both countries agreed to relaunch free trade negotiations for the BTIA and also adopted a Connectivity Partnership.

### Key Points

- **About BTIA:**
  - **Background:** India and EU had launched talks for having a wide-ranging **Free Trade Agreement (FTA)**, officially called broad-based BTIA, long ago in 2007.



Note:



- The BTIA was proposed to encompass trade in goods, services and investments.
- However, the talks stalled in 2013 over differences on market access and movement of professionals.
- **Scope:** The EU was India's largest trading partner in goods 2019-20, ahead of China and the US, with total trade close to USD 90 billion.
  - With the signing of the BTIA, India and the EU expect to promote bilateral trade by removing barriers to trade in goods and services and investment across all sectors of the economy.
- **Challenges:** Pursuit of self-reliance has been accelerated by the Covid-19 crisis under the **Atmanirbhar Bharat Mission**. This is perceived by the European Union as India's "protectionist stance".
  - India may find it difficult to meet the sustainable standards in labour and environment on which the EU now lays greater emphasis.
- **Significance:** India seeks to signal that it means business and is **not averse to signing trade agreements after it opted out of the Regional Comprehensive Economic Partnership (RCEP)** at the last moment.
  - The EU, in turn, wants to diversify its value chain away from China to India and, hence, there is interest on its part also to have a trade agreement with India.
- **Connectivity Roadmap:**
  - **More than Physical Connectivity:** It is an ambitious and comprehensive connectivity project, which not only focuses on physical infrastructure but also envisages enhancing digital, energy, transport and people-to-people connectivity.
  - **Components:** India-EU connectivity roadmap covers three main areas — trade and investment, science and technology and **Sustainable Development Goals (SDG)**.
  - **Regional and Multi Stakeholder Approach:** The focus areas were connectivity within the country, building connectivity with Europe and in that process work with other countries in South Asia and **Info-Pacific**.
    - It will catalyse private and public financing for connectivity projects.
  - **Counterfoil to BRI:** The report titled India-EU Connectivity: Partnership for Development, Demand

and Democracy' underlines that the connectivity road map indirectly seeks to counterfoil China's **Belt and Road Initiative (BRI)**.

- As it stressed on principles like democracy, rule of law, inclusiveness and transparency and avoiding debt trap.

## APJ Abdul Kalam

### Why in News

Recently, the Prime Minister paid tribute to the former **President APJ Abdul Kalam** on his **90<sup>th</sup> birth anniversary**.



- **Kalam Program for Intellectual Property Literacy and Awareness Campaign (KAPILA)**

was launched in 2020 on the occasion of his birth anniversary.

### Key Points

- **About:**
  - **Born on 15<sup>th</sup> October 1931** at Rameswaram in Tamil Nadu.
    - His birth anniversary is celebrated as the **National Innovation Day**.
  - He graduated in Science from St Joseph's College, Trichy in 1954 and specialized in Aeronautical Engineering from Madras Institute of Technology (MIT) in 1957.
  - He is one of the **most distinguished scientists of India** with the unique honour of receiving honorary doctorates from 48 Universities and institutions from India and abroad.
  - He was sworn in as **India's 11<sup>th</sup> President in 2002** and completed the full term in 2007.
  - He planned programmes to produce a number of successful missiles, which helped earn him the nickname "**Missile Man**".
- **His Contribution:**
  - **Pioneer in Fiberglass Technology:**
    - He was a pioneer in fiberglass technology and led a **young team to initiate this effort in ISRO** from design, development leading to the production of composites rocket motor cases.

Note:

- **Satellite Launch Vehicle (SLV-3):**
  - He made a significant contribution as Project Director to develop **India's first indigenous Satellite Launch Vehicle (SLV-3)** which successfully injected the **Rohini satellite** into **Near-Earth Orbit** in July 1980 and made **India an exclusive member of Space Club**.
  - He was responsible for the evolution of ISRO's launch vehicle programme, particularly the **PSLV configuration**.
- **Indigenous Guided Missiles:**
  - After working for two decades in ISRO and mastering launch vehicle technologies, he took up the **responsibility of developing Indigenous Guided Missiles** at the DRDO.
    - He was the Chief Executive of **Integrated Guided Missile Development Programme (IGMDP)**.
  - He led to the **weaponization of strategic missile systems** and the **Pokhran-II nuclear tests** in collaboration with the Department of Atomic Energy, which made India a nuclear weapon State.
- **Technology Vision 2020:**
  - In 1998, he put forward a countrywide plan called **Technology Vision 2020**, which he described as a road map for transforming India from a less-developed to a developed society in 20 years.
    - The plan called for, among other measures, increasing agricultural productivity, emphasising technology as a vehicle for economic growth, and widening access to health care and education.
- **Others:**
  - He was passionate about bringing rural prosperity through **PURA (Providing Urban Amenities to Rural Areas)**, in which science and technology has to play a key role.
  - Based on his diverse experience he propagated the concept of **World Knowledge Platform** through which the core competencies of organizations and nations can be synergized to innovate and create solutions and products for the challenges of the 21st century.
- **Awards Received:**
  - He was awarded the coveted civilian awards - **Padma Bhushan** (1981) and **Padma Vibhushan** (1990) and the highest civilian award **Bharat Ratna** (1997).

- **Literary Works:**
  - "Wings of Fire", "India 2020 - A Vision for the New Millennium", "My journey" and "Ignited Minds - Unleashing the power within India", "Indomitable Spirit", "Guiding Souls", "Envisioning an Empowered Nation", "Inspiring Thoughts" etc.
- **Death:**
  - 27<sup>th</sup> July 2015 at Shillong, Meghalaya.

## IEA Invites India to be a Full-Time Member

### *Why in News*

Recently, the **International Energy Agency (IEA)** has invited India, the **world's third-largest energy consumer**, to become its full-time member.

### *Key Points*

- **Background:**
  - **India became an Associate member of IEA in March 2017** but it was in engagement with IEA long before its association with the organization.
  - Earlier in 2021, India also inked a **Strategic Partnership Agreement** with the IEA to strengthen cooperation in global energy security, stability and sustainability.
  - As a natural corollary to the India IEA strategic partnership, **IEA invited India to deepen its cooperation with IEA by becoming a full Member**.
- **Reason for Offering Membership to India:**
  - India is becoming increasingly influential in global energy trends. Its **in-depth report on India's energy policies**, which was released in January 2020, states that the **country's demand for energy is set to grow rapidly** in the coming decades, with electricity use set to increase particularly fast.
  - The **country's reliance on fuel imports makes further improving energy security** a key priority for the Indian economy.
- **IEA's Membership:**
  - The IEA is made up of **30 member countries**.
  - It also includes **eight association countries**. Four countries are **seeking accession** to full membership, **Chile, Colombia, Israel and Lithuania**.

Note:

- A candidate country to the IEA must be a member country of the **Organisation for Economic Co-operation and Development (OECD)**.
- **Eligibility Criteria:** A candidate country to the IEA must have:
  - **Crude oil and/or product reserves (Strategic Oil Reserves)** equivalent to **90 days** of the previous year's net imports, to which the government has immediate access (even if it does not own them directly) and could be used to address disruptions to global oil supply.
    - India's current strategic oil reserves equal 9.5 days of its requirement.
  - A **demand restraint programme** to reduce national oil consumption by up to 10%.
  - Legislation and organisation to operate the **Coordinated Emergency Response Measures (CERM)** on a national basis.
  - Legislation and measures to ensure that **all oil companies under its jurisdiction report information upon request**.
  - Measures in place to **ensure the capability** of contributing its share of an **IEA collective action**.
    - An IEA collective action would be initiated in response to a significant global oil supply disruption.

#### International Energy Agency

- **About:**
  - It is an **autonomous Intergovernmental Organisation established in 1974 in Paris, France**.
  - It mainly **focuses on its energy policies which include economic development, energy security and environmental protection**. These policies are also known as the **3 E's of IEA**.
  - **IEA Clean Coal Centre** is dedicated to providing independent information and analysis on how coal can become a cleaner source of energy, compatible with the UN Sustainable Development Goals.
- **Need:**
  - Established in the **wake of the oil crisis of 1973-1974**, to help its members respond to major disruptions in oil supply.
- **Mandate:**
  - Over time, the **mandate of the IEA has expanded** to include tracking and analyzing key global

energy trends, promoting sound energy policy and encouraging multinational energy technology cooperation.

- **Mission:**
  - Ensure **reliable, affordable and clean energy** for its member countries and beyond.
- **Focus Areas:**
  - **Energy Security:** Promoting **diversity, efficiency and flexibility** within all energy sectors.
  - **Economic Development:** Ensuring the **stable supply of energy to IEA member countries** and promoting free markets to foster economic growth and eliminate energy poverty.
  - **Environmental Awareness:** Enhancing international knowledge of options for tackling **climate change**.
  - **Engagement Worldwide:** Working closely with non-member countries, especially major producers and consumers, to **find solutions to shared energy and environmental concerns**.
- **Major Reports:**
  - **World Energy Outlook Report.**
  - **World Energy Investment Report.**
  - World Energy Statistics.
  - World Energy Balances.
  - Energy Technology Perspectives.
  - **India Energy Outlook Report.**

## FATF Retains Pakistan on Grey List

### Why in News

Recently, the Financial Action Task Force (FATF) retained Pakistan in the 'greylist' or 'increased monitoring list'.

- The FATF also announced the 'greylisting' of **Jordan, Mali and Turkey**.
- **Botswana and Mauritius** had been taken out of the grey list.

### Key Points

- **About:**
  - Pakistan is retained for failing to effectively implement the **global FATF standards and over its**

Note:



lack of progress on investigation and prosecution of senior leaders and commanders of UN-designated terror groups.

- Pakistan **will remain on the grey list till** it addresses all items on the **original action plan agreed to in June 2018** as well as all items on a **parallel action plan handed out by the FATF's regional partner - the Asia Pacific Group (APG) - in 2019.**
  - The Pakistan government has two concurrent action plans, with a **total of 34 action plan items**. It has **largely addressed 30 of the items**.
  - Pakistan has made significant progress and it has largely **addressed 26 out of 27 items on the action plan** it first committed to in June 2018. The item on **financial terrorism still needed to be addressed**.
  - The **2019 action plan** largely **focussed on money laundering deficiencies**.
- The FATF had advised that **Pakistan should continue to work to address its six strategically important deficiencies**, which included enhancing international cooperation by amending the money-laundering law and demonstrating that assistance was being sought from foreign countries in implementing the **UNSCR 1373 designations**.
  - The UNSC Resolution 1373 was adopted on 28<sup>th</sup> September 2001. It declares international terrorism a threat to international peace and security and imposes binding obligations on all UN member states.

#### ➤ Background:

- The **FATF had issued the 27-point action plan after placing Pakistan on the 'Grey List' in June 2018**. The action plan pertains to **curbing money laundering and terror financing**.

- Pakistan was first put on the list in 2008, removed in 2009 and then again remained under increased monitoring from 2012 to 2015.

#### Financial Action Task Force

##### ➤ About:

- An **inter-governmental body** established in 1989 during the **G7 Summit** in Paris.
- Assesses the strength of a country's anti-money laundering and anti-terror financing frameworks, however it does not go by individual cases.

##### ➤ Objectives:

- To set standards and promote effective implementation of legal, regulatory and operational measures for combating money laundering, terrorist financing and other related threats to the integrity of the international financial system.

##### ➤ Headquarters:

- Its Secretariat is located at the **Organisation for Economic Cooperation and Development (OECD)** headquarters in Paris.

##### ➤ Member Countries:

- The FATF currently has **39 members** including two regional organisations - the **European Commission** and **Gulf Cooperation Council**. **India is a member** of the FATF.

##### ➤ Lists under FATF:

###### ○ Grey List:

- **Countries that are considered safe haven for supporting terror funding and money laundering** are put in the FATF grey list.
- This inclusion serves as a warning to the country that it may enter the blacklist.

###### ○ Black List:

- Countries known as **Non-Cooperative Countries or Territories (NCCTs)** are put in the blacklist. These countries support terror funding and money laundering activities.
- The FATF revises the blacklist regularly, adding or deleting entries.
- Currently, **Iran and Democratic People's Republic of Korea (DPRK)** are under High-risk Jurisdiction or black list.

##### ➤ Sessions:

- The **FATF Plenary is the decision making body** of the FATF. It meets **three times per year**.

Note:

- Pakistan's inclusion in the grey list has **adversely impacted that country's prospects of obtaining financial assistance** from world bodies such as the **International Monetary Fund, World Bank, and Asia Development Bank**.

## China Passes New Border Law

### Why in News

Recently, China's legislature has adopted a **new border law** that calls on the **state and military to safeguard territory and "combat any acts" that undermine China's territorial claims**.

- The new land border law was adopted amid the continued **standoff between Indian and Chinese militaries** in eastern Ladakh.

### Key Points

#### ➤ About the Law:

- **Sovereignty and Territorial Integrity:** It stipulates that the sovereignty and territorial integrity of the People's Republic of China are sacred and inviolable.
  - The state shall take measures to safeguard territorial integrity and land boundaries and guard against and combat any act that undermines territorial sovereignty and land boundaries.
- **Responsibilities:** It designates the various responsibilities of the military, the State Council or Cabinet, and provincial governments in managing the security and economic issues in border areas.
  - The **People's Liberation Army (PLA)** "shall carry out border duties" including **"organising drills" and "resolutely prevent, stop and combat invasion, encroachment, provocation and other acts"**.
  - The **state shall take measures to strengthen border defence, support economic and social development** as well as opening-up in border areas, improve public services and infrastructure in such areas, encourage and support people's life and work there.
  - The state shall, following the principle of equality, mutual trust and friendly consultation, **handle land border-related affairs with neighbouring countries through negotiations** to properly resolve disputes and longstanding border issues.

#### ➤ Concerns:

- It would **formalise some of China's recent actions in disputed territories** with both India and Bhutan. The passing of the law coincides with stepped up Chinese activity along the land borders, which have mirrored actions in **disputed waters in the East and South China Sea**.
- It includes the PLA's massing of troops in forward areas along the India border and multiple transgressions across the **Line of Actual Control (LAC)**.
- China in recent years has been strengthening border infrastructure, including the establishment of air, rail and road networks. It also launched a **bullet train in Tibet** which extends **up to Nyingchi**, the border town **close to Arunachal Pradesh**.
- The construction of new **"frontier villages" along the border with Bhutan**.

#### ➤ China's Border Disputes:

- China has a 22,100-kilometer **land border with 14 countries**.
  - It has **resolved the boundary disputes with 12 neighbours**.
- **India and Bhutan** are the two countries with which China is **yet to finalise the border agreements**.
  - **China and Bhutan signed an MOU** firming up a three-step roadmap for expediting the boundary negotiations.
  - **India-China border disputes cover 3,488-km along the Line of Actual Control, China-Bhutan dispute covers about 400 km**.

## Declaration for Uighur Muslims

### Why in News

Recently, 43 countries have signed a declaration, calling on China to ensure full respect for the rule of law for the **Muslim Uighur community in Xinjiang**.

- Earlier, in March 2021 several hundred **Uighur Muslim women in Turkey staged an International Women's Day march** against the extradition agreement of Turkey with China.

### Key Points

- **About the Declaration:**

Note:



- The declaration was signed by the US and other countries accusing China of **human rights violations and ethnic cleansing** against the Uighur Muslims.
  - Similar **declarations** in 2019 and 2020 condemned China for its policies in Xinjiang, where United States has accused Beijing of carrying out genocide.
- It also called for access to Xinjiang for independent observers, including the **UN High Commissioner for Human Rights**.
- It noted the existence of a large network of **‘political re-education’** camps in Xinjiang Uighur Autonomous Region, where over a million people have been arbitrarily detained.
- **China’s Stand:**
  - China has long **denied accusations of ethnic cleansing**. It also denounced the declaration and termed it as a plot to hurt China’s image.
  - China claims its camps to be ‘educational centres’ where the Uighurs are being cured of **“extremist thoughts”** and radicalisation, and learning vocational skills.
    - However, in actuality, they are **brutal incarceration camps**.
- **India’s Stand:**
  - The Indian government has **maintained near silence on the Uighur crisis**.

### **Uighur Muslims**

- **About:**
  - The Uighurs are a predominantly **Muslim minority Turkic ethnic group**, whose origins can be traced to Central and East Asia.

- The Uighurs speak their own language, similar to Turkish, and see themselves as culturally and ethnically close to Central Asian nations.
- The Uighurs are considered to be one of the **55 officially recognized ethnic minority communities in China**.
- However, China recognises the community only as a regional minority and rejects that they are an indigenous group.
- Currently, the **largest population of the Uighur ethnic community** lives in the Xinjiang region of China.
  - A significant population of Uighurs also lives in the neighbouring Central Asian countries such as **Uzbekistan, Kyrgyzstan and Kazakhstan**.
  - **Xinjiang** is technically an autonomous region within China — its largest region, rich in minerals, and **sharing borders with eight countries**, including India, Pakistan, Russia and Afghanistan.

### ➤ **Persecution of Uighurs:**

- Over the past few decades, as economic prosperity has come to Xinjiang, it has brought with it in large numbers the **majority Han Chinese**.
  - They have cornered the better jobs, and left the Uighurs feeling their livelihoods and identity were under threat.
  - This led to **sporadic violence, in 2009** culminating in a riot that killed 200 people, mostly Han Chinese, in the region’s capital Urumqi.
- Uighur Muslims for decades have suffered from abuses including persecution, forced detention, intense scrutiny, surveillance and even slavery.
- China claims that Uighur groups want to establish an independent state and, because of the Uighurs’ cultural ties to their neighbours, leaders fear that elements in places like **Pakistan may back a separatist movement in Xinjiang**.

## **Black Sea**

### **Why in News**

Recently, the **US Defence Secretary** has urged **more defence cooperation among friendly Black Sea countries amid Russia “militarisation” of the region**.

- This came ahead of a **NATO Ministers summit**.

Note:



### Key Points

- **Geographical Location of Black Sea:**
  - The Black Sea is located **between Eastern Europe and Western Asia**.
  - It is **surrounded by the Pontic, Caucasus, and Crimean Mountains** in the south, east and north respectively.
  - The Black Sea is also **connected to the Sea of Azov by the Strait of Kerch**.
  - The **Turkish straits system** - the Dardanelles, Bosphorus and Marmara Sea - forms a **transitional zone between the Mediterranean and the Black Sea**.
  - The **bordering countries** of Black Sea are: **Russia, Ukraine, Georgia, Turkey, Bulgaria and Romania**.
  - There is a significant **absence of oxygen** in the water (**anoxic waters**).
- **Russian Interest in Black Sea:**
  - The unique geography of the Black Sea region confers **several geopolitical advantages to Russia**.
    - Firstly, it is an **important crossroads and strategic intersection** for the entire region.
      - Access to the Black Sea is vital for **all littoral and neighboring states**, and greatly enhances the projection of power into several adjacent regions.
    - Secondly, the region is an **important transit corridor** for goods and energy.
    - Thirdly, the Black Sea region is rich in **cultural and ethnic diversity**, and due to geographical proximity, shares close historical ties with Russia.
  - Russia **invaded Ukraine in 2014** and **carved off the strategically vital peninsula of Crimea**, the **largest land grab** from a sovereign state in this century.

- Most countries do not recognise the takeover and stand behind Ukraine's claims to the waters.
- In **November 2020, India voted against a Ukraine-sponsored resolution** in the UN that condemned alleged human rights violations in Crimea thereby backing old ally Russia on the issue.

### ➤ US Interest in Black Sea:

- The Black Sea is bordered by Bulgaria, Georgia, Romania, Russia, Turkey and Ukraine. **All these countries are NATO countries**.
- Due to this **faceoff between NATO countries and Russia**, the Black sea is a region of strategic importance & a potential maritime flashpoint.
- NATO members Turkey, Greece, Romania and Bulgaria are in the Black Sea, but warships from the US, UK and other NATO allies also have made increasingly frequent visits in a show of support to Ukraine.
  - Russia has frequently responded to NATO warships visits near Crimea, casting them as destabilizing.

## Normalizing Saudi-Iran Relations

### Why in News

Recently, **four meetings** took place between representatives of **Iran and Saudi Arabia in Baghdad, and one in New York**. These meetings indicate continuity in the **warming of bilateral relations** that had been frozen since 2016.

- The renewed bilateral ties and normalization of relations between Saudi Arabia and Iran will pave the way for **regional stability and diplomatic ease for India as well**.

### Key Points

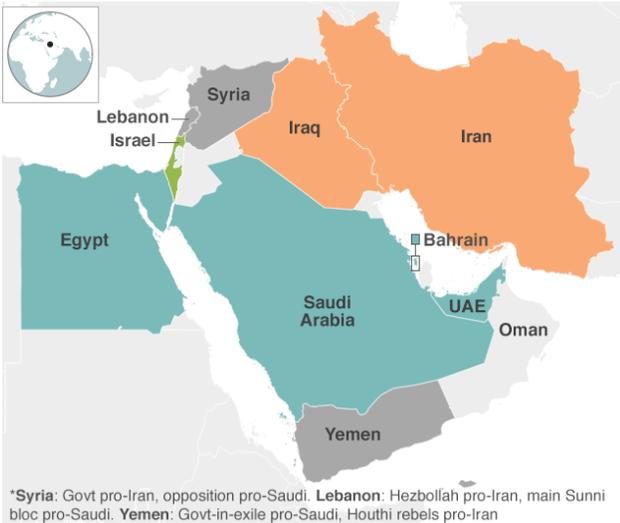
#### ➤ Background (Saudi Arabia-Iran Conflict):

- **Religious Factionalism:** The decades-old feud between them is **exacerbated by religious differences**.
  - They each follow one of the two main branches of Islam. **Iran** is largely **Shia Muslim**, while **Saudi Arabia** sees itself as the leading **Sunni Muslim power**.

Note:

### Who supports whom

■ Saudi side ■ Iran side ■ Split\* ■ Non-aligned



- Historically, **Saudi Arabia**, a monarchy and home to the birthplace of Islam, **saw itself as the leader of the Muslim world**.
- However this was **challenged in 1979 by the Islamic revolution in Iran** which created a new type of state in the region - a kind of revolutionary theocracy - that had an explicit goal of exporting this model beyond its own borders.
- **Regional Cold War:** Saudi Arabia and Iran - two powerful neighbours - are locked in a fierce struggle for regional dominance.
  - Uprisings across the Arab world (after the **Arab Spring** in 2011) caused political instability throughout the region.
  - Iran and Saudi Arabia exploited these upheavals to expand their influence, notably in **Syria, Bahrain and Yemen**, further heightening mutual suspicions.
  - Moreover, external powers like the US and Israel have a major role in exacerbating conflict between Saudi Arabia and Iran.
- **Proxy Wars:** Iran and Saudi Arabia are **not directly fighting but they are engaged in a variety of proxy wars** (conflicts where they support rival sides and militias) around the region.
  - For Example, **Houthi rebels in Yemen**. These groups can acquire greater capabilities which can cause further instability in the region. Saudi Arabia accuses Iran of supporting them.

- **2016 Flash Point:** Many Iranian protesters attacked Saudi diplomatic missions in the Iran following **Saudi Arabia's execution of the Shiite Muslim cleric Sheikh Nimr al-Nimr**.

#### ➤ Reasons for Normalization of Relations:

- **Saudi Arabia Vision 2030 Strategy:** This refers to targeted reforms within the country's economy, defense, tourism and renewable energy.
  - In the context of Covid-19, Saudi Arabia has realised that to attract serious investment, it can only achieve that through a de-escalation with Iran.
- **Compromise on Regional Front:** Saudi Arabia is also involved in the process of establishing Syria's power holder Bashar Assad in the Arab League (a regional organization)- a move that has been welcomed by Iran.
- **Withdrawal of US from the Region:** The arrival of the new US president (Joe Biden) administration and **withdrawal of US from Afghanistan** and now focusing more on the Indo-pacific region, could be another reason for softening of Saudi-Arabia's stance on Iran.

#### ➤ Possible Impact of Normalization of Relations:

- **Resolution of Israel-Palestine Conflict:** Warming of relations between Iran and Saudi Arabia may have a positive impact in dealing with **Israel and the Palestinian issue**.
- **Stabilization of Oil Market:** Iran and Saudi Arabia share a common interest for stable oil prices given the importance of the market to their economies.
  - Normalization of relations would ensure **steady oil revenues** for all producing countries and more predictability to economic planners in both Saudi Arabia and Iran.

## Review of IMF Role

### Why in News

Recently, in the backdrop of the 2021 annual meetings of the **World Bank Group** and the **International Monetary Fund (IMF)**, leading experts have suggested the need to review the role of the IMF.

- With a continuing trend of **emerging markets increasing their share in global output or GDP**, there is a need for review of the quota system.

Note:



- Apart from this, there is a **need for maintaining data integrity amid the World Bank discontinuing its Ease of Doing Business reports.**
- The IMF was set up along with the World Bank after the **Second World War** to assist in the reconstruction of war-ravaged countries. The two organisations were agreed to be set up at a conference in Bretton Woods in the US. Hence, they are **known as the Bretton Woods twins.**

### Key Points

- **Need for IMF Reforms:**
  - **Quota Reforms:**
    - The IMF's quota system was created to raise funds for loans.
    - **Each IMF member country is assigned a quota, or contribution**, that reflects the country's relative size in the global economy. **Each member's quota also determines its relative voting power** as well as its **borrowing capacity.**
      - This makes **wealthy countries have more say** in the making and revision of rules.
      - This leads to the problem where **countries that grow economically have tended to become under-represented** as their voting power lags behind. For eg: **BRICS countries.**
    - Quotas are **denominated in Special Drawing Rights (SDRs)**, the IMF's unit of account.
      - **SDR is a potential claim on the freely usable currencies of IMF members.** SDRs can be exchanged for these currencies.
    - The IMF's Board of Governors **conducts general reviews of quotas at regular intervals** (no more than five years apart).

#### Earlier Quota Reforms

- In 2010, the **IMF's Quota and Governance Reforms** were drafted; which finally **became effective in 2016.**
- These reforms **shifted more than 6% of the quota shares to emerging and developing countries** from the US and European countries.
- Under this, **India's voting rights increased by 0.3% from then 2.3% to 2.6%** and China's voting rights increased by 2.2% from then 3.8% to 6%.
  - Presently, **India holds 2.75% of SDR quota, and 2.63% of votes** in the IMF.

#### Multiple roles of quotas

Resource Contributions	Voting Power	Access to Financing	SDR Allocations
Quotas determine the maximum amount of financial resources a member is obliged to provide to the IMF.	Quotas are a key determinant of the voting power in IMF decisions. Votes comprise one vote per SDR100,000 of quota plus basic votes (same for all members).	Quotas determine the maximum amount of financing a member can obtain from the IMF under normal access.	Quotas determine a member's share in a general allocation of SDRs.

- **Restructuring of the Article IV Consultations:** Under Article IV consultations, the **IMF holds bilateral discussions with its members usually every year** and its staff prepares a report.
  - Article IV consultation is the **most powerful instrument** and it needs to be restructured and sharpened to make it more useful by using the new technologies and access to public data.

### Proposed Reforms

- **Reforming Quota System:** The quota reform would reflect the changed economic realities, especially with regard to the increasing capabilities of the developing nations.
  - For example, the quota of BRICS countries should increase and that of **European Union** Countries should decrease.
  - Also, it is important that the new quota formula **give more weight to PPP GDP** to better reflect the true economic strength of emerging markets and developing economies.

#### Purchasing Power Parity

- PPP is a popular metric used by macroeconomic analysis that **compares different countries' currencies through a "basket of goods"** approach.
- PPP allows for economists to compare economic productivity and standards of living between countries.
- Some countries adjust their Gross Domestic Product (GDP) figures to reflect PPP.

- **Helping Lower Income Countries:** The IMF should focus on lower income countries and support other developing countries' market funds raising activities, as its **Article IV consultation reports are utilised by credit rating agencies**, impacting the fund raising capacity of countries like India.
  - Most of the Asian countries including India can now raise funds on their own on the basis of strength

Note:

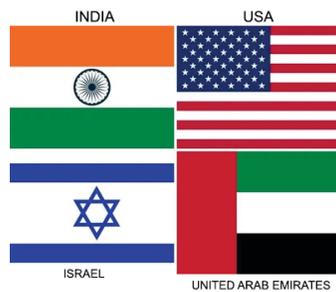
of their **forex reserves**, and do not have to necessarily go to the IMF like in the past to tide of crisis.

- **Management Reforms:** The management system in the IMF should be modified.
  - In the IMF and World Bank group, there is an informal arrangement, that the **head of the IMF should be a European and the head of the World Bank should be an American.**
  - The time has come to reconsider this, and the IMF probably should really rethink it.

## New Quad

### Why in News

Recently, the **Foreign Ministers of India, the US, Israel and the UAE** concluded a virtual meeting. The meeting is a strong **manifestation of the changes in West Asian geopolitics** and formation of **another Quad like grouping in the Middle East.**



- **India's involvement** in this new grouping reflects a shift in its foreign policy.

