

OFFICERS' PULSE

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COVERAGE.

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AT A GLANCE
& IN DEPTH.

Polity and Social Issues

Economy

International Relations

Environment

Science and Tech

Culture

CURRENT AFFAIRS WEEKLY
THE PULSE OF UPSC AT YOUR FINGER TIPS



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News @ a glance

POLITY

1) Central Vigilance Commission

About CVC

- The Central Vigilance Commission (CVC) was set up in 1964 on the recommendations of the Committee on Prevention of Corruption, headed by K. Santhanam, as the apex vigilance institution under the Central Government.
- The Commission was given **statutory status** by the enactment of "The Central Vigilance Commission Act, 2003".
- The CVC is not controlled by any Ministry/Department. It is an **independent body** which is only responsible for the Parliament.
- The CVC is **not an investigating agency**. The CVC either gets the investigation done through the CBI or through the Departmental Chief Vigilance Officers.

Why in News?

- The Central Vigilance Commission has modified the guidelines pertaining to the transfer and posting of officials in the vigilance units of government organisations, **restricting their tenure to three years at one place**. The tenure may be extended to three more years, albeit at a different place of posting.
- The CVC, in its order, said the undue long stay of an official in a vigilance department had the potential of developing vested interests, apart from giving rise to unnecessary complaints or allegations.
- The order said after transfer from the vigilance unit, there would be a **compulsory cooling off period of three years** before anyone could be considered again for posting in the unit.

2) POCSO Act

Protection of Children from Sexual Offences Act, 2011

- The Act, which came into force in **2012**, is the first comprehensive law in the country

dealing specifically with sexual abuse of children.

- Under the Act, any person below the **age of 18 years** is defined as a "child".
- The Act increased the scope of reporting offences against children, which were not earlier covered under the Indian Penal Code. This included **aggravated penetrative sexual assault** to include punishment for **abuse by a person in position of trust or authority** including public servants, police, armed forces, management or staff of an educational or religious institution.
- It also defined the procedure for reporting of cases, including a provision for punishment for **failure to report a case or false complaint**.
- It provided **procedures for recording of the statement of a child** by the police and court, laying down that it should be done in a **child-friendly manner**, and by the setting up of **special courts**.
- Each district shall designate a Sessions Court to be a **Special Court**. The Court shall, as far as possible, **complete the trial within one year**. The trial shall be held in camera and in the presence of the child's parents or any person trusted by the child.
- The Act also includes penalties for **use of children for the purpose of pornography and abetment of an offence**.

2019 Amendment

- The Act was amended in 2019 to enhance punishment under various sections of the Act including punishment for aggravated penetrative sexual assault to be increased to include **death penalty**.
- The important part of this bill is that it is **gender-neutral** and creates no discrimination against children belonging to any gender be it cis male, cis female, trans male, trans female, or any other gender.

Why in News?

- The Supreme Court has decided to examine whether minors indulging in consensual relationships can be tried under the stringent POCSO Act.
- A bench presided over by Justice Indira Banerjee issued notice to the Tamil Nadu

government on a petition seeking clarity on the law for punishing minors under the POCSO Act for consensual sex.

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ENVIRONMENT

1) Three new migratory bird species spotted in Coimbatore

Pacific golden plover



- With its breeding habitat at Arctic Tundra extending from Alaska in the U.S. to Russia, the bird usually migrates during winter to South Asia.
- IUCN status: **Least Concern**

Ruddy Shelduck



- Also known as Brahminy duck. It is a migratory bird, wintering in the Indian subcontinent and breeding in southeastern Europe and central Asia.
- IUCN Status: **Least Concern**

Gadwall



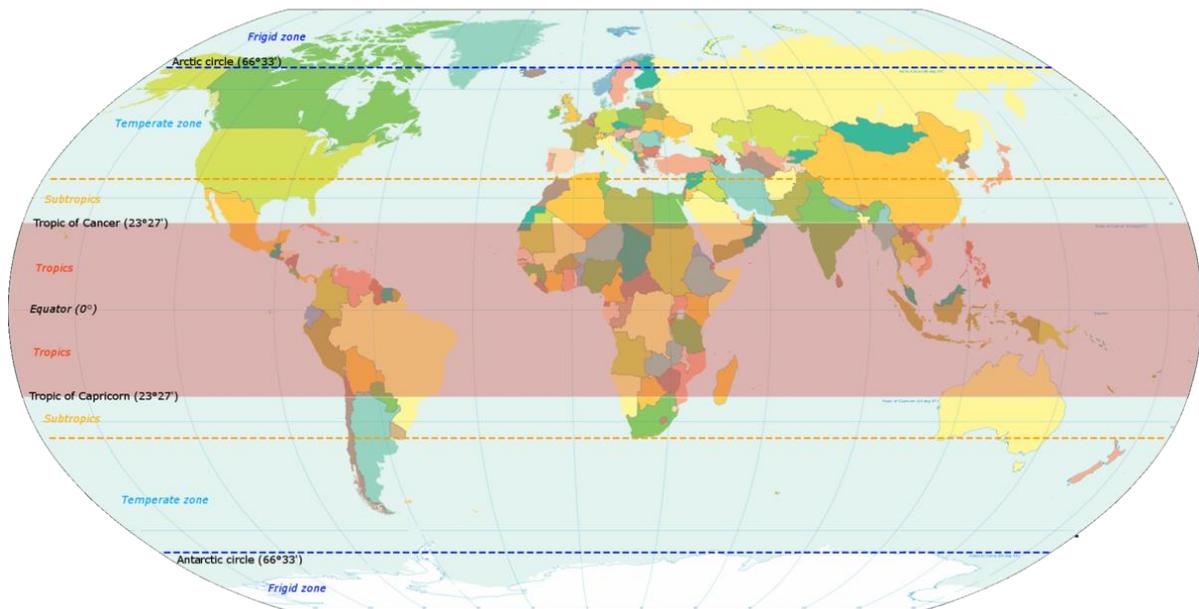
- The gadwall is found extensively in North America and breeds in the northern areas of Europe and across the Palearctic, and central North America. It is rarely found in India.
- IUCN status: **Least Concern**

Why in the news?

- Birdwatchers have spotted the above mentioned birds **for the first time** in Coimbatore.
- The migratory birds will arrive from various parts of the world to the tank from the first week of October and depart by the end of March the following year.

2) Climate change shrinks marine life richness near equator: study

Tropical Marine Zones



- Tropical oceans encircle Earth in an equatorial band **between the Tropic of Cancer (23.5° North latitude) and the Tropic of Capricorn (23.5° South latitude)**.
- The warm tropical oceans play a critical role in regulating Earth's climate and large-scale weather patterns. Much of the planet's biological diversity resides in the tropics, and the global distribution of species and ecosystems depends on oceanographic and atmospheric processes that occur in the equatorial oceans.
- **Why in the news?**
- In a recent research published, scientists found that the total number of open-water species declined by **about half in the 40 years** up to 2010 in tropical marine zones worldwide.
- The sea surface temperatures in the tropics have risen nearly 0.2°C, hence many tropical marine organisms are moving to cooler waters. Those organisms which are immobile like corals, their population is declining rapidly.
- The changes have been more dramatic in the Northern Hemisphere as the waters here have warmed faster.
- Such changes can have a really huge impact on some of the most vulnerable human communities around the planet, especially those involved in the fishing and tourism industry.
- Some countries like Cuba are developing climate change resilient coral reefs coped best with warming and eventually to repopulate depleted reefs. The country is also restoring coastal mangroves, which serve as fish nurseries and shelter.
- Other countries should take notice of these activities and try to achieve SDG 14 aiming at sustainable life below water.

3) Three-banded rosefinch - new species to India's bird list

About the species



- IUCN status: **Least Concern**
- It belongs to the family Fringillidae, which are **seed-eating passerine birds**. They have a distinctively conical bill.
- It is a resident of southern China and migrates to Bhutan sometimes. It is very rare in India.
- **Why in the news?**

- Three banded rosefinch has been seen and recorded in Arunachal Pradesh's high altitude temperate coniferous forest.
- The researchers were wonderstruck as this species is **found at lower altitudes in China** than it is found in India.
- With recent discovery, the three-banded rosefinch has been added as the 1,340th species of the bird family in India.
- Very little is known about its ecology of this species, the addition to the list helps to conduct proper study on it.

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ECONOMY

1) Net direct tax receipts rise 5%

What's in the news?

- **India's net direct tax collections** for the pandemic-hit financial year 2020-21 **grew by almost 5% year-on-year to ₹9.45 lakh crore**, exceeding the revised estimates of ₹9.05 lakh crore presented in the Union Budget and reflecting a gradual economic recovery in recent months.
- Tax experts said that the **Vivad Se Vishwas Scheme** to settle pending tax disputes also helped bolster the collections, with **net Corporation tax** collections for the year at ₹4.57 lakh crore.
- As per provisional data released by the Finance Ministry, revenues from **personal income tax**, including the Securities Transaction Tax, were ₹4.88 lakh crore.
- The improved direct tax collections, along with the recent uptick in inflows of indirect taxes, including the GST, suggest that **India's fiscal position may be better than the 9.5% of fiscal deficit** projected in the revised estimates.

About Vivad se Vishwas scheme

- Vivad se Vishwas scheme was announced in the Budget 2020 **to provide a mechanism for the resolution of pending Income Tax disputes.**
- As on November 30, 2019, about 4.83 lakh appeals pending at various levels involving tax arrears to the tune of about ₹9.32-lakh crore.
- The Centre introduced the scheme to bring down the number of pending cases and result in some portion of the locked revenue being realised.

2) RBI keeps policy rates unchanged

About MPC

- The Monetary Policy Committee (MPC) is a committee of the RBI which is entrusted with the task of fixing the benchmark policy interest rate (repo rate) **to contain inflation within the specified target level.**
- The 2016 amendment of the Reserve Bank of India Act, 1934 provides for a statutory

and institutionalised framework for the MPC.

- The MPC has **six members**
- **RBI Governor (Chairperson)**, RBI Deputy Governor in charge of monetary policy, one official nominated by the RBI Board and remaining 3 members would represent the Government.
- The MPC makes decisions based on **majority vote**. In case of a tie, the **RBI governor will have a second or casting vote.**

Why in News?

- The Monetary Policy Committee of the RBI has voted unanimously to leave the policy repo rate unchanged at 4%.
- The MPC also decided to continue with the **accommodative stance** as long as necessary to sustain growth on a durable basis and continue to mitigate the impact of COVID-19 on the economy.
- The **marginal standing facility (MSF) rate** remains unchanged at 4.25% and the **reverse repo rate** stands unchanged at 3.35%.

Projection of GDP growth

- Taking various factors into consideration, the projection of real GDP growth for 2021-22 has been retained at 10.5% consisting of 26.2% in Q1; 8.3% in Q2; 5.4% in Q3; and 6.2% in Q4.

Related information

Repo Rate & Reverse Repo Rate

- Repo rate is the rate of interest which is applied by RBI to commercial banks when the latter borrows from RBI. Reverse Repo rate is the rate at which RBI borrows money from commercial banks by lending securities.
- Both the Repo rate and Reverse Repo rate are used to **control inflation and money supply in the economy.**
- In the event of rising inflation, the RBI increases the repo rate which will act as a disincentive for banks to borrow from the central bank.

- This ultimately reduces the money supply in the economy and thus helps in arresting inflation. Similarly, if it wants to make it cheaper for banks to borrow money, it reduces the repo rate.