### Key Points

- **Factors Responsible for New Grouping:**
  - **Abraham Accord:** The new grouping is possible after the resumption of formal diplomatic relations between Israel and the UAE, through the **Abraham Accord.**
  - **Tackling Turkey's Regional Dominance:** The new Quad can be termed as a result of converging interests between India, the UAE, and Israel amidst Turkish president Recep Tayyip Erdogan's assertive claims for the leadership of the Islamic world.
  - **US Pivot to Asia:** The US is clearly seeking to lessen its footprint in the Middle East as part of its pivot to East Asia to tackle China's rise, which is redrawing West Asia's traditional equations.
    - In order to contain rising China's assertiveness, the US under its 'pivot to Asia policy' has launched **Quad initiative, Indo pacific narrative.**
- **Significance for India:**

- **Shift Towards a Regional Approach:** The four-nation meeting suggests India is now ready to move from bilateral relations conducted in separate silos **towards an integrated regional policy.**
- **India's Westward Shift:** Much in the manner that the **"Indo-Pacific"** has transformed the way India thinks about the east, the notion of a **"Greater Middle East"** can provide a huge fillip to India's engagement with the extended neighbourhood to the west.
- **Tackling Pakistan:** Further, the new grouping is also driven by **Pakistan's growing alignment with Turkey** and its alienation from its traditionally strong supporters in the Arab Gulf - the UAE and Saudi Arabia.
- **Deepening Relations:** Over the years, India has built vibrant bilateral ties with all the countries in the new grouping.
  - It is a member of the Quad with the US, Australia and Japan, which have common concerns and shared interests in East Asia.
  - Israel is one of India's top defence suppliers.
  - The UAE is vital for India's energy security and hosts millions of Indian workers.



## 6<sup>th</sup> Annual Meet: AIIB

### Why in News

Recently, the Union Minister of Finance participated in the 6<sup>th</sup> Annual Meeting of the Board of Governors of **Asian Infrastructure Investment Bank (AIIB).**

### Key Points

Note:



### ➤ India's Stand:

#### ○ Help in Covid:

- Appreciated AIIB's **prompt actions in providing financial support** to Member Countries, including India, in their efforts to **contain and combat Covid-19**.

#### ○ Multilateral Banking:

- Emphasised the **importance of multilateral banks** in supplementing countries' efforts to cope with the Covid-19 crisis and the looming climate crisis.

#### ○ Expectations from the Bank:

- Need to **explore investment opportunities in the creation and development of assets in social infrastructure sectors**.
- To further **intensify private sector capital mobilisation** for inclusive and green development.
- To **set up a Resident Board and Regional Offices** to ensure accountability, transparency and quality of operations and investments.

### ➤ AIIB's Stand:

#### ○ Suggestion for India:

- It should **strike a balance between ramping up physical infrastructure and the social infrastructure** such as healthcare systems.

#### ○ Future Endeavours in India:

- It would look to **fund both social as well as climate-resilient infrastructure** in India in the coming years.
- It will **align its operations with the goals of the Paris Agreement** to cope with climate change.

### India and AIIB

- India was **among the AIIB's 57 founding members** in 2016.
- It is also its **second-largest shareholder** (with 7.62% voting shares) after China (26.06%).
- It has **received USD 4.35 billion from the Bank**. This is the **highest of any country**, with the bank so far approving loans of USD 19.6 billion to support 87 projects in 24 countries.

- **Turkey** is second with USD 1.95 billion.

- AIIB has approved financing projects in India in a host of sectors like energy, transport and water including the **Bangalore metro rail project** (USD 335 million), **Gujarat rural roads project** (USD 329 million) and Phase 3 of the **Mumbai urban transport project** (USD 500 million).

- India needed to **develop modern infrastructure** and when the Bank screened proposals, it **worked with the government to ensure that priority** was given to infrastructure projects which could deal with **climate change**.

- In a recent virtual meeting, **India** said that it **expects AIIB to introduce new financing instruments**, provide financing for social infrastructure and to integrate development of climate resilient and sustainable energy access infrastructure into AIIB's recovery response to the Covid-19 crisis.

- This implies that **India is unlikely to alter its engagement with the China-led Asian Infrastructure Investment Bank (AIIB)**, despite a host of **offensive measures** announced recently to reduce its trade and investment links with China.

#### Asian Infrastructure Investment Bank

- It is a **multilateral development bank** with a mission to improve social and economic outcomes in Asia.
  - It meets clients' needs by unlocking new capital and investing in infrastructure that is green, technology-enabled and promotes regional connectivity.
- It is **established by the AIIB Articles of Agreement** (entered into force December 2015) which is a multilateral treaty.
  - The Parties (**57 founding members**) to agreement comprise the Membership of the Bank.
  - AIIB's **membership has grown to 102 countries now**.
- It is **headquartered in Beijing** and began its operations in January 2016.



Note:

# Science and Technology

## Highlights

- New Gene Editing Technique
- Genetically Modified (GM) Crops
- Hypersonic Technology
- White Dwarf
- Converting CO<sub>2</sub> to Methane

## New Gene Editing Technique

### Why in News

The proposal for Indian regulators to consider a **new gene editing technique** has been pending with the **Genetic Engineering Appraisal Committee** for almost two years.

### Gene Editing

- Genome editing (also called **gene editing**) is a **group of technologies that give scientists the ability to change an organism's Deoxy-Ribonucleic Acid (DNA)**.
- These technologies **allow genetic material to be added, removed, or altered** at particular locations in the genome.



### Key Points

- **About:**
  - The **Indian Agricultural Research Institute (IARI)** has now moved to newer technologies such as **Site Directed Nuclease (SDN) 1 and 2**.
  - New technique aims to bring **precision and efficiency into the breeding process** using gene editing tools such as **CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats)**, whose developers won the **Nobel Prize for Chemistry in 2020**.

- **SDN genome editing** involves the **use of different DNA-cutting enzymes (nucleases)** that are directed to cut the DNA at a **predetermined location** by a range of different DNA binding systems.
- After the cut is made, the **cell's own DNA repair mechanism recognizes the break and repairs the damage**, using one of two pathways that are naturally present in cells.
- It **involves the use of gene editing tools to directly tweak (improve/change)** the plant's own genes instead.
- It would allow plants to be genetically modified **without the need for conventional transgenic technology**.
- **Current Application:**
  - A research coalition under the **Indian Council of Agricultural Research (ICAR)**, which includes the **IARI**, is using these techniques to **develop rice varieties which are drought-tolerant, salinity-tolerant and high-yielding**. They could potentially be ready for commercial cultivation within three years.

- The IARI has previously worked on golden rice, a traditional GM variety which inserted genes from other organisms into the rice plant, but ended trials over five years ago due to agronomic issues.

### ➤ Significance of New Techniques:

- **Safe:**
  - In this case, you are **just tweaking a gene that is already there in the plant**, without bringing in any gene from outside.
  - When a protein comes from an outside organism, then you need to test for safety. But in this case, this protein is right there in the plant, and is

Note:

being changed a little bit, just as nature does through **mutation**.

- **Fast:**
  - It is **much faster and far more precise than natural mutation** or conventional breeding methods which involve trial and error and multiple breeding cycles. It is potentially a new **Green Revolution**.
- **Status of New Techniques Globally:**
  - The **U.S, Canada, Australia and Japan** are among the countries which have already approved the **SDN 1 and 2 technologies** as not akin to GM, so such varieties of rice can be exported without any problem.
  - The **European Food Safety Authority** has also submitted its opinion that **these technologies do not need the same level of safety assessment** as conventional gene mutation, though the **European Union** is yet to accept the recommendation.
- **Related Laws in India:**
  - In India, several rules, guidelines, and policies backed by the “Rules for the Manufacture, Use, Import, Export and Storage of Hazardous Microorganisms/ Genetically Engineered Organisms or Cells, 1989” notified under the **Environment Protection Act, 1986**, regulate genetically modified organisms.
  - Apart from it, the **National Ethical Guidelines for Biomedical and Health Research involving human participants, 2017**, by the **Indian Council of Medical Research (ICMR)**, and the Biomedical and Health Research Regulation Bill implies regulation of the gene-editing process.
    - This is especially so in the usage of its language “modification, deletion or removal of parts of heritable material”.
    - However, there is no explicit mention of the term gene editing.

#### Genetic Engineering Appraisal Committee

- It functions under the Ministry of Environment, Forest and Climate Change (MoEF&CC).
- It is **responsible for the appraisal of activities involving large-scale use of hazardous microorganisms and recombinants** in research and industrial production from the environmental angle.
- The committee is **also responsible for the appraisal of proposals relating to the release of genetically**

**engineered** organisms and products into the environment including experimental field trials.

- GEAC is **chaired by the Special Secretary/Additional Secretary of MoEF&CC** and co-chaired by a representative from the Department of Biotechnology (DBT).

## Genetically Modified (GM) Crops

### Why in News

According to the Coalition for GM Free India, the discovery of 500 tonnes of **Genetically Modified (GM)** rice in a consignment that India exported to the **European Union** countries in June 2021 has led to the “**loss of reputation of India and its agricultural market**”.

- However, India pointed out that **GM rice is not grown commercially in India**, let alone exported, and promised a thorough enquiry by its agricultural exports authority, the **Agricultural and Processed Food Products Export Development Authority (APEDA)**.

### Key Points

- **GM Crops:**
  - GM foods are **derived from plants whose genes are artificially modified**, usually by **inserting genetic material from another organism**, in order to give it a new property, such as **increased yield, tolerance to a herbicide, resistance to disease or drought, or to improve its nutritional value**.
  - Probably the **best known variety of GM rice is golden rice**.
    - Golden rice involves the insertion of genes from a plant – both daffodils and maize have been used – and a soil bacterium to create a grain that is enriched with Vitamin A.
  - **India has approved** commercial cultivation of **only one GM crop, Bt cotton**.
  - No GM food crop has ever been approved for commercial cultivation in the country.
    - However, confined field trials have been allowed for at least 20 GM crops.
  - That includes varieties of **GM rice** which would have improved resistance to insects and diseases, as well as hybrid seed production and nutritional enhancements such as golden rice.

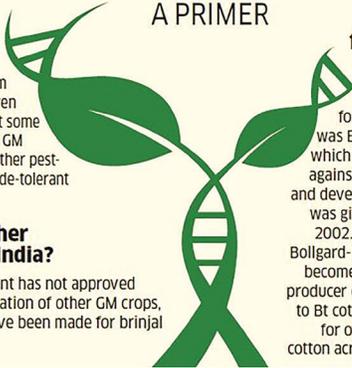
Note:

- The **cons of GM foods** are that they may cause **allergic reactions** because of their altered **DNA** and they may **increase antibiotic resistance**.

**GM CROPS IN INDIA  
A PRIMER**

**What is a GM crop?**

A crop which has a gene artificially inserted into it from another species, even unrelated, to give it some desired properties. GM crops are mostly either pest-resistant or herbicide-tolerant



**When did India get its first GM crop?**

The first GM crop variety approved for commercialisation was Bt cotton. Bollgard-I, which provided immunity against the pink bollworm and developed by Monsanto, was given the go ahead in 2002. Monsanto released Bollgard-II in 2006. India has become the world's largest producer of cotton partly due to Bt cotton, which accounts for over 90% of the total cotton acreage in the country

**Are there other GM crops in India?**

No, the government has not approved commercial cultivation of other GM crops, though efforts have been made for brinjal and mustard

- **Export of GM Rice (Implications for India):**
  - India is the **world's top rice exporter**, earning Rs. 65,000 crore in 2020 by selling 18 million tonnes of grain (organic rice), about a quarter of which is premium **basmati**.
  - Among the 75 countries which buy Indian rice, **West Asian nations, the US and the U.K. are the biggest importers of basmati**, while the majority of non-basmati goes to African countries and neighbours Nepal and Bangladesh.
  - **For Indian farmers**, the nightmare scenario could be what happened in the US in 2006, when trace amounts of a GM rice variety were found in shipments ready for exports.
    - Trading partners such as Japan, Russia and the **EU suspended rice imports from the US**, hitting farmers hard.
  - Under pressure from the rice export lobby at the time, India **drafted policies to ban GM rice trials in the basmati belt**. However, farmers from other parts of the country, especially those aiming for the nascent but growing organic rice export market, worry that their products could face contamination.
    - **Unauthorised HtBt Cotton and Bt Brinjal are already being grown** commercially, with hundreds of growers blatantly defying the governmental ban.

## Hypersonic Technology

### **Why in News**

Recently, it has been reported that **China tested a**

**nuclear-capable hypersonic glide vehicle** that circled the globe before speeding towards its target.

- Several countries, including the **US, Russia and China**, are developing **hypersonic missiles** which travel at a speed five times that of sound.
- Though **slower than ballistic missiles**, they are harder to intercept and can be manoeuvred.

### **Key Points**

- **Implications for India:**
  - Hypersonic technology developments, in the backdrop of **growing US-China rivalry** and a year-long **standoff with Indian forces in eastern Ladakh**, is certainly a threat for India's space assets along with the surface assets.
  - The offence system operating at these speeds would **mean a requirement to develop defence systems at these speeds**.
- **Hypersonic Speed and Technology:**
  - **About:**
    - Hypersonic speeds are **5 or more times the Mach or speed of sound**.
    - **Mach Number:** It describes an aircraft's speed compared with the speed of sound in air, with Mach 1 equating to the speed of sound i.e. **343 metre per second**.
  - **Types (2):**
    - **Hypersonic cruise missiles:** These are the ones that **use rocket or jet propellant** through their flight and are regarded as being just faster versions of existing cruise missiles.
    - **Hypersonic Glide Vehicle (HGV):** These missiles first go up into the atmosphere on a conventional rocket before being launched towards their target.
  - **Technology Used:** Most hypersonic vehicles primarily use the **scramjet technology**, which is a type of **Air Breathing propulsion System**.
    - This is extremely complex technology, which also needs to be able to handle high temperatures, making the hypersonic systems extremely costly.

<b>Ballistic Missile vs Cruise Missile</b>	
<b>Ballistic Missile</b>	<b>Cruise Missile</b>
Travel in projectile motion and trajectory depends on gravity, air resistance and Coriolis Force.	Comparatively follows a straight trajectory of motion.

Note:

Leave the earth's atmosphere and re enter it.	The flight path is within the earth's atmosphere.
Long-range missiles (300 km to 12,000 km)	Short range missiles (range upto 1000 km)
E.g. Prithvi I, Prithvi II, Agni I, Agni II and Dhanush missiles.	E.g. BrahMos missiles

#### Classification of Missiles Based on Speed

Speed Range	Mach Number	Velocity in m/s
Subsonic	< 0.8	< 274
Transonic	0.8-1.2	274-412
Supersonic	1.2-5	412-1715
Hypersonic	5-10	1715-3430
High-hypersonic	10-25	3430-8507

#### ➤ Development of Hypersonic Technology in India:

- India, too, is working on hypersonic technologies.
  - As far as space assets are concerned, India has already proved its capabilities through the test of **ASAT under Mission Shakti**.
- Hypersonic technology has been developed and tested by both DRDO and ISRO.
- Recently, DRDO has successfully flight-tested the **Hypersonic Technology Demonstrator Vehicle (HSTDV)**, with a capability to travel at 6 times the speed of sound.
- Also, a **Hypersonic Wind Tunnel (HWT)** test facility of the DRDO was inaugurated in Hyderabad. It is a pressure vacuum-driven, enclosed free jet facility that simulates Mach 5 to 12.

#### **Air Breathing Propulsion System**

- **About:** These systems **use atmospheric oxygen**, which is available up to about 50 km of earth's surface to burn the fuel stored on-board thereby making the system much lighter, more efficient and cost effective.
- **Examples** of Air Breathing Propulsion System include the Ramjet, Scramjet, Dual Mode Ramjet (DMRJ).
- **Ramjet:**
  - A ramjet is a form of air breathing jet engine that uses the vehicle's forward motion to compress incoming air for combustion without an axial compressor.
  - Fuel is injected in the combustion chamber where it mixes with the hot compressed air and ignites.

- Ramjets **cannot produce thrust at zero airspeed**; they cannot move an aircraft from a standstill.
- A ramjet-powered vehicle, therefore, **requires an assisted take-off**, like a rocket assist, to accelerate it to a speed where it begins to produce thrust.
- The ramjet **works best at supersonic speeds** and as the speed enters the hypersonic range, its efficiency starts to drop.

#### ➤ **Scramjet:**

- A scramjet engine is an **improvement over the ramjet engine** as it operates at hypersonic speeds and allows supersonic combustion, which gives it its name — **supersonic combustion ramjet, or scramjet**.
- The scramjet is composed of **three basic components**:
  - A converging inlet where incoming air is compressed,
  - A combustor where gaseous fuel is burned with atmospheric oxygen to produce heat,
  - A diverging nozzle where the heated air is accelerated to produce thrust. The exhaust gases are accelerated to hypersonic speeds using a divergent nozzle.
- The speed at which the vehicle moves through the atmosphere causes the air to compress within the inlet. As such, **no moving parts are needed in a scramjet**, which reduces the weight and the number of failure points in the engine.

#### ➤ **Dual Mode Ramjet (DMRJ):**

- The third concept is a **mix of ramjet and scramjet**, which is called DMRJ.
- There is a need for an engine which can operate at both supersonic and hypersonic speeds.
- A DMRJ is an engine design where a ramjet transforms into a scramjet over Mach 4-8 range, which means, it can operate in both the subsonic and supersonic combustor mode.

## White Dwarf

#### **Why in News**

Recently, an international team saw a **white dwarf losing its brightness in 30 minutes**, which usually takes a period of several days to months.

- This peculiarity in brightness of white dwarfs can be referred to as **switch on and off phenomena**.

Note:

- Using the **Hubble Space telescope** and **Transiting Exoplanet Survey Satellite (TESS)**, astronomers have identified several white dwarfs over the years.

### Key Points

#### ➤ About White Dwarfs:

##### ○ Formation:

- White dwarfs are **stars that have burned up all of the hydrogen** they once used as nuclear fuel.
  - Such stars have very high density.
  - A typical white dwarf is half the size of our Sun and has a surface gravity 1,00,000 times that of Earth.
- Stars like our **sun fuse hydrogen in their cores into helium** through **nuclear fusion reactions**.
- **Fusion in a star's core produces heat and outward pressure** (they bloat up as enormous red giants), but this pressure is **kept in balance by the inward push of gravity** generated by a star's mass.
- When the **hydrogen, used as fuel, vanishes and fusion slows**, gravity causes the **star to collapse in on itself into white dwarfs**.

##### ○ Black Dwarfs:

- Eventually - **over tens or even hundreds of billions of years** - a **white dwarf cools** until it **becomes a black dwarf, which emits no energy**. Because the universe's oldest stars are only 10 billion to 20 billion years old there are **no known black dwarfs**.
- It must be noted that **not all white dwarfs cool** and transform into black dwarfs.

##### ○ Chandrasekhar Limit:

- Those **white dwarfs which have enough mass reach a level** called the **Chandrasekhar Limit**.
- At this point the pressure at its center becomes so great that the star will detonate in a **thermonuclear supernova** (explosion).

#### ➤ Switch on and off Phenomena:

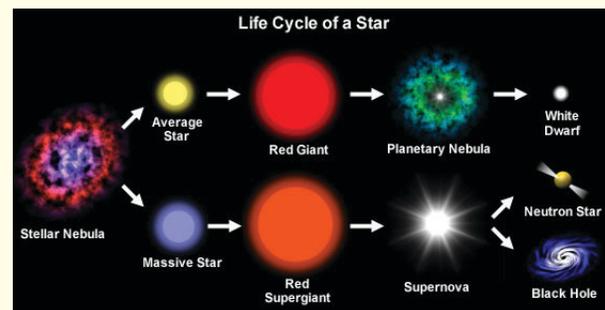
- The **white dwarf**, which is discussed, is **part of a binary system called TW Pictoris**, where a star and a white dwarf orbit each other.
  - The two objects are so close to each other that the **star transfers material to the white dwarf**.

- **As this material approaches the white dwarf it forms an accretion disk** or a disk of gas, plasma, and other particles around it.
- As the **accretion disk** material slowly sinks closer towards the white dwarf it **generally becomes brighter**.
- Also there are **cases when the donor stars stop feeding the white dwarf disk**. However, reasons for this are still not clear.
- When this happens the **disk is still bright** as it **"drains" material that was previously still there**.
  - It then **takes the disk about 1-2 months** to drain most of the material.
- However, **TW Pictoris' drop in brightness in 30 mins** was totally unexpected and it may be **due to the process called magnetic gating**.
  - Magnetic gating happens when the **magnetic field is spinning so rapidly around the white Dwarf** it creates a barrier disrupting the amount of matter the white dwarf can receive.

- **Significance:** This discovery will help **understand the physics behind accretion** – how **black holes and neutron stars** feed material from their nearby stars.

#### Chandrasekhar Limit

- Chandrasekhar Limit is the **maximum mass theoretically possible** for a stable white dwarf star.
- A limit which mandates that **no white dwarf** (a collapsed, degenerate star) can be more massive than about **1.4 times the mass of the Sun**.
- Any degenerate object **more massive must inevitably collapse into a neutron star or black hole**.
- The limit is **named after the Nobel laureate Subrahmanyan Chandrasekhar**, who first proposed the idea in 1931.
  - He was awarded the **Nobel Prize in Physics** in 1983 for his work on the physical processes involved in the structure and evolution of stars.



Note:

## Converting CO<sub>2</sub> to Methane

### Why in News

Recently, Indian Scientists have designed a **photochemical method (Photocatalyst)** to convert Carbon Dioxide (CO<sub>2</sub>) to Methane (CH<sub>4</sub>).

- A photochemical method is a **chemical reaction** initiated by the absorption of **energy in the form of light**.

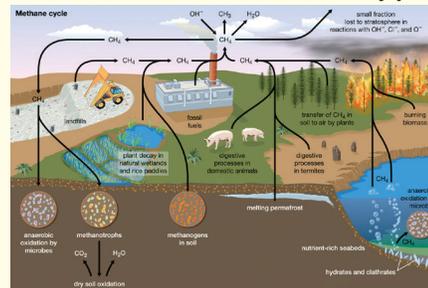
### Key Points

- **About:**
  - A polymer has been designed to **absorb visible light and catalyse the reaction** which reduces CO<sub>2</sub>.
    - Most catalysts contain toxic and expensive metal counterparts. Therefore scientists designed a **metal-free porous organic polymer to overcome this drawback**.
  - The photochemical method of reducing CO<sub>2</sub> uses **solar light as a renewable source of energy**.
    - There are several ways in which CO<sub>2</sub> can be reduced, including photochemical, **electrochemical**, photoelectrochemical, photothermal, and so on.
- **Mechanism:**
  - The catalyst has a chemical called the **Conjugated Microporous Polymer (CMP)**.
  - It can uptake CO<sub>2</sub> onto its surface due to its high CO<sub>2</sub> intake capability at room temperature, **converting it into methane as a value-added product**.
  - There are some **key requirements** of a photocatalyst to convert CO<sub>2</sub> into value-added products, which rely upon:
    - Light-harvesting property.
    - Charge carrier (electron-hole pair) separation proficiency.
    - Presence of proper electronically aligned conduction band.
- **Significance:**
  - Methane can be one of the value-added products with significant uses as the cleanest burning **fossil fuel** and can directly be used in **fuel cells** as a hydrogen carrier.
  - It is also the main component of **natural gas** and has the potential to replace coal for electricity generation and furnishing flexible supply to reinforce intermittent renewable generators.

### Methane

#### ➤ About:

- Methane is gas that is **found in small quantities in Earth's atmosphere**.
- It is the **simplest hydrocarbon**, consisting of one carbon atom and four hydrogen atoms (CH<sub>4</sub>).
- Methane is a powerful **greenhouse gas**. It is **flammable**, and is used as a fuel worldwide.
- Methane is produced by the **breakdown or decay of organic material** and can be introduced into the atmosphere by either **natural processes** – such as the decay of plant material in wetlands, the seepage of gas from underground deposits or the digestion of food by cattle – or **human activities** – such as oil and gas production, rice farming or waste management.
  - Methane is called **marsh gas** because it is found at the surface of marshy places.



#### ➤ Major Uses:

- It is an **important source of hydrogen and some organic chemicals**.
- It reacts with steam at high temperatures to yield carbon monoxide and hydrogen; the latter is used in the **manufacture of ammonia for fertilizers and explosives**.
- Other valuable **chemicals derived from methane include methanol, chloroform, carbon tetrachloride, and nitromethane**.
- The **incomplete combustion of methane yields carbon black**, which is widely used as a reinforcing agent in rubber used for automobile tires.

#### ➤ Environmental Impact of Methane:

- It is **84 times more potent than carbon** and doesn't last as long in the atmosphere before it breaks down. This makes it a **critical target for reducing global warming** more quickly while simultaneously working to reduce other greenhouse gases.
- It is responsible for creating ground-level **ozone**, a dangerous air pollutant.

Note:

# Environment and Ecology

## Highlights

- Emissions Gap Report 2021: UNEP
- COP26 Climate Conference
- Decreasing Ice and Its Impact: Arctic
- World Meteorological Congress 2021
- Fourth Assembly of ISA
- G20 Climate Risk Atlas
- Net Zero Target of Saudi Arabia
- Report on Heat-trapping Gases in the Atmosphere: WMO
- Climate Vulnerability Index
- Economics of Climate Change
- Save Hornbills, Save Tropical Forests
- Indian Railway to be Net Zero Emitter by 2030
- UNEP Production Gap Report
- Disappearing African Rare Glaciers
- E-Waste Generation
- Endosulfan
- Climate Finance

## Emissions Gap Report 2021: UNEP

### Why in News

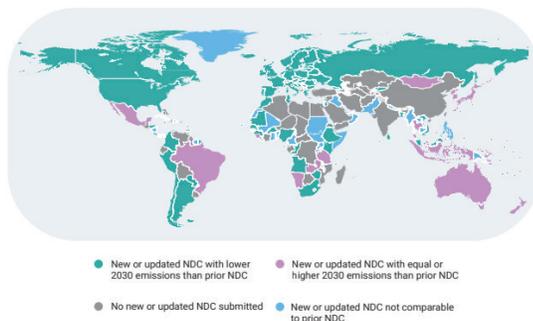
Recently, the **United Nations Environment Programme (UNEP)**'s Emissions Gap Report 2021 has been published.

- This is the **twelfth edition** of the UNEP **Emissions Gap Report**. It informs that the **new national climate pledges** combined with other mitigation measures put the world on track for a **global temperature rise of 2.7°C** by the end of the century.

### Key Points

- **GHGs Continue to Rise:**
  - Following an unprecedented drop of 5.4% in 2020, **global carbon dioxide emissions** are bouncing

Figure ES.2. Effect of new or updated nationally determined contributions on 2030 greenhouse gas emissions relative to previous nationally determined contributions



back to pre-COVID levels, and concentrations of **GreenHouse Gases (GHGs)** in the atmosphere continue to rise.

### ➤ New Mitigation Pledges:

- **New mitigation pledges** for 2030 show some progress, but their aggregate effect on global emissions is insufficient.
- As a group, **G20 members are not on track** to achieve either their original or new 2030 pledges.
  - Ten G20 members are on track to achieve their previous **Nationally Determined Contributions (NDC)**, while seven are off track.
- Compared to previous unconditional NDCs, the new pledges for 2030 reduce projected 2030 emissions by only 7.5 %, whereas 30 % is needed for 2°C and 55 % is needed for 1.5°C.

### ➤ Net-zero Emissions:

- The long-term **net-zero emissions** pledged by 50 countries, covering more than half of global emissions show large ambiguities.
  - **Net zero emission** means that all man-made greenhouse gas emissions must be removed from the atmosphere through reduction measures, thus reducing the Earth's net climate balance, after removal via natural and artificial sink.
- Few of the G20 members' NDC targets put emissions on a clear path towards net-zero pledges.
- There is an **urgent need to back these pledges up with near-term targets** and actions that give

Note:



confidence that net-zero emissions can ultimately be achieved and the remaining carbon budget kept.

- **Global Warming:**
  - At the **end of the century global warming is estimated at 2.7°C** if all unconditional 2030 pledges are fully implemented and 2.6°C if all conditional pledges are also implemented.
  - If the **net-zero emissions** pledges are additionally fully implemented, this estimate is lowered to around 2.2°C.
- **Methane Emission:**
  - Reduction of **methane emissions** from the fossil fuel, waste and agriculture sectors can contribute significantly to closing the emissions gap and reduce warming in the short term.
- **Carbon Markets:**
  - **Carbon market** can deliver real emissions abatement and drive ambition, but only **when rules are clearly defined, designed to ensure that transactions reflect actual reductions in emissions**, and supported by arrangements to track progress and provide transparency.
- **Current Situation:**
  - The current **atmospheric carbon dioxide (CO<sub>2</sub>)** concentrations are **higher than at any time in the last two million years**.
  - At present, there are **no estimates available** of total global GHG emissions for 2020.
    - However, the **COVID-19 pandemic** led to an unprecedented 5.4% drop in CO<sub>2</sub> emissions in 2020, with a smaller drop in total GHG emissions expected for the year.
  - From 2010 to 2019, GHG emissions grew by 1.3 % per year on average, both with and without land-use change (LUC).
    - GHG emissions reached a record high of 51.5 gigatons of CO<sub>2</sub> equivalent (GtCO<sub>2</sub>e) in 2019 without LUC emissions and 58.1 GtCO<sub>2</sub>e when including LUC.
- **Initiatives to Reduce Emissions in India:**
  - Shift from **Bharat Stage-IV (BS-IV) to Bharat Stage-VI (BS-VI)** emission norms.
  - Distribution of LED bulbs under the **UJALA scheme**.
  - Formation of **International Solar Alliance**.
  - Launch of the **National Action Plan on Climate Change (NAPCC)**.