About MSF

- Marginal Standing Facility (MSF) is an overnight liquidity support provided by RBI to commercial banks with a higher interest rate over the repo rate.
- MSF can be used by a bank after it exhausts its eligible security holdings for borrowing under other options. Under MSF, banks can borrow funds from the RBI by pledging government securities within the limits of the Statutory Liquidity Ratio (SLR).
- MSF, being a penal rate, is **always fixed above the repo rate.**
- **Objectives**
- The scheme was introduced by RBI with the main aim of **reducing volatility in the overnight lending rates** in the inter-bank market and to enable **smooth monetary transmission** in the financial system.
- In March 2020, the RBI increased the cap for liquidity available under the marginal standing facility, **from 2 per cent to 3 per cent of their Net Demand and Time Liabilities (NDTL) — or deposits.**

Monetary policy stance

- The Central Banks use different terms to indicate its monetary policy stance on deciding policy rates like repo rate.
- **“Accommodative”** indicates that the central bank is telling the market to expect a rate cut anytime, **“neutral”** means that RBI could either increase or reduce repo rates as per liquidity conditions, **“calibrated tightening”** means that a cut in the repo rate is unlikely in the current rate cycle.

3) Payment banks

About Payment banks

- Payment banks are the new age banks with limited facilities. These banks mostly operate through the small vendors and shopkeepers. It exists in between the mobile wallet and regular banks.
- A payment bank provides following services to its customers.

- Accept demand deposits (restricted upto **Rs.1 lakh**)

1. Remittance services
 2. Mobile payments
 3. Fund transfers
 4. Debit card and associated services
 5. Net Banking services
- Sell third-party financial products like insurance and mutual funds
 - They **cannot offer loans**
 - They **cannot set up subsidiaries to undertake non-banking financial services activities.**
 - The Reserve Bank expects payment banks to target India’s migrant labourers, low-income households and small businesses, offering savings accounts and remittance services with a low transaction cost.

Eligible promoters

- Existing non-bank Pre-paid Payment Instrument (PPI) issuers authorised under the Payment and Settlement Systems Act, 2007
- Other entities such as individuals / professionals; Non-Banking Finance Companies (NBFCs), corporate Business Correspondents (BCs), mobile telephone companies, supermarket chains, companies, real sector cooperatives; that are owned and controlled by residents; and public sector entities may apply to set up payments banks.

Capital requirement

- Since liquidity is the most important aspect required for such banks they will be **bound by the reserve requirement rules of RBI (CRR, SLR etc.).**
- Payments banks will be required to invest minimum 75 per cent of its "demand deposit balances" in Statutory Liquidity Ratio (SLR) eligible Government securities/treasury bills with maturity up to one year and hold maximum 25 per cent in current and time/fixed deposits with other scheduled commercial banks for operational purposes and liquidity management.
- The **minimum paid-up equity capital for payments banks shall be Rs. 100 crore**, of which the promoter’s contribution would be minimum 40 percent of paid-up

equity capital for the first 5 years of commencement of the business.

Why in News?

- The Reserve Bank of India (RBI) has **doubled the maximum limit of funds account holders of payments banks to**

Rs 2 lakh from Rs 1 lakh earlier with immediate effect to expand the ability of such lenders to cater to the needs of MSMEs and other businesses.

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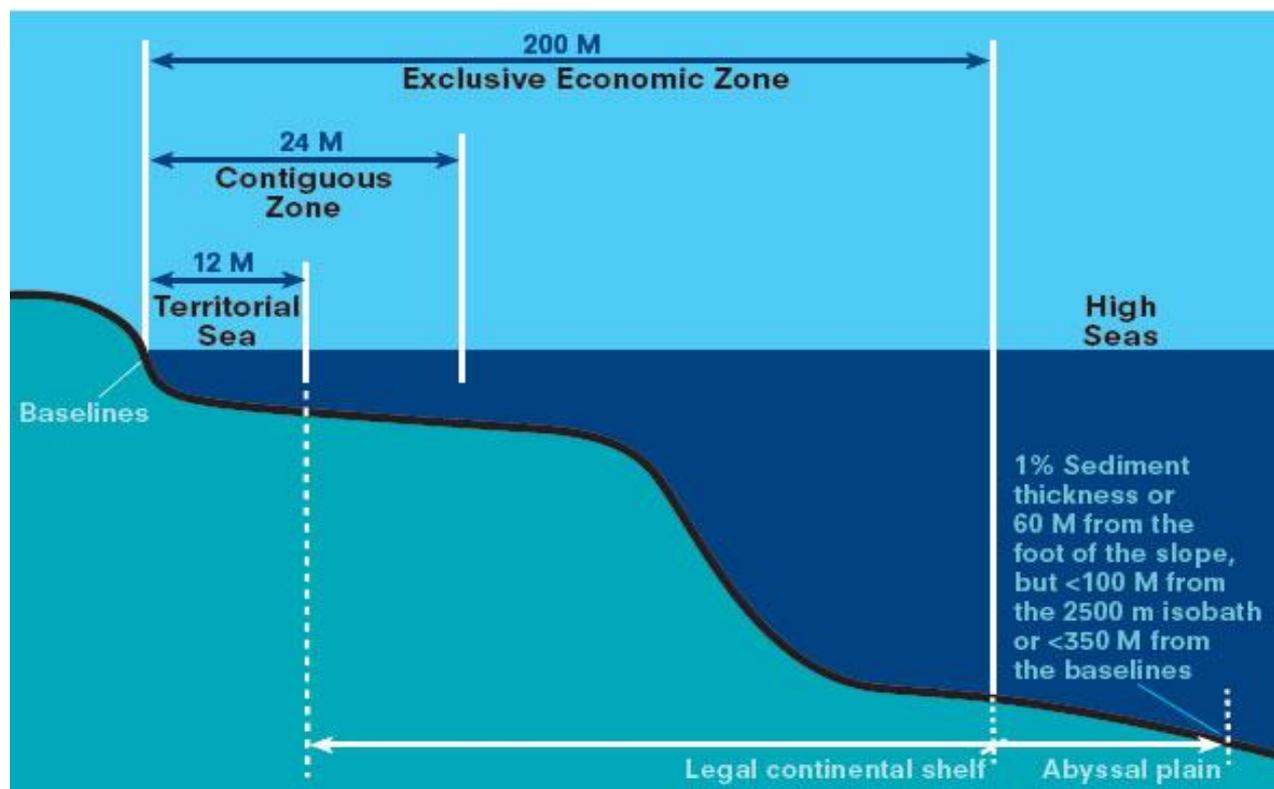
INTERNATIONAL RELATIONS

1) India protests against US naval exercise

About UNCLOS

- The United Nations Convention on the Law of the Sea (UNCLOS), also known as the **Law of the Sea Treaty**, is an international treaty which was adopted and signed in 1982. The Convention was formed to ensure freedom of shipping navigation at the sea.
- The Convention has created three new institutions on the international scene :

1. **the International Tribunal for the Law of the Sea,**
2. **the International Seabed Authority,**
3. **the Commission on the Limits of the Continental Shelf.**
 - **India** is party to UNCLOS.
 - UNCLOS classifies marine areas into five zones. They are:
 1. Territorial sea
 2. Contiguous zone
 3. Exclusive economic zone
 4. Continental shelf
 5. High Seas



Territorial sea

- According to UNCLOS, the territorial sea can be defined as the area which extends up to **12 nautical miles** from the baseline of a country's coastal state. The territorial sea is under the jurisdiction of that particular country; however, foreign ships (both merchant and military) ships are allowed passage through it.
- This type of passage of territorial passage of foreign ships is known as an **innocent passage**. However, the right to the innocent passage can be suspended if there

is a threat to the security of the coastal state.

Contiguous Zone

- The contiguous zone can be defined as the belt which **extends 12 nautical miles beyond the territorial sea limit**.
- A coastal state's control on this area is limited to prevention of actions which can infringe its customs, fiscal, and immigration laws. It can also act if any activity in the contiguous zone threatens regulations in the territorial sea.

Exclusive economic zone

- The exclusive economic zone can be defined as a belt of water which **extends up to 200 nautical miles** from the baseline of the coastal state. Thus it **includes both territorial sea and contiguous zone.**
- In the exclusive economic zone, the coastal State has:
 1. **Sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources**, whether living or non-living, of the waters superjacent to the seabed and of the seabed and its subsoil, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and winds;
 2. Jurisdiction as provided for in the relevant provisions of this convention with regard to:
 - a) **The establishment and use of artificial islands, installations and structures;**
 - b) **Marine scientific research;**
 - c) **The protection and preservation of the marine environment;**
- In the exclusive economic zone, **all States enjoy the freedoms of navigation and overflight and of the laying of submarine cables and pipelines**, and other internationally lawful uses of the sea related to these freedoms, such as those associated with the operation of ships, aircraft and submarine cables and pipelines, and compatible with the other provisions of this Convention.

Continental Shelf

- The continental shelf can be defined as the area whose outer limit **shall not exceed 350 nautical miles from the baseline** or **shall not exceed 100 nautical miles from the 2500 meters isobath.**
- *Isobath is a line connecting points of equal underwater depth.*
- The coastal state has exclusive rights for exploring and exploiting its natural resources in this area. The state also has the exclusive rights to authorize and regulate drilling on the shelf for all purposes.

High Seas

- High seas can be defined as the part of the sea that is **not included** in the exclusive economic zone, in the territorial sea, or in

the internal waters of a coastal state or archipelagic waters of an archipelagic state.

- High seas are **open to all states** for freedom of navigation, freedom of overflight, freedom to construct artificial islands installation, freedom of fishing, and freedom of scientific research.

Why in News?

- Recently, the US Seventh Fleet announced that one of its warships, USS John Paul Jones, had carried out a Freedom of Navigation operation west of Lakshadweep Islands, “inside India’s exclusive economic zone, without requesting India’s prior consent, consistent with international law”.
- Responding to this public announcement by the US Navy, India conveyed its concerns regarding the passage to the Government of USA through diplomatic channels. It is seen as a rare row between the friendly navies of the two countries.
- The Government of India’s stated position on UNCLOS is that the Convention does not authorise other States to carry out in the Exclusive Economic Zone and on the continental shelf, military exercises or manoeuvres, in particular those involving the use of weapons or explosives, without the consent of the coastal state.
- Under Indian law — **The Territorial Waters, Continental Shelf, Exclusive Economic Zone and Other Maritime Zones Act, 1976** — “all foreign ships (other than warships including submarines and other underwater vehicles) shall enjoy the right of innocent passage through the territorial waters” and a passage is innocent “so long as it is not prejudicial to the peace, good order or security of India”.
- “Foreign warships including submarines and other underwater vehicles may enter or pass through the territorial waters after giving prior notice to the Central Government,” the law states.

3) NATO

About NATO

- Formed in 1949 with the signing of the **Washington Treaty**, NATO is a **security alliance of 30 countries from North America and Europe.**

- Established in the Cold War as a bulwark against Soviet aggression, NATO's fundamental goal is to safeguard the Allies' freedom and security by political and military means.
- **Article 5 of the Washington Treaty** states that an attack against one Ally is an attack against all — is at the core of the Alliance, a promise of collective defense.
- **Article 4** of the treaty ensures consultations among Allies on security matters of common interest, which have expanded from a narrowly defined Soviet threat to the critical mission in Afghanistan, as well as new threats to security such as cyber attacks, and global threats such as terrorism and piracy that affect the Alliance and its global network of partners.
- In addition to its traditional role in the territorial defense of Allied nations, NATO leads the UN-mandated International Security Assistance Force (ISAF) in Afghanistan and has ongoing missions in the Balkans and the Mediterranean; it also conducts extensive training exercises and offers security support to partners around the globe, including the European Union in particular but also the United Nations and the African Union.
- **The member states of NATO are:** Albania, Belgium, Bulgaria, Canada, Croatia, Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Iceland, Italy, Latvia, Lithuania, Luxembourg, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Turkey, United Kingdom, United States.

Why in News?

- Ukrainian President Volodymyr Zelensky has urged NATO to speed up his country's membership in the alliance, saying it was the only way to end fighting with pro-Russia separatists.
- Fears have been mounting of a major escalation of the conflict in eastern Ukraine, where government forces have battled separatists in the mainly Russian-speaking **Donbas region** since 2014.
- Ukraine last week accused Russia of massing thousands of military personnel on its northern and eastern borders as well as on the **Crimean peninsula** annexed by Moscow in 2014. Ukraine's Western allies have rushed to its defence, with a series of statements warning Russia against taking further action.



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SCIENCE AND TECHNOLOGY

1) Diphtheria

Why in News?

- Researchers from India, the U.K. and Russia anticipate an increase in incidence of diphtheria which may be fomented by the diversity of the species, emergence of variant toxin genes and progression of antimicrobial resistance.

What is Diphtheria?

- Diphtheria is a serious **infection** caused by strains of **bacteria** called **Corynebacterium diphtheriae** that **make a toxin (poison)**. It is the toxin that can cause people to get very sick. It can lead to **difficulty breathing, heart failure, paralysis, and even death**
- Diphtheria bacteria spread from **person to person**, usually through **respiratory droplets**, like from **coughing or sneezing**. People can also get sick from touching infected **open sores or ulcers**.
- Diphtheria is a **vaccine preventable disease** – the toxoid vaccine elicits an immune response against the toxin which is encoded by a tox gene of the pathogen

Why the worry?

- There is an **increasing trend** in the number of cases of diphtheria **globally**, as the number of cases in 2018 (16,651) was double the 1996–2017 average (8,105).
- Relevant to India is the statistic that **50% of the cases** that came up in 2018 were in **India**. According to the World Health Organization (**WHO**), India reported 2,365 cases in 2015. However, in 2016, 2017 and 2018, the numbers rose successively to 3,380, 5,293 and 8,788.

Government Initiatives

- The diphtheria vaccine is **included in India's Universal Immunization Program**.
- According to data from the **National Family Health Survey-4**, diphtheria vaccine **coverage is 78.4 percent**.
- **The Evolution of India's Immunization Program**
- India started the **Expanded Programme on Immunisation in 1978**.

- The program's **first three vaccines were BCG** (tuberculosis), **DPT** (diphtheria, pertussis, tetanus), and **cholera**.
- The programme was **renamed the Universal Immunisation Programme (UIP) in 1985**.
- **DPT remains a component of UIP**, which now includes 12 vaccines.
- It is now **included in a pentavalent vaccine** (containing a vaccine against diphtheria, pertussis, tetanus, Hepatitis B and Haemophilus influenzae type B).
- It is also included in the combination of eight vaccine doses given during the first year of life as part of the full immunisation programme.
- The **Intensified Mission Indradhanush (IMI) 3.0** scheme was recently launched to cover children and pregnant women who did not receive routine immunisation during the Covid-19 pandemic.

2) Flash Flood

Why in News?

- Landslides and flash floods from torrential rains in eastern Indonesia killed at least 41 people and displaced thousands.

What is a flash flood?

- Flash floods are defined as floods that **occur within six hours of heavy rainfall or another cause**.
- These are **highly localised events of short duration**. However, flash floods can **sometimes happen within minutes** or just a **few hours** of a heavy rain.
- Heavy rainfall isn't the only potential cause of a flash flood. Melting snow and ice jams in mountain streams can send torrents of water unexpectedly into low-lying areas. Likewise, dam failures can send walls of water downstream without warning.

Issues Associated

- **Forecasting** of flash floods is **tough**
- **Frequency** of events have **increased** due to climate change
- **Himalayas** are a **volatile** mountain system
- Overlooking **environmental norms** may cause flash floods and this is primarily seen after dams are constructed without adequate risk analysis.

India's role

- **India is leading a delegation** of countries, including **Bhutan, Sri Lanka, Bangladesh, and Nepal**, in the exchange of hydrological and meteorological data in order to prepare flash flood forecasts.
- The system was developed in collaboration with **India's National Disaster Management Authority (NDMA) and the Central Water Commission (CWC)**.
- The India Meteorological Department (**IMD**) has launched the **South Asian Flash Flood Guidance System (FFGS)**, which is designed to assist disaster management teams and governments in developing timely evacuation plans ahead of a flooding event.

3) Chenab bridge

Why in News?

- The Railways had completed the arch closure of the 1315m **Chenab bridge**, the **world's highest railway bridge**.

Why was it constructed?



- The Chenab bridge is part of the Udhampur-Srinagar-Baramulla rail link project (USBRL) and completion of the steel arch is an important construction milestone.
- The bridge will provide the much-needed **all-weather connectivity between Kashmir and the rest of the county**.
- The bridge will be able to **withstand earthquakes** with a magnitude of up to eight and high-intensity blasts.

What is an Arch Bridge?

- An arch bridge is a bridge with **abutments at each end shaped as a curved arch**.
- Arch bridges work by transferring the weight of the bridge and its loads partially

into a horizontal thrust restrained by the abutments at either side.

- The curved design of the arch bridge gives the structure an **added element of strength**.

4) Lithium Ion Battery

Why in News?

- A team of researchers from the Indian Institute of Technology-Guwahati (IIT-G) has developed a technique of boosting the performance of rechargeable lithium-ion batteries used in electric vehicles (EVs).

Why is this technique pathbreaking?

- The technique can precisely estimate one of the most important battery internal states known as SOC, short for state of charge.
- SOC reflects the remaining capacity of the battery, that is how much more charge can be withdrawn from the battery before it gets fully discharged.
- The knowledge of remaining capacity helps to optimize battery's capacity utilization, prevent overcharging and undercharging of the battery, increases its lifespan, reduces cost, and ensures safety of the battery and its surroundings.

What is a Lithium Ion Battery?

- A lithium-ion battery or Li-ion battery is a type of **rechargeable** battery. Lithium-ion batteries are **commonly used for portable electronics and electric vehicles** and are growing in popularity for military and aerospace applications.
- Lithium-ion batteries are preferred in cellphones and laptops for their **low carbon emission, high energy density, low self-discharge rate, and low maintenance cost**. They are also being widely used in EVs, integrated smart grids and microgrids of renewable energy sources.
- The lithium ions move from the negative electrode to the positive electrode during discharge and back when charging.

Advantages of Li-ion battery

- **Less Maintenance:** Unlike flooded lead-acid batteries with water levels that need to be monitored, lithium-ion batteries do not need to be watered. This reduces the maintenance needed to keep the batteries operational.

Long life span

- **Easy & Fast Charging:** Using fast-charging lithium-ion batteries means less downtime for a machine while it's tethered to a charging station.
- **Safer Facilities:** Improved indoor air quality and reduces the risk of accidents by eliminating exposure to flammable fuels and battery acid with lithium-ion technology.
- **Environmental Impact:** Lithium-ion batteries provide significant environmental benefits over other fossil fuel alternatives.

What is an electric vehicle?

- An **electric vehicle (EV)** is one that **operates on an electric motor**, instead of an internal-combustion engine that generates power by burning a mix of fuel and gases.
- There are two basic types of EVs: **all-electric vehicles (AEVs)** and **plug-in hybrid electric vehicles (PHEVs)**.
 - a) AEVs (all-electric vehicles) are powered by one or more electric motors. They receive electricity by plugging into the grid and store it in batteries. They consume no petroleum-based fuel and produce no tailpipe emissions.
 - b) PHEVs (plug-in hybrid electric vehicles) use batteries to power an electric motor, plug into the electric grid to charge, and use a petroleum-based or alternative fuel to power the internal combustion engine.

India and its EV plan

- **FAME:** Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles scheme encourage, and in some segments mandates the adoption of electric vehicles (EV), with a goal of reaching **30% EV penetration by 2030**. The scheme has 4 focus areas i.e. Technology Development, Demand Creation, Pilot Projects and Charging Infrastructure.
- **National Mission on Transformative Mobility and Battery Storage-** To promote clean, connected, shared, sustainable and holistic mobility initiatives.
- **National Electric Mobility Mission Plan (NEMMP)** - launched in 2013 with an aim to achieve national fuel security by **promoting hybrid and electric vehicles** in the country.

Challenges associated

- **Shortage of Lithium-** India's EV production relies on imports from China for lithium chemicals that are used to make cathodes and battery cells.
- **Lack of Charging Infrastructure**
- **Grid Capacity-** NITI Aayog report says that India needs a minimum of 10 GWh of cells by 2022, which would need to be expanded to about 50 GWh by 2025 to run its EV market.

5) Poppy Straw

Why in News?

- The Central government has decided to rope in the private sector to commence production of concentrated poppy straw from India's opium crop to boost their yield of alkaloids, used for medical purposes and exported to several countries.

What are alkaloids?

- **Alkaloids** are a class of basic, naturally occurring **organic** compounds that contain at least one nitrogen atom. This group also includes some related compounds with neutral and even weakly acidic properties. Some synthetic compounds of similar structure may also be termed alkaloids.
- Well-known alkaloids include **morphine, strychnine, quinine, atropine, caffeine, ephedrine, and nicotine**
- The medicinal properties of alkaloids are quite diverse. Morphine is a powerful **narcotic** used for the relief of pain, though its addictive properties limit its usefulness. Codeine, the methyl ether derivative of morphine found in the opium poppy, is an excellent **analgesic** that is relatively nonaddictive.
- **India** is one of the **few countries internationally permitted** (by the United Nations Office on Drugs and Crime) to cultivate opium poppy for export.

What is the current method?

- Poppy straw is derived from opium poppies that are harvested when fully mature and dried by mechanical means, minus the ripe poppy seeds. Opium is the narcotic drug that is obtained from the unripe seed pods of the opium poppy.
- India **currently only extracts alkaloids from opium gum** at facilities controlled by

the Revenue Department in the Finance Ministry. This entails farmers extracting gum by manually lancing the opium pods and selling the gum to government factories.

What is the proposed plan?

- **Two types of Narcotic Raw Material (NRM)** can be produced from opium poppy - Opium gum and Concentrate of Poppy Straw (CPS).
- The government has now decided to switch to new technologies, after trial cultivation reports submitted last year by two private firms showed higher extraction of alkaloids **using the concentrated poppy straw (CPS)**.
- India's opium crop acreage has been steadily declining over the years and using the CPS extraction method is expected to help cut the occasional dependence on imports of products like codeine (extracted from opium) for medical uses.
- While alkaloid extraction from the current opium crop using the CPS was found more than opium gum, it is possible to have two-three crop cycles in one year if we use CPS varieties of seeds that can be grown in indoor greenhouses too
- As per the trials' findings, the imported seeds of certain CPS varieties worked effectively in Indian fields and their narcotic raw material yield was much higher from imported seeds instead of those used currently. CPS was also cultivated with **hydroponic, aeroponic methods** under a greenhouse environment.
- **Hydroponics and Aeroponics** are **sustainable, water-conservative farming methods**, differing only by the medium which is used in the growth of the plants. **Hydroponics** is the growth of plants using a **nutrient-rich solution, instead of water**. **Aeroponics** is the **growth** of plants using a **mist filled with essential nutrients** which is regularly **sprayed** on the **roots** of the **plants**.