### United Nations Environment Programme (UNEP)

#### ➤ About:

- It is a **leading global environmental authority** established on **5<sup>th</sup> June 1972**.
- It **sets the global environmental agenda**, promotes sustainable development within the United Nations system, and serves as an authoritative advocate for global environment protection.

#### ➤ Headquarters:

- Nairobi, Kenya.

#### ➤ Major Reports:

- Emission Gap Report, **Adaptation Gap Report**, **Global Environment Outlook**, Frontiers, Invest into Healthy Planet.

#### ➤ Major Campaigns:

- Beat Pollution, UN75, **World Environment Day**, Wild for Life.

### Emissions Gap Report

- It assesses **the gap between anticipated emissions in 2030 and levels consistent with the 1.5°C and 2°C targets** of the **Paris Agreement**. Every year, the report features ways to bridge the gap.

- Roadmap for **Ethanol Blending in India** by 2025.

## COP26 Climate Conference

### Why in News

The **COP 26 United Nations Climate Change Conference** will be hosted by the UK from **31<sup>st</sup> October to 12<sup>th</sup> November**.

- Earlier, **Intergovernmental Panel on Climate Change (IPCC) published its assessment report** on Earth's climate, highlighting **heat waves, droughts, extreme rainfall** and **sea-level rise** in the coming decades.

### Key Points

- **COP 26 Goals:** According to the **United Nations Climate Change Framework Convention (UNFCCC)**, COP26 will work towards four goals:
  - **Net Zero by 2050:**
    - To secure **Global Net-Zero by Mid-Century** and keep 1.5 Degrees within reach.
    - Countries are being asked to come forward with **ambitious 2030 emissions reductions targets**

Note:

that align with reaching **net zero** by the middle of the century.

- To deliver on these stretching targets, countries will need to:
  - Accelerate the phase-out of coal
  - Curtail deforestation
  - Speed up the switch to electric vehicles
  - Encourage investment in renewables.
- **Adapt to Protect Communities and Natural Habitats:**
  - Countries will work together to ‘**protect and restore ecosystems and build defences**, warning systems and resilient infrastructure and agriculture to avoid loss of homes, livelihoods and even lives.’
- **Mobilise Finance:**
  - **Developed countries must make good on their promise** to mobilise at least USD100bn in **climate finance** per year.
- **Work Together to Deliver:**
  - Another important task at the COP26 is to ‘**finalise the Paris Rulebook**’.
  - Leaders will work together to frame a list of detailed rules that will help fulfil the **Paris Agreement**.
- **Suggestions for India:**
  - Update its **Nationally Determined Contributions (NDCs)**.
    - (NDCs detail the various efforts taken by each country to reduce the national emissions)
  - **Sector by sector plans are needed** to bring about development.
    - **Decarbonisation** of the electricity, transport sector and starting to look at carbon per passenger mile is needed.
  - Aggressively figure out **how to transition the coal sector**.

### Conference of Parties (COP)

- **About:**
  - The Conference of Parties comes under the **UNFCCC** which was formed in 1994. The UNFCCC was established to work towards “stabilisation of **greenhouse gas** concentrations in the atmosphere.
    - COP is the **apex decision-making authority of UNFCCC**.

- It laid out a **list of responsibilities for the member states which included:**

- Formulating measures to mitigate climate change.
- Cooperating in preparing for adaptation to the impact of climate change.
- Promoting education, training and public awareness related to climate change.

#### ➤ **Meetings:**

- COP members have been **meeting every year since 1995**. The UNFCCC has 198 parties including **India, China and the USA**.
  - Generally it meets in Bonn, the seat of the secretariat, unless a Party offers to host the session.

#### ➤ **Presidency:**

- The **office of the COP President normally rotates among the five United Nations regional groups** which are - Africa, Asia, Latin America and the Caribbean, Central and Eastern Europe and Western Europe and Others.
- The **President is usually the environment minister of his or her home country**. S/he is elected by acclamation immediately after the opening of a COP session.

#### **COP's with Significant Outcomes**

- **1995: COP1 (Berlin, Germany)**
- **1997: COP 3 (Kyoto Protocol)**
  - It legally binds developed countries to emission reduction targets.
- **2002: COP 8 (New Delhi, India) Delhi Declaration.**
  - Focuses on the development needs of the poorest countries and the need for technology transfer for mitigating climate change.
- **2007: COP13 (Bali, Indonesia)**
  - Parties agreed on the Bali Road Map and Bali action plan, which charted the way towards a post-2012 outcome. The Plan has five main categories: shared vision, mitigation, adaptation, technology and financing.
- **2010: COP 16 (Cancun)**
  - Resulted in the **Cancun Agreements**, a comprehensive package by governments to assist developing nations in dealing with climate change.
  - The **Green Climate Fund**, the Technology Mechanism and the Cancun Adaptation Framework were established.

Note:

- **2011: COP 17 (Durban)**
  - Governments commit to a new universal climate change agreement by 2015 for the period beyond 2020 (Resulted in the Paris Agreement of 2015).
- **2015: COP21 (Paris)**
  - To keep global temperature well **below 2.0C** above pre-industrial times and endeavor them to limit them **even more to 1.5C**.
  - It requires rich nations to maintain USD 100bn a year funding pledge **beyond the year 2020**.
- **2016: COP22 (Marrakech)**
  - To move forward on writing the **rule book of the Paris Agreement**.
  - Launched the **Marrakech Partnership for Climate Action**.
- **2017: COP23, Bonn (Germany)**
  - Countries continued to negotiate the finer details of how the agreement will work from 2020 onwards.
  - First set of negotiations since the US, under the presidency of Donald Trump, announced its intention earlier this year to withdraw from the Paris deal.
  - It was the first COP to be hosted by a small-island developing state with Fiji taking up the presidency, even though it was being held in Bonn.
- **2018: COP 24, Katowice (Poland)**
  - It finalized a “rulebook” to operationalise the 2015 Paris Agreement.
  - The rulebook covers climate financing facilities and the actions to be taken as per **Nationally Determined Contributions (NDC)**.
- **2019: COP25, Madrid (Spain)**
  - It was held in Madrid (Spain).
  - There were no **concrete plans regarding the growing climatic urgency**.

## Decreasing Ice and Its Impact: Arctic

### Why in News

According to a recent study, if **carbon emissions** continue at current levels, **summer ice in the arctic will disappear by 2100** and, along with it, creatures such as **seals and polar bears**.

- The Arctic sea ice reached its minimum extent, coming in at 4.72 million square miles. It is the **12<sup>th</sup> lowest on record** and the record minimum melting of the ice occurred in 2012.



### Key Points

- **About the Study:**
  - **Coverage:**
    - The study covers a **1 million-sq km region north of Greenland and the coasts of the Canadian Archipelago**, where sea ice has traditionally been thickest round the year, and thus likely to be most resilient.
  - **Two Scenarios:**
    - **Optimistic\Low Emissions** (if carbon emissions are brought in check): Under this scenario, some **summer ice could persist indefinitely**.
    - **Pessimistic\High Emissions** (if emissions continue as they are): Under this scenario, **summer ice would disappear by the end of the century**.
      - Ice from even the central Arctic will decrease by mid-century, and will no longer endure through the year.
      - Locally formed summer ice will persist in what is known as the **Last Ice Area**, but will now be only a metre thick.
- **Implications:**
  - **Low-emissions Scenario:**

Note:

- At least some seals, bears and other creatures may survive.
  - These species currently exist under similar summer conditions along **western Alaska and parts of Hudson Bay.**
- **Higher-Emissions Scenario:**
  - By 2100, even the **locally formed ice will disappear in summer.**
  - With no summer ice anywhere, there will be **no ice-dependent ecosystems.**

#### Arctic

- The **Arctic is a polar region** located at the northernmost part of Earth. Land within the Arctic region has **seasonally varying snow and ice cover.**
- It **consists of** the Arctic Ocean, adjacent seas, and parts of Alaska (United States), Canada, Finland, Greenland (Denmark), Iceland, Norway, Russia, and Sweden.
  - **Since 2013, India has had observer status in the Arctic Council,** which is the predominant inter-governmental forum for cooperation on the environmental and development aspects of the Arctic.

#### Sea Ice

- **About:**
  - **Sea ice is frozen seawater** that floats on the ocean surface. It covers about **7% of the Earth's surface** and about **12% of the world's oceans.**
  - This floating ice has a **profound influence on the polar environment,** influencing ocean circulation, weather, and regional climate.

#### Interesting Fact

- **About:**
  - **Penguins live in Antarctica** (to the south), and **polar bears live in the Arctic** (to the north).



- While they inhabit similar polar habitats with lots of snow and ice, **they have never lived together.**
- **Reasons for No Polar Bear in Antarctica:**
  - The main reasons there are **no polar bears in Antarctica** are **evolution, location and climate.**
    - Bears evolved on the planet after **Antarctica broke away (Plate Tectonics)** from the other continents, and after that they had no easy way of getting there.
- **Reasons for No Penguins in Arctic:**
  - In the North Pole, **predators such as polar bears and arctic foxes would limit their survival.**
  - There is **no water in the north pole for them to hunt** because the **ice is so thick.**
    - Even if there was a hole in the ice, how would the penguin get back up if they can't find the hole they went down in.
  - Penguins are predominately shore birds and thus **do not venture far into the ocean.**
  - In addition, **migrating through warmer waters to reach the northern hemisphere is almost impossible** for penguins and could prove fatal.

## World Meteorological Congress 2021

### Why in News

Recently, the **World Meteorological Congress 2021** has endorsed a **Water Declaration**, including the **Water and Climate Coalition.**

- It has also **approved a new vision and strategy for hydrology** and an associated plan of action.

### World Meteorological Congress

The World Meteorological Congress is the **supreme body of the World Meteorological Organization (WMO).** WMO is a **specialised agency of the United Nations** for meteorology, operational hydrology and related geophysical sciences. **India is a member.** It **produces annually the State of the Global Climate Report.**

### Key Points

- **Concerns:**
  - Only **40% of countries** globally have **operational early flood and drought warning systems.**

Note:

- Some **60%** of WMO member countries **lack hydrological monitoring capabilities**. Globally, **more than three billion people have no quality management system** for their water-related data in place.
  - It means **close to half of the world's population is at risk due to a lack of information on the state of their water resources** including rivers, lakes, groundwater, according to the most recent **United Nation (UN)** estimates.
- Some **107 countries are not on track** to have **sustainably managed water resources**.
- **Water Declaration:**
  - By 2030 **early warnings for early action related to floods and droughts** will be **available for people everywhere** on the planet to access.
  - **Policies for water and climate action** developed within the sustainable development agenda **will be integrated to yield maximum benefit for people**.
  - Members will **pursue these goals through partnerships** for capacity development, knowledge exchange and information sharing, etc.
- **Water and Climate Coalition:**
  - The coalition is **made for promoting sharing and access** to integrated hydrological, **cryosphere**, meteorological and climate information.
  - It aims to **boost resilient water adaptation to climate change** as well as demographic and socio-economic development for the future.
  - It is also aimed at accelerating the progress of water-related United Nations **Sustainable Development Goals (SDG)**, especially SDG6 (water and sanitation for all).
- **Hydrology Action Plan:**
  - **Impact Based Early Warning System:**
    - There should be impact-based end-to-end **Early Warning Systems (EWS) for flood** forecasting in the context of a broader integrated flood management strategy implemented by Members, including through the **Associated Programme on Flood Management**.
    - Congress approved a new **Sustainability Strategy for the future development and implementation of the Flash Flood Guidance System** with Global Coverage.
  - **Water Resource & Quality Assessment:**
    - The concept of **Integrated Water Resources Management (IWRM)** including water use and allocations for supporting food production should be widely accepted and followed.
- **Reducing Impact of Droughts:**
  - Members should **reduce adverse impacts of drought** at all levels by implementing **integrated drought management systems**, including drought monitoring, early warnings, vulnerability and impact assessments, and drought mitigation, preparedness and response measures.
- **Food Security:**
  - Food security should be **enhanced by informed end-users' decisions** at all levels from regional to local.
- **High Quality Data:**
  - There should be increased discoverability, availability, and use of high-quality hydrological and hydrometeorological data for scientific analysis, as promoted by the **Global Hydrometry Support Facility (HydroHub)**.
- **Research and Application of Operational Hydrology:**
  - There should be a **reduced gap between research and operational hydrology applications**; operational hydrology uses improved understanding of Earth system science.

#### Related Indian Initiatives

- **MGNREGA** for water conservation.
- **Jal Kranti Abhiyan.**
- **Jal Shakti Abhiyan.**
- **National Rural Drinking Water Programme.**
- **NITI Aayog Composite Water Management Index.**
- **Atal Bhujal Yojana.**
- **Jal Shakti Ministry and Jal Jeevan Mission.**
- **Command Area Development.**

## Fourth Assembly of ISA

### Why in News

- Recently, the **fourth general assembly** of the International Solar Alliance (ISA) was held.
- A total of 108 countries participated in the assembly, including 74 member countries, 34 observer and prospective countries, 23 partner organisations and 33 special invitee organisations.

Note:

## Key Points

### ➤ About the International Solar Alliance (ISA):

- The ISA is an **intergovernmental treaty-based organisation** with a global mandate to catalyse solar growth by helping to reduce the cost of financing and technology.
- ISA, **co-founded by India and France during the 2015 climate change conference in Paris** has assumed centre-stage for India's attempts at a global climate leadership role.
- ISA is the **nodal agency for implementing One Sun One World One Grid (OSOWOG)**, which seeks to transfer solar power generated in one region to feed the electricity demands of others.
- India has allotted **5 acres of land to the ISA in National Institute of Solar Energy (NISE) campus, Gurugram** and has released a sum of Rs. 160 crore for creating a corpus fund, building infrastructure and meeting day to day recurring expenditure of the ISA up to the year 2021-22.
  - NISE is an **autonomous institution** of the **Ministry of New and Renewable (MNRE)** and is the apex National R&D institution in the field of Solar Energy.

### ➤ Highlights of the Assembly:

- **Solar Investments:**
  - A promise to **achieve USD 1 trillion global investments** in solar energy by 2030.
  - A **Solar Investment Action Agenda** and a **Solar Investment Roadmap** will be **launched at COP26 (United Nations (UN) Climate Change Conference)**.
- **On One Sun One World One Grid (OSOWOG):**
  - **Gave a green light** to the "One Sun" political declaration for the launch of **Green Grids Initiative-One Sun One World One Grid (GGI-OSOWOG)** at COP26.
    - **OSOWOG:** The concept of a **single global grid for solar** was first outlined at the **First Assembly of the ISA** in late 2018.
    - **COP 26 Green Grid Initiative:** The aim of this initiative is to help achieve the pace and scale of reforms to infrastructure and market structures needed to underpin the global energy transition.
- **New ISA Programmes:**

- New ISA programmes launched on **management of solar PV panels & battery usage waste and solar hydrogen programme.**

- The **new Hydrogen initiative** is aimed at enabling the use of solar electricity to produce hydrogen at a more affordable rate than what is available currently (USD 5 per KG), by bringing it down to USD 2 per KG.

### ➤ Some Solar Energy Initiatives of India:

- **National Solar Mission** (a part of National Action Plan on Climate Change): To **establish India as a global leader in solar energy**, by creating the policy conditions for its diffusion across the country as quickly as possible.
- **INDC's target:** It targets installing 100 GW grid-connected solar power plants by the year 2022.
  - This is in line with **India's Intended Nationally Determined Contributions (INDCs)** target to achieve about 40% cumulative electric power installed capacity from non-fossil fuel based energy resources and to reduce the emission intensity of its GDP by 33 to 35% from 2005 level by 2030.
- **International Solar Alliance (ISA) and One Sun One World One Grid (OSOWOG):**
- **Government Schemes:** Such as **Solar Park Scheme, Canal bank & Canal top Scheme, Bundling Scheme, Grid Connected Solar Rooftop Scheme** etc.
- **First Green Hydrogen Mobility project:** National Thermal Power Corporation Limited (NTPC) Renewable Energy Ltd (REL) signed a Memorandum of Understanding with the Union Territory of Ladakh to set up the country's first Green Hydrogen Mobility project. **Green hydrogen** is produced by electrolysis of water **using renewable energy (like Solar, Wind)** and has a lower carbon footprint.

## G20 Climate Risk Atlas

### Why in News

Recently, a report named **G20 Climate Risk Atlas** from the **Euro-Mediterranean Center on Climate Change (CMCC)** has said that **G20 (Group of 20) countries** including the wealthiest like the US, European countries, and Australia will bear extreme impacts of **climate change** over the coming years.

Note:

- The **first study of its kind**, it provides climate scenarios, information, data and future changes in climate across the G20 countries.
- The report came two days ahead of the **G20 summit in Rome** at the end of October 2021.

### Key Points

#### ➤ Impact on G20 Countries:

##### ○ Heatwaves:

- **Heatwaves** could last at least ten times longer in all G20 countries, with heatwaves in Argentina, Brazil and Indonesia lasting over 60 times longer by 2050.
  - In Australia, **bushfires, coastal floods** and **hurricanes** could raise **insurance** costs and reduce property values by 611 billion Australian Dollars by 2050.

##### ○ GDP Loss:

- **GDP (Gross Domestic product)** losses due to climate damage in G20 countries increase each year, rising to at least 4% annually by 2050. This can reach over 8% by 2100, equivalent to twice the bloc's economic losses from **Covid-19**.
  - Some countries will be even worse hit, such as Canada, which could see at least a 4% decrease in its GDP by 2050 and over 13% by 2100.

##### ○ Sea Level Rise:

- The **sea level rise** could wreck coastal infrastructure within 30 years, with Japan set to lose 404 billion euro and South Africa 815 million euro by 2050, on a high emissions pathway.

##### ○ Flooding:

- Expected annual damages from **riverine flooding** by 2050 are estimated to be **376.4 billion Euro** under a low emissions scenario and rise to 585.6 billion EUR under a high emissions scenario.

#### ➤ Impact on India:

##### ○ Emission Scenarios:

- **Low Emission** (emissions lower than in present):
  - Projected **temperature** variations will remain contained **under 1.5 degree celsius , both by 2050 and 2100.**
- **Medium Emission** (same as present):
  - Between 2036 and 2065, the maximum temperature of the warmest month in India

could **rise by at least 1.2 degree celsius in a medium emission pathway.**

##### ● High Emission (higher than present):

- By 2050 under a high emission scenario **average temperature could rise to 2 degree celsius.**

##### ○ Rainfall:

- **Annual rainfall** is likely to record a **steep increase by 2050 with an 8% to 19.3% increase in all emission scenarios.**

##### ○ Economic Impact:

- In India, declines in **rice and wheat** yields due to climate change could lead to economic losses between 43 and 81 billion EUR (or 1.8-3.4% of (GDP) by 2050.
- **Water demand for agriculture is likely to rise** around about 29% by 2050 – meaning yield losses are likely to be underestimated.

##### ○ Heatwaves:

- Heatwaves in India will last 25 times longer by 2036-2065 if emissions are high (4°C), over five times longer if global temperature rise is constrained to about 2°C, and one and a half times longer if emissions are very low and temperature rise only reaches 1.5°C.

##### ○ Agricultural Drought:

- On a pathway to 4°C global heating, **agricultural drought will become 48% more frequent** by 2036-2065.
- On a 2°C pathway (the maximum temperature agreed by the **Paris Agreement**) this drops to 20% more frequent, and constraining temperature rise to 1.5°C (the aspirational goal of the Paris Agreement), agricultural drought will still be 13% more frequent.

##### ○ Flooding:

- Under **18 million Indians could be at risk of river flooding** by 2050 if emissions are high, compared to 1.3 million today.

##### ○ Labour:

- **Total labour is expected to decline by 13.4%** under a low emissions scenario by 2050 due to the increase in heat, and by 24% under a medium emissions scenario by 2080.

##### ○ Food Security:

Note:



- In India, **declines in rice and wheat production could spark economic losses** of up to Euros 81 billion by 2050 and a loss of 15% of farmers' incomes by 2100.

## Net Zero Target of Saudi Arabia

### Why in News

Recently, **Saudi Arabia**, one of the world's largest oil producers, announced that it will reach "net zero" greenhouse gas emissions by 2060.

- The announcement came at the start of the kingdom's first-ever **Saudi Green Initiative (SGI) Forum**. SGI aims to raise the vegetation cover, reduce carbon emissions, combat pollution and land degradation, and preserve marine life.



### Key Points

- **Saudi Arabia's Target:**
  - Aims to reach zero-net emissions by 2060 under its **circular carbon economy programme** while maintaining its leading role in strengthening security and stability of global oil markets.
    - That approach focuses on **still unreliable carbon capture and storage technologies** over efforts to actually reduce global reliance on fossil fuels.
  - It would **join a global initiative on slashing emissions of methane by 30% from 2020 levels by 2030**, which both the United States and the **European Union (EU)** have been pressing (**Global Methane Pledge**).
- **Net Zero Target:**
  - **About:**

- **Net-zero**, also means **carbon neutrality**, is a state in which a country's emissions are compensated by absorption and removal of greenhouse gases from the atmosphere.

- It **does not mean that a country would bring down its emissions to zero**. That would be gross-zero, which means reaching a state where there are no emissions at all, a scenario hard to comprehend.

#### ○ Concerns:

- According to a recent report (**Tightening the Net**) by **Oxfam International**, announcing Net Zero Carbon Targets **may be a dangerous distraction from the priority of cutting carbon emissions**.
  - Over **100 countries** have set or are considering net-zero emissions or neutrality targets.

#### ➤ India's Case:

- **India is now the fourth-largest emitter** after China, United States and the European Union, and as per **IPCC's Sixth Assessment Report**, it will be among the most severely affected countries.
- **India has committed to reducing the emission intensity of its Gross Domestic Product (GDP)** by 33-35% by 2030 and having 175 gigawatt renewable energy capacity by 2030 under the **Paris Agreement** of 2016.
- India is **not likely to follow the much-advocated net-zero plan** but would rather dwell on improvising **goals for the transition towards green energy**.
- India believes in the principle of '**common but differentiated responsibility**', as per which the developed countries **must take the first steps to reduce their emissions drastically**. In addition, they should compensate the poorer countries by paying for the environmental damage due to their past emissions.
- According to a **recent study** by the think tank Council for Energy Environment and Water projects, **for India to achieve the net zero target even by 2070**, usage of coal, especially for power generation, will need to peak by 2040 and drop by 99% between 2040 and 2060.

### Circular Carbon Economy

- A circular carbon economy is a **framework for managing and reducing emissions**. It is a closed loop system involving **4Rs: reduce, reuse, recycle, and remove**.

Note:



## Reduce

Energy efficiency and flaring minimization are top actions toward mitigating climate change, as is fossil fuel reduction through substitution with lower carbon energy sources like renewables, hydropower, nuclear and bioenergy.

## Reuse

CO<sub>2</sub> has value and using innovative technologies to capture it means it can be reused as useful products, such as fuels, bioenergy, chemicals, building materials, food and beverages.

## Recycle

CO<sub>2</sub> is chemically transformed into new products such as fertilizer or cement, or other forms of energy such as synthetic fuels.

## Remove

Using technology to capture and store CO<sub>2</sub> is an important way to achieve large-scale reduction of emissions, while increasing photosynthesis by planting flora also contributes toward reduction.

# Report on Heat-trapping Gases in the Atmosphere: WMO

## Why in News

According to the **World Meteorological Organization (WMO) Greenhouse Gas Bulletin**, the abundance of heat-trapping greenhouse gases in the atmosphere once again reached a new record last year (2020), with the annual rate of increase above the 2011-2020 average.

- This is **despite the approximately 5.6% drop in fossil fuel CO<sub>2</sub> emissions in 2020** due to restrictions related to the **pandemic**.
- Earlier, the **WMO** released a report named **United in Science 2021**. WMO is a **specialized agency of the United Nations** for meteorology (weather and climate), operational hydrology and related geophysical sciences.
- The **WMO Global Atmosphere Watch Programme** coordinates systematic observations and analysis of greenhouse gases and other atmospheric constituents.

## Key Points

- **Data Analysis:**
  - **Concentration of Carbon Dioxide (CO<sub>2</sub>)**, the most important greenhouse gas, reached 413.2 parts per million in 2020 and is **149% of the pre-industrial level**.
  - Many countries are now setting **carbon neutral targets** and it is hoped that **COP26** (Climate Conference) will see a dramatic increase in commitments.

## Unclean air

Key greenhouse gas emissions rose faster in 2020 than the average for the previous decade. A comparison of the key trends to pre-industrial levels:



Parameter	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O
2020 global mean abundance	413.2 ± 0.2 ppm	1889 ± 2 ppb	333.2 ± 0.1 ppb
Pre-industrial levels	278 ppm	722 ppb	270 ppb
2020 abundance relative to 1750	149%	262%	123%
2019-2020 absolute increase	2.5 ppm	11 ppb	1.2 ppb
Mean annual absolute increase over past 10 years	2.4 ppm	8 ppb	0.99 ppb

ppm: parts per million | ppb: parts per billion

- **Methane (CH<sub>4</sub>) is 262% and Nitrous Oxide (N<sub>2</sub>O) is 123% of the levels in 1750** when human activities started disrupting Earth's natural equilibrium.
- The **economic slowdown from Covid-19 did not have any distinguishable impact** on the atmospheric levels of greenhouse gases and their growth rates, although there was a temporary decline in new emissions.
- **From 1990 to 2020, radiative forcing** – the warming effect on our climate - by long-lived greenhouse gases **increased by 47%**, with CO<sub>2</sub> accounting for about 80% of this increase.
- The **ability of land ecosystems and oceans to act as "sinks" may become less effective in future**, thus reducing their ability to absorb carbon dioxide and act as a buffer against larger temperature increases.
- **Concerns:**
  - An **increase in the temperature is expected** by the end of this century far in excess of the **Paris Agreement targets** of 1.5 to 2 degrees Celsius above pre-industrial levels.
  - **Parts of the Amazon rainforest** have gone from being a carbon sink that sucks carbon dioxide from the air to a source of CO<sub>2</sub> due to **deforestation** and reduced humidity in the region.
  - Given the long life of CO<sub>2</sub>, the **temperature level already observed will persist for several decades** even if emissions are rapidly reduced to net zero. Alongside rising temperatures, this means **more weather extremes** including intense heat and rainfall, ice melt, sea-level rise and ocean acidification, accompanied by **far-reaching socioeconomic impacts**.

Note:



### ➤ Related Indian Initiatives:

- Seaweed-Based Animal Feed to reduce methane emissions in bovine
- India Greenhouse Gas Program
- **National Action Plan on Climate Change**
- **Bharat Stage-VI Norms**

Type of Greenhouse Gases	Source	Removal Source	Gas Reaction
Carbon dioxide (CO <sub>2</sub> )	<ul style="list-style-type: none"> <li>• Burning of fossil fuels</li> <li>• Deforestation</li> </ul>	<ul style="list-style-type: none"> <li>• Photosynthesis process</li> <li>• Ocean</li> </ul>	
Nitrous oxide (N <sub>2</sub> O)	<ul style="list-style-type: none"> <li>• Burning of biomass</li> <li>• Combustion of fossil fuels</li> <li>• Fertilizers</li> </ul>	<ul style="list-style-type: none"> <li>• Removal by soil</li> <li>• Photolysis in the stratosphere</li> </ul>	<ul style="list-style-type: none"> <li>• Absorption of infrared radiation</li> <li>• Indirectly affect the ozone concentration in the stratosphere</li> </ul>
Fluorinated gases	<ul style="list-style-type: none"> <li>• Emitted through various industrial processes.</li> </ul>	<ul style="list-style-type: none"> <li>• Photolysis and reaction with oxygen</li> </ul>	
Methane (CH <sub>4</sub> )	<ul style="list-style-type: none"> <li>• Burning of biomass</li> <li>• Rice paddies</li> <li>• Fermentation by enteric bacteria</li> </ul>	<ul style="list-style-type: none"> <li>• Microorganism uptake</li> <li>• Reaction associated with hydroxyl groups</li> </ul>	<ul style="list-style-type: none"> <li>• Absorption of infrared radiation</li> <li>• Indirectly affect ozone concentration and water vapor in the stratosphere</li> <li>• Production of CO<sub>2</sub></li> </ul>

## Climate Vulnerability Index

### Why in News

Recently, a report titled “**Mapping India’s Climate Vulnerability – A District-level Assessment**” has been released by the **Council on Energy, Environment and Water (CEEW)** (not-for-profit policy research institution).

- The report has also launched the first-of-its-kind **Climate Vulnerability Index**.
- The index has **analysed 640 districts in India** and found that **463 of these are vulnerable to extreme floods, droughts and cyclones**.