Laws associated with Poppy cultivation

- Poppy straw is one of the **narcotic drugs under the Narcotic Drugs & Psychotropic Substances Act 1985 (NDPS Act)**. Narcotics Commissioner exercises powers and performs all functions from this act
- Possession, sale, use, etc. of poppy straw is regulated by the State Governments under the **State Narcotic Drugs & Psychotropic Substances Rules**.
- At present poppy cultivation is confined to three States-Madhya Pradesh, Rajasthan and Uttar Pradesh.

Additional Details

- **Illegal Opium Production-The Golden Crescent** is the name given to one of Asia's two principal areas of illicit opium production (with the other being the **Golden Triangle**). This space overlaps three nations, **Afghanistan, Iran, and Pakistan**, whose mountainous peripheries define the crescent. **Afghanistan** now produces over **90%** of the **world's non-pharmaceutical-grade opium**.
- **The Golden Triangle** is the area where the borders of Thailand, Laos, and Myanmar meet at the confluence of the Ruak and Mekong rivers. The name "Golden Triangle" is commonly used more broadly to refer to an area of approximately 950,000 square kilometres that overlaps the mountains of the three adjacent countries.
- **Opium Wars**- The Opium Wars were two wars fought between the Chinese Qing dynasty and European powers. Both the wars were a result of the Qing Dynasty's attempts to curb the opium trade. The first was fought from 1839-1842 and the second one from 1856 – 1860. Both the times the Qing Dynasty was defeated by the technologically superior Europeans forcing the Qing to grant concessions and territory. These wars would have a profound effect on the future of China.

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DEFENCE

1) Left Wing Extremism (LWE)

What is LWE?

- Left-wing terrorism or far-left terrorism, sometimes called Marxist-Leninist terrorism or revolutionary left-wing terrorism, is terrorism committed with the aim of **overthrowing capitalist systems** and replacing them with Marxist-Leninist or socialist societies.

What is Maoism?

- Maoism**, or Mao Zedong Thought is a **variety of Marxism-Leninism** that Mao Zedong developed for realising a socialist revolution in the agricultural, pre-industrial society of the Republic of China and later the People's Republic of China.
- The philosophical difference between Maoism and traditional Marxism-Leninism is that peasantry are the revolutionary vanguard in pre-industrial societies rather than the proletariat.

How is it different from Naxalism?

- The term **Naxal** derives from the name of the village **Naxalbari** in West Bengal, where the Naxalite peasant revolt took place in 1967. Naxalites are considered far-left communists, supportive of Maoism. Their origin can be traced to the split in 1967 of the Communist Party of India (Marxist) following the Naxalbari peasant uprising.

Reasons for LWE

- Jal-Jangal-Jameen** (water, forest, and land) is at the heart of these revolts. Tribal people are routinely exploited for the mineral-rich land on which they live. Along with this, Illegal encroachment is occurring.
- The administrative machinery is rife with **inefficiency, corruption and mismanagement.**
- Alienated and socially excluded society**
- Severe **lack of development**, despite mineral wealth.
- Tribal belts are usually **ignored by the government** and the **mainstream media.**

Red Corridor

- The **Red Corridor** is the region in the eastern, central and the southern parts of

India that experience considerable **Naxalite-Maoist insurgency.**

- These are also areas that suffer from the greatest illiteracy, poverty and overpopulation in modern India, and span parts of Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Telangana, and West Bengal and eastern Uttar Pradesh.

Initiatives by government to counter LWE

- SAMADHAN** is a strategy of government at different levels, encompassing short term and long term goals to uproot LWE. SAMADHAN stands for-
 - S- Smart Leadership,
 - Aggressive Strategy,
 - M- Motivation and Training,
 - Actionable Intelligence,
 - D- Dashboard Based KPIs (Key Performance Indicators) and KRAs (Key Result Areas),
 - H- Harnessing Technology,
 - Action plan for each Theatre,
 - N- No access to Financing.
- National strategy to counter LWE in 2015-** Multipronged approach consisting of security, development and ensuring participatory governance and rights for local tribals, inter alia.
- The D Bandopadhyay Committee (2006)** highlighted the lack of governance, economic, socio-political and cultural discrimination against the tribals as the main reason for the spread of Naxalism. The Committee recommended tribal-friendly land acquisition and rehabilitation as a means to counter this issue.
- Local villagers are receiving **basic services such as healthcare, education, and increased employment opportunities.**
 - Development of LWE Affected Areas by:
 - Special Central Assistance (SCA)-** for filling critical gaps in public infrastructure and services of emergent nature.
 - Increased **infrastructures** like roads, bridges etc
 - Skill Development** by ITI's
 - New Kendriya Vidyalayas (KVs) & Jawahar Navodaya Vidyalayas (JNVs)** where they are not present.

- e) More schools under the **Eklavya model** (under **Ministry of Tribal Affairs**). As per the budget 2018-19, every block with more than 50% Schedule Tribe (ST) population and at least 20,000 tribal persons, will have an Eklavya Model Residential School by the year 2022.
 - f) Installation of **Mobile Towers** for telecom connectivity.
 - g) **Financial inclusion** by banking facilities
- Operations against LWE**
- **GreyHound Police** –Commando force (with a Guerrilla approach) of Andhra Pradesh created to combat left-wing extremists.
 - **Salwa Judum** (meaning "Peace March" or "Purification Hunt" in Gondi language) was a militia that was mobilised and deployed

in Chhattisgarh, India, aimed at countering Naxalite violence in the region. The militia, consisting of local tribal youth, received support and training from the Chhattisgarh state government.

- **Operation Green Hunt** – It was the name used by the Indian media to describe the all-out offensive by the government of India's paramilitary forces and the state's forces against the Naxalites.
- **Surrender Policy**

Why in News?

- Many security personnel were killed in an encounter with Maoists in Sukma district of Chhattisgarh.

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ART & CULTURE

1) Gyanvapi mosque

Why in News?

- A court in Varanasi directed the Archaeological Survey of India to conduct a survey of the Gyanvapi Mosque compound adjacent to the Kashi Vishwanath Temple in Uttar Pradesh.

Why the survey?

- The order came on a petition demanding the restoration of the land on which the mosque stands to the Hindus claiming that Mughal Emperor Aurangzeb had pulled down parts of the old Kashi Vishwanath Temple to build the mosque.

About the mosque

- The **Gyanvapi mosque** is located in **Varanasi**, Uttar Pradesh, India
- It is said to be constructed on the site of the Kashi Vishwanath temple, which had been demolished by the Mughal Emperor Aurangzeb in 1669 CE.

The History of Kashi Vishwanath temple

- **Kashi Vishwanath Temple** is one of the most famous Hindu temples dedicated to **Lord Shiva**, It is located in Varanasi.
- The temple stands on the western bank of the holy river **Ganga**, and is **one of the twelve Jyotirlingas**.
- The **original Gyanvapi Kashi Vishwanath temple** was **destroyed** by the army dispatched by **Mohammed Ghor** in **1194 AD**, when it had defeated the Raja of Kannauj. In 1192 AD, Ghor had been crowned as Emperor in Delhi after defeating Prithviraj Chauhan.
- The temple was **rebuilt** by a Gujarati merchant during the reign of Delhi's Sultan **(1211-1266AD)**. It was **demolished again** during the rule of either Hussain Shah Sharqi (1447-1458) or Sikandar Lodhi (1489-1517).
- **Raja Man Singh of Jaipur** thereafter **built** the temple **during** Mughal Emperor **Akbar's rule**, but some Hindus boycotted it. Raja Todar Mal further renovated the temple with Akbar's funding at its original site in 1585.
- **In 1669 AD**, the Gyanvapi **Temple** was again **destroyed** because of a **firman** issued by **Emperor Aurangzeb** and to

ensure it was not rebuilt, as it was on earlier occasions, he is said to have constructed the present "Gyanvapi" Mosque in its place.

- In 1742, the Maratha ruler Malhar Rao Holkar made a plan to demolish the mosque and reconstruct the temple again at the site. However, his plan did not materialise.
 - In 1780, **Malhar Rao's daughter-in-law, Ahilyabai Holkar constructed the present temple adjacent to the mosque** as a temporary measure. That is what is seen when Hindus go for darshan to Varanasi.
- a) Recently **Kashi Vishwanath corridor project** has been inaugurated by the union government which envisions a massive **makeover of the holy shrine** and its surrounding areas.
 - b) The proposed 50-foot corridor will directly connect Ganga's Manikarnika and LalitaGhat to the Kashi Vishwanath Jyotirlinga Temple.
 - c) This massive makeover is the first after the 1780 AD when the Maratha queen AhilyabaiHolkar of Indore renovated the temple and the area surrounding it.

How is the Place of Worship (Special Provisions) Act of 1991 connected to this issue?

- The Act declares that the **religious character of a place of worship shall continue** to be the **same as it was on August 15, 1947**. It says **no person shall convert** any place of worship of any religious denomination into one of a different denomination or section. It declares that all suits, appeals or any other proceedings regarding converting the character of a place of worship, which are pending before any court or authority on August 15, 1947, will abate as soon as the law comes into force. No further legal proceedings can be instituted.
- However, there is an **exception** to the bar on instituting fresh proceedings with regard to suits that related to conversion of status that happened after August 15, 1947. This saves legal proceedings, suits

and appeals regarding change of status that took place after the cut-off date. These **provisions will not apply to ancient and historical monuments and archaeological sites and remains** that are covered by the **Ancient Monuments and Archaeological Sites and Remains Act, 1958**; a suit that has been finally settled or disposed of; and any dispute that has been settled by the parties or conversion of any place that took place by acquiescence before the Act commenced.

What is the objective of the Act?

- The aim of the Act was to **freeze the status** of any place of worship as it existed on August 15, 1947.
- It was also to provide for the **maintenance** of the religious character of such a place of worship as on that day. It was intended to pre-empt new claims by any group about the past status of any place of worship and attempts to reclaim the structures or the land on which they stood.
- It was hoped that the legislation would help the **preservation of communal harmony** in the long run.
- **Additional Details related to Varanasi**
- **Varanasi – Kyoto project**
- The initiative **connects Varanasi**, India's heritage capital, with **Kyoto**, Japan's heritage city.
- The initiative aims to **transform Varanasi into a Kyoto-style smart city**, in which Japan will collaborate with India to

improve Varanasi's overall infrastructure, making the city a symbol of India's development.

- The India Center Foundation (ICF) initiated the Varanasi-Kyoto partner city agreement, which was signed in 2014. For nearly two decades, ICF has been contributing to India's national development process through the India-Japan Global Partnership (IJGP).

Hriday scheme

- In January 2015, the **National Heritage City Development and Augmentation Yojana (HRIDAY)** was launched with the goal of bringing together urban planning, economic growth, and heritage conservation in an inclusive manner to preserve the heritage character of each Heritage City.
- The Scheme will support the development of **core heritage infrastructure** projects, such as the **revitalization** of linked urban infrastructure for heritage assets such as monuments, Ghats, temples, and so on, as well as the revitalization of certain intangible assets.
- These initiatives will include the construction of sanitation facilities, roads, public transportation and parking, citizen services, information kiosks, and other infrastructure.

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PIB ANALYSIS

1) Chief of Defence Staff

About CDS:

- The Chief of Defence Staff (CDS) acts as a single-point military adviser to the government as suggested by the **Kargil Review Committee in 1999**.
- CDS acts as the **principal military adviser to the defence minister** on all tri-service matters. But the three Chiefs continue to advise the defence minister on matters exclusively concerning their respective services.
- The CDS is a **four star general** who also heads the department of military affairs.
- In addition to heading the newly created Department of Military Affairs (DMA), the CDS is also the **permanent chairman of the Chiefs of Staff Committee**. The three service chiefs will be members of the Chiefs of Staff Committee.
- However, CDS **doesn't exercise any military command** including over three service chiefs.
- His salary is equivalent to that of service chiefs.

Functions of CDS

- The **duties and functions** of the Chief of Defence Staff (CDS) include the following:
- To **head the Department of Military Affairs** in the Ministry of Defence and function as its Secretary.
- To **act as the Principal Military Advisor** to the Defence Minister on all Tri-Service matters.
- To function as the Permanent Chairman of the Chiefs of Staff Committee
- To administer the Tri-Service organizations/agencies/commands.
- To be a **member of the Defence Acquisition Council** chaired by the Defence Minister.
- To function as the **Military Advisor to the Nuclear Command Authority**.
- To bring about jointness in operation, logistics, transport, training, support services, communications, repairs and maintenance, etc of the three Services.
- To ensure optimal utilisation of infrastructure and rationalise it through jointness among the Services.

- To bring about **reforms in the functioning of three Services** with the aim to augment combat capabilities of the Armed Forces by reducing wasteful expenditure.

Why in the news?

- Chief of Defence Staff General Bipin Rawat operationalised and dedicated to the Services 3rd Joint Logistics Node (JLN) in Mumbai recently.
- These JLN's will provide **integrated logistics cover to the Armed Forces** for their small arms ammunition, rations, fuel, general stores, civil hired transport, aviation clothing, spares and also engineering support in an effort to synergise their operational efforts.

2) Stand Up India Scheme

About the scheme:

- Stand up India Scheme was launched on 5th April 2016 to **promote entrepreneurship at grassroot level** focusing on economic empowerment and job creation.
- This scheme has been extended up to the year **2025**.

Objective of the scheme

- The purpose of Stand-Up India is to:
- promote entrepreneurship amongst women, SC & ST category.
- **provide loans for setting up greenfield enterprises** in manufacturing, services or the trading sector & activities allied to agriculture by both ready and trainee borrowers
- **facilitate bank loans between Rs.10 lakh to Rs.1 crore** to at least one Scheduled Caste/ Scheduled Tribe borrower and at least one woman borrower per bank branch of Scheduled Commercial Banks

Why Stand-Up India?

- The Stand-Up India scheme is based on **recognition of the challenges faced by SC, ST and women entrepreneurs** in setting up enterprises, obtaining loans and other support needed from time to time for succeeding in business.

- The scheme therefore endeavors to create an ecosystem which facilitates and continues to **provide a supportive environment for doing business.**
- The scheme seeks to give access to loans from bank branches to borrowers to help them set up their own enterprise.
- The scheme, which covers **all branches of Scheduled Commercial Banks**, will be accessed in three potential ways:
 - a) Directly at the branch or,
 - b) Through Stand-Up India Portal (www.standupmitra.in) or,
 - c) Through the Lead District Manager (LDM).

Who all are eligible for a loan?

- SC/ST and/or women entrepreneurs, **above 18 years** of age.
- Loans under the scheme are available for **only green field projects.** Green field signifies, in this context, the first time venture of the beneficiary in the manufacturing, services or the trading sector & activities allied to agriculture
- In case of non-individual enterprises, 51% of the shareholding and controlling stake should be held by either SC/ST and/or Women Entrepreneur.
- Borrowers should **not be in default** to any bank/financial institution.

Why in the news?

- Fifth anniversary of the Stand Up India Scheme was celebrated recently.

3) Integrated Disease Surveillance Program

About the programme

- The **Integrated Disease Surveillance Program (IDSP)** was initiated under the **Ministry of Health and Family Welfare in assistance with the World bank**, in the year 2004.
- The scheme aimed to **strengthen disease surveillance for infectious diseases** to detect and respond to outbreaks immediately.
- The Central Surveillance Unit (CSU) at the National Centre for Disease Control (NCDC), receives disease outbreak reports from the States/UTs on a **weekly basis.**
- The surveillance data is collected on three specified reporting formats, namely “S” (**suspected cases**), “P” (**presumptive cases**) and “L” (**laboratory confirmed**

cases) filled by Health Workers, Clinicians and Laboratory staff respectively.

- State/District Surveillance Units analyses this data weekly, to interpret the disease trends and seasonality of diseases.

Objective:

- To strengthen/maintain decentralized laboratory-based **IT enabled disease surveillance systems for epidemic-prone diseases** to monitor disease trends and to detect and respond to outbreaks in early rising phase through trained Rapid Response Team (RRTs).

Programme Components:

- Integration and decentralization of surveillance activities through the establishment of surveillance units at Centre, State and District level.
- **Human Resource Development** – Training of State Surveillance Officers, District Surveillance Officers, Rapid Response Team and other Medical and Paramedical staff on principles of disease surveillance.
- Use of Information Communication Technology for collection, collation, compilation, analysis and dissemination of data.
- Strengthening of public health laboratories
- Inter sectoral Coordination for zoonotic disease

Why in the news?

- The **Integrated Health Information Platform**, the next generation highly refined version of the presently used Integrated Disease Surveillance Programme (IDSP) was launched by the Union Minister of Health & Family Welfare recently.

About Integrated Health Information Platform

- India is the first country in the world to adopt such an advanced disease surveillance system.
- The new version of IHIP will house the data entry and management for India's disease surveillance program.
- In addition to **tracking 33 diseases** now as compared to the earlier 18 diseases, it shall ensure near-real-time data in digital mode, having done away with the paper-mode of working.
- It is in **sync with the National Digital Health Mission** and fully compatible with

the other digital information systems presently being used in India.

- The refined IHIP with automated data will help in a big way in real time data collection, aggregation & further analysis of data that will aid and enable **evidence-based policy making**.
- IHIP will provide a health information system developed for real time, case-based information, integrated analytics, advanced visualization capability.
- It will provide analyzed reports on mobile or other electronic devices.
- In addition, outbreak investigation activities can be initiated and monitored electronically.
- It can easily be integrated with other ongoing surveillance programs, while having the feature of addition of special surveillance modules.
- An advanced digital platform like this for scouting the earliest signs of disease spread in the smallest of villages and blocks in the country will immensely help in nipping in the bud any potential outbreak or epidemic.
- This refined digital surveillance platform will help to provide and connect data and move **towards 'One Health' approach**.

4) PM Formalisation of Micro Food Processing Enterprises scheme

Background

- The **unorganized food processing sector** in the country comprises nearly 25 lakh food processing enterprises which are unorganized and unregistered.
- With only 7% of investment in plant & machinery and 3% of outstanding credit, the unorganized enterprises contribute to **74% of employment (a third of which are women)**, 12% of output and 27% of the value addition in the food processing sector.
- The sector faces a number of challenges including the inability of the entrepreneurs to access credit, high cost of institutional credit, lack of access to modern technology and inability to integrate with the food supply chain and compliance with the health and safety standards.

- To address these problems, Government of India has approved an all India **Centrally Sponsored Scheme** "Scheme for Formalisation of Micro food processing Enterprises (FME)".

About the scheme

- The **Ministry for Food Processing Industries** has launched the centrally sponsored PM Formalisation of Micro Food Processing Enterprises (PM FME) scheme for the Unorganized Sector on All India basis.
- The scheme aims to
- **Modernize and enhance the competitiveness** of the existing individual micro enterprises and ensure their transition to formal sector
- To support FPOs/ SHGs/ Cooperatives for delivery of package of services, creation of common infrastructure along the value chain, ensure backward & forward linkages, branding & marketing, etc.
- Strengthening this segment will lead to reduction in wastage, creation of off-farm job opportunities and aid in achieving the overarching Government objective of doubling farmers' income.
- The expenditure under the scheme would be shared in a 60:40 ratio between the Central and State governments and in 90:10 ratio with North Eastern and Himalayan States.

Objectives of the scheme

- Increase in access to finance by micro food processing units.
- Increase in revenues of target enterprises.
- Enhanced compliance with food quality and safety standards.
- Strengthening capacities of support systems.
- Transition from the unorganized sector to the formal sector.
- Special focus on women entrepreneurs and Aspirational districts.
- Encourage Waste to Wealth activities.
- Focus on minor forest produce in Tribal Districts.

Salient features

- 2,00,000 micro-enterprises are to be assisted with credit linked subsidies.
- Scheme will be implemented over a 5 year period from 2020-21 to 2024-25.
- Micro food enterprises will be supported with **credit linked subsidy @ 35%** of the

eligible project cost with a **ceiling of Rs.10 lakh.**

- Beneficiary contribution will be minimum 10% and balance through loan.
- The scheme also supports SHGs/ FPOs/ Co-operatives in **brand building and marketing** for the micro-enterprises.
- It also envisages linkage of clusters with lead buyers.
- The Scheme would be monitored at Centre by an Inter-Ministerial Empowered Committee (IMEC) under the Chairmanship of Minister, Food Processing Industries.
- A third party evaluation and mid-term review mechanism would be built in the programme.

Benefits of the scheme:

- Nearly eight lakh micro- enterprises will benefit through access to information, better exposure and formalization.
- Credit linked subsidy support and hand-holding will be extended to 2,00,000 micro enterprises for expansion and upgradation.
- It will enable them to formalize, grow and become competitive.
- The project is likely to generate nine lakh skilled and semi-skilled jobs.
- Scheme envisages increased access to credit by existing micro food processing entrepreneurs, women entrepreneurs and entrepreneurs in the Aspirational Districts.
- Better integration with organized markets.
- Increased access to common services like sorting, grading, processing, packaging, storage etc.

Why in the news?

- The Ministry for Food Processing Industries and the Ministry of Rural Development (MoRD) agreed to work together on implementation of PM-FME to support Self Help Group (SHG) entrepreneurs in food processing.

5) Swarnajayanti Fellowships Scheme

About the scheme

- The Government of India under the **Ministry of Science and Technology** had instituted a scheme "**The Swarnajayanti Fellowships**" to commemorate India's fiftieth year of Independence in 1997.

- Under this scheme a selected number of **young scientists**, with proven track record, are **provided special assistance** and support to enable them **to pursue basic research** in frontier areas of science and technology.
- Scientists selected for the award will be allowed to pursue unfettered research with a freedom and flexibility in terms of expenditure as approved in the research plan.
- The project should contain **innovative research ideas** and it should have a potential of making impact on R&D in the discipline.
- The fellowships are **scientist specific and not institution specific**, very selective and have close academic monitoring.

Nature of Support:

- The award consists of a Fellowship of Rs **25000/- per month** in addition to the salary drawn from the parent Institute for a period of 5 years.
- The fellows selected along with their projects will be considered for funding by the **Science & Engineering Research Board (SERB)** as per SERB norms, for fellowship.

Why in the news?

- Fundamental properties of massive neutrinos are about to be unravelled by a Swarna Jayanti Fellow under this scheme.

What are neutrinos?