### Key Points

- **Affected States:** 27 Indian states and Union territories are vulnerable to extreme climate events which often disrupt the local economy and displace weaker communities.
  - The states of Assam, Andhra Pradesh, Maharashtra, Karnataka and Bihar are the most vulnerable to extreme climate events such as floods, droughts and cyclones in India.
- **Magnitude of Impact of Climate Change:** More than **80% of Indians live in districts vulnerable to climate risks**.
  - 17 of 20 people in the country are vulnerable to climate risks, out of which every five Indians live in areas that are extremely vulnerable.

- More than 45% of these districts have undergone “unsustainable landscape and infrastructure changes”.

- **Low-level of Adaptability:** More than 60% of Indian districts have medium to low adaptive capacity in handling extreme weather events.
- **Role of Anthropogenic Activities:** The anthropogenic activity has already made vulnerable districts become even more vulnerable to impacts of natural disasters. Some of the activities has led to:
  - Loss of wetlands and loss in mangroves which would act as a natural barrier, making it more vulnerable.
  - Landscape disruptions such as the disappearance of forest cover, over-construction, have led to degradation of natural ecosystems.
- **Triggering Financial Crisis:** Combating the rising frequency and scale of extreme climate events is fiscally draining for developing countries such as India.
  - Investments in infrastructure such as housing, transport, and industries will be threatened by these events, especially along the coasts, adding that mounting weather-related insurance losses could trigger the next financial crisis.

### Suggestions

- **Decentralized Planning:** Since most districts in India are highly vulnerable to extreme weather events, a district-wise climate action plan is required.
  - The CEEW study also indicated that only 63% of Indian districts have a District Disaster Management Plan (DDMP).
  - Policymakers, industry leaders and citizens must use the district-level analysis to make effective risk-informed decisions.
- **Mobilizing Green Finance:** With loss and damage rising exponentially due to the climate crisis, India must demand climate finance for adaptation-based climate actions at **COP-26** (Climate Conference).
  - At COP-26, developed countries must regain trust by delivering the USD 100 billion promised since 2009 and commit to stepping up climate finance over the coming decade.
  - Further, India must collaborate with other countries to create a **Global Resilience Reserve Fund**, which could act as insurance against climate shocks.
- **Climate Risk Identification:** Finally, developing a **Climate Risk Atlas for India** would help policymakers

Note:



to better identify and assess risks arising from extreme climate events.

- Climate-proofing of physical and ecosystem infrastructures should also now become a national imperative.
- **Institutional Setup:** India must create a new **Climate Risk Commission** to coordinate the environmental de-risking mission.
- Enhanced climate finance can also support India-led global agencies like the **Coalition for Disaster Resilient Infrastructure (CDRI)** to further mainstream climate actions.

#### Other Indices Related to Climate Change

- **Climate Change Performance Index** (Germanwatch, the New Climate Institute and the Climate Action Network)
- **Global Climate Risk Index 2021** (Germanwatch)
- **Environmental Performance Index** (Yale University and Columbia University in collaboration with the World Economic Forum).
- **Hunger Hotspots Report** (FAO and WFP)
- **Children's Climate Risk Index** (UNICEF)

## Economics of Climate Change

### Why in News

The **COP26 climate talks** are going to take place in Glasgow. Given the **magnitude of climate change phenomena** occurring all over the world, the upcoming climate deal negotiation is crucial to cap global warming at the **1.5-2 degrees Celsius upper limit** set out in the **2015 Paris Agreement**.

- In this context, it is necessary to analyze the **impact of climate change on economic livelihoods** in the world over and the future stability of the global financial system.

### Key Points

- **Climate Change Cost:** Although there is disagreement on the magnitude, several economists are certain about the **possible impact of global warming on global output**.
  - According to one **International Monetary Fund (IMF)** estimate, unchecked global warming would reduce 7% of world output by 2100.

- The **Network for Greening the Financial System (NFGS)** group of world central banks puts it even higher at 13%.
- **Most Vulnerable Area:** It is unanimously accepted that the **developing world will be the worst affected area** by climate change.
  - Presently, much of the world's poor live in the **tropical or low-lying regions** already suffering climate change fall-out like droughts or rising sea levels.
  - Moreover their countries **rarely have the resources to mitigate** such damage.
- **Impact on Micro-Level:** Climate change will drive up to **132 million more people into extreme poverty by 2030**, a **World Bank** paper last year concluded.
  - Factors included lost farming income; lower outdoor labour productivity; rising food prices; increased disease; and economic losses from extreme weather.
- **Analysing Net Zero Emission Scenario:** '**Net zero emissions**' refers to achieving an overall balance between **greenhouse gas** emissions produced and greenhouse gas emissions taken out of the atmosphere.
  - However, there are **several economic repercussions** owing to Net Zero emissions.
  - A report by **think tank Carbon Tracker** estimated that over **USD 1 trillion of business-as-usual investment** by the oil and gas sector would no longer be viable in a genuinely low-carbon world.
  - Moreover, the IMF has called for the **end of all fossil fuel subsidies** – which it calculates at \$5 trillion annually if defined to include undercharging for supply, environmental and health costs.
  - This may lead to an **unemployment crisis of mass level**.
- **Below Par Carbon Pricing:** Tax or permit schemes that try to price in the damage done by emissions create incentives to go green.
  - However, so far **only a fifth of global carbon emissions** are covered by such programmes, pricing carbon on average at a **mere USD 3 a tonne**.
  - This is well below the **USD 75/tonne** the IMF says is needed to cap global warming at well below 2°C.
- **Risk of Inflation:** Anything which factors in the polluting cost of fossil fuels is likely to lead to **price rises in some sectors**.

Note:



- **Failure of Green Decoupling: Sustainable growth** implies that economic activity can grow as needed without adding yet more emissions.
  - However, this has failed to manifest upto now.
  - Presently, higher rates of economic growth are achieved but it is accompanied by gains in emissions or achieved by shifting dirty production from one national territory to another.
- **Inadequate Green Finance:** At a global scale, the rich countries which since their industrial revolutions have generated the bulk of emissions have **promised to help developing countries** transition via **USD 100 billion** of annual transfers – a promise so far not fulfilled.

## Save Hornbills, Save Tropical Forests

### Why in News:

Scientists from two organisations studied **how fruiting plants and hornbills influenced each other's distribution** in the **Namdapha Tiger Reserve, Arunachal Pradesh**.

- The study strengthens the argument that **hornbills are gardeners or farmers of the forest**, demonstrating that they farm their own food-rich patches **through their seed dispersal**.

### Key Points

- **About the Study:**
  - Hornbills have a **symbiotic relationship** with several canopy trees in **tropical forests**. **In the longer term, this likely creates orchards** that continue attracting hornbills.
  - The study shows that forest patches that have **rare trees like Canarium**, attract hornbills in large numbers (for food). In turn, hornbills end up **dispersing seeds of a diverse array of plant species** in higher numbers in these patches.
- **Hornbills:**
  - **About:** The hornbills (Family Bucerotidae) are a family of birds **found in tropical and subtropical Africa and Asia**.
  - **In India:** India is **home to nine species** of hornbills.
    - The **northeastern region has the highest diversity** of hornbill species within India.

- They are the cultural symbols of some ethnic **communities in the northeast**, specifically the **Nyishi of Arunachal Pradesh**.
- The **Hornbill festival** celebrated in **Nagaland** is named after the bird – Hornbill which is the most revered and admired bird for the Nagas.
- **Threats:**
  - Hornbills are **hunted for their casques - upper beak - and feathers** for adorning headgear. They are also **poached for their meat and medicinal value** of their body parts.
    - A **conservation programme promoting the use of fibre-glass beaks** for headgear instead of real hornbill casques has helped reduce some threat to it.
  - **Illegal logging i.e. cutting of tall trees** where the hornbill birds nest and feed has led to destruction of its natural habitat.

### India's 9 Hornbill Species

- **The Great Hornbill:**
  - **Habitat:** Western Ghats and Himalayas. **Largest of all hornbills in India, state bird of Arunachal Pradesh and Kerala**.
  - **IUCN Red List:** Vulnerable
  - **CITES:** Appendix I
  - **Wildlife Protection Act (WPA), 1972:** Schedule I
- **Rufous-necked Hornbill:**
  - **Habitat:** It has the Northernmost extent. Whole of North-East India to Mahananda Wildlife Sanctuary in West Bengal.
  - **IUCN Red List:** Vulnerable
  - **CITES:** Appendix I
- **Wreathed Hornbill:**
  - **Habitat:** North-East India.
  - **IUCN Red List:** Vulnerable
  - **CITES:** Appendix II
- **Narcondam Hornbill:**
  - **Habitat:** Endemic to the Indian island of Narcondam in Andamans.
  - **IUCN Red List:** Vulnerable
  - **CITES:** Appendix I
  - **WPA, 1972:** Schedule I
- **Malabar Pied Hornbill:**
  - **Habitat:** Evergreen and moist deciduous forests in India and Sri Lanka.

Note:



- IUCN Red List: Near Threatened
- CITES: Appendix II.
- **Oriental Pied Hornbill:**
  - **Habitat:** Subtropical or tropical moist lowland forests.
  - IUCN Red List: Least Concern
  - CITES: Appendix II
- **Austen's Brown Hornbill:**
  - **Habitat:** Forests of North East India, majorly in Namdapha National Park, Arunachal Pradesh.
  - IUCN Red List: Near Threatened
  - CITES: N/A
- **Malabar Grey Hornbill:**
  - **Habitat:** Western Ghats.
  - IUCN Red List: Least Concern
  - CITES: N/A
- **Indian Grey Hornbill:**
  - **Habitat:** Foothills of Southern Himalayas.
  - IUCN Red List: Least Concern
  - CITES: N/A

### Namdapha National Park

- **About:** It was declared a National Park in 1983. In the same year, it was also declared as a **Tiger Reserve**.
- **Geography:**
  - It lies at the international border between **India and Myanmar** in the state of Arunachal Pradesh.
  - Namdapha is surrounded by the **Patkai hills to the south and south-east** and by the **Himalaya in the north**.
  - Namdapha is in fact the **name of a river** originating in the Park and **it meets Noa-Dehing river**. The Noa-Dehing river, is a **tributary of the Brahmaputra** and flows in a North-South direction in the middle of the National Park.
- **Climate:** Enjoys the **sub-tropical climate**. The **mountainous part has a mountain type of climate** while the **low lying plains and valleys experience tropical climate**.
- **Vegetation:** The **vegetation is characteristic of tropical evergreen forests (Tropical Rain Forests)**.
- **Fauna:**
  - It is the **only park in the World** to have the **four species of big cat** namely the **Tiger, Leopard, Snow Leopard and Clouded Leopard**.

- A number of primate species such as **Assamese macaque, pig-tailed macaque, stump-tailed macaque**.
- **Hoolock Gibbons, the only 'ape' species found in India** is found in this National Park.
- Of the many other important animals are the **elephants, black bear, Indian Bison**, and a variety of arboreal animals.
- Among the **bird species**, most notable are the **White winged Wood Ducks, a rare and endangered species**. It is also **home to 5 out of 9 species of Hornbill** including the great Indian hornbill.

### National Parks & Sanctuaries of Arunachal Pradesh



## Indian Railway to be Net Zero Emitter by 2030

### Why in News

Recently, **Indian Railways (IR)** has announced that it is **likely to become world's first 'net-zero' carbon emitter by 2030**.

- IR is taking a multi-pronged approach to go green and decarbonise - from increasing its sourcing of **Renewable Energy (RE)** to electrifying its **traction network** and reducing its energy consumption.

### Key Points

- **About:**
  - **Indian Railways:** IR is the **world's fourth largest** railway network in terms of size. It is **one of the largest electricity consumers** in the country.
  - **Passenger Services:** Transports 24 million passengers every day across the subcontinent on 13,000 trains covering approximately 67,956 km.

Note:

- **Freight Services:** 3.3 million tonnes of freight per day, and thus the **fuel requirements are massive.**
- **Contribution in Total Emissions:** India's **transport sector contributes to 12% of the country's greenhouse gas emissions** with the **railways accounting for about 4%** of these emissions.
- **Potential of Emissions Reduction:** The Indian Railways can raise the official target of 50% freight share by 2030, up from its current share of 33%.
  - By shifting freight to rail and optimising truck use, India can **reduce logistics costs from 14-10% of Gross Domestic Product and carbon dioxide emissions by 70% by 2050** compared to a business-as-usual scenario.
- **Initiatives taken by Indian Railways:**
  - **Increased the Amount of Freight:** Indian Railways to increase the amount of freight moved by it from about 35% in 2015 to 45% by 2030 to reduce overall emissions from transportation.
  - **Complete Electrification:** Complete electrification of Indian Railways is targeted by financial year 2024. It will be the world's largest 100% electrified rail transportation system by then.
  - **Use of Solar Power:** Plans to install **20 GigaWatts (GW) of solar** for both traction loads and non-traction loads.
    - Built a 1.7-MW solar power plant in **Bina, Madhya Pradesh**, in July 2020. It is the **first solar energy plant in the world to directly power railway overhead lines**, from which locomotives draw traction power.
    - A 2.5-MW solar project in **Diwana, Haryana**.
    - Work on a third pilot with a capacity of 50 MW has begun in **Bhilai (Chhattisgarh)**.
    - A 16-kW solar power plant has been installed as platform shelter at the **Sahibabad Railway Station**.
    - The railways ministry has **installed solar panels at over 960 stations** and is using solar power to meet railway station energy needs.
  - **Participation of Private Sector:** The ministry has included provisions for a Letter of Credit (LC) in the event of railway payment default, as well as a penalty for late payment in the model bidding document for solar power developers.
    - This is to encourage the private sector to participate in the project.
- **Challenges:**
  - **No-objection certificate for open access:** The No objection Certificate (NoC) for open access to electricity flow for railways in West Bengal, Tamil Nadu, Chhattisgarh, Odisha, Andhra Pradesh, Kerala and Telangana has **not been operationalised due to regulatory challenges** that the railways are vigorously pursuing.
    - If approval for procuring power through open access is granted in these states, solar deployment may increase.
  - **Wheeling and banking provision:** Full deployment of solar potential will become more feasible if states provide wheeling and banking arrangements.
  - **Merger of solar purchase obligation and non-solar purchase obligation:** The consolidation of solar and non-solar obligations will allow the railways to meet their **Renewable Purchase Obligations**.

#### Net-Zero Emissions

- It refers to achieving an overall balance between greenhouse gas emissions produced and greenhouse gas emissions taken out of the atmosphere.
  - First, human-caused emissions (like those from fossil-fueled vehicles and factories) **should be reduced as close to zero as possible.**
  - Second, any remaining GHGs should be **balanced with an equivalent amount of carbon removal, for example by restoring forests.**
- **Global Scenario:**
  - As of June 2020, twenty countries and regions have adopted net-zero targets.
  - The **Kingdom of Bhutan is already carbon-negative**, i.e. absorbs more CO<sub>2</sub> than it emits.
- **Indian Scenario:**
  - India's per capita CO<sub>2</sub> emissions – at 1.8 tonnes per person in 2015 – are around a ninth of those in the USA and around a third of the global average of 4.8 tonnes per person.
  - However, overall, **India is now the planet's third-largest emitter of CO<sub>2</sub>**, behind China and the USA.
  - **Sectors that are the largest emitters:**  
Energy > Industry > Forestry > Transport > Agriculture > Building

Note:

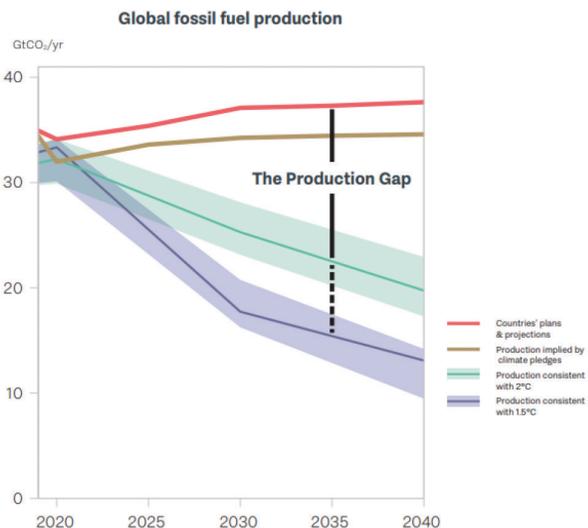
- **Unrestricted net metering regulations:** Unrestricted net metering for rooftop solar projects would hasten the deployment of railway solar plants.

## UNEP Production Gap Report

### Why in News

Recently, the **2021 Production Gap Report** was released by the leading research institutes and the **United Nations Environment Programme (UNEP)**.

- The Production Gap Report, first launched in 2019, tracks the discrepancy between governments' planned fossil fuel production and global production levels consistent with limiting warming to 1.5°C or 2°C.
- **UNEP's Major Reports: Emission Gap Report, Adaptation Gap Report, Global Environment Outlook, Making Peace with Nature.**



### Key Points

- **Findings of the Report:**
  - **Increase in Production Gap:**
    - The **production gap** to achieve the climate goal is the **widest for coal**: Production plans and projections by governments would lead to around **240% more coal, 57% more oil, and 71% more gas in 2030 than global levels consistent with limiting warming to 1.5°C.**
    - The most worrying factor is that **almost all major coal, oil and gas producers are planning to increase their production till at least 2030 or beyond.**

### Effects of Covid-19:

- The production gap has been **fuelled by incremental capital flow towards fossil fuels** in comparison to clean energy in the post novel coronavirus disease (**Covid-19**) recovery phase.
  - The **Group of 20 countries (G20)** has channelised USD300 billion to fossil fuels since the beginning of the pandemic, and the sector is still enjoying significant fiscal incentives.

### India's Position:

- India's first **NDC (Nationally Determined Contribution)**, issued in 2016, pledged a 33%-35% reduction in the "emissions intensity" of its economy by 2030, compared to 2005 levels.
- The report quotes a 2020 Government of India press release, to **shine a light on India's plans to raise coal production.**
  - The government seeks to "unleash the power of coal" and become self-reliant by 2023-24; it also wants to bring about "a paradigm shift in approach from being oriented to maximum revenue from coal to maximum coal available in the market at the earliest."
  - **India plans to augment coal production from 730 million tonnes in 2019 to 1,149 million tonnes in 2024.**
- India also aims to **increase total oil and gas production by over 40%** in the same period through measures such as accelerated exploration licensing, faster monetization of discoveries, and gas marketing reforms.

### Suggestions:

- **Early efforts from development finance institutions** to cut international support for fossil fuel production are encouraging, but **these changes need to be followed by concrete and ambitious fossil fuel exclusion policies** to limit global warming to 1.5°C.
- **Fossil-fuel-producing nations must recognize their role and responsibility** in closing the production gap and steering the world towards a safe climate future.
- As countries increasingly commit to net-zero emissions by mid-century, they also **need to recognize the rapid reduction in fossil fuel production** that their climate targets will require.

Note:

### Measures Taken by India to Reduce Fossil Fuel Emissions

- **India Greenhouse Gas Program:** It is an industry-led voluntary framework to measure and manage greenhouse gas emissions.
- **National Action Plan on Climate Change:** It was launched in 2008 which aims at creating awareness among the representatives of the public, different agencies of the government, scientists, industry and the communities on the threat posed by climate change and the steps to counter it.
- **Bharat Stage-VI Norms:** India shifted from **Bharat Stage-IV (BS-IV) to Bharat Stage-VI (BS-VI)** emission norms.
- Push to **Renewable Energy**.

## Disappearing African Rare Glaciers

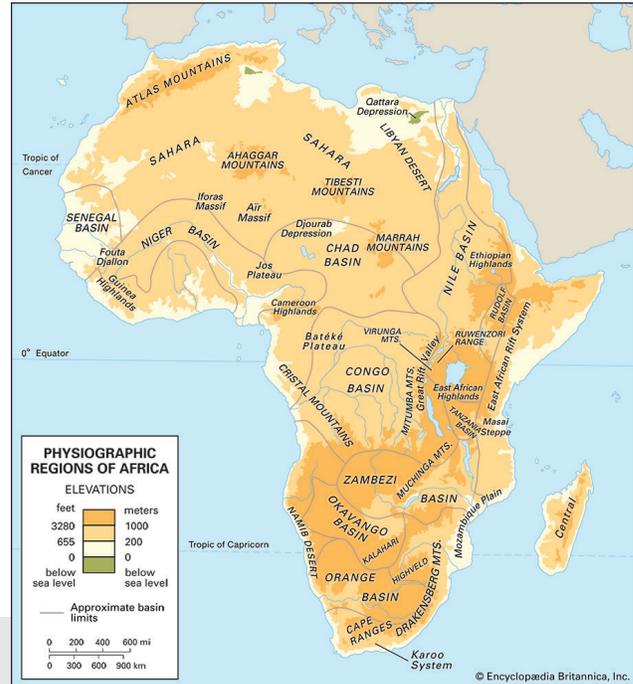
### Why in News

Recently, a report from the **World Meteorological Organisation (WMO)** stated that Africa's rare glaciers will disappear in the next two decades due to climate change.

- Their current retreat rates are higher than the global average. If this continues, it will lead to total **deglaciation** by the 2040s.
- WMO is one of the specialized agencies of the **United Nations (UN)**. It produces annually the **State of the Global Climate Report**.

### Key Points

- **Highlights of the Report:**
  - **Africa** is the continent that **contributes least to global warming yet it is going to suffer the most.**
    - While African nations contribute less than **4% of global greenhouse gas emissions**, the report underscored the **outsize impact that changes in the climate** are having on the continent's 1.3 billion people.
  - The last three **mountain glaciers in Africa (Mount Kilimanjaro (Tanzania), Mount Kenya (Kenya) and the Ruwenzori Mountains (Uganda))** are receding at such a rapid pace that they could disappear within two decades.



- In **sub-Saharan Africa**, climate change could further **lower gross domestic product by up to 3% by 2050.**
  - The **cost of adapting to climate change** in Africa will rise to **\$50 billion per year by 2050.**
- The Indian Ocean island nation of **Madagascar** is **one where "famine-like conditions"** have been driven by climate change.
- The parts of **South Sudan** are seeing the **worst flooding** in almost 60 years.
- Further, **massive displacement, hunger and increasing climate shocks** such droughts and flooding are expected to increase in the future.
  - This is having a **major impact on disaster warnings** for millions of people in Africa.
- **Deglaciation:**
  - **About:**
    - Glaciers, ice caps and continental **ice sheets cover some 10% of the earth's land surface** at the present time, whereas during the ice ages, they covered about three times this amount.
      - The present ice cover corresponds to about **three-quarter of the world's total freshwater resources.**
    - The **gradual melting away of a glacier from the surface of a landmass** is known as **Deglaciation.**
      - The **processes that remove snow, ice, and moraine from a glacier** or ice sheet are called

Note:

**Ablation.** It includes melting, evaporation, erosion, and calving.

- The process of deglaciation, which **intensified in the 20<sup>th</sup> century**, is leaving the planet iceless.
- **Causes of Deglaciation:**
  - **Global Warming:** The atmospheric concentration of carbon dioxide, methane and other greenhouse gases (GHGs) produced by industry, transport, deforestation and burning fossil fuels, amongst other human activities, warm the planet and cause glaciers to melt.
  - **Ocean Warming:** Oceans absorb 90% of the Earth's warmth, and this affects the melting of marine glaciers, which are mostly located near the poles.
  - **Rapid Industrialisation:** Since the early 1900s, many glaciers around the world have been rapidly melting, specifically, since the industrial revolution, carbon dioxide and other greenhouse gas emissions have raised temperatures, even higher in the poles, and as a result, glaciers are rapidly melting, calving off into the sea and retreating on land.

## E-Waste Generation

### Why in News

**International E-Waste Day** has been observed on **14<sup>th</sup> October** since 2018.

- The aim of the day is **to raise awareness** about the **millions of tonnes of e-waste generated worldwide** each year, which has a negative impact on the environment and natural resources.
- Earlier this year, the Principal Bench of **National Green Tribunal (NGT) issued directions** for the implementation of **E-Waste (Management) Rules, 2016**.

### Key Points

- **E-Waste:**
  - E-Waste is short for **Electronic-Waste** and the term is used to describe old, end-of-life or discarded electronic appliances. It includes their components, consumables, parts and spares.
  - It is **categorised into 21 types** under two broad categories:
    - Information technology and communication equipment.

### International E-Waste Day

- This year's International E-Waste Day highlights the **crucial role each of us play in making e-product circularity a reality**.
- According to the **United Nations**, by 2021, **each person on the planet would produce an average of 7.6 kg of e-waste**, resulting in a global total of 57.4 million tonnes of e-waste.
- **Only 17.4% of this electronic garbage**, which contains a combination of hazardous compounds and valuable materials, will be appropriately collected, processed, and recycled.

- Consumer electrical and electronics.
- **Laws to manage e-waste** have been in place in India since 2011, mandating that only authorised dismantlers and recyclers collect e-waste. **E-waste (Management) Rules, 2016** was enacted in 2017.
- **India's first e-waste clinic** for segregating, processing and disposal of waste from household and commercial units has been set-up in **Bhopal, Madhya Pradesh**.
- Originally, the **Basel Convention** (1992) did not mention e-waste but later it addressed the issues of e-waste in 2006 (COP8).
  - The **Nairobi Declaration** was adopted at COP9 of the **Basel Convention on the Control of the Trans-boundary Movement of Hazardous Waste**. It aimed at creating innovative solutions for the environmentally sound management of electronic wastes.
- **E-waste Generation:**
  - This year's **Waste Electrical and Electronic Equipment (WEEE)** will total about **57.4 million tonnes (MT)** and will be **greater than the weight of the Great Wall of China**, Earth's heaviest artificial object.
  - According to the **Central Pollution Control Board (CPCB)**, India generated **more than 10 lakh tonnes of e-waste in 2019-20**, an increase from 7 lakh tonnes in 2017-18. Against this, the e-waste dismantling capacity has not been increased from 7.82 lakh tonnes since 2017-18.
- **Challenges Related to Management of E-Waste in India:**
  - **Less Involvement of People:**
    - A key factor in used electronic devices not being

Note:

given for recycling was because consumers themselves did not do so.

- However, in recent years, countries around the world have been attempting to pass effective 'right to repair' laws.

#### ○ Involvement of Child Labor:

- In India, about 4.5 lakh child laborers in the age group of 10-14 are observed to be engaged in various E-waste activities and that too without adequate protection and safeguards in various yards and recycling workshops.

#### ○ Ineffective Legislation:

- There is absence of any public information on most **State Pollution Control Boards (SPCBs)/ PCC** websites.

#### ○ Health hazards:

- E-waste contains over **1,000 toxic materials**, which contaminate soil and groundwater.

#### ○ Lack of incentive schemes:

- **No clear guidelines are there** for the unorganized sector to handle E-waste.
- Also, no incentives are mentioned to lure people engaged to adopt a formal path for handling E-waste.

#### ○ E-waste Imports:

- Cross-border flow of waste equipment into India- 80% of E-waste in developed countries meant for recycling is sent to developing countries such as India, China, Ghana and Nigeria.

#### ○ Reluctance of Authorities' involved:

- **Lack of coordination between various authorities** responsible for E-waste management and disposal including the non-involvement of municipalities.

#### ○ Security Implications:

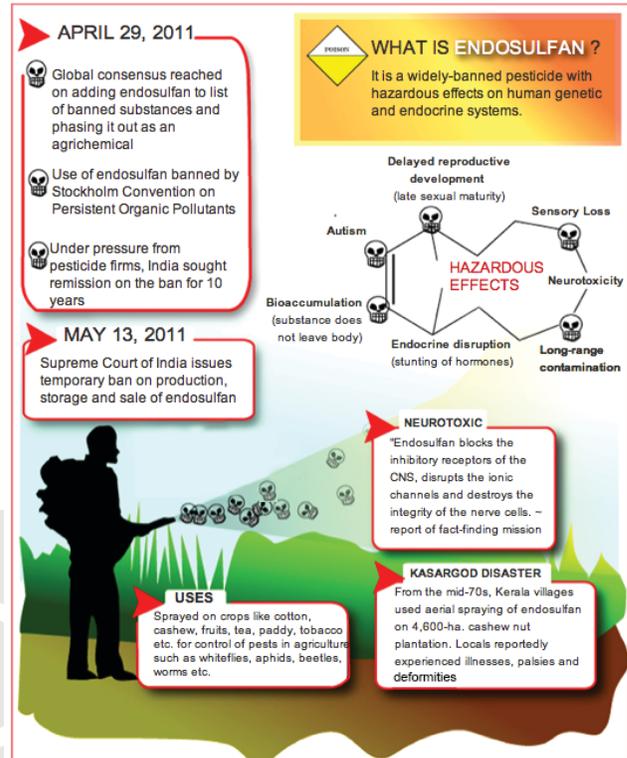
- End of life computers often contain sensitive personal information and bank account details which, if not deleted leave opportunity for fraud.

## Endosulfan

### Why in News

Protestors at Periya Plantation Corporation godown in **Kasaragod, Kerala** have called for **returning endosulfan** (an organochlorine pesticide) to the manufacturing firm for safe disposal.

- In **2011**, the **supreme court banned endosulfan throughout India**. Use of endosulfan causes a great threat to the balance of the environment.



## Climate Finance

### Why in News

Recently, the Finance Minister of India and her US counterpart met for the eighth ministerial meeting of the U.S.-India Economic and Financial partnership.

- The major highlight of the ministerial meeting is that it discussed **climate finance** for the first time under the aegis of **Climate Action and Finance Mobilization Dialogue** (CAFMD).

### Key Points

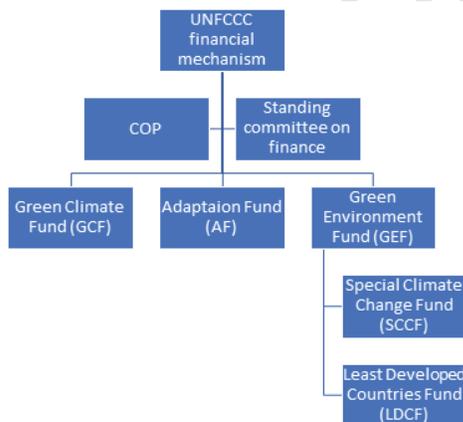
- **About:**
  - Climate finance refers to **local, national or trans-national financing**—drawn from public, private and alternative sources of financing—that seeks to **support mitigation and adaptation actions** that will address **climate change**.
  - Climate finance is **needed for mitigation, because large-scale investments are required** to significantly reduce emissions.

Note:

- It is equally **important for adaptation, as significant financial resources are needed to adapt to the adverse effects** and reduce the impacts of a changing climate.

#### ➤ Climate Finance & UNFCCC:

- To facilitate the provision of climate finance, the **United Nations Framework Convention on Climate Change (UNFCCC)** has established the financial mechanism to provide financial resources to developing country Parties.
  - **The Adaptation Fund under Kyoto Protocol:** It aims to finance concrete projects and programmes that help vulnerable communities in developing countries that are Parties to the **Kyoto Protocol** to adapt to climate change.
  - **Green Climate Fund:** It is the financial mechanism of the UNFCCC, established in 2010.
    - India has been pushing for rich countries to meet their **Paris Accord** climate finance commitment of **USD 100 billion per year**.
  - **Global Environment Fund (GEF):** GEF has served as an operating entity of the financial mechanism since the Convention came into force in 1994.
    - It is a private equity fund focused on seeking long term financial returns by investments in clean energy under climate change.
  - GEF also maintains two additional funds, the **Special Climate Change Fund (SCCF)** and the **Least Developed Countries Fund (LDCF)**.



#### ➤ Climate Financing in India:

- **National Adaptation Fund for Climate Change (NAFCC):**
  - It was established in 2015 to **meet the cost of adaptation to climate change for the State and**

**Union Territories** of India that are particularly vulnerable to the adverse effects of climate change.

#### ○ National Clean Energy Fund:

#### Principles of Climate Finance

##### ➤ Polluter Pays:

- The '**polluters pays**' principle is the commonly accepted practice according to which those **who produce pollution should bear the costs** of managing it to prevent damage to human health or the environment.
- This principle underpins most of the regulation of pollution affecting land, water and air formally known as the **1992 Rio Declaration**.
- It has also been applied more specifically to emissions of greenhouse gases which cause climate change.

##### ➤ Common but Differentiated Responsibility and Respective Capability (CBDR-RC):

- CBDR-RC is a principle within the **UNFCCC**. It acknowledges the different capabilities and differing responsibilities of individual countries in addressing climate change.

##### ➤ Additionality:

- Climate finance should be **additional to existing commitments** to avoid the diversion of funding for development needs to climate change actions.
- This includes use of public climate finance and **investments by the private sector**.

##### ➤ Adequacy & Precaution:

- In order to take **precautionary measures** to prevent or minimise the causes of climate change as a stated goal under UNFCCC, the **level of funding needs to be sufficient to keep a global temperature within limits** as possible.
- A better level of adequacy might be increased in the national estimates of the needed climate funds, this will help build planned investments with respect to INDC.

##### ➤ Predictability:

- Climate finance must be predictable to **ensure sustained flow of climate finance**.
- It can be done through multi-year, medium-term funding cycles (3-5 years).
- This allows for an adequate investment program to scale up the country's national adaptation and mitigation priorities.

Note:

- The Fund was created to **promote clean energy**, funded through an initial carbon tax on use of coal by industries.
  - Governed by an Inter-Ministerial Group with the Finance Secretary as the Chairman.
  - Its mandate is to fund research and development of innovative clean energy technology in the fossil and non fossil fuel based sectors.
- **National Adaptation Fund:**
    - The fund was established in 2014 with a corpus of Rs. 100 crore with the aim of bridging the gap between the need and the available funds.
    - The fund is operated under the **Ministry of Environment, Forests and Climate Change (MoEF&CC)**.



Note:

# History

## Highlights

- *Bhaskarabda: A Luni-Solar Calendar*
- *Mount Manipur and Anglo-Manipur War*
- *Azad Hind Formation Anniversary*

## Bhaskarabda: A Luni-Solar Calendar

### Why in News

Recently, the Assam Government has announced that **Bhaskarabda, a Luni-Solar Calendar** will be used as an official calendar.

- Presently, the official calendar of Assam government makes use of the **Saka calendar and the Gregorian calendar**.
- However, the **Bhaskarabda calendar will also be used** from now onwards.

### Key Points

- **About:**
  - Bhaskarabda, an era counted from the date of the ascension of a **7<sup>th</sup> century local ruler Bhaskar Varman**.
  - It is based on **both the phases of the moon and the solar year**.
  - It began when **Bhaskaravarman was crowned ruler of the Kamrupa kingdom**.
    - He was a contemporary and political ally of northern Indian ruler **Harshavardhana**.
  - The **gap between Bhaskarabda and Gregorian is 593 years**.
- **Type of Calendars:**
  - **Solar:**
    - Any dating system **based on the seasonal year of approximately 365 1/4 days**, the time it takes the Earth to revolve once around the Sun.
  - **Lunar:**
    - Any dating system **based on a year consisting of synodic months**—i.e., complete cycles of phases of the Moon.

### ○ Luni-Solar:

- In the lunisolar calendar **months are lunar but years are solar**, it was used in the early civilizations of the **whole Middle East** and in Greece.

### ➤ Bhaskarvarman (600–650):

- He belonged to the **Varman dynasty** and was the **ruler of Kamarupa Kingdom**.
  - **Kamarupa** was one of the most advanced kingdoms in India under Bhaskaravarman. Kamarupa was the first historical kingdom of Assam.
- His name has been immortalised in the accounts of the **Chinese Buddhist pilgrim, Xuanzang**, who visited Kamarupa during his reign.
- He is **known for his alliance with Harshavardhana against Shashanka**, the first major ruler of Bengal (Karnasuvarna).

### Classification of calendars in India

#### ➤ Vikram Samvat (Hindu lunar calendar):

- It dates back to 57 B.C where **57 B.C. is the zero year**.
- Introduced by **King Vikramaditya** to mark his victory over the **Saka rulers**.
- It is a lunar calendar as it is **based on the movement of the moon**.
- Every year is divided into 12 months and each month is divided into two phases.
  - The **bright half is called the Shuklapaksha** (15 days). It starts with the new moon and ends with a full moon.
  - The **dark half is called the Krishnapaksha** (15 days). It starts with the full moon and ends with a new moon.
- The month begins with the dark half. There are 354 days in a year.

Note:

- Hence **every third and fifth year in a cycle of five years** has 13 months (the 13<sup>th</sup> month is called Adhik Mass).

➤ **Saka Samvat (Hindu Solar calendar):**

- The zero year of Saka Samvat is 78 A.D.
- It was started by **Saka rulers to mark their victory over Kushanas.**
- It is a solar calendar, any dating system based on the seasonal year of approximately 365 1/4 days, the time it takes the Earth to revolve once around the Sun.
- It was adopted by the Government of India as the **official calendar in the year 1957.**
- Every year has 365 days.

➤ **Hijri calendar (Islamic lunar calendar):**

- The zero year is 622 A.D.
- It was initially **started and followed in Saudi Arabia.**
- Every year has **12 months and 354 days.**
- The **first month is called Muharram.**
- Ninth month is called **Ramzaan.**
  - During this month, Muslims observe a fast for the purification of souls. The morning breakfast is called Shehri and evening food is called Iftar.

➤ **Gregorian calendar (Scientific solar calendar):**

- The Gregorian calendar is used as the civil calendar.
- It began to be **used from 1582.**
- It is named after **Pope Gregory XIII**, who introduced the calendar.
- It substituted the earlier Julian calendar because the Julian calendar had a **miscalculation regarding leap year.**
  - The Julian year had 365.25 days.

## Mount Manipur and Anglo-Manipur War

### Why in News

Recently, the Union government has **renamed Mount Harriet of Andaman and Nicobar (A&N) Islands to Mount Manipur.**

### Key Points

➤ **About:**

- Mount Harriet, the **third-highest island peak** in A&N Islands, where **Manipur's Maharaja Kulchandra Singh** and 22 other freedom fighters were **imprisoned during the Anglo-Manipuri war (1891).**
- It has been renamed in a tribute to those freedom fighters of Manipur.
  - Manipur celebrates **Khongjom Day on 23<sup>rd</sup> April** in commemoration of the freedom fighters of Anglo-Manipuri War.



➤ **Anglo-Manipuri War:**

○ **Background:**

- In **1886**, when Surchandra inherited the throne from his father Chandrakirti Singh, the **kingdom of Manipur was not under British rule** but had links with the crown through different treaties.
- However, **Surchandra's ascension to the throne was controversial** and his **younger brothers - Kulachandra, Tikendrajit - revolted** against him.
- The **1890 coup by the rebel faction removed Surchandra, and proclaimed Kulachandra**, the next oldest brother, **the king.** Surchandra fled to Calcutta **seeking British help** to reinstate him.

○ **British Imposition:**

- The British **dispatched James Quinton**, the Chief Commissioner of Assam, **with an army to Manipur.** His mission was to recognise Kulachandra as the king **under the condition that they be allowed to arrest the coup leader Crown Prince Tikendrajit** and deport him from Manipur.
- This aggressive imposition of British law in a sovereign state was rejected by the king, **precipitating the Anglo-Manipuri War of 1891.**

○ **Culmination:**

- In the **first phase of the war**, the British surrendered and their officers - including Quinton - were executed in public.
- In the **second phase**, the British attacked Manipur from three sides, and finally **captured the Kangla Fort in Imphal.**

Note:

- Prince Tikendrajit and four others were hanged by the British, while Kulachandra, along with 22 others, were deported to the Andaman Islands.
- Despite their victory, it had led to the death of five important officers.
  - In India, it was viewed as being part of the general uprising against British rule in the country, soon after the **Revolt of 1857**.
- The **war led to Manipur officially becoming a princely state** under the indirect rule of the British crown.

## Azad Hind Formation Anniversary

### Why in News

The anniversary of the formation of the **Azad Hind Government** is celebrated on **21<sup>st</sup> October every year**.

- The day marks the **announcement of India's first independent provisional government** named Azad Hind Government.

### Key Points

- On **21<sup>st</sup> October 1943**, **Subhash Chandra Bose** announced the **formation of the Provisional Government of Azad Hind (Free India) in Singapore**, with himself as the Head of State, Prime Minister and Minister of War.
- The Provisional Government not only enabled Bose to negotiate with the Japanese on an equal footing but also **facilitated the mobilisation of Indians in East Asia to join and support the Indian National Army (INA)**.
  - The struggle for independence was carried on by Subhash Chandra Bose from abroad. He found the **outbreak of the Second World War** (1939-45) to be a convenient opportunity to strike a blow for the freedom of India.
  - Bose had been put **under house arrest in 1940** but he managed to **escape to Berlin** on 28<sup>th</sup> March, 1941. The Indian community there **acclaimed him as the leader (Netaji)**. He was **greeted with 'Jai Hind' (Salute to the motherland)**.
  - In **1942**, the **Indian Independence League was formed** and a decision was taken to form the Indian National Army (INA) for the liberation of India.

- On an invitation from Ras Bihari Bose, Subhash Chandra Bose **came to East Asia on 13<sup>th</sup> June, 1943**. He was made **president of the Indian Independence League and the leader of the INA** popularly called '**Azad Hind Fauj**'.
- The **INA was first formed under Mohan Singh and Japanese Major Iwaichi Fujiwara** and comprised Indian prisoners of war of the British-Indian Army captured by Japan in the Malayan (present-day Malaysia) campaign and at Singapore.
- In **November 1945**, a British move to put the **INA men on trial** immediately sparked massive demonstrations all over the country.
- He gave the famous **battle cry 'Chalo Dilli'**. He promised independence to Indians saying, 'tum mujhe khoon do, main tumhe Azadi dunga' (You give me blood, I will give you freedom).

### Subhash Chandra Bose

#### ➤ Birth:

- Subhas Chandra Bose was born on **23<sup>rd</sup> January 1897**, in Cuttack, Orissa **Division, Bengal Province**, to Prabhavati Dutt Bose and Janakinath Bose.
- His Jayanti is celebrated as '**Parakram Diwas**' on 23<sup>rd</sup> January.



#### ➤ Education and Early Life:

- In 1919, he had **cleared the Indian Civil Services (ICS) examination**. Bose, however, resigned later.
- He was highly influenced by **Vivekananda's teachings** and considered him as his spiritual Guru.
- His **political mentor was Chittaranjan Das**.
  - He worked as the editor for Das's newspaper, Forward, and later started **his own newspaper, Swaraj**.

#### ➤ Association with Congress:

- He stood for **unqualified swaraj (independence)**, and **opposed the Motilal Nehru Report** which spoke for dominion status for India.
- He actively **participated in the Salt Satyagraha of 1930** and vehemently **opposed the suspension of Civil Disobedience Movement** and signing of the **Gandhi-Irwin Pact in 1931**.

Note:

- In the 1930s, he was closely **associated with left politics** in Congress along with **Jawaharlal Nehru and M.N. Roy**.
- Bose **won the congress presidential elections at Haripura in 1938**.
- **Again in 1939 at Tripuri**, he won the presidential elections against Gandhi's candidate Pattabhi Sitarammaya. Due to ideological differences with
  - Gandhi, Bose resigned and left congress. Rajendra Prasad was appointed in his place.
- He founded **a new party, 'the Forward Bloc'**. The purpose was to consolidate the political left and major support base in his home state Bengal.
- **Death:** He is said to have **died in 1945** when his plane crashed in Taiwan. However, there are still many conspiracy theories regarding his death.



Note:

# Geography

## Highlights

- Widespread Northeast Monsoon: IMD
- Water Level in Mullaperiyar Dam
- Double-Dip La Niña

## Widespread Northeast Monsoon: IMD

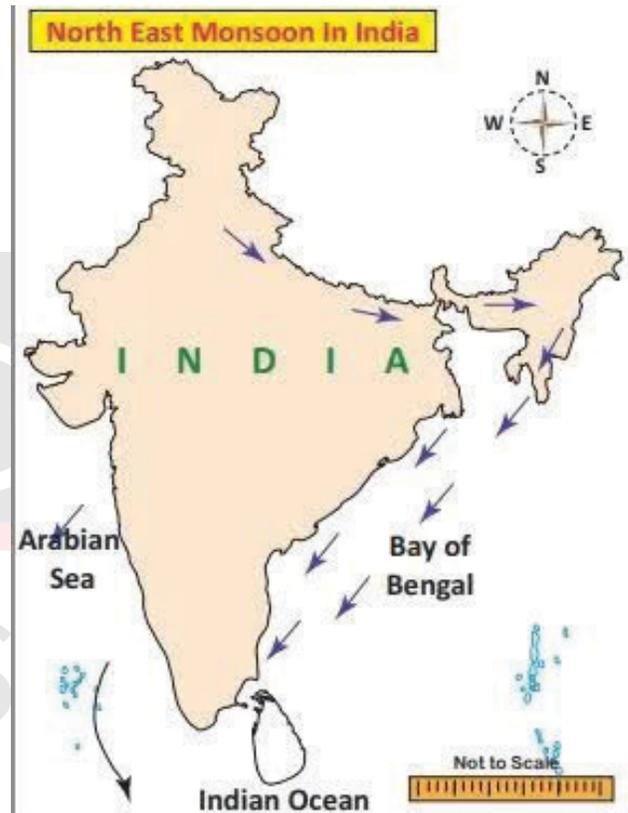
### Why in News

According to the **India Meteorological Department (IMD)**, the northeast monsoon, which makes up for most of Tamil Nadu's annual rainfall, has arrived.

- Normally, the northeast monsoon sets in around 20<sup>th</sup> October.
- The prolonged **southwest monsoon** has led to the delay in onset this year.

### Key Points

- **About the Monsoon:**
  - Generally, across the world, the **monsoons** are experienced in the **tropical area** roughly between 20° N and 20° S.
  - The climate of India is described as the '**monsoon**' type.
  - In Asia, this type of climate is found mainly in the **south and the southeast**.
  - **Rainfall in India:**
    - **Southwest monsoon:** About 75% of the country's annual rainfall is received from the Southwest monsoon between **June and September**.
    - **Northeast monsoon:** It occurs during **October to December**.
- **North East Monsoon (NEM):**
  - **Winter Monsoon:** It is a comparatively **small-scale monsoon**, which is confined to the Southern peninsula.
    - It is called the **winter monsoon**.
  - **Factors Behind Northeast Monsoon:**



- **Change in Wind pattern:** After the complete withdrawal of the Southwest monsoon from the country takes place by mid-October, the **wind pattern rapidly changes** from the **south-westerly** to the **north-easterly** direction.
- **Cyclonic Activities:** The period after the Southwest monsoon season, from October to December, is the peak time for cyclonic activity in the North Indian Ocean region covering the Arabian Sea and the Bay of Bengal.
  - The winds associated with the formation of low pressure systems, depressions, or cyclones **influence this monsoon**, and therefore, the rainfall.

Note:

- **Global Climate Parameters:** The NEM rainfall is influenced by global climate parameters such as **ENSO** (El Nino/La Nina & Southern Oscillation Index - SOI), **Indian Ocean Dipole** (IOD) and **Madden-Julian Oscillation (MJO)**.
  - El Nino, positive IOD and MJO in phase 2-4 with amplitude greater than one are generally associated with good NEM rainfall.
  - Also, La Nina & positive SOI during the second half of the season is also favourable for good NEM activity.
- **Regions Associated:**
  - Tamil Nadu, Puducherry, Karaikal, Yanam, coastal Andhra Pradesh, Kerala, north interior Karnataka, Mahe and Lakshadweep.
  - Tamil Nadu records about 48% of its annual rainfall during these months, making it the key factor for undertaking agricultural activities and reservoir management in the state.

## Water Level in Mullaperiyar Dam

### Why in News

- Recently, the **Supreme Court** has directed the **Supervisory Committee** to take an immediate and firm decision on the **maximum water level** that can be maintained at **Mullaperiyar dam** amidst torrential rains in Kerala.
- The **Ministry of Jal Shakti** has constituted a **three-member Supervisory Committee** to settle the issue of Mullaperiyar dam between Kerala and Tamil Nadu.

### Key Points

- **About:**
  - **Centre of a Decades-old Dispute:**
    - **For Kerala**, where it is situated, the dam presents a **threat to lakhs living downstream**,
    - **For Tamil Nadu**, which controls the dam, the water it provides is the **lifeline of people in five districts**.
  - **Reasons for Recent Revival of the Dispute:**



- Recently, **heavy rains have increased water flow** in Mullaperiyar dam. The excess water from Mullaperiyar **can flow to downstream Idukki reservoir**, which **can lead to floods**.
- The **SC in 2018** had agreed that the **water level in the Mullaperiyar reservoir should be maintained two or three feet below the permissible limit of 142 feet** as an immediate precaution to guard against floods or other disasters.

### ➤ Mullaperiyar Dam:

- It is located on the **confluence of the Mullayar and Periyar rivers** in Kerala's Idukki district.
  - The reservoir is **within the Periyar Tiger Reserve**.
- It is **operated and maintained by Tamil Nadu** for meeting the drinking water and irrigation requirements of five of its southern districts.
  - According to a 999-year lease agreement made during British rule the operational rights were handed over to Tamil Nadu.
- The water diverted from the reservoir is first used for **power generation in lower Periyar (by Tamil Nadu)** before **flowing into the Suruliyar, a tributary of Vaigai river**, and then for **irrigating nearly 2.08 lakh hectares in Theni and four other districts** farther away.

### Periyar River

- The Periyar River is the **longest river in the state of Kerala** with a length of 244 km.
- It is also known as '**Lifeline of Kerala**' as it is one of the few perennial rivers in the state.
- Periyar River **originates from Sivagiri hills of Western Ghats, in Tamil Nadu** and flows through the Periyar National Park.
- The main **tributaries of Periyar** are **Muthirapuzha, Mullayar, Cheruthoni, Perinjankutti**.

### Idukki Dam

- It is **located in Kerala (168.91 m)**. The dam stands **between the two mountains – Kuravanmala (839 m) and Kurathimala (925 m)**.
- It is **one of the highest arch dams in Asia** and **third tallest arch dam**.
- It is **built on the Periyar River**, in the **ravine between the Kuravan and Kurathi Hills** in Kerala.
- It was constructed and is **owned by the Kerala State Electricity Board**. It supports a 780 MW hydroelectric power station.

Note:

## Double-Dip La Niña

### Why in News

Recently, the **National Oceanic and Atmospheric Administration** (NOAA, an American scientific agency) has declared that **La Niña has re-developed. Consecutive La Niña is called Double-Dip.**

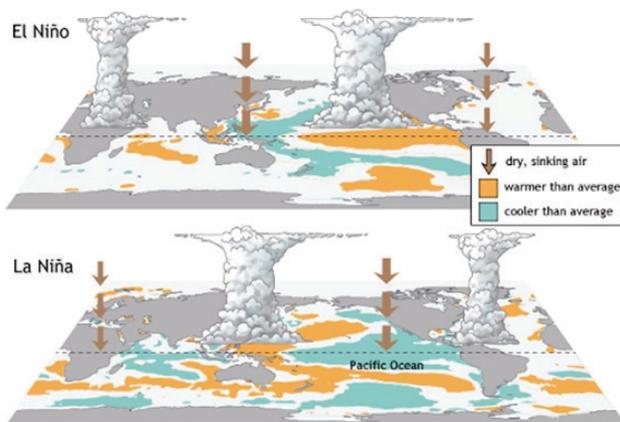
### Key Points

#### ➤ About:

- La Niña is one part of the **El Niño Southern Oscillation (ENSO)** cycle, which is characterized by **opposing warm and cool phases of oceanic and atmospheric conditions** in the tropical **Pacific Ocean**.
- **Consecutive La Ninas following a transition through ENSO neutral conditions are not uncommon** and can be referred to as a **“Double-Dip.”**
  - In **2020, La Niña developed** during the month of August and then **dissipated in April 2021** as ENSO-neutral conditions returned.
  - For the **upcoming winter season**, which extends from December 2021 through February 2022, there is an **87% chance of La Niña**.
- Previous La Ninas occurred during the winter of 2020-2021 and 2017-2018, and an **El Niño developed in 2018-2019**. When neither climate pattern is present, ENSO is neutral and does not influence global climate patterns.

#### ➤ ENSO:

- It is a **periodic fluctuation in sea surface temperature (El Niño) and the air pressure of the overlying atmosphere (Southern Oscillation)** across the **equatorial Pacific Ocean**.



- **El Niño and La Niña** are complex weather patterns resulting from variations in ocean temperatures in the Equatorial Pacific Region. They are **opposite phases of what is known as the ENSO cycle**.
- El Niño and La Niña episodes **typically last nine to 12 months, but some prolonged events may last for years**.

### El Niño and La Niña

#### ➤ El Niño:

- **About:** El Niño means **Little Boy**, or Christ Child in Spanish. During an El Niño event, **ocean water from off the coast of South America** (near Ecuador and Peru) **to the central tropical Pacific warm above average**.
- **Occurrence:** The warming takes place as **trade winds (the permanent east-to-west prevailing winds that flow around the equator) weaken or even reverse**, blowing warm water from the western Pacific toward the east. As a result, sea temperatures in the far western Pacific can cool below average.
- **Impact:**
  - **On Walker Circulation:** The unusually warm water in the eastern Pacific then **influences the Walker Circulation** (an atmospheric system of air flow in the equatorial Pacific Ocean), acting as a focal point for cloud, rainfall, and thunderstorms. It is this **change in the Walker Circulation that impacts weather patterns** around the world.
  - **On the Pacific Jet Stream:** The warmer waters **cause the Pacific jet stream to move south of its neutral position**. With this shift, **areas in the northern US and Canada are dryer and warmer than usual**. But in the **US Gulf Coast and Southeast**, these periods are **wetter than usual** and have increased flooding.
  - **On Marine Life:** El Niño also has a **strong effect on marine life off the Pacific coast**. During El Niño, **upwelling weakens or stops altogether**. Upwelling is movement of colder, nutrient-rich water from the depths to the surface.
    - Without the nutrients from the deep, there are **fewer phytoplankton off the coast**. This affects fish that eat phytoplankton and, in turn, affects everything that eats fish.

Note:

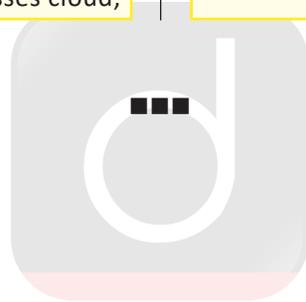
- **On the Indian Ocean:** El Nino is associated with **lower than normal monsoon rainfall in India.**

➤ **La Nina:**

- **About:** La Niña means **Little Girl** in Spanish. During a La Niña event, **ocean water from off the coast of South America to the central tropical Pacific cools to below average temperatures.**
- **Occurrence:** This cooling occurs **because of stronger than normal easterly trade winds**, which churns cooler, deeper sea water up to the ocean's surface. Sea temperatures can warm above average in the far western Pacific when this happens.
- **Impact:**
  - **On Walker Circulation:** The unusually cool water in the eastern Pacific **influences the Walker Circulation** and suppresses cloud,

rain, and thunderstorms. This change **impacts weather patterns around the world, but in a different way than El Niño does.**

- **On the Pacific Jet Stream:** These cold waters in the Pacific **push the jet stream northward.** This tends to lead to **drought in the southern US** and heavy rains and **flooding in the Pacific Northwest and Canada.** It can also lead to a **more severe hurricane season.**
- **On Marine Life:** Off the west coast of the Americas, **upwelling increases**, bringing cold, nutrient-rich water to the surface.
- **On the Indian Ocean:** There are **increased temperatures in Western Pacific, Indian Ocean and off the Somalian coast.** It also leads to **heavy floods in Australia** and a **comparatively better monsoon rains in India.**



drishti

Note:



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# Social Issues

## Highlights

- Nationwide Pneumococcal Conjugate Vaccine Drive
- Adolescents' Sexual and Reproductive Health: Rajasthan
- Persons with Disabilities
- Accidental Deaths & Suicides in India Report 2020 : NCRB
- Dearth of Funds in MGNREGA
- Global Food Security Index 2021
- Global Hunger Index 2021
- Fighting Drug Addiction
- Assistance to Disabled Persons Scheme

## Nationwide Pneumococcal Conjugate Vaccine Drive

### Why in News

Recently, the **Union Health Minister** has launched a **nationwide expansion of Pneumococcal 13-valent Conjugate Vaccine (PCV)** with an aim to **reduce under 5 mortalities** caused due to pneumonia.

- It was launched under the **Universal Immunisation Programme (UIP)** as a part of '**Azadi ka Amrit Mahotsav**'.
- It was for the **first time in the country** that PCV would be available for universal use.

### Key Points

- **Pneumococcal Conjugate Vaccine (PCV):**
  - A Pneumococcal Conjugate Vaccine **containing 13 different strains of the bacterium Streptococcus pneumoniae**, used in children and studied in patients with impaired immune system for the prevention of pneumococcal disease.
    - **Conjugate vaccines** are made using a combination of two different components.
- **Pneumococcal Disease:**
  - **About:** It is a **bacterial infection caused by Streptococcus pneumoniae**, sometimes known as pneumococcus.
  - **Symptoms:** These **bacteria can cause many types of illnesses**, including pneumonia, which is an infection of the lungs. Pneumococcal bacteria are **one of the most common causes of pneumonia**.

- **Vulnerable Population:** Children under 2 years of age, people with certain medical conditions, adults 65 years or older, and cigarette smokers are at the highest risk.

- **Status in India:** In India, **around 16% of deaths** among children occur due to pneumonia.

- **Pneumonia is contagious** and can be spread through coughing or sneezing. It can also be spread through fluids, like blood during childbirth, or from contaminated surfaces.

- **Universal Immunisation Programme (UIP):**

- **Launch:**

- The **Immunization Programme in India** was introduced in 1978 as '**Expanded Programme of Immunization (EPI)**' by the Ministry of Health and Family Welfare.

- In 1985, the Programme was modified as '**Universal Immunization Programme (UIP)**'.

- **Objectives of the Programme:**

- Rapidly increasing immunization coverage,
- Improving the quality of services,
- Establishing a reliable cold chain system to the health facility level,
- Introducing a district-wise system for monitoring of performance, and
- Achieving self-sufficiency in vaccine production.

- **Features:**

- **UIP prevents mortality and morbidity** in children and pregnant women **against 12 vaccine-preventable diseases**. But in the past, it was seen that the increase in immunization coverage had slowed down and it increased at the rate of 1% per year between 2009 and 2013.