- A neutrino is a **subatomic particle** that is very similar to an electron, but has no electrical charge and a very small mass, which might even be zero.
- Neutrinos are one of the most abundant particles in the universe.
- They have very little interaction with matter and are incredibly difficult to detect.
- Natural sources of neutrinos include the **radioactive decay of primordial elements** within the earth, **supernovas**, **dark matter** etc.,

6) Pradhan Mantri Mudra Yojana

About the scheme

- Pradhan Mantri Mudra Yojana (PMMY) is a flagship scheme of Government of India in 2015 to "**fund the unfunded**" by bringing such enterprises to the formal financial

system and extending affordable credit to them.

- It provides loans upto **Rs. 10 lakh to the non-corporate, non-farm small/micro enterprises.**
- Under PMMY, all banks viz. Public Sector banks, Private Sector Banks, Regional Rural Banks (RRBs), State Co-operative Banks, Urban Co-operative Banks, Foreign Banks and NBFCs/Micro Finance Institutions (MFIs) - are required to lend to non-farm sector income generating activities below Rs.10 lakhs.

Loan offerings under PMMY

- The loans are given for income generating activities in manufacturing, trading and services sectors and for activities allied to agriculture.
 - Mudra loans are offered in three categories namely, 'Shishu', 'Kishore' and 'Tarun' which signifies the stage of growth or development and funding needs of the borrowers
- a) **Shishu:** covering loans upto Rs. 50,000/- provided with no collateral, @1% rate of interest/month repayable over a period of 5 years
 - b) **Kishor:** covering loans above Rs. 50,000/- and upto Rs. 5 lakh
 - c) **Tarun:** covering loans above Rs. 5 lakhs to Rs. 10 lakh

Why in the news?

- As per a survey conducted by Ministry of Labour and Employment, **PMMY helped in generation of 1.12 crore net additional employment** from 2015 to 2018, Out of which Women accounted for 69 lakhs.

7) E9 countries meeting

About E9 countries

- E9 Partnership was first established in **1993** with the objective to achieve the goals of **UNESCO's Education For All (EFA) initiative.**
- E9 countries include **Bangladesh, Brazil, China, Egypt, India, Indonesia, Mexico, Nigeria and Pakistan.**
- They represent over half of the world's population and some of the largest education systems in the world.
- E9 countries together can strengthen political will and collective effort to ensure

quality education and lifelong learning opportunities for all.

- E9 Partnership is working for the achievement of **SDG4 – Education 2030.**

Why in News?

- A Consultation meeting of Ministers of Education of E9 countries was held recently.

About the meeting

- It discussed the co-creation of the **Digital Learning initiative** by the nine countries.
- This Consultation highlighted progress, shared lessons and **explored opportunities** for collaboration and scale-up to expand digital learning and skills.
- In addition, a Marketplace segment, for **public-private partnership** focused on promising local and global solutions and opportunities for digital learning to strengthen local ecosystems.

Theme:

- **E9 initiative: Scaling up digital learning to accelerate progress towards SDG4.**

About Scaling up digital learning to accelerate progress towards SDG4

- The UN is spearheading a **global initiative on digital learning** and skills for all, targeting marginalized children and youth and aiming **to close the digital divide** and drive rapid change in education systems.
- The initiative aims to accelerate recovery and advance the Sustainable Development Goal 4 agenda by driving rapid change in education systems in three of the 2020 Global Education Meeting priorities:

- a) **Support to teachers;**
- b) **Investment in skills; and**
- c) **Narrowing of the digital divide.**

2020 Global Education Meeting (GEM) Declaration

- As part of the Decade of Action to accelerate progress on SDG4 and in response to COVID-19, the 2020 Global Education Meeting (GEM) Declaration identified five priorities for urgent action:
 - a) **Education financing;**
 - b) **Safe school reopening;**
 - c) **Supporting teachers as frontline workers;**
 - d) **Investment in skills; and**
 - e) **Narrowing the digital divide.**

8) Heat waves

About heat waves

- A Heat Wave is a period of **abnormally high temperatures, more than the normal maximum temperature** that occurs during the summer season in the North-Western parts of India.

When does it occur?

- Heat Waves typically occur **between March and June**, and in some rare cases even extend till July.

Criteria for heat waves

- The **Indian Meteorological Department (IMD)** has given the following criteria for Heat Waves :
 - a) Heat Wave need not be considered till maximum temperature of a station reaches at least 40°C for Plains and at least 30°C for Hilly regions
 - b) When normal maximum temperature of a station is less than or equal to 40°C Heat Wave Departure from normal is 5°C to 6°C Severe Heat Wave Departure from normal is 7°C or more.
 - c) When normal maximum temperature of a station is more than 40°C Heat Wave Departure from normal is 4°C to 5°C Severe Heat Wave Departure from normal is 6°C or more.
 - d) When actual maximum temperature remains 45°C or more irrespective of normal maximum temperature, heat waves should be declared.

Health Impacts of Heat Waves

- The health impacts of Heat Waves typically involve dehydration, heat cramps, heat exhaustion and/or heat stroke. The signs and symptoms are as follows:
 - **Heat Cramps:** Edema (swelling) and Syncope (Fainting) generally accompanied by fever below 39°C i.e. 102°F.
 - **Heat Exhaustion:** Fatigue, weakness, dizziness, headache, nausea, vomiting, muscle cramps and sweating.
 - **Heat Stroke:** Body temperatures of 40°C i.e. 104°F or more along with delirium, seizures or coma. This is a potential fatal condition.

Duration of a heatwave spell:

- A heatwave spell generally lasts for a minimum of four days and on some occasions, it can extend up to seven or ten days.
- The longest recorded heat wave spell, in recent years, was between 18 – 31 May

2015. This spell had severely affected parts of West Bengal along with Odisha, Andhra Pradesh, and Telangana.

Does all of India experience heatwave conditions?

- Heatwaves are common over the **Core Heatwave Zone (CHZ)** — Rajasthan, Punjab, Haryana, Chandigarh, Delhi, West Madhya Pradesh, Uttar Pradesh, Chhattisgarh, Orissa, Vidarbha in Maharashtra, parts of Gangetic West Bengal, Coastal Andhra Pradesh and Telangana, as **categorised by India Meteorological Department**.
- Several recent studies indicate that CHZ experience more than **six heatwave days per year** during these four months.
- Many places in the northwest and cities along the southeastern coast report **eight heatwave days per season**.
- However, the regions in the **extreme north, northeast and southwestern India are less prone to heatwaves**.

Why in the news?

- According to the **National Weather Forecasting Centre** of the India Meteorological Department (IMD), heat wave conditions observed in some pockets over **Rajasthan** and in isolated pockets over east **Vidarbha** and interior **Tamilnadu** with maximum temperatures **more than 40.0°C**.

9) Deendayal Antyodaya Yojana (DAY-NRLM)

About:

- Aajeevika - National Rural Livelihoods Mission (NRLM) was launched by the **Ministry of Rural Development (MoRD) in 2011**.
- **In November 2015, the program was renamed Deendayal Antyodaya Yojana-National Rural Livelihoods Mission (DAY-NRLM).**

Aim:

- The Mission aims at **creating efficient and effective institutional platforms of the rural poor**, enabling them to **increase household income through sustainable livelihood enhancements** and improved access to financial services.

Coverage;

- NRLM set out with an agenda to cover **7 Crore rural poor households**, across 600 districts, 6000 blocks, 2.5 lakh Gram Panchayats and 6 lakh villages in the country through **self-managed Self Help Groups (SHGs)** and federated institutions and support them for livelihoods collectives in a **period of 8-10 years**.

Features:

- The poor would be facilitated to **achieve increased access to rights**, entitlements and public services, diversified risk and better social indicators of empowerment.
- DAY-NRLM believes in harnessing the innate capabilities of the poor and complements them with capacities (information, knowledge, skills, tools, finance and collectivization) to participate in the growing economy of the country.

Funding:

- **Central sector scheme** aided in part through investment support by the **World Bank**.

DAY - NRLM - Guiding Principles

- Poor have a strong desire to come out of poverty, and they have innate capabilities

- Social mobilization and building strong institutions of the poor is critical for unleashing the innate capabilities of the poor.
- An external dedicated and sensitive support structure is required to induce the social mobilization, institution building and empowerment process.
- Facilitating knowledge dissemination, skill building, access to credit, access to marketing, and access to other livelihoods services underpins this upward mobility.

Why in the news?

- Deendayal Antyodaya Yojana- National Rural Livelihoods Mission, Ministry of Rural Development has initiated **online trainings**, in a cascading mode, for its vast network of over 69 lakh Self-Help Groups (SHG) to spread **awareness** through key messaging on **COVID-19 vaccination, COVID-19 appropriate behaviours, health seeking behaviour and immunity building**.

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News in Depth

AIR NEWS

1) Raisina Dialogue

About the Dialogue

- The Raisina Dialogue is a multilateral conference committed to addressing the most challenging issues facing the global community.
- Every year, global leaders in policy, business, media and civil society are hosted in **New Delhi** to discuss cooperation on a wide range of pertinent international policy matters.
- The Dialogue is structured as a multi-stakeholder, cross-sectoral discussion, involving heads of state, cabinet ministers and local government officials, as well as major private sector executives, members of the media and academics.
- The conference is jointly organised by the **Ministry of External Affairs** and the **Observer Research Foundation**.

Why in News?

- The Ministry of External Affairs has decided to host this year's edition of Raisina Dialogue as a fully digital event, as a measure of abundant caution, given the Covid-19 situation in various parts of the world.

2) Mars Odyssey spacecraft

About the Spacecraft

- **NASA's** Mars Odyssey spacecraft was launched in 2001.
- Still in orbit around Mars, it holds the **record for the longest continually active spacecraft in orbit around a planet other than Earth**.

Objectives

- Mars Odyssey was designed to investigate the Martian environment, providing key information on its surface and the

radiation hazards future explorers might face.

- The goal was to **map the chemical and mineralogical makeup of Mars** as a step to detecting evidence of past or present water and volcanic activity on Mars.
- The spacecraft was also designed to act as a **relay for future landers** and did so for the Mars Exploration Rovers (Spirit and Opportunity), the Mars Science Laboratory, and the Phoenix lander.

Findings

- One of Mars Odyssey's most exciting findings is that the probe had identified **large amounts of hydrogen in the soil**, implying the presence of ice possibly a mile below the planet's surface.
- In March 2008, Mars Odyssey had found **evidence of salt deposits** in 200 locations in southern Mars. These chloride minerals were left behind in places where water was once abundant.
- Having fully completed its primary mission by August 2004, mission planners began a series of extended missions starting Aug. 24, 2004. NASA approved seven two-year extensions in 2004, 2006, 2008, 2010, 2012, 2014, and 2016.
- During its many years in Martian orbit, Mars Odyssey **mapped the amount and distribution of the numerous chemical elements and minerals** in the Martian surface and also **tracked the radiation environment in low Mars orbit**, both necessary before humans can effectively explore the Martian surface.
- The most complete global maps of Mars were made using Odyssey's infrared camera, called the **Thermal Emission Imaging System, or THEMIS**.

Why in News?

- NASA's Mars Odyssey spacecraft has completed 20 years of mapping Mars on April 7.

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THE HINDU EDITORIALS

1) A good start

GS - 2 Health; Government Policies & Interventions

CONTEXT

- The recent notification of the **National Policy for Rare Diseases 2021**, offers financial support for rare diseases.
- It provides for one-time treatment of up to ₹20 lakh, introduces a crowdfunding mechanism, creates a registry of rare diseases, and provides for early detection.

WHAT ARE RARE DISEASES?

- Rare diseases are broadly defined as diseases that infrequently occur in a population, using three markers— **the total number of people with the disease, its prevalence, and the availability/non-availability of treatment options.**
- The **World Health Organization** defines rare disease as having a **frequency of less than 6.5-10 per 10,000 people.**

RARE DISEASES IN INDIA

- As per an estimate, there are 7,000 known rare diseases with an estimated 300 million patients in the world; 70 million are in India.
- According to the Organization for Rare Diseases India, these include **inherited cancers, autoimmune disorders, congenital malformations, Hirschsprung's disease, Gaucher disease, cystic fibrosis, muscular dystrophies and Lysosomal Storage Disorders (LSDs).**

BASED ON PRINCIPLE OF INCLUSION

- It is binding on a welfare state to take care of every single citizen.
- Securing the wellbeing of everyone, particularly those unable to help themselves, irrespective of whether they constitute a critical mass or not, is important.
- The recent notification of the National Policy for Rare Diseases 2021 is pegged on this principle of inclusion.

NOTIFICATION AS LOGICAL CONCLUSION TO LONG FIGHT

- Much of the effort in the sector, from the medical side, has been to evolve formal definitions, in the hope that it would

support the development of and commercialisation of drugs for treatment, and improve funding for research on rare diseases.

- Patient support groups have worked towards drumming up funding assistance for the treatment — one time or continual.
- The notification of the Policy comes as a logical conclusion to a long-fought battle, and yet, stops short of delivering the complete mandate.

CONCERNS RELATED TO THE NEW POLICY

- There has been dissatisfaction amongst the affiliated section of the public associated with such diseases as the **policy doesn't reflect actual costs of treatment.**
- The new policy has absolutely no consideration for **Group 3 patients**, who require lifelong treatment support. Group 3 diseases are those for which definitive treatment is available but challenges are to make optimal patient selection for benefit, very high cost and lifelong therapy.

WAY FORWARD

- The centre can extend the cost-sharing agreements that it has worked out with Kerala, Tamil Nadu and Karnataka, with other States too, which will help it reduce its costs by half.
- Also, the Centre can set aside a substantial corpus to fund life-saving treatments, instead of leaving patients at the mercy of crowdfunding.
- Further, there is a need to support the development of and commercialisation of drugs for treatment, and improve funding for research on rare diseases.

2) The pillars of an equitable post-COVID India

GS-2 Social Justice

NEWS

- In the post-pandemic world, addressing inequality is key to sustaining growth and well-being.

CONTEXT

- COVID-19 in the last one year has once again reminded us of the growing inequalities in India.

- A recent **Pew Research Report** shows that **India's middle class may have shrunk by a third** due to the novel coronavirus pandemic while the **number of poor people earning less than ₹150 per day more than doubled**.
- The report also warned that the situation may actually be worse than estimated because of worsening inequalities.
- International organisations like the World Bank, the International Monetary Fund and the International Labour Organization have also **warned about rising inequalities** in several countries including India due to the pandemic.

WIDENING INEQUALITIES

- Inequalities in India have been high even in the pre-COVID-19 period, but the economic shock due to the pandemic has been much more severe for the country for two reasons:
 - a) First, **pre-COVID-19**, the economy was already slowing down, compounding existing problems of unemployment, low incomes, rural distress, malnutrition, and widespread inequality.
 - b) Second, India's **large informal sector** is particularly vulnerable.
- Inequalities were increasing earlier also but the pandemic has widened them further.
- For example, the share of wages earned by workers have declined as compared to that of profits cornered by the investors.
- The quarterly net profit of the BSE200 companies reached a record high of ₹1.67 trillion in the third quarter of FY21 and was up by 57% year-on-year. But the informal sector and workers have suffered a lot with loss of incomes and employment in the last one year.
- In other words, the recovery is more **k-shaped** with rising inequalities.
- Further, women have lost more jobs and many are out of the workforce and Inequalities have increased in health care and education.

WAY FORWARD

- Reduction in inequalities is important for its own sake and for improving demand which can raise private investment, consumption and exports for higher and sustainable economic growth.

- The **three-pronged approach** can be used for reducing inequalities. These are:

Focus on employment and wages

- The creation of quality or productive employment is central to the inclusive growth approach.
- For this the **investment rate** which declined from 39% in 2011-12 to 31.7% in 2018-19 has to be improved.
- In turn, investment in infrastructure including construction can create employment.
- In this direction, the recent Budget has rightly focused on capital expenditure for infrastructure.

Raising human development

- There is a need to create equality of opportunity by improving human development, through increasing public expenditure on health and education.
- Education and health achievements are essential for reducing inequality of opportunities.
- India should move towards universal health care and **spend 2%-3% of GDP on health**.

Providing quasi universal basic income and other social safety nets

- This can be done through cash transfers to all women above the age of 20 years; expanding the number of days provided under the Mahatma Gandhi National Rural Employment Guarantee Act and a national employment guarantee scheme for urban areas.
- These schemes would provide income support to the needy.
- Apart from the ideas above, increasing farmers' income especially for small and marginal farmers is needed to reduce inequalities and create demand. Farmer producer organisations should be strengthened.
- States have to be given a bigger role in agri-marketing reforms and the terms of trade for agriculture have to be improved.

Strategies

- Manufacturing should be the engine of growth, for which the labour-intensive exports are important.
- Focussing on the growth of micro, small & medium enterprises and securing rights of migrants involved in informal sectors.

- Getting ready for automation and technology revolution.
- Ensuring social security and decent working conditions for all.
- Raising real wages of rural and urban workers and guaranteeing minimum wages.
- **Raising human development challenges:**
- In India, public expenditure on health is only 1.5% of GDP.
- In education, there are islands of excellence that can compete internationally even as a vast majority of masses of children are churned out with poor learning achievement.
- Also, ongoing pandemic have highlighted the digital gap in education.

WHAT ELSE CAN BE DONE?

- Enhancing tax and non-tax revenues of the government is needed to spend on the above priorities.
- The tax/GDP ratio has to be raised, with a wider tax base.
- Richer sections have to pay more taxes.
- Similarly, the inequalities between the Centre and States in finances should be reduced.
- State budgets must be strengthened to improve capital expenditures on physical infrastructure and spending on health, education and social safety nets.
- Apart from economic factors, non-economic factors such as deepening democracy and decentralisation can help in reducing inequalities.
- Unequal distribution of development is rooted in the inequalities of political, social and economic power.
- **We have to find opportunities and spaces where the power can be challenged and redistributed. In the post-COVID-19 world, addressing inequality is important for higher and sustainable economic growth and the well-being of the population.**

3) Free and unhindered justice

GS-2 Social Justice, Indian Judiciary NEWS

- Access to the Supreme Court has been made easier with virtual hearings, but more needs to be done.

CONTEXT

- While the pandemic curtailing lockdown limited people's movements, it opened new vistas for litigants and lawyers across India to approach, through technology, the Supreme court with relative ease.
- Recently, there have been demands for a return to physical hearings by the Bar in Delhi but there are calls too, for virtual access to the Supreme Court to continue.

CONSTITUTIONAL POWER OF CJI TO HLD SITTINGS OF SUPREME COURT

- At the time the Constitution was being debated by the Constituent Assembly, **geographical access to the Supreme Court was flagged as a concern.**
- **B.R. Ambedkar-led Drafting Committee** was nevertheless of the view that the Court must have a specified place of sitting and that litigants should "know where to go and whom to approach".
- Accordingly, in recognition of the same, the **Constitution empowered the Chief Justice of India** to hold sittings of the Supreme Court through **Circuit Benches** in places other than Delhi as well.
- However, despite an increasing caseload and repeated pleas by litigants and governments, **successive Chief Justices have refused to invoke this constitutional power.**
- Also, it has been **recommended by more than one Law Commission and Parliamentary Committee** to set up the Circuit Benches of the Supreme Court around the country.

GEOGRAPHICAL CONSTRAINTS IN REACHING SC

- In India, given the unified, single-pyramidal structure of the judicial system, all types of cases can potentially make their way to the Supreme Court, irrespective of the place or forum of the original institution.
- According to a report by the **Centre for Policy Research**, a disproportionately high number of cases filed in the Supreme Court originated in High Courts closer to Delhi.
- For instance, cases from States like West Bengal, Bihar and Andhra Pradesh, which collectively account for around a fifth of India's total population, contribute to less than 10% of the court's docket.

- On the other hand, almost 18% of all cases in the Supreme Court originate from Punjab and Haryana, with less than 5% of the total population share.
- Geographical constraints have also meant that appearing before the Supreme Court has inescapably become the domain of a select few lawyers in and around Delhi.

PANDEMIC HAS HELPED IN INCREASING THE REACH

- The pandemic, although for different reasons, has compelled the Supreme Court to attempt to overcome physical constraints in an effort to increase access, albeit virtually.
- Over the past year, with virtual hearings, was seen as the exclusive domain of a limited number of lawyers in Delhi.
- But now, virtual hearings have opened up to advocates from all over India, most of whom could only ever have dreamt of addressing the Supreme Court in their lifetimes.
- Litigants now have the option to engage a local lawyer of their own choice and convenience, including the same lawyer who argued their case before the lower court.

CONCLUSION

- Indeed, virtual hearings may not be the perfect alternative, but such imperfections must be preferred over a denial of the right to access justice itself.
- **It is only when each person in India is provided unhindered access to its corridors can the Supreme Court be said to have fulfilled its constitutional promise. Nonetheless, till the judiciary acts on such proposals, virtual hearings should be allowed to continue, if not as a matter of right, then at least as a matter of just and equitable policy.**

4) Redefining combatants

GS-3 Security

CONTEXT

- Cyberattacks point to the need to rethink what constitutes a force and what a justified response can be.

BACKGROUND

- A report in The New York Times on the October 2020 breakdown of the Mumbai

power distribution system points a finger at Chinese cyber hackers.

- While the truth remains hidden, the discussion points to macro issues such as—When, and under what conditions, would a non-kinetic strike, say a cyberattack, be considered an attack on the state? And under international rules of self-defence, what response would be considered legal? Would only a cyber counter-attack be justifiable or a kinetic response also be acceptable? Would a pre-emptive strike be allowed?

CHANGING DEFINITIONS

- The universally accepted **Lieber Code of 1863** defines a combatant.
- It says, “So soon as a man is armed by a sovereign and takes the soldier’s oath of fidelity, he is a belligerent...”; all others are non-combatants. An organised group of “belligerents” constitutes a regular armed force of a state.
- The **1899 Hague Convention** brings in further clarity of what constitutes a regular force.
- First, the force should be commanded by a person responsible for his subordinates.
- Second, it must have a distinctive emblem recognisable at a distance.
- Third, it must carry arms openly.
- And last, it must conduct operations in accordance with laws and customs of war.

NEED TO REDEFINE COMBATANT

- Those who conducted the (yet unproven) Mumbai ‘cyberattack’ or the 2007 attack on Estonia’s banking system did not meet any of the four conditions of being called combatants, but still wreaked havoc.
- A combatant, thus, needs to be redefined due to three reasons.
- First, a cyber ‘army’ need not be uniformed and may consist of civilians.
- Second, cyber ‘warriors’ do not carry arms openly. Their arms are malicious software which is invisible.
- And finally, the source of the attack could be a lone software nerd who does not have a leader and is up to dirty tricks for money, blackmail or simply some fun.