Note:



- **Nationally against 10 diseases** - **Diphtheria**, Pertussis, Tetanus, **Polio**, **Measles**, Rubella, severe form of Childhood **Tuberculosis**, **Rotavirus diarrhea**, **Hepatitis B** and Meningitis & Pneumonia caused by Haemophilus Influenzae type B.
- **Sub-nationally against 2 diseases** - Pneumococcal Pneumonia and Japanese Encephalitis; of which Pneumococcal Conjugate vaccine has been nationally expanded, while JE vaccine is provided only in endemic districts.
- To accelerate the coverage, **Mission Indradhanush** was envisaged and implemented since 2015 to rapidly increase the full immunization coverage to 90%.
- Recently, the **Intensified Mission Indradhanush (IMI) 3.0 scheme** has been rolled out to cover children and pregnant women who missed routine immunisation during the Covid-19 pandemic.

## Adolescents' Sexual and Reproductive Health: Rajasthan

### Why in News

Recently, findings of a study titled “Returns on Investment in Adolescents’ Sexual and Reproductive Health in Rajasthan” were released.

- Adolescents are a **heterogeneous group aged between 10 and 19 years**, who are in different stages of development, live in varying circumstances and have distinct needs.

### Key Points

- **About Study:**
  - It examines the **economic and health benefits** that could accrue **from increased investment in adolescents’ sexual and reproductive health-specific interventions** in Rajasthan.
  - The study has calculated the **benefit-cost ratio** to conclude that **for every Rs. 100 spent** on meeting the unmet needs of adolescents, there will be a **return of approximately Rs. 300** in terms of healthcare costs saved.
  - It also explores the potential for **scaling up the services such as Access to contraceptives; Com-**

prehensive Abortion Care (CAC); **Weekly Iron and Folic acid Supplementation (WIFS)**; and, **Menstrual Hygiene Schemes (MHS)** across the state.

### ➤ Adolescents in India:

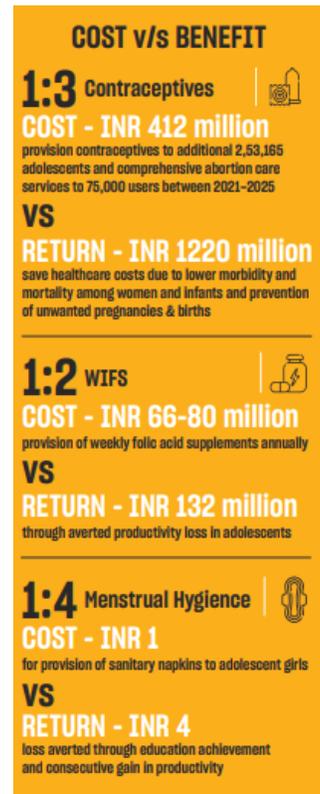
- **Population:** With **253 million adolescents** (which implies that every fifth person in India is an adolescent), India has an unprecedented opportunity to accelerate economic development and reduce poverty.

### ○ Challenges to Healthy Development:

A variety of factors that include **structural poverty, social discrimination, regressive social norms, inadequate education, and early marriage and childbearing**, especially in the **marginalized and under-served sections of the population**.

### ➤ The Case of Rajasthan:

- **Adolescent Population:** The total adolescent population of Rajasthan is 15 million or 23% of the total population in the state. Of these, 53% are males and 47% are females.
- **Child Marriage and Adolescent Pregnancy:** It continues to be of concern in Rajasthan as more than one-third of the girls (35.4%) get married before 18 years of age and 6.3% in the age group of 15-19 years are already mothers.
  - This is significantly **higher than the national average of 27%**.
- **Impact on Mother and Infant:**
  - **Birth-related Complications:** Adolescent mothers aged 10-19 years face higher risks of birth-related complications like **eclampsia, puerperal endometritis (uterine infection)** and other **systemic infections** than women of higher age groups.



Note:

- **Risk to Newborn:** Babies born to adolescent mothers also face a **higher risk of low birth weight, prematurity, birth injuries, stillbirth and infant mortality.**
- **Restrict Career Choices:** Health problems, lack of education and the responsibilities of parenthood combine to further **restrict the adolescent's future economic opportunities and career choices.**
- **Suggestions:**
  - Development of **new standards and guidelines** to improve the quality of reproductive health services.
  - The State government should **prudently invest in ensuring that the working age population** is healthy and literate, and has access to resources.
    - While the adolescent-specific health interventions needed to be **sensitive to their requirements, nutrition supplementation programmes** should also be strengthened and scaled up.
  - **Increase in the modern contraceptive prevalence rate** for spacing methods from the existing 10.1% to 32% in the 2021-25 period.
  - Adoption of a **multi-faceted and innovative approach** to reach out to adolescents.

#### Initiatives Taken

- **Rajasthan:**
  - **Zero Teenage Pregnancy Campaign:** The aim of the campaign is to create greater awareness around teenage pregnancy in Rajasthan and encourage stakeholders to make a strong commitment towards ending teenage pregnancy.
- **National Initiatives:**
  - **Adolescent Friendly Health Services Program: Rashtriya Kishor Swasthya Karyakram** is there, where female adolescents are sensitised about their health.
  - **Scheme for Adolescent Girls:** To facilitate, educate and empower **Adolescent Girls (AGs)** so as to enable them to become self-reliant and aware citizens.
  - **Poshan Abhiyan** and **PM-Poshan Scheme** to address the issue of malnutrition.

## Persons with Disabilities

### Why in News

Recently, the **draft norms for ensuring accessibility** for the differently abled at airports has been released by the Ministry of Civil Aviation.

- The draft follows the **Rights of Person with Disabilities Rules, 2017**, under which the **Ministry of Social Justice and Empowerment** is required to frame harmonised guidelines for accessibility standards for persons with disabilities.
- The draft details **various infrastructural requirements** that an airport must provide to facilitate differently abled.

### Key Points

- **About:**
  - **Any restriction or lack of ability to perform an activity** in a manner or within the range considered normal for human beings, resulting from impairment is termed as a disability.
  - Disability is an important public health problem especially in developing countries like India.
    - In order to sensitise the matter of disability, **3<sup>rd</sup> December has been marked as the International Day of Persons with Disabilities** by the **United Nations**.
  - **About 2.2% of India's population** lives with some kind of physical or mental disability, as per the **National Statistics Office** report on disability released last year.
- **Issues Related to Persons with Disability:**
  - **Discrimination:**
    - Continuous discrimination **denies them equal access** to education, employment, healthcare and other opportunities.
    - The **stigma attached to persons** with disabilities, compounded by a lack of understanding of their rights, makes it difficult for them to attain their valued "functionings".
      - **Women and girls with disabilities** are at a higher risk of experiencing sexual and other forms of **gender-based violence**.

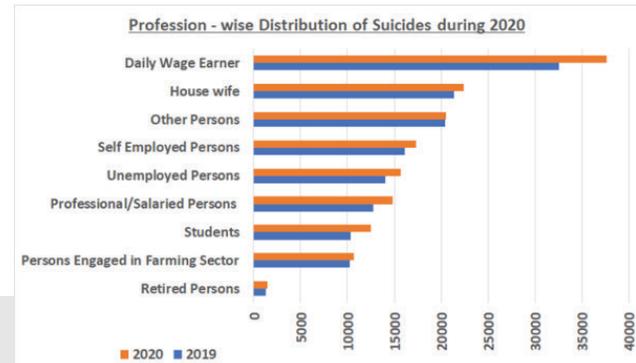
Note:

- **Health:**
  - A **large number of disabilities are preventable**, including those arising from medical issues during birth, maternal conditions, **malnutrition**, as well as accidents and injuries.
  - However, there is a **lack of awareness, lack of care, and lack of good and accessible medical facilities**. Further, there is a lack of accessibility, availability, and utilization of rehabilitation services.
- **Education:**
  - Lack of availability of **special schools**, access to schools, trained teachers, and educational materials for the disabled.
- **Employment:**
  - Even though many disabled adults are capable of productive work, **disabled adults have far lower employment rates** than the general population.
- **Accessibility:**
  - Physical accessibility in buildings, transportation, access to services etc still remain a major challenge.
- **Inadequate data and statistics:**
  - The lack of rigorous and comparable data and statistics further hinders inclusion of persons with disabilities.
- **Constitutional Provisions:**
  - **Article 41 of the Directive Principles of State Policy (DPSP)** states that State shall make effective provision for securing right to work, to education and to public assistance in cases of unemployment, old age, sickness and disablement, within the limits of its economic capacity and development.
  - The subject of '**relief of the disabled and unemployable**' is specified in the **state list** of the Seventh schedule of the constitution.
- **Related Initiatives:**
  - **Unique Disability Identification (UDID) Portal**
  - **Accessible India Campaign**
  - **DeenDayal Disabled Rehabilitation Scheme**
  - **Assistance to Disabled Persons for Purchase/fitting of Aids and Appliances (ADIP)**
  - **National Fellowship for Students with Disabilities**

## Accidental Deaths & Suicides in India Report 2020 : NCRB

### Why in News

Recently, the **National Crime Records Bureau (NCRB)** released the Accidental Deaths & Suicides in India Report 2020.



### Key Points

- **Suicide Categories:**
  - The **report divides suicides into nine categories** — apart from daily wagers, housewives and people working in the farm sector, the deaths are listed under 'professionals/salaried persons', 'students', 'self-employed persons', 'retired persons', and 'others'.
    - **NCRB started categorizing daily wagers** in its 'Accidental Deaths & Suicides' data only in 2014.
- **Number of Suicides:**
  - Suicides in **India rose 10% from 2019** to an all-time high of **1,53,052 in the pandemic year of 2020**.
  - The share of **daily wage earners** among those who died by suicide **has doubled between 2014 and 2020**, followed by 'housewives', self-employed persons, farmers/cultivators and retired persons.
    - The **professional/salaried persons** group registered an increase in suicides.
    - The unemployed persons group saw an increase in suicides and their proportion went up slightly from 2019.
    - **Deaths caused by accidents came down from 2019** and the number is the lowest since 2010.
    - The share of **students** in the total suicides has been rising steadily over the years and has now reached the **highest level since 1995**.

Note:



- **State-Wise Analysis:**
  - The **worst among States continues to be Maharashtra**, with 4,006 suicides in the farm sector, including a 15% increase in farm worker suicides.
  - Other States with a poor record include **Karnataka, Andhra Pradesh and Madhya Pradesh**.
- **Cause-Wise Analysis:**
  - Among **causes of suicide** that make up at least a percent of such deaths:
    - **Poverty** and **unemployment** registered the biggest increase.
    - **Drug abuse or alcohol addiction**, illness, and family problems come next.
    - Although **students have registered an increase in deaths** by suicide it was likely related to relatively longer-term prospects (perhaps inability to continue education) than exams.
- **Related Initiatives:**
  - **Mental Healthcare Act, 2017:** It aims to **provide mental healthcare services** for persons with mental illness.
  - **KIRAN:** The **Ministry of Social Justice and Empowerment** has launched a 24/7 toll-free helpline to provide support to people facing anxiety, stress, depression, suicidal thoughts and other mental health concerns.
  - **Manodarpan Initiative:** It is an initiative of the **Ministry of Education** under **Atmanirbhar Bharat Abhiyan**. It is aimed to **provide psychosocial support** to students, family members and teachers for their mental health and well-being during the times of **Covid-19**.

#### National Crime Records Bureau

- NCRB, headquartered in New Delhi, was set-up in **1986 under the Ministry of Home Affairs** to function as a repository of information on crime and criminals so as to assist the investigators in linking crime to the perpetrators.
- It was set up based on the recommendations of the **National Police Commission (1977-1981)** and the **MHA's Task Force (1985)**.
- NCRB brings out the **annual comprehensive statistics** of crime across the country ('Crime in India' report).
  - Having been published since 1953, the report **serves as a crucial tool** in understanding the law and order situation across the country.

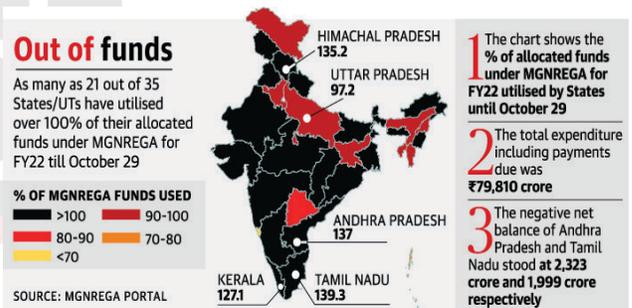
- The inaugural function of the **2<sup>nd</sup> CCTNS Hackathon and Cyber Challenge 2020-21** of NCRB was held in New Delhi.

## Dearth of Funds in MGNREGA

### Why in News

The **Centre's flagship rural employment scheme (MGNREGA)** has run out of funds halfway through the financial year. This means that **payments for MGNREGA workers as well as material costs will be delayed**, unless the States dip into their own funds.

- Earlier, the government **introduced the category-wise wage payment system for SC, ST and others**, as made applicable from this current financial year (2021-22), to accurately reflect on the ground flow of funds to various population groups.



### Key Points

- **MGNREGA Scheme:**
  - The **Mahatma Gandhi National Rural Employment Guarantee Act**, earlier known as the National Rural Employment Guarantee Act was passed in 2005 to augment employment generation and social security in India.
  - The scheme is a **demand-driven wage employment scheme**, which functions under the **Ministry of Rural Development**.
  - **Every adult member of a household** in a rural area with a job card is eligible for a job under the scheme.
  - The scheme envisages **providing 100 days of guaranteed wage employment** in a financial year to adult member volunteers for unskilled manual work.
  - It **covers all districts of India except the ones with 100% urban population**.

Note:

- There is also a provision for **additional 50 days of unskilled wage employment** in drought/natural calamity notified rural areas.
- As per **Section 3(4) of the MGNREGA**, the States may make provisions for providing additional days beyond the period guaranteed under the Act from their own funds.

#### ➤ **Issues with MGNREGA:**

- **Ridiculously Low Wage Rate:**
  - Currently, the MGNREGA wage rates of **at least 17 of the 21 major states** are even lower than the state minimum wage for agriculture. The shortfall is in the range of 2-33% of the minimum wage.
  - The **National Sample Survey Office (NSSO)**, 2017 data shows that the average daily wage for general agricultural labourers is Rs. 264.05 for men, and Rs. 205.32 for women.
    - The **ridiculously low wage rates** have resulted in lack of interest among workers in working for MGNREGA schemes, making way for contractors and middle men to take control locally.
- **Inadequate Financing:**
  - Due to lack of funds, state governments find it difficult to meet the demand for employment under MGNREGA.
- **Delay in Payment of Wages:**
  - Most states have failed to disburse wages within 15 days as mandated by MGNREGA. In addition, workers are not compensated for a delay in payment of wages.
    - This has turned the scheme into a supply-based programme and subsequently, workers had begun to lose interest in working under it.
  - A 2016 judgement of the Supreme Court described pending wage payments under MGNREGA as “a clear constitutional breach committed by the State” and “a modern form of begar”.
- **Ineffective Role of PRI:**
  - With very little autonomy, gram panchayats are not able to implement this act in an effective and efficient manner.
- **Large Number of Incomplete works:**
  - There has been a **delay in the completion of works under MGNREGA** and inspection of

projects has been irregular. Also, there is an issue of quality of work and asset creation under MGNREGA.

#### ○ **Fabrication of Job cards:**

- There are **several issues related to the existence of fake job cards**, the inclusion of fictitious names, missing entries and delays in making entries in job cards.

## Global Food Security Index 2021

### *Why in News*

**India** is ranked at **71<sup>st</sup>** position in the **Global Food Security (GFS) Index 2021** of 113 countries.

- Earlier, India was ranked **101<sup>st</sup>** position in the **Global Hunger Index (GHI) 2021**.

### *Key Points*

#### ➤ **About the Index:**

##### ○ **Developed by:**

- The GFS Index was designed and constructed **by London-based Economist Impact** and is **sponsored by Corteva Agriscience**.
- The 2021 GFSI is the **tenth edition of the index**. It is **published every year**.

##### ○ **Calculation:**

- It measures the underlying drivers of food security based on the **following factors**:
  - Affordability
  - Availability
  - Quality and Safety
  - Natural Resources and Resilience
- It considers **58 unique food security indicators** including income and economic inequality - calling attention to systemic gaps and actions needed to accelerate progress toward **United Nations Sustainable Development Goal** of Zero Hunger by 2030.

#### ➤ **Findings of the Report (India and World):**

##### ○ **Top Rankers:**

- Ireland, Austria, the UK, Finland, Switzerland, the Netherlands, Canada, Japan, France and the US shared the top rank with the overall

Note:



GFS score in the range of 77.8 and 80 points on the index.

- **India's Rank:**
  - **Overall Position:** India held **71<sup>st</sup> position** with an **overall score of 57.2 points** on the GFS Index 2021 of 113 countries
  - **In Comparison to Neighbouring Countries:** It **fares better than** Pakistan (75<sup>th</sup> position), Sri Lanka (77<sup>th</sup> Position), Nepal (79<sup>th</sup> position) and Bangladesh (84<sup>th</sup> position). But the country was **way behind China** (34<sup>th</sup> position).
    - However, over the past 10 years, **India's incremental gains in overall food security score were lagging behind** that of Pakistan, Nepal and Bangladesh.
- (i) **India's score improved only by 2.7 points to 57.2 in 2021 from 54.5 in 2012** when compared with Pakistan by 9 points (to 54.7 in 2021 from 45.7 in 2012).
  - **Pakistan scored better than India in the food affordability category** and Sri Lanka was even better. On the **remaining 3 factors**, India scored better than Pakistan, Nepal, Bangladesh and Sri Lanka.

#### ➤ Concerns:

- **Global food security has decreased for the second year in a row after seven years of progress towards the Sustainable Development Goal** of achieving zero hunger by 2030.
- While countries have made significant strides toward addressing food insecurity in the past ten years, **food systems remain vulnerable to economic, climatic, and geopolitical shocks.**

#### ➤ Suggestions:

- **Action is imperative at all levels**—local, national, and global—to end hunger and malnourishment and ensure food security for all.
- To **meet these present and emerging future challenges** requires that investments in food security are sustained – from innovation in climate-resilient crop yields to investing in programs to assist the most vulnerable.

#### ➤ Related Government Initiatives:

- **Eat Right India Movement**
- **POSHAN Abhiyan**
- **Food Fortification**

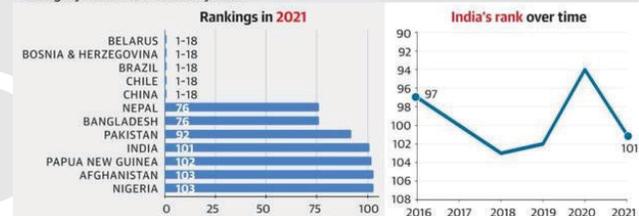
- **National Food Security Act, 2013**
- **Integrated Child Development Services (ICDS) Scheme**
- **National Innovations in Climate Resilient Agriculture (NICRA)**

## Global Hunger Index 2021

### Why in News

India has slipped to **101<sup>st</sup> position** in the **Global Hunger Index (GHI) 2021** of 116 countries, from its **2020 position of 94<sup>th</sup>**.

**Alarming levels** | The Global Hunger Index (GHI) tracks hunger and malnutrition across countries using four indicators - undernourishment, child wasting, child stunting and child mortality. Based on this, GHI determines hunger on a 100-point scale, where 0 is the best possible score (no hunger) and 100 is the worst. In 2021, India was classified in the "serious category" on the GHI severity scale.



### Key Points

#### ➤ About the Global Hunger Index:

- **Annual Report:** Jointly published by **Concern Worldwide** and **Welthungerhilfe**.
  - It was first produced in 2006. It is published every October. The 2021 edition marks the 16<sup>th</sup> edition of the GHI.
- **Aim:** To comprehensively measure and track hunger at the global, regional, and country levels.
- **Calculation:** It is calculated on the basis of four indicators:
  - **Undernourishment:** Share of the population with insufficient caloric intake.
  - **Child Wasting:** Share of children under age five who have low weight for their height, reflecting acute undernutrition.
  - **Child Stunting:** Share of children under age five who have low height for their age, reflecting chronic undernutrition.
  - **Child Mortality:** The mortality rate of children under the age of five.

Note:

- **Scoring:**
  - Based on the values of the four indicators, the GHI determines hunger on a 100-point scale where **0 is the best possible score (no hunger) and 100 is the worst.**
  - Each country's GHI score is classified by severity, from low to extremely alarming.
- **Data Collection:**
  - Undernourishment data are provided by the **Food and Agriculture Organisation** and child mortality data are sourced from the **UN Inter-agency Group for Child Mortality Estimation (UN IGME).**
  - Child wasting and stunting data are drawn from the joint database of **UNICEF**, the **World Health Organization (WHO)** and the **World Bank**, among others.
- **Global Scenario:**
  - **The fight against hunger is dangerously off track.**
    - Based on current GHI projections, the world as a whole - and 47 countries in particular - will fail to achieve a low level of hunger by 2030.
  - **Food security is under assault on multiple fronts.**
    - Worsening conflict, weather extremes associated with global climate change, and the economic and health challenges associated with the Covid-19 pandemic are all driving hunger.
  - **After decades of decline, the global prevalence of undernourishment - a component of the Global Hunger Index - is increasing.**
    - This shift may be a leading indicator of reversals in other measures of hunger.
  - **Inequality** - between regions, countries, districts, and communities - is pervasive and, left unchecked, will keep the world from achieving the **Sustainable Development Goal (SDG)** mandate to "leave no one behind".
  - **Africa, South of the Sahara and South Asia are the world regions where hunger levels are highest.** Hunger in both regions is considered serious.
- **Indian Scenario:**
  - **Since 2000, India has made substantial progress**, but there are **still areas of concern**, particularly regarding child nutrition.
  - India's **GHI score has decreased** from a 2000 GHI score of 38.8 points - considered alarming - to a 2021 GHI score of 27.5 - considered serious.
- The **proportion of undernourished** in the population and the **under-five child mortality rate** are **now at relatively low levels.**
- While **child stunting** has seen a **significant decrease** - from 54.2% in 1998-1999 to 34.7% in 2016-2018 - it is **still considered very high.**
- At **17.3%**, India has the **highest child wasting rate of all countries** covered in the GHI. This rate is **slightly higher than it was in 1998-1999**, when it was 17.1%.
- According to the Index, **only 15 countries fare worse than India.**
- India was also **behind most of the neighbouring countries.** Pakistan was placed at 92, Nepal and Bangladesh at 76 and Sri Lanka at 65.
- **Government of India Stand:**
  - The **Ministry of Women and Child Development** has **criticised the report** claiming that the methodology used by FAO is **unscientific.**
  - According to the Government, the **Global Hunger Index Report 2021** and **FAO report on 'The State of Food Security and Nutrition in the World 2021'** have completely ignored the following facts:
    - They have based their assessment on the results of a **'four question'** opinion poll, which was **conducted telephonically by Gallup.**
      - The scientific measurement of undernourishment would **require measurement of weight and Height**, whereas the methodology involved here is based on a **Gallup poll, based on a pure telephonic estimate of the population.**
    - The report completely **disregards Government's massive effort** to ensure food security of the entire population during the Covid period such as **Pradhan Mantri Garib Kalyan Anna Yojna (PMGKAY)** and **Atmanirbhar Bharat Scheme (ANBS).**

#### Some Related Initiatives by India

- **Eat Right India Movement:** An outreach activity organised by the Food Safety and Standards Authority of India (FSSAI) for citizens to nudge them towards eating right.
- **POSHAN Abhiyan:** Launched by the Ministry of Women and Child Development in 2018, it targets to reduce stunting, undernutrition, anemia (among young children, women and adolescent girls).

Note:

- **Pradhan Mantri Matru Vandana Yojana:** A centrally sponsored scheme executed by the Ministry of Women and Child Development, is a maternity benefit programme being implemented in all districts of the country with effect from 1<sup>st</sup> January, 2017.
- **Food Fortification:** Food Fortification or Food Enrichment is the addition of key vitamins and minerals such as iron, iodine, zinc, Vitamin A & D to staple foods such as rice, milk and salt to improve their nutritional content.
- **National Food Security Act, 2013:** It legally entitled up to 75% of the rural population and 50% of the urban population to receive subsidized food grains under the Targeted Public Distribution System.
- **Mission Indradhanush:** It targets children under 2 years of age and pregnant women for immunization against 12 Vaccine-Preventable Diseases (VPD).
- **Integrated Child Development Services (ICDS) Scheme:** Launched on 2<sup>nd</sup> October, 1975, the ICDS Scheme offers a package of six services (Supplementary Nutrition, Pre-school non-formal education, Nutrition & health education, Immunization, Health check-up and Referral services) to children in the age group of 0-6 years, pregnant women and lactating mothers.

## Fighting Drug Addiction

### Why in News

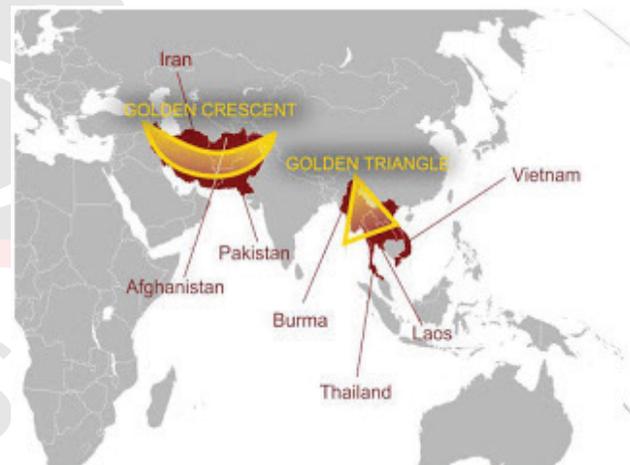
Recently, the Social Justice and Empowerment Ministry has recommended that the **National Fund to Control Drug Abuse** should be used to carry out **de-addiction programmes**, rather than just policing activities.

- A proposal to **decriminalise possession of small quantities of drugs**, as defined in the **Narcotic Drugs and Psychotropic Substances (NDPS) Act, 1985**, had also been sent to the Department of Revenue under the Finance Ministry.
  - Once it is approved, **persons caught with small quantities of drugs** for personal use **can be directed to rehab**, instead of being prosecuted and sent to jail.

### Key Points

- **National Fund to Control Drug:**

- The fund was created in accordance with a provision of the **NDPS Act** and had a nominal corpus of **Rs. 23 crore**.
- Under the NDPS Act, the **sale proceeds of any property forfeited**, grants made by any person and institution, and income from the investments of the fund, go towards the fund.
- The Act states that the **fund would be used to combat illicit trafficking of narcotics, rehabilitating addicts, and preventing drug abuse**.
- **Drug Addiction in India:**
  - The menace of **drug addiction** has **spread fast among the youth** of India.
    - India is sandwiched between two largest Opium producing regions of the world that is the **Golden triangle on one side and the Golden crescent on other**.



- The **golden triangle** area comprises **Thailand, Myanmar, Vietnam and Laos**.
- The **golden crescent** area includes **Pakistan, Afghanistan and Iran**.
- According to the **World Drug Report 2021**, prescription drugs and their ingredients or 'precursors' are being increasingly diverted for recreational use in India—the largest manufacturer of generic drugs in the world.
  - **India is also linked** to shipment of drugs sold on the **19 major darknet markets** analysed over 2011-2020.
- According to the **National Crime Records Bureau's Crime in India 2020 report**, a total of **59,806 cases** were lodged under NDPS Act.

Note:



- According to the Social Justice Ministry and **All India Institute of Medical Sciences** (AIIMS) report on magnitude of substance use in 2019, there were:
  - **3.1 crore cannabis users** (of which 25 lakh were dependent users).
  - **2.3 crore opioid users** (of which 28 lakh were dependent users).
- **Other Related Initiatives:**
  - **Narco-Coordination Centre:** The **Narco-Coordination Centre (NCORD)** was constituted in November, 2016 and the scheme of “Financial Assistance to States for Narcotics Control” was revived.
  - **Seizure Information Management System:** Narcotics Control Bureau has been provided funds for developing a new software i.e. **Seizure Information Management System (SIMS)** which will create a complete online database of drug offences and offenders.
  - **National Drug Abuse Survey:** The government is also conducting a **National Drug Abuse Survey** to measure trends of drug abuse in India through the Ministry of Social Justice & Empowerment with the help of National Drug Dependence Treatment Centre of **AIIMS**.
    - **Project Sunrise:** It was launched by the Ministry of Health and Family Welfare in 2016, to tackle the **rising HIV prevalence** in north-eastern states in India, especially among people injecting drugs.
  - **NDPS Act:** It prohibits a person from producing, possessing, selling, purchasing, transporting, storing, and/or consuming any narcotic drug or psychotropic substance.
    - The NDPS Act has since been amended thrice – in 1988, 2001 and 2014.
    - The Act extends to the whole of India and it applies also to all Indian citizens outside India and to all persons on ships and aircraft registered in India.
  - **Nasha Mukh Bharat:** Government has also announced the launch of the ‘**Nasha Mukh Bharat, or Drug-Free India Campaign**’ which focuses on community outreach programs.
- **International Treaties and Conventions to Combat Drug Menace:**
  - India is signatory of the following International treaties and conventions to combat the menace of Drug Abuse:

- **United Nations (UN) Convention on Narcotic Drugs (1961)**
- UN Convention on Psychotropic Substances (1971).
- **UN Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances (1988)**
- UN Convention against Transnational Organized Crime (UNTOC) 2000.

## Assistance to Disabled Persons Scheme

### *Why in News*

Recently, a Samajik Adhikarita Shivir (social empowerment camp) for distribution of aids and assistive devices to **Divyangjan** under the **ADIP (Assistance to Disabled Persons) Scheme** was organised in Punjab.

- **Divyangjan or Divyang:** Earlier, in 2015 the Prime Minister decided that persons with disabilities should no longer be referred to as disabled persons or viklang (someone with non-functional body parts) instead they will be referred to as Divyangjan or Divyang (**one with a divine body**).

### *Key Points*

- **About:**
  - **Ministry:**
    - **Ministry of Social Justice and Empowerment** is the Nodal ministry
    - It has been in operation **since 1981**.
  - **Definition:**
    - The scheme follows the definitions of various types of disabilities as given in the **Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) (PWD) Act 1995**.
      - The PWD Act was replaced by the **Right of Persons with Disabilities Act 2016**.
  - **Objective:**
    - To **assist the needy disabled persons** in procuring durable, sophisticated and scientifically manufactured, modern, standard aids and appliances that can **promote their physical, social and psychological rehabilitation** by reducing the effects of disabilities and enhancing their economic potential.
  - **Grants:**

Note:



- Grants-in-aid are **released to various implementing agencies** (Artificial Limbs Manufacturing Corporation of India, National Institutes, Composite Regional Centres, District Disability Rehabilitation Centres, State Handicapped Development Corporations, **Non-governmental Organizations (NGOs)** , etc.) for purchase and distribution of aids and assistive devices.
- **Assistance:**
  - Aids/appliances **which do not cost more than Rs. 10,000 are covered under the Scheme** for single disability.
  - However, in **some cases the limit would be raised to Rs.12,000**. In the case of multiple disabilities, the limit will apply to individual items separately in case more than one aid/appliance is required.
- **Full cost of aid/appliance is provided if the income is up to Rs. 15,000 per month and 50% of the cost of aid/appliance is provided if the income is between Rs. 15,001 to Rs. 20,000 per month.**
- **Other Related Initiatives:**
  - **Accessible India Campaign: Creation of Accessible Environment for PwDs**
  - **DeenDayal Disabled Rehabilitation Scheme**
  - **National Fellowship for Students with Disabilities**
  - **Unique Disability Identification Project**
  - **International Day of Persons with Disabilities**
- **Initiatives for Mental Health:**
  - **National Mental Health Programme**
  - **KIRAN: Mental Health Rehabilitation Helpline**



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Note:



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# Art & Culture

## Highlights

- Kushinagar International Airport

## Kushinagar International Airport

### Why in News

The Kushinagar Airport in Uttar Pradesh is the latest entrant in India's list of international Airports. The airport is expected to provide seamless connectivity to people from South east and East Asian countries for Buddhist Pilgrimage Tourism.

- Kushinagar is the centre of the Buddhist circuit, which consists of pilgrimage sites at Lumbini, Sarnath, Gaya and others.

### Key Points

- **Kushinagar Airport and Cultural Diplomacy:**
  - The inauguration of Kushinagar International airport is set to be a landmark in the **India-Sri Lanka relations**.
  - On the occasion of Airport's inauguration, Sri Lanka will present to India photographs of two **mural paintings**:
    - One Mural Painting shows **Arahat Bhikkhu Mahinda**, son of Emperor Ashoka delivering the message of the Buddha to **King Devanampiyatissa of Sri Lanka**.
    - The other shows the arrival of **'Theri Bhikkhuni' Sanghamitta**, the daughter of the Emperor, in Sri Lanka, bearing a sapling of the **'sacred Bodhi tree'** under which Siddhārtha Gautama is believed to have attained enlightenment.
  - The Buddhist circuit reflects the **use of soft power in India's foreign policy**.
  - The emphasis on **Buddhist diplomacy**, will help counter increasing **Chinese influence in Sri Lanka** and improve people to people relations (especially in the context of the aftermath of **Sri-lankan Civil War**).
  - Further, the Buddhist faith, due to its **emphasis**

on peaceful co-existence and its wide pan-Asian presence, lends itself well to soft-power diplomacy.

### Spread of Buddhism in Sri Lanka

- Buddhism was first brought to Sri Lanka by a mission sent out from eastern India during the reign of the **Mauryan emperor Ashoka** (c. 273-232 BCE).
- The leader of the mission to Sri Lanka, **Mahendra (Mahinda)**, is described as Ashoka's son.

### About Buddhist Circuit:

- In 2014-15, the **Ministry of Tourism** launched the **Swadesh Darshan scheme** with a vision to develop theme-based tourist circuits on the principles of high tourist value.
  - The Ministry has identified **Buddhist Circuit** as one of the **fifteen thematic circuits** for development under the scheme.
- The Buddhist circuit is a route that **follows in the footsteps of the Buddha** from Lumbini in Nepal to Kushinagar in Uttar Pradesh in India, where he died.
  - Buddhist pilgrims consider **Kushinagar** a sacred site where, they believe, Gautama Buddha delivered his last sermon and attained **'Mahaparinirvana'** or salvation.
- Investing in the Buddhist Circuit is the result of **first-time collaboration** between the Government of India's Ministry of Tourism, the State Governments of Bihar and Uttar Pradesh, the private sector, Buddhist monasteries and sects, and the **World Bank Group**.
- **Other Initiatives Taken to Promote Buddhist Sites:**
  - **PRASHAD Scheme:** 30 projects for **development of infrastructure** have been undertaken under the PRASHAD Scheme.



Buddhist Circuit

Note:



**Buddha Path**

- Buddha was **born in 563 BC at Lumbini, in Nepal.**
- He preached that one should avoid the excess of both luxury and austerity. He advocated the “**madhyam marg**” (middle path).
- The **eight-fold path** (extraordinary Teachings of the Buddha) comprised the following:
  - Right view;
  - Right resource;
  - Right speech;
  - Right conduct;
  - Right livelihood;
  - Right effort;
  - Right mindfulness;
  - Right concentration.
- The ‘**Buddha Path**’ also refers to the **Eight Great Places of Buddhist Heritage** (referred in Pali as **Aṭṭhamahāṭhānāni**). They are:
  - **Lumbini (Nepal)** – Buddha was born.
  - **Bodh Gaya (Bihar)** – Attained enlightenment.
  - **Sarnath (Varanasi, U.P.)** – First sermon.

- **Kushinagar (Gorakhpur, U.P.)** – Buddha died.
- **Rajgir (Bihar)** – Where the Lord tamed a mad elephant.
- **Vaishali (Bihar)** – Where a monkey offered honey to him.
- **Sravasti (U.P.)** – The Lord took his seat on a thousand petaled lotus and created multiple representations of himself.
- **Sankasya (Farrukhabad, Uttar Pradesh)** – He descended from heaven.

- **Iconic Tourist Sites:** Buddhist Sites at **Bodhgaya, Ajanta & Ellora** have been identified to be developed as Iconic Tourist Sites.
- **Buddhist Conclave:** It is organised every alternate year with the objective of promoting India as a Buddhist Destination and major markets around the globe.
- **Diversity of Languages:** Signages have been installed in **Chinese** language at buddhist monuments in Uttar Pradesh and in **Sinhala** language (official language of Sri Lanka) at Sanchi monuments in Madhya Pradesh.

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Note:



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# Security

## Highlights

- India-US Defence Deal
- OPV Sarthak
- Ballistic Missile: North Korea
- Jurisdiction Enhancement of BSF

## India-US Defence Deal

### Why in News

Recently, the **Ministry of Defence** has signed a deal with the US Government for procurement of **MK 54 Torpedo** and Expendable (**Chaff and Flares**) for the Indian Navy, under **Foreign Military Sale (FMS)**.

- FMS is the U.S. Government's program for **transferring defense articles, services, and training** to its international partners and international organizations.
- **Expendables** are something which can be consumed or used during flight and can not be recovered.

### Key Points

- **MK 54 Torpedo:**
  - It is a **cigar-shaped, self-propelled underwater missile**, launched from a submarine, surface vessel, or airplane and designed for exploding upon contact with the hulls of surface vessels and submarines.
  - The MK 54 uses **sophisticated processing algorithms to analyze the information**, edit out false targets or countermeasures, and then pursue identified threats.



- The primary use of this equipment is for **offensive purposes when deployed by anti-submarine warfare aircraft and helicopters**, and for defensive purposes when deployed by ships and against fast, deep-diving nuclear submarines and slow-moving, quiet, diesel-electric submarines.

- India intends to use the Mk 54 torpedoes on its **P-8I patrol aircraft**.

### ➤ Expendables:

#### ○ Chaff:

- Chaff is a part of **Counter Measure Dispensing System (CMDS)** is a passive expendable electronic counter measure used for protection of the naval ships from enemy's radar and missile seekers based on radio frequency.
  - **CMDS** provides self-protection in sophisticated, diverse and dense threats to the aircraft against Radar guided & Infrared seeking missiles.

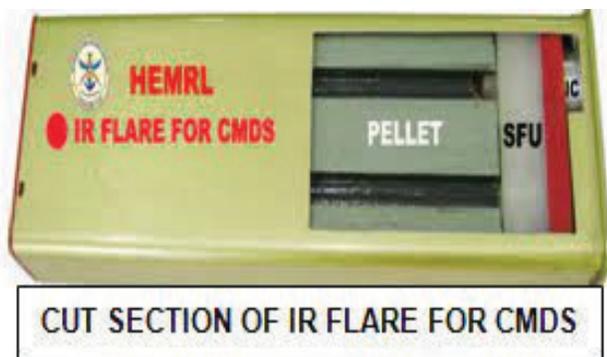


- It is composed of many **small aluminium or zinc coated fibres** stored on-board the aircraft in tubes.
- In case the aircraft feels threatened by any radar tracking missiles, chaff is ejected into the turbulent wake of air behind the plane.

Note:

### ○ Flare:

- A flare or decoy flare is also a part of CMDS, used by a plane or helicopter to counter an **infrared homing** (“heat-seeking”) **surface-to-air missile** or **air-to-air missile**.
- Flares are commonly composed of a **pyrotechnic composition based on magnesium or another hot-burning metal**, with a burning temperature equal to or hotter than engine exhaust.
- The Infrared Flares are used to save the fighter and transport aircrafts from Infrared guided missiles (both surface to air and air to air threats).
- **Flares on being fired provide an alternate strong IR (Infrared) source** to heat-seeking anti-air missiles so that they are lured away from the aircraft.



### ➤ Significance of the Deal:

- It will improve **India’s capability to conduct anti-submarine warfare missions** and serve “as a deterrent to regional threats and to strengthen [India’s] homeland defense”.
- It is part of the US commitment to share cutting-edge technology with India and to ensure that both nations enjoy the **benefits of a secure and stable South Asia**.
- It is significant in **wake of the threat that China poses to both countries**. In recent times, China has shown off its muscle power in the Indian Ocean, which can be seen as a threat to India.
- It is anticipated as America’s **way of warning China and trying to retain balance in the geopolitical context**.
- In the recent past, the **Quad collective**, made up of India, Japan, Australia and the United States, had stated that they would do all they can to ensure peace in the **Indo-Pacific region**.

## OPV Sarthak

### Why in News

Recently, an **Offshore Patrol Vessel (OPV)**, Indian Coast Guard Ship (ICGS) **Sarthak** has been commissioned and dedicated to the nation at Goa by the **Indian Coast Guard**.

### Key Points

#### ➤ About:

- It is a 105-meter-long ship displacing 2,450 tons and is propelled by **two 9,100 kilowatt diesel engines** designed to **attain a maximum speed of 26 knots**.
- It is **4<sup>th</sup> in the series of five OPVs**. And will significantly **boost the maritime safety and security of the nation**.
- OPVs are **long-range surface ships**, capable of operation in **maritime zones of India**, including island territories with helicopter operation capabilities.
- Their roles **include coastal and offshore patrolling**, policing maritime zones of India, control and surveillance, anti-smuggling and anti-piracy operations with limited wartime roles.



#### ➤ Development:

- It has been designed & built indigenously by M/s **Goa Shipyard Limited (GSL)** in line with the government’s vision of **‘Make in India’**.
- It has about **70% indigenous content**, thus providing the necessary fillip to the Indian shipbuilding industry and a giant leap towards achieving **‘Atmanirbar Bharat’**.

#### ➤ Features:

Note:

- It has state-of-the-art **Navigation and Communication equipment, sensors and machinery**.
- It is capable of carrying a **twin-engine helicopter**, four high speed boats and one inflatable boat for swift boarding and Search & Rescue operations.
- It is also capable of **carrying limited pollution response equipment** to undertake **oil spill pollution** response at sea.
- **Utility:**
  - It will be deployed extensively for **Exclusive Economic Zone (EEZ)** surveillance, **Coastal Security** and other duties as enshrined in the **Coast Guard** charter of duties, to safeguard the maritime interests of the Nation.
- **Other OPVs:**
  - **Sajag**
  - **Vigraha**
  - **Yard 45006 VAJRA**
  - **Varaha**

#### Indian Coast Guard

- It is an Armed Force, Search and Rescue and Maritime Law Enforcement agency under the Ministry of Defence. It is **headquartered in New Delhi**.
- It was established in **August 1978 by the Coast Guard Act, 1978** as an independent Armed force of India.
  - The concept of forming ICG came into **being after the 1971 war**. The blueprint for a multidimensional Coast Guard was conceived by the visionary **Rustamji Committee**.
- It has jurisdiction over the territorial waters of India including contiguous zone and **Exclusive Economic Zone (EEZ)**.
- It is responsible for marine environment protection in maritime zones of India and is coordinating authority for response to **oil spills** in Indian waters.

## Ballistic Missile: North Korea

### Why in News

Recently, North Korea fired a **Submarine Launched Ballistic Missile (SLBM)** from off its East Coast.

- North Korea is **barred from testing ballistic missiles and nuclear weapons** under international law.



### Key Points

- **Ballistic Missile:**
  - It is a **rocket-propelled self-guided strategic-weapons system** that follows a ballistic trajectory to deliver a payload from its launch site to a predetermined target.
    - **Ballistic trajectory** is the path of an unpowered object, as a missile, moving only under the influence of gravity and possibly atmospheric friction and with its surface providing no significant lift to alter the course of flight.
  - It can **carry conventional high explosives** as well as chemical, biological, or nuclear munitions.
  - The **International Code of Conduct against Ballistic Missile Proliferation (ICOC)**, now known as the **Hague Code of Conduct against Ballistic Missile Proliferation (HCOC)**, is a political initiative aimed at globally curbing ballistic missile proliferation.
    - India is a signatory to this convention.
  - Established in April 1987, the voluntary **Missile Technology Control Regime (MTCR)** aims to limit the spread of ballistic missiles and other unmanned delivery systems that could be used for chemical, biological, and nuclear attacks.
    - India has joined the MTCR.
- **Some of India's Ballistic Missiles:**
  - **Agni P missile**
  - **Shaurya missile**
  - **Prithvi missile**
  - Dhanush
  - Sagarika etc.

Note:

## Jurisdiction Enhancement of BSF

### Why in News

Recently, the **Ministry of Home Affairs** has issued a notification to widen the jurisdiction of **Border Security Force (BSF)** for seizure, search and arrest up to 50km from the international border in Assam, West Bengal and Punjab.

### Key Points

- **About the Order:**
  - This notification **replaces a 2014 order under the BSF Act, 1968**, which also covered the States of Manipur, Mizoram, Tripura, Nagaland and Meghalaya.
    - It also specifically mentions the **two newly created Union Territories-J&K and Ladakh**.
  - The violations for which the BSF carries out search and seizure include **smuggling of narcotics, other prohibited items, illegal entry of foreigners and offences punishable** under any other Central Act among others.
  - After a suspect has been detained or a consignment seized within the specified area, the BSF **can only conduct “preliminary questioning”** and has to **hand over the suspect to the local police within 24 hours**.
    - The BSF does not have the powers to prosecute crime suspects.
- **Issues Involved:**
  - **Public Order vs Security of State: Public order**, which connotes public peace, safety and tranquility, is primarily the responsibility of a State Government (**Entry 1, State list**).
    - However, when there is a serious public disorder which threatens the **security or defence of the State** or of the country itself (**entry 1 of Union list**), the situation becomes a matter of concern for the Union Government also.
  - **Weakening Spirit of Federalism:** Without obtaining the concurrence of the state government, the notification amounts to encroachment on the powers of the states.

- The Punjab Government has asserted that this notification is Centre’s **encroachment under the guise of security or development**.
- **Affecting Functioning of BSF:** Policing in the hinterland is not the role of a border guarding force, rather it would **weaken the capacity of the Border Security Force** in discharging its primary duty of guarding the international border.

### Constitutional Viewpoint on Deployment of Armed forces in States

- Under **Article 355**, the Centre can deploy its forces to protect a state against “**external aggression and internal disturbance**,” even when the state concerned does not requisition the Centre’s assistance and is reluctant to receive central forces.
- In the case of a state’s opposition to the deployment of armed forces of the Union, the right course for the Centre is to first issue directives under Article 355 to the state concerned.
- In the event of the state not complying with the directive of the Central government, the Centre can take further action under **Article 356 (President’s Rule)**.

### BSF

- The BSF was raised in **1965, after the India-Pakistan war**.
- It is one of the **seven Central Armed Police Forces** of the Union of India under the administrative control of the Ministry of Home Affairs (MHA).
  - Other Central Armed Police Forces are: **Assam Rifles (AR), Indo-Tibetan Border Police (ITBP), Central Industrial Security Force (CISF), Central Reserve Police Force (CRPF), National Security Guards (NSG) and Sashastra Seema Bal (SSB)**.
- The 2.65-lakh force is deployed along the **Pakistan and Bangladesh borders**.
  - It is deployed on Indo-Pakistan International Border, Indo-Bangladesh **International Border, Line of Control (LoC) along with Indian Army and in Anti-Naxal Operations**.
- It has an air wing, marine wing, an artillery regiment, and commando units.
  - BSF has been defending **Sir Creek in Arabian Sea and Sundarban delta** in the Bay of Bengal with its state of art fleet of Water Crafts.

Note:



- BSF has an instrumental role in helping state administration in **maintaining Law and Order and conducting peaceful elections.**
  - BSF has been crusading against natural calamity to save precious human lives as and when warranted.
- It contributes dedicated services to the **UN peacekeeping Mission** by sending a large contingent of its trained manpower every year.
  - It has been termed as the **First Line of Defence of Indian Territories.**



Note:

# Miscellaneous

## Highlights

- Exercise Yudh Abhyas
- *Allium Negianum*: A New Species of Onion
- *Georissa Mawmaiensis*: A Micro Snail Species
- ABHYAS: High-speed Expendable Aerial Target
- Lake Tahoe: US
- Sustainable Transport System Award: Kerala
- Mahatma Gandhi National Fellowship: Phase II
- Economic Advisory Council to the Prime Minister
- SAMBHAV Awareness Programme: MSMEs
- Queen Heo Hwang-ok
- Aadhaar Hackathon 2021
- Exercise MITRA SHAKTI
- Exercise Cambrian Patrol
- The Earthshot Prize 2021
- Debrigarh Wildlife Sanctuary: Odisha
- Kaziranga National Park: Assam
- Konkan Shakti 2021
- Trigonopterus Corona
- New Medicine for Bovine Mastitis
- ADB Grants Loan for Mizoram
- Gray Hanuman Langur

## Exercise Yudh Abhyas

### Why in News

Recently, the 17<sup>th</sup> Indo-US Joint Military Exercise “Ex Yudh Abhyas 2021” was held at Joint Base Elmendorf-Richardson in Alaska (US).

- In February 2021, the **previous version** of the exercise was held in **Bikaner’s Mahajan Field Firing Ranges** (Rajasthan).

### Key Points

- **About:**
  - It is the **largest running joint military training and defence cooperation** endeavor between India and the US.
  - The exercise was **started in 2004 under the US Army Pacific Partnership Program**. The exercise is **hosted alternately between both countries**.
  - The exercise **aims at** enhancing understanding, cooperation and interoperability between two Armies.
  - This will help them in undertaking joint operations at battalion level in mountainous terrain with cold climatic conditions under the ambit of the United Nations.

### Other Exercises between India and the US:

- **Exercise Tiger Triumph** (Humanitarian Assistance and Disaster Relief exercise)
- **Exercise Vajra Prahar** (Special Forces’ Exercise)
- **Cope India** (Air Force).
- **Malabar Exercise** (Quadilateral naval exercise of India, USA, Japan and Australia).
- **Red Flag** (US’ multilateral air exercise).

## Allium Negianum: A New Species of Onion

### Why in News

Recently, a newly discovered plant **Allium negianum**, in Uttarakhand has been confirmed to belong to the genus that includes many staple foods such as **onion and garlic**.

- A **staple food** makes up the **dominant part of a population’s diet**. They are eaten regularly—even daily—and supply a major proportion of a person’s energy and nutritional needs.

### Key Points

- **About:**
  - Allium is one of the **largest genera in Amaryllidaceae**.

Note:

- **Amaryllidaceae** is a family of **herbaceous** (connected with plants that have soft stems), mainly perennial and bulbous flowering plants.



- The genus *Allium* contains **about 1,100 species worldwide**, including many staple foods like **onion, garlic, scallion, shallot and chives**.
- The genus naturally **occurs in dry seasons** in the **northern hemisphere** and **South Africa** but the newly-identified species is **restricted to the region** of the **western Himalaya**.
- The scientific name *Allium negianum* **honours the late Dr. Kuldeep Singh Negi**, an eminent explorer and *Allium* collector from India.
  - They are useful for **various medicinal purposes**.
- **Distribution in India:**
  - The Indian *Allium* is **distributed in different eco-geographical areas of the temperate and alpine regions of Himalayas**.
  - The Indian Himalayan region has two distinct centers of *Allium* diversity, the **Western Himalaya (over 85% of total diversity)** and the **Eastern Himalaya (6%)**, covering the alpine-sub temperate region.
- **Condition of Growth:**
  - It grows at 3,000 to 4,800 m above sea level and can be found along open **grassy meadows, sandy soils along rivers**, and streams forming in snow pasture lands along alpine meadows.
- **Threat:**
  - Indiscriminate **harvesting of its leaves and bulbs** for seasoning may pose a threat to its wild populations.

## Georissa Mawsmiensis: A Micro Snail Species

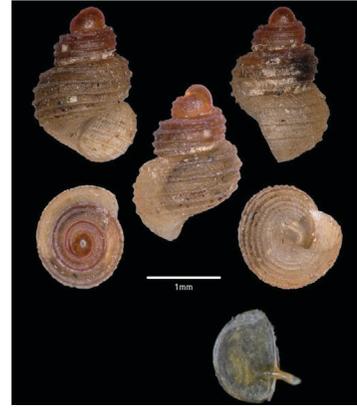
### **Why in News**

Recently, a micro snail species named *Georissa mawsmiensis* has been discovered in **Mawsmai Cave** in Meghalaya.

### **Key Points**

- **About:**

- The new species is unique from *Georissa sarrita* (a member of the same genus discovered in 1851) in its shell morphology, starting from shell size variation to the presence of **four very prominent spiral striations** (a minute groove, scratch) on body whorls of the shell.



- These spiral striations, which are counted from the suture to aperture in apertural view, are **seven in Georissa sarrita**.

#### ➤ **Habitat:**

- *Georissa* is found in soil or **subterranean habitats** in **lowland tropical forest** as well as **high altitude evergreen forests** or on **rock surfaces** rich in calcium.

#### ➤ **Distribution:**

- The members of the *Georissa* genus are widely distributed across and reported from **Africa, Asia**, and the **Pacific**. However, they are **confined to microhabitats consisting of limestone caves or karst landscapes** formed by the dissolution of limestone.

#### ➤ **Threats:**

- The **high tourist influx may pose a threat** to this micro snail species including other cave faunas.

#### **Mawsmai Cave**

- It is situated in the small village of Mawsmai, around four kilometres from **Cherrapunjee** (Sohra) in the East **Khasi Hills** district of Meghalaya.
- The term '**Mawsmai**' means '**Oath Stone**' in the **Khasi language**. The **Khasi people** use the local term '**Krem**' for the cave.
- Mawsmai cave is located at an altitude of 1,195 metres above sea level and is indirectly influenced by the **streams of the Kynshi river originating from the East Khasi Hills**.
- The **cave is famous for its fossils**, some which you can spot if you spend some time peering at the walls and formations inside.

Note:



## ABHYAS: High-speed Expendable Aerial Target

### Why in News

Recently, The **Defence Research and Development Organisation** (DRDO) successfully flight-tested **Abhyas High-speed Expendable Aerial Target (HEAT)** from the Integrated Test Range in Chandipur, off the Bay of Bengal coast in Odisha.

- DRDO is the **Research & Development wing of the Ministry of Defence**, Govt of India, with a vision to empower India with cutting-edge defence technologies.

### Key Points

- **Designed and developed by:**
  - Aeronautical Development Establishment (ADE), of DRDO.
    - ADE is a key Aeronautical Systems Design Laboratory under DRDO.
    - It is involved in the design and development of the state-of-the-art **Unmanned Aerial Vehicles (UAV)** and Aeronautical Systems and technologies to meet the requirements of the **Indian Armed forces**.
- **Features:**
  - It is powered by a **gas turbine engine** to sustain a **long endurance flight at subsonic speed**.
  - It is equipped with a **MEMS** (Micro-Electro-Mechanical Systems)-based **Inertial Navigation System (INS)** for navigation along with the Flight Control Computer (FCC) for guidance and control.
  - The vehicle is **programmed for fully autonomous flight** and their check-out is done using a laptop-based Ground Control Station (GCS).



- **Utility:**
  - It will be used as a **target for the evaluation of various missile systems**.
    - It offers a **realistic threat scenario** for practice of weapon systems.
- **Other Recent Developments:**
  - **In September 2021**, the DRDO tested a new version of the **Akash Missile – ‘Akash Prime’** – from the Integrated Test Range (ITR), Chandipur, Odisha.
  - **In July 2021**, DRDO launched the **Akash-NG (New Generation)** and the Man Portable Anti Tank Guided Missile (MPATGM).
  - **In June 2021** a new generation nuclear capable ballistic missile **Agni-P (Prime)** was successfully test-fired by the DRDO.
  - **In February 2021** India also successfully test-fired indigenously-developed anti-tank guided missile systems **‘Helina’ and ‘Dhruvastra’**.
  - **In October 2020**, the DRDO conducted a successful flight test of the **Supersonic Missile Assisted Release of Torpedo (SMART)** from Wheeler Island off the coast of Odisha.

## Lake Tahoe: US

### Why in News

Drought fueled by **climate change** has dropped Lake Tahoe in the US below its natural rim and halted flows into the Truckee River.

- It is an **historically cyclical event that’s occurring sooner** and more often than it used to.



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Note:

## Key Points

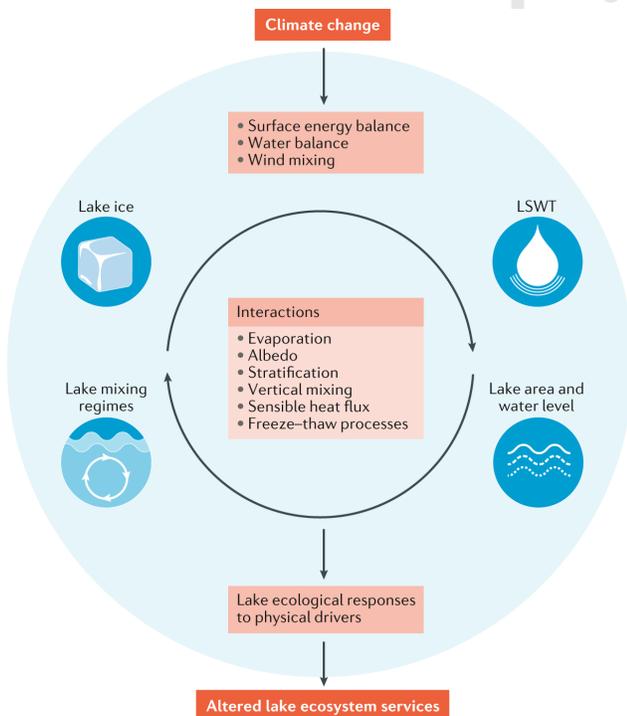
### ➤ About:

- Lake Tahoe is the **largest alpine lake in North America**, and the **second deepest lake in the US**, with **Crater Lake in Oregon being the deepest** in the US.
  - Alpine lakes are lakes or reservoirs at **high altitudes**, usually over above sea level or above the tree line.

**Note:** Great Lakes, chain of **deep freshwater lakes in east-central North America** comprising **Lakes Superior, Michigan, Huron, Erie, and Ontario**. Except for Lake Michigan, the lakes provide a natural border between Canada and the United States.

### ➤ Impact of Climate Change on Lakes:

- **Less Ice Cover:** Lakes are experiencing less ice cover, with more than 1,00,000 lakes at risk of having ice-free winters if air temperatures increase by 4 °C.
- **Increasing LSWT:** Lake Surface Water Temperatures have increased worldwide, which is similar to or in excess of air temperature trends.
- **Increase in Evaporation rate:** Global annual mean lake evaporation rates are forecast to increase 16% by 2100, with regional variations dependent on factors such as ice cover, stratification, wind speed and solar radiation.



- Lake stratification is the **tendency of lakes to form separate and distinct thermal layers** during warm weather.
- **Affecting Lake Water Storage:** Global lake water storage is sensitive to climate change, but with substantial regional variability, and the magnitude of future changes in lake water storage remains uncertain.

## Sustainable Transport System Award: Kerala

### Why in News

Recently, Kerala has won the award for the 'city with the most Sustainable Transport System'.

### Key Points

- It will be presented by the **Ministry for Housing and Urban Affairs**.
- The award is given in **recognition of the transport facilities in various states and Union Territories** of India.
- The award has been given in recognition of the projects implemented — like **Kochi Metro, Water Metro (Water Connectivity with the same experience as metro) and E-mobility** — to enhance the transport facilities in the city of Kochi.
- The formation of the Kochi Open Mobility Network, which digitized and integrated various transport facilities, also helped to win the award.

### Sustainable Transport

#### ➤ About:

- It refers to any means of transportation that is **'green'** and has **low impact on the environment**. It is also about **balancing our current and future needs**.

- **Examples of sustainable transportation** include walking, cycling, transit, carpooling, car sharing, and green vehicles.

#### ➤ Benefits:

- **Improves Air Quality:**
  - Replacing many separate emissions-producing vehicles with fewer transit vehicles that generally emit less pollution on a per person basis.

Note:



- **Reduces Greenhouse Gas Emissions:**
  - By moving more people with fewer vehicles, public transportation can reduce **greenhouse gas emissions**. Public transportation produces significantly lower greenhouse gas emissions per passenger mile than private vehicle
- **Reduces Congestion:**
  - Along with reducing greenhouse gas emissions **by facilitating compact development, public transit also reduces congestion** and traffic on the roads.
  - By reducing congestion, transit **reduces emissions from cars stuck in traffic**.
- **Promotes Health:**
  - Because sustainable transit reduces emissions and air pollution, **it also promotes community health**.
  - Other sustainable modes of transportation, like biking and walking, also provide physical exercise to commuters while emitting zero emissions. This betters their health, as well as that of the entire community.

#### E- Mobility

- Electromobility is the **use of electric cars, as well as e-bikes or pedelecs, electric motorbikes, e-buses and e-trucks**.
  - The common feature of all of them is that they are **fully or partly driven electrically**, have a means of storing energy on board, and obtain their energy mainly from the power grid.
- E-mobility comes with **zero or ultra-low tailpipe emissions of local air pollutants and much lower noise**, and, by being one of the most innovative clusters for the automotive sector, can provide a major boost to the economic and industrial competitiveness, attracting investments, especially in countries.

## Mahatma Gandhi National Fellowship: Phase II

### Why in News

Recently, the government has launched the **phase-II of Mahatma Gandhi National Fellowship under SANKALP (Skill Acquisition and Knowledge Awareness for Livelihood Promotion) programme**.

#### SANKALP

- SANKALP, a **Centrally sponsored scheme**, is a **World Bank loan assisted program, launched by the Ministry of Skill Development and Entrepreneurship in January 2018**.
- SANKALP engages with **District Skill Committees (DSCs)** to effectively reduce the mismatch between the supply and demand of skilled manpower in the country, thereby creating decent opportunities for the youth to work and earn.

#### Key Points

- **About:**
  - It is a **two-year long fellowship programme** conceived to create opportunities for young, dynamic individuals to contribute to enhancing skill development at the grassroots.
    - **MGNF Phase-I (Pilot):** Launched in 2019 with IIM Bangalore as Academic Partner and 69 are Fellows currently deployed in 69 districts across 6 States.
    - **MGNF Phase-II (National Roll Out):** Being launched in October 2021 with 661 MGNFs who will be deployed across all districts of the country. 8 more IIMs have been boarded taking the total to 9 IIMs.
  - It seeks to combine classroom sessions by academic partner IIMs with an intensive field immersion at the district level **to create credible plans and identify barriers in raising employment, economic output, and promote livelihoods in rural areas**.
  - The sharp focus on developing skills for local needs gives impetus to the **“vocal for local”**, and also building an industry-relevant skill base will help the cause of **“Atmanirbhar Bharat”**.
- **Eligibility:**
  - Fellows have to be **in the 21-30 years age-group**, have a **graduation degree** from a recognized university and be citizens of India.
  - Proficiency in official language of the state of fieldwork will be mandatory.

#### Other Schemes for Skill Development:

- **Pradhan Mantri Kaushal Vikas Yojana (PMKVY)**.
- **Recognition of Prior Learning**
- **National Career Service Project**

Note:

- Skill Management and Accreditation of Training Centres (SMART)
- Skills Strengthening for Industrial Value Enhancement (STRIVE)
- Pradhan Mantri YUVA Yojana (Yuva Udyamita Vikas Abhiyan)
- Kaushal Acharya Awards.
- Scheme for Higher Education Youth in Apprenticeship and Skills (SHREYAS).
- Atmanirbhar Skilled Employee Employer Mapping (ASEEM).

## Economic Advisory Council to the Prime Minister

### Why in News

Recently, the government has reconstituted the **Economic Advisory Council to the Prime Minister (EAC-PM)** under the leadership of **Dr. Bibek Debroy** for a period of two years after its term came to an end in September 2021.

### Key Points

- **About:**
  - EAC-PM is a **non-constitutional, non-statutory, independent body** constituted to give advice on economic and related issues to the Government of India, specifically to the Prime Minister.
  - The council serves to **highlight key economic issues** to the government of India from a neutral viewpoint.
    - It advises the Prime Minister on economic issues like **inflation, microfinance, and industrial output**.
  - For administrative, logistic, planning and budgeting purposes, the **NITI Aayog** serves as the **Nodal Agency for the EAC-PM**.
- **Terms of Reference of EAC-PM:**
  - Analyzing any issue, economic or otherwise, referred to it by the Prime Minister and advising him thereon,
  - Addressing issues of **macroeconomic importance** and presenting views thereon to the Prime Minister.
    - These could be either **suo-motu or on reference** from the Prime Minister or anyone else.

- It also includes attending to any other task as may be desired by the Prime Minister from time to time.

### Periodic Reports:

- Annual Economic Outlook.
- Review of the Economy.

## SAMBHAV Awareness Programme: MSMEs

### Why in News

Recently, the Ministry of **Micro, Small & Medium Enterprises (MSME)** has launched an **e-National Level Awareness Programme SAMBHAV**.

### Key Points

- **About:**
  - It is a mass outreach programme under the **Ministry of MSME** in which **students** from different colleges/ITIs from all parts of the country will be **encouraged** by 130 field offices of the Ministry to **take up entrepreneurship**.
  - During the campaign the **college students will be made aware of the various schemes** being implemented by the Ministry of MSME through Audio/Video film presentations.
- **Objective:**
  - To **promote engagement of the youth in promoting entrepreneurship**, boost domestic manufacturing with a view to push economic growth.
- **Need:**
  - The government is working to **increase the contribution of MSME in Gross Domestic Product (GDP) and exports**.
    - Enhancing the GDP contribution from present 30% to 50%, and employment generation in MSME sector from 11 crore to 15 crore has been stressed.
- **Related Initiatives:**
  - **Women Entrepreneurship Platform (WEP)**
  - **Venture Capital Scheme for Agri-Business Development**
  - **Pradhan Mantri Mudra Yojana**
  - **Generation Unlimited in India (YuWaah)**
  - **National Career Service**

Note:



- Prime Minister's Employment Generation Programme (PMEGP)
- Pradhan Mantri Rojgar Protsahan Yojana (PMRPY)
- Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGA)

## Queen Heo Hwang-ok

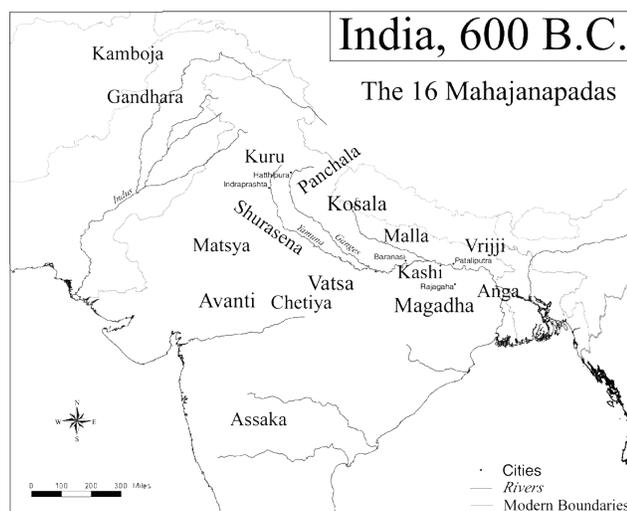
### Why in News

Recently, on the banks of the Sarayu in Ayodhya, the Ram Katha Park has been renovated which will be **renamed as Queen Heo Hwang-ok memorial park**. The Korean queen is **believed to have had Indian roots**.

- In 2000, India and South Korea signed an agreement to develop **Ayodhya and Gimhae as sister cities**.
- Earlier, in March 2021 Indian Defence Minister and his South Korean counterpart inaugurated the **India-Korea Friendship Park** in a ceremony at the Delhi Cantonment.

### Key Points

- **About:**
  - She was a Korean queen who is believed to have been born **Princess Suriratna of Ayodhya**, daughter of King Padmasen and Indumati.
    - Padmasen ruled the ancient kingdom of **Kausala (Kosala)**, a region that extended from present-day UP to Odisha.
    - The memorial park now **comprises Queen and King pavilions** with their busts in place, and a **pond to represent Princess Suriratna's journey**.



- Her story is described in **Samguk Yusa (Memorabilia of Three Kingdoms)**.
  - It is a 13<sup>th</sup> century collection of legends, folktales and history of Korea's three kingdoms — Goguryeo, Baekje and Silla — and some other regions.
- In 48 BC, the princess travelled to Korea from the ancient land of **'Ayuta'** and **married Kim Suro**, founder and King of Geumgwan Gaya in south-eastern Korea.
  - There is **no consensus among historians** on the location of **'Ayuta'** as **some historians** believe that the princess could actually be from **Thailand's Ayutthaya kingdom**.
  - While in the **popular imagination**, it is associated with **Ayodhya in Uttar Pradesh**, there is no Indian account of the legend.

### ➤ Princess Journey From India to Korea:

- She **travelled by boat along with an entourage**, having been sent by her father, who is said to have **had a dream about her marrying king Suro**.
- A **pagoda**, believed to have been brought by the queen from India to calm the ocean gods, is placed next to the tomb.
- According to the legend, **the princess had taken a golden egg to Korea**, and the park includes an egg made of granite.

## Aadhaar Hackathon 2021

### Why in News

The **Unique Identification Authority of India (UIDAI)** will be hosting a Hackathon titled **"Aadhaar Hackathon 2021"**.

- This is the **first-ever event being conducted by the Aadhaar team**.
- A **hackathon** is an event, usually hosted by a tech company or organization, where programmers get together for a short period of time to collaborate on a project.

### Key Points

- **About:**
  - Its target is to **identify young innovators** in the field of information technology

Note:

- To solve the hackathon challenges through innovative technological solutions, UIDAI is **reaching out to the young minds of all the Engineering colleges**.
- **Themes:** Aadhaar Hackathon 2021 is themed around two topics.
  - **Enrolment and Update:** It essentially covers some of the **real-life challenges** being faced by the residents while updating their address.
  - **Identity and Authentication:** UIDAI is soliciting innovative solutions to **prove Identity without sharing the Aadhaar number** or any demographics information.
    - Also, it is looking for **innovative applications around face authentication Application Programming Interface (APIs)**, the newly launched authentication modality of UIDAI.
    - The objective is to popularize some of the existing and new **APIs** to solve the needs of residents.
- **Other Hackathons:**
  - **Virtual Agri-Hackathon 2020.**
  - **Drug Discovery Hackathon 2020.**
  - **CCTNS Hackathon & Cyber Challenge.**
  - **India - Australia Circular Economy Hackathon.**
  - **5G Hackathon.**
  - **Hackathon Manthan 2021.**

## Exercise MITRA SHAKTI

### Why in News

The **8<sup>th</sup> Edition of joint military exercise** between the Indian Army and the Sri Lankan Army, **Exercise MITRA SHAKTI** was conducted in Sri Lanka.

- The **7<sup>th</sup> edition** of the Mitra Shakti exercise was held in **Pune, Maharashtra in 2019**.

### Key Points

- **About:**
  - It is based on **counter insurgency and counter terrorism operations** in semi urban terrain.
  - It is the **largest bilateral exercise being undertaken by the Sri Lankan Army** and it forms a major part of India and Sri Lanka's growing defence partnership.
  - The joint exercise is designed for incorporating the current dynamics of **United Nations' peacekeeping**



operations through tactical exercises and practical discussions

- **Other Exercises with Sri Lanka:**
  - Naval exercise (**SLINEX**).

## Exercise Cambrian Patrol

### Why in News

Recently, the Gorkha Rifles (Frontier Force) of the **Indian Army** has been awarded a Gold medal in the **Cambrian Patrol Exercise**, which was held in Wales (the UK).



Note:

**Key Points**

- **About:**
  - It is an **annual international military patrolling exercise** and is referred to as the **'Olympics of Military Patrolling'** among militaries in the world.
  - It was first set up **more than 40 years ago, by a group of Welsh Territorial Army soldiers** who designed the training event to feature long-distance **marching over the Cambrian Mountains culminating in firing.**
    - The teams have to cover a 50-mile course in less than 48 hrs while performing numerous types of military exercises placed throughout the rugged Cambrian Mountains and swamplands of mid-Wales, UK.
  - The **aim** of the exercise is to test their leadership, self-discipline, courage, physical endurance, and determination.
- **Joint Exercises between India and UK:**
  - **Navy: Konkan**
  - **Air Force: Indradhanush**
  - **Military: Ajeya Warrior**

**The Earthshot Prize 2021****Why in News:**

Vidyut Mohan, a Delhi-based entrepreneur, won the inaugural edition of The **Earthshot Prize**.

- He won it for his innovative **technology that recycles agricultural waste to create fuel.**

**Key Points:**

- **About:**
  - It is an award set up by **Prince William and the Royal Foundation**, the charity founded by the Duke and Duchess of Cambridge, and **historian David Attenborough.**
    - Earlier, Sir David Attenborough has also been conferred with the **Indira Gandhi Peace Prize for 2019.**
  - **Established in 2020**, 2021 was the first year when awards were handed out to finalists for their contributions towards

- The award will honour **five finalists between 2021 and 2030** for **developing solutions to fight the climate crisis.**
  - They will receive a prize of **one million Euros.** The winners will be chosen by the **Earthshot Prize Council.**
- **Each year five winners will be selected**, one for each of the **Five United Nations Sustainable Development Goals (SDGs):**
  - Restoration and protection of nature
  - Air cleanliness
  - Ocean revival
  - Waste-free living
  - Climate action.
- **Eligibility:**
  - Prizes could be awarded to a wide range of individuals, teams or collaborations – scientists, activists, economists, community projects, leaders, governments, banks, businesses, cities, and countries – **anyone whose workable solutions make a substantial contribution to achieving the Earthshots.**
- **Objectives:**
  - To encourage and support the **development of solutions for Earth's environmental problems.**
  - To **incentivise change and help repair the planet** over the next ten years.
  - To turn the current pessimism surrounding environmental issues into optimism, by **highlighting the ability of human ingenuity to bring about change**, and inspiring collective action.
- **The Earthshot Prize 2021 Indian Winner:**
  - **"Clean our Air" Takachar, India: A portable machine** created to **turn agricultural waste into fertiliser** so that farmers do not burn their fields and cause air pollution.
    - This technology will help **convert crop residues into sellable bio-products** like fuel and fertilizers.
    - The technology **reduces smoke emissions by 98%.**
    - The burning of agricultural waste causes air pollution that in some areas has reduced life expectancy by a decade.

Note:

## Debrigarh Wildlife Sanctuary: Odisha

### Why in News

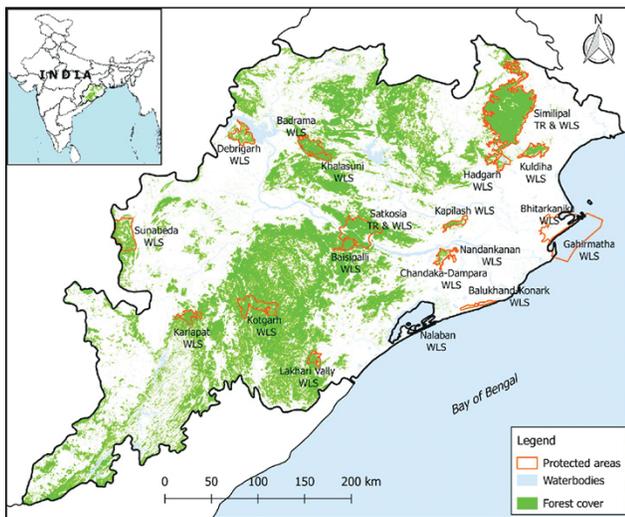
Recently, the Odisha Government has decided to relocate around 420 families from four zero-connectivity villages in **Debrigarh wildlife sanctuary**.

- The relocation is aimed at reducing **man-animal conflict** and providing better living conditions to the displaced families.

### Key Points

- **Location:**
  - It is situated in the **Bargarh district of Odisha** near **Hirakud dam (Mahanadi River)** and covers an area of 346.91 square kilometers.
  - It is bounded on the east and north by the huge **Hirakud reservoir**.
  - It was declared as a wildlife sanctuary on **8<sup>th</sup> February 1985**.
  - It is an **important site for in situ conservation of wildlife** and its habitat in the state of Odisha
- **Biodiversity:**
  - **Flora:**
    - Dry deciduous **forests**
  - **Fauna:**
    - Four-horned antelope, **Indian leopard**, **Indian elephant**, sambar, chital, **gaur**, etc.

### ➤ Major Protected Areas in Odisha:



- **National Parks:**
  - **Bhitarkanika National Park**
  - **Simlipal National Park**
- **Wildlife Sanctuaries:**
  - Badrama WLS
  - **Chilika (Nalaban island) WLS**
  - Hadgarh WLS
  - **Baisipalli WLS**
  - Kotagarh WLS
  - **Nandankanan WLS**
  - Lakhari Valley WLS
  - **Gahirmatha (Marine) WLS**

## Kaziranga National Park: Assam

### Why in News

The **Central Empowered Committee (CEC)**, constituted by the **Supreme Court**, has asked the Assam government to take **action on illegal construction in the identified wildlife corridors** of the Kaziranga National Park and Tiger Reserve.

- Earlier, **Kaziranga National Park** became the **first in the country to use satellite phones** and **Dehing Patkai and Raimona** were **designated as National Parks** and the **Eco-sensitive zone** of the Deepor Beel Wildlife Sanctuary was notified.



### 7 NATIONAL PARKS IN ASSAM

- **6th : Raimona National Park (Notified in 2021)**
- **7th : Dihing Patkai National Park (Notified in June 2021)**

Note:

**Key Points**

- **Location:**
  - It is located in the **State of Assam** and covers 42,996 Hectare (ha). It is the **single largest undisturbed and representative area in the Brahmaputra Valley floodplain.**
- **Legal Status:**
  - It was declared as a **National Park in 1974.**
  - It has been declared a **tiger reserve since 2007.**
- **International Status:**
  - It was declared a **UNESCO World Heritage Site** in 1985.
  - It is recognized as an **Important Bird Area** by BirdLife International.
- **Biodiversity:**
  - It is the **home of the world's most one-horned rhinos.**
    - **Pobitora Wildlife Sanctuary** has the highest **density** of one-horned rhinos in the world and second highest number of Rhinos in Assam after Kaziranga National Park.
  - Much of the focus of conservation efforts in Kaziranga are focused on the **'big four' species - Rhino, Elephant, Royal Bengal tiger** and **Asiatic water buffalo.**
    - The 2018 census had yielded 2,413 rhinos and approximately 1,100 elephants.
    - As per the figures of tiger census conducted in 2014, **Kaziranga had the third highest population in India** after **Jim Corbett National Park** in Uttarakhand and **Bandipur National Park** in Karnataka.
  - Kaziranga is also **home to 9 of the 14 species of primates** found in the Indian subcontinent.
- **Rivers and Highways:**
  - **National Highway 37** passes through the park area.
  - The park also has more than 250 seasonal water bodies, besides the **Diphlu River** running through it.

## Konkan Shakti 2021

**Why in News**

Recently, **India and the UK started Konkan Shakti 2021**, the **first-ever tri-services joint exercise.** It started off the **west coast of India.**



- Earlier, the Gorkha Rifles (Frontier Force) of the Indian Army was awarded a **Gold medal** in the **Cambrian Patrol Exercise**, which was held in Wales (the UK).

**Key Points**

- **Aim:**
  - To **derive mutual benefits** from each other's experiences and also showcase the continuing cooperation between the two countries.
  - It is also aimed at training troops in the conduct of **Humanitarian Aid and Disaster Relief Operations** by coalition forces in an opposed environment.
- **Other Joint Exercises between India and UK:**
  - **Navy: Konkan**
  - **Air Force: Indradhanush**
  - **Military: Ajeya Warrior**

## Trigonopterus Corona

**Why in News**

Recently, scientists have discovered a **new species of beetle named *Trigonopterus corona*** on the Indonesian island of Sulawesi.

- It is not the only insect species to be named after the pandemic. In April 2021, a **new species of caddisfly** (a moth-like insect) was collected near a stream in Kosovo, and named ***Potamophylax coronavirus*.**

**Key Points**

- It has been named on pandemic which reflects the large impact of the **Covid-19 pandemic** on this project.

Note:

- The researcher had been studying this genus (*Trigonopterus*) for the past 15 years and was delayed because Covid-19 pandemic hit.
- *Trigonopterus* is a **hyperdiverse genus of flightless hidden-snout weevils (*Cryptorhynchinae*)** ranging over the **Indo-Australian-Melanesian archipelago**.
  - Weevils are often called **flour bugs** because that is where they are frequently found, they are a type of **beetle with an elongated snout**.
- The genus *Trigonopterus* originated in Northern Australia and rapidly diversified in New Guinea before colonizing Sulawesi and dispersing further west to Sundaland (a bio-geographical area of south-eastern Asia).



### Island of Sulawesi

- It is **one of the four Greater Sunda Islands of Indonesia**. It is a curiously shaped island with four distinct peninsulas that form **three major gulfs, Tomini (the largest) on the northeast, Tolo on the east, and Bone on the south**.
  - The island group features the islands of Java, Sumatra, Borneo, and Sulawesi.
- The island is highly mountainous, with some active volcanoes, but there are large plains on the southern peninsula and in the south-central part of the island on which **rice is grown**.
- The **highest peak is Mount Rantekombola, or Mario, at 11,335 feet**.



## New Medicine for Bovine Mastitis

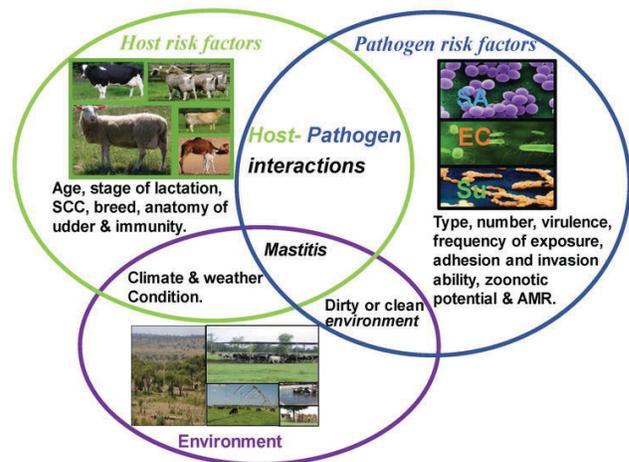
### Why in News

Recently, the **National Innovation Foundation (NIF)** has developed a **poly-herbal medicine called Mastirak Gel to treat Mastitis in Dairy Cattle**.

- NIF is an autonomous institute of the **Department of Science and Technology (DST)**, which renovates indigenous technologies based on farmer's wisdom.

### Key Points

- **Significance of Mastirak Gel:**
  - It can **improve the udder** (Milk producing part) **health**.
  - It **reduces inflammation** which is detrimental to the udder.
  - It also **reduces the use of antibiotics** and helps in the cost-effective management of the disease.
    - Treatment of infected animals with **antibiotics poses a public health hazard**.
- **Mastitis:**
  - **About:**
    - Mastitis, or **inflammation of the mammary gland**, is the most common and the most expensive disease of dairy cattle throughout most of the world.
      - Several types of bacteria cause distinctly different mastitis infections.
    - **Antibiotic** infusions into the udder nearly always cure the clinical disease but **may not eliminate the bacterial infection**.
  - **Cause:**
    - Although **stress and physical injuries may cause inflammation** of the gland, infection by invading bacteria or other microorganisms (**fungi, yeasts** and possibly viruses) is the primary cause of mastitis.
    - Infections begin when **microorganisms** penetrate the teat canal and multiply in the mammary gland.
  - **Prevention:**
    - New infections are prevented by focusing



Note:

management efforts on **reducing the presence of pathogens** on the teat end.

- The single most important management practice to prevent transmission of new infections is the **use of an effective germicide as a post milking teat dip**.
- **Impact:**
  - It can **affect farm productivity due to fall in milk quality**, thus impacting **income-generating activities**.
  - It **reduces milk yields, increases the cost of production** and makes milk less valuable for liquid consumption and manufacture.

## ADB Grants Loan for Mizoram

### **Why in News**

Recently, the Indian government and the **Asian Development Bank (ADB)** signed a USD 4.5 million **Project Readiness Financing (PRF)** loan to support urban mobility in Mizoram.

- Earlier, the **ADB** and the Government of India signed a **USD 484 million loan** to improve transport connectivity and industrial development in the **Chennai - Kanyakumari Industrial Corridor (CKIC)** in Tamil Nadu.
- **PRF** supports high implementation readiness for projects that are expected to be financed by ADB.

### **Key Points**

- **About:**
  - **Urban mobility in Aizawl**, the center of Mizoram's administrative and service industry, is **severely constrained due to rapid and unplanned urbanization**.
    - This results in **traffic congestion** on narrow road widths, and adversely impacts road safety, efficiency in movement of people and goods, and environmental sustainability.
  - The ensuing project, being developed through the project readiness financing, **seeks to resolve the city's transport problems by adopting sustainable urban mobility solutions**.
  - It will **help develop institutional capacity of the state's Urban Development and Poverty Alleviation Department** in pre-implementation and project preparation activities.

- The PRF will develop a **Comprehensive Mobility Plan (CMP)** for Aizawl that outlines the urban transport development strategy and build synergies with urban development planning initiatives in the state, and promote climate and disaster resilience, and gender inclusiveness in its interventions.
  - CMP will facilitate an optimised use of capital in relevant projects, and enhance the economic competitiveness of cities by improving logistics and access to jobs, basic services, education, etc.

### ➤ **Asian Development Bank:**

- It is a **regional development bank** established on 19<sup>th</sup> December 1966. It is headquartered in **Manila, Philippines**.
- It now has **68 members, 49 from within Asia**.
  - **India** is one of the **members**.
- It's **five largest shareholders** are Japan and the United States (each with 15.6% of total shares), the People's Republic of China (6.4%), India (6.3%), and Australia (5.8%).
- It **aims to promote social and economic development** in Asia and the Pacific.
- **Asian Development Outlook (ADO)** is a series of annual economic reports on the Developing Member Countries (DMCs) of the Asian Development Bank (ADB).

## Gray Hanuman Langur

### **Why in News**

Recently, A troop of **Gray langurs** (*Semnopithecus entellus*) with their pelage (fur or hair) coloured blue was spotted in an industrial neighbourhood of Ankleshwar in Gujarat.

### **Key Points**

- **About:**
  - Also called Hanuman, Langur, **named after the Hindu god, Hanuman**.
    - Its 16 subspecies' range extends from the Himalayas in the north to peninsular India in the south.
  - It is grey washed with buff or silvery shades. Their hands and feet are black and they have long tails for balancing on tree limbs.

Note:



➤ **Habitat:**

- It is found both in forests and near human habitations.

- They inhabit areas between **2,200-4,000 metres above mean sea level** in the subtropical, tropical moist temperate, alpine, coniferous and broadleaved forests and scrublands.

➤ **Distribution:**

- It is distributed in a varied habitat including dry **savannah** and **tropical rainforests**.
- In the Indian Subcontinent, their distribution is reported in Bhutan, **northern India and Nepal**.

➤ **Threat:**

- **Deforestation, Mining** and **Pollution**.

➤ **Protection Status:**

- **IUCN Red List:** Least Concern
- **CITES:** Appendix-I
- **Wildlife Protection Act, 1972** : Schedule-I



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Note:



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**Key Points**

**Details**

Blank area for Key Points.

Lined area for Details.

**Summary**

Blank area for Summary.