NEED FOR DELIBERATION

- None of the characteristics of these non-combatants were met by the requirements of The Hague Convention but their actions

fall squarely in the realm of national security.

- This **raises two very basic inquiries that need deliberation.**
- First, would the nation employing civilians in computer network attacks not be in violation of the laws of war?
- And second, if these people are considered as combatants, would the target country have the right to respond in self-defence?
- A response would be reactive, after the attacker has conducted his operation; hence, as a right of self-defence, would an act of pre-emption (through kinetic means and/or through cyber) be in order?
- This argument may appear far-fetched now but needs to be examined as India seems to have a new view on the concept of the right to self-defence.

INDIA'S VIEW OF THE RIGHT TO SELF DEFENCE

- In a February 24, 2021 UN Arria Formula meeting on 'Upholding the collective security system of the UN Charter', the Indian statement says, "...a State would be compelled to undertake a pre-emptive strike when it is confronted by an imminent armed attack from a non-state actor operating in a third state."
- It adds that "this state of affairs exonerates the affected state from the duty to respect, vis-a-vis the aggressor, the general obligation to refrain from the use of force."

IMPLICATION OF SUCH VIEW

- The statement indicates India's clear departure from established practices, as India made its position clear on the question of the right of self-defence against the acts of non-state actors in international law.
- The statement India when viewed vis-à-vis cyberattacks done by faceless persons who are non-combatants as per international law, opens up an avenue that requires careful examination; cyberattacks may not kill directly but the downstream effects can cause great destruction.

INTERNATIONAL ACTIONS AGAINST HACKERS

- International actions against hackers have been generally limited to sanctioning of foreign nationals by target nations.
- It was only in 2014, for the first time, a nation (the U.S.) initiated criminal actions

against foreign nationals (five Chinese operatives of Unit 61398 of the People's Liberation Army) for computer hacking and economic espionage.

CONCLUSION

- Now the question that lies is, how long will it take global nations to covert and/or overt kinetic retaliation against hackings.
- India seems to have made its intentions clear at the UN meet, but the concern is that, if not regulated globally, it could lead to a wild-west situation.
- Hence, there is a need to globally realise that cyberattacks may not kill directly but the downstream effects can cause great destruction.

5) Reworking net-zero for climate justice

GS-2 Effect of policies on India's interests NEWS

- Along with comparable levels of commitments there need to be equally comparable metrics for well-being.

CONTEXT

- Global transformation is affecting the planet. But there is no uniform transformation across the world.
- Global temperature increased sharply only after 1981 with **little contribution from the developing countries** as their industrialisation and urbanisation had yet to begin.

INDIA'S CONCERNS

- In 2015, at the **UN General Assembly** when the **Sustainable Development Agenda 2030** was adopted and at the **Paris Conference**, the Prime Minister of India stressed a **reframing of climate change to climate justice.**
- He argued that just when countries such as India were becoming major industrial and middle class nations, they should not pay the price for the pollution caused by the West.
- The Paris Agreement, explicitly recognises that peaking will take longer for such countries and is to be achieved in the context of "sustainable development and efforts to eradicate poverty".
- This balance is now being upset for a common target and timetable.

TREATY'S INEQUITY

- **First**, inequity is built into the Paris Climate Treaty.
- Annual emissions make **India the fourth largest emitter**, even though climate is impacted by cumulative emissions, with **India contributing a mere 3%** compared with 26% for the United States and 13% for China.
- According to the United Nations, while the **richest 1% of the global population emits more than two times the emissions of the bottom 50%**, India has just half its population in the middle class and per capita emissions are an eighth of those in the U.S. and less than a third of those of China.
- **Second**, the diplomatic history of climate negotiations shows that longer term goals without the strategy to achieve them, as in the case of finance and technology transfer that focuses on solving a political problem and not the problem itself.
- The focus is on physical quantities, emissions of carbon dioxide and increase in global temperature, measures impacts on nature whereas solutions require an analysis of drivers, trends and patterns of resource use.
- **Third**, models on which global policy recommendations for developing countries are based, consider achieving 'reasonable' not 'comparable' levels of well-being to show that early capping of energy use will not affect their growth ignoring costs on the poor.
- These models ignore the fact that **it is not the rising prosperity of the world's poor that endanger the planet, rather the challenge is to change wasteful behaviour in the West.**

ROLE OF INFRASTRUCTURE IN WIDENING INEQUITY

- Infrastructure has a defining role in human well-being both because of the services it provides outside the market and the way it shapes demand distinct from manufacturing (production) and lifestyles (consumption).
- But, the vaguely worded 'net zero' emissions, balancing emissions and removals, could be disastrous for development of latecomers like India because the **current frame fails to recognise that more than half the global**

cumulative emissions arose from infrastructure, essential for urban well-being.

- There is no substitute to cement, steel and construction material. Hence, developing nations like India worldwide will need half the available carbon space before comparable levels with the developed nations are reached around 2050.
- Also, because of its young population and late development, much of the future emissions in India will come from infrastructure, buildings and industry, and we cannot shift the trajectory much to reach comparable levels of well-being with major economies.
- For example, China's emissions increased three times in the period 2000-2015, driven largely by infrastructure.

INDIA NEEDS TO HIGHLIGHT UNIQUE NATIONAL CIRCUMSTANCES FOR NEW FRAMEWORK

- A global goal-shaping national strategy requires a new understanding.
- For this, India needs to highlight unique national circumstances with respect to the food, energy and transportation systems that have to change.
- **Food-** consumption of meat contributes to a third of global emissions. Indians eat just 4 kg a year compared with around 68 kg per person for the European Union and twice that in the U.S. where a third of the food is wasted by households.
- **Transportation-** transport emissions account for a quarter of global emissions and are the fastest growing emissions worldwide and have surpassed emissions from generation of electricity in the U.S., but are not on the global agenda.
- **Energy-** coal accounts for a quarter of global energy use and rising Asia uses three-quarters of it as coal drives industry.
- India with abundant reserves and per-capita electricity use that is a tenth that of the U.S. is under pressure to stop using coal, even though the U.S. currently uses more coal.
- India wants to eliminate the use of oil instead with renewable energy and hydrogen as a fuel for electrification, whose acceleration requires international cooperation around technology development and transfer.

WAYFORWARD

- In the Paris Agreement, climate justice was lowered to the preamble as a political, not policy, statement. Hence, there is need for:
- reframing of the global concern in terms of sustainable development for countries with per capita emissions below the global average, in line with the Paris Agreement.
- the verifiable measure should be well-being within ecological limits.
- international cooperation should centre on sharing technology of electric vehicles and hydrogen as a fuel, as they are the most effective response to climate change.

6) For Lok Adalats, speed overrides quality

GS-2 Redressal Mechanisms; Judiciary; Statutory Bodies

BACKGROUND

- Justice delayed is justice denied. Also, access to justice for the poor is a constitutional mandate to ensure fair treatment under our legal system.
- Hence, Lok Adalats were established to make justice accessible and affordable to all.
- It was a forum to address the problems of crowded case dockets outside the formal adjudicatory system.

ORIGIN OF LOK ADALATS

- Lok Adalats had existed even before the concept received statutory recognition.
- In 1949, Harivallabh Parikh, a disciple of Mahatma Gandhi, popularised them in Rangpur, Gujarat.
- In the Constitution of India, **42nd Amendment Act, 1976, inserted Article 39A** to ensure “equal justice and free legal aid”.
- Hence, to this end, the **Legal Services Authorities Act, 1987**, was enacted by Parliament and it came into force in 1995 “to provide free and competent legal services to weaker sections of the society” and to “organise Lok Adalats to secure that the operation of the legal system promotes justice on a basis of equal opportunity”.

FUNCTIONING OF LOK ADALATS

- The Lok Adalat functions as an alternative dispute resolution tool.
- They are regularly organised to help parties reach a compromise.

- Motor-accident claims, disputes related to public-utility services, cases related to dishonour of cheques, and land, labour and matrimonial disputes (except divorce) are usually taken up by Lok Adalats.
- At state level, the State Legal Services Authorities (SLSAs) have been organising Lok Adalats on a daily, fortnightly and monthly basis.
- Data from the National Legal Services Authority (NALSA) show that Lok Adalats organised across the country from 2016 to 2020 disposed of 52,46,415 cases.
- Similarly, National Lok Adalats (NLAs) organised under the aegis of NALSA settle a huge number of cases across the country in a single day.

NEED FOR LOK ADALATS

- The Indian judicial system is often criticized, perhaps justifiably, for its endemic delays and excessive backlogs.
- As per the National Judicial Data Grid, 16.9% of all cases in district and taluka courts are three to five years old; for High Courts, 20.4% of all cases are five to 10 years old, and over 17% are 10-20 years old.
- Furthermore, over 66,000 cases are pending before the Supreme Court, over 57 lakh cases before various HCs, and over 3 crore cases are pending before various district and subordinate courts.
- Justice V.V.S. Rao, former judge of the Andhra Pradesh High Court, calculated a few years ago that it will take around 320 years to clear the existing backlog of cases.
- Hence, Lok Adalats with its procedural flexibility helps in reducing burdening of courts.

SIGNIFICANCE OF LOK ADALATS

- **Party driven process-** Lok Adalats involves mainly a party-driven process, allowing the parties involved to reach an amicable settlement.
- **Speedy settlement-** When compared to litigation, and even other dispute resolution devices, such as arbitration and mediation, Lok Adalats offer parties speed of settlement, as cases are disposed of in a single day.
- **Procedural flexibility-** as there is no strict application of procedural laws such as the Code of Civil Procedure, 1908, and the Indian Evidence Act, 1872;

- **Economic affordability-** as there are no court fees for placing matters before the Lok Adalat;
- **Finality of awards-** as no further appeal is allowed. This prevents delays in settlement of disputes. Also, the award issued by a Lok Adalat, after the filing of a joint compromise petition, has the status of a civil court decree.

CONCERNS

- Discontinuance of the practice of dealing with specific types of dispute on a single day, has led to a significant drop in the number of cases settled. This raises questions about the efficiency of NLAs.
- The organisation of e-Lok Adalat amidst ongoing pandemic have been less efficient than the physical National Lok Adalats organised in 2017, 2018, and 2019.
- there is a concern, that in the endeavour for speedy disposal of cases, it undermines the idea of justice.
- In a majority of cases, litigants are pitted against entities with deep pockets.
- In many cases, compromises are imposed on the poor who often have no choice but to accept them. Similarly, poor women under the so-called 'harmony ideology' of the state are virtually dictated by family courts to compromise matrimonial disputes under a romanticised view of marriage.
- Even a disaster like the Bhopal gas tragedy was coercively settled for a paltry sum, with real justice still eluding thousands of victims.
- Also, this arrangement has tailored a dual system of justice dispensation, where the formal legal system, i.e., the court, is meant only for the rich and powerful, as was recently stated by former Chief Justice of India Ranjan Gogoi?

WAY FORWARD

- The system should focus on the just outcome of a legal process, which is far more important than expeditious disposal.
- Besides efficiency and speed, Lok Adalats should assure the quality of justice delivered.
- Hence in this direction, Judiciary must take concrete and innovative steps in improving the quality of justice rendered by National Lok Adalats.

7) Abortion is a woman's right to decide

GS-2 Government Policies & Interventions; Issues Arising Out of Design & Implementation of Policies; Issues Related to Women

NEWS

- The amendment to the abortion laws retains the notion that the state must intervene in what is a woman's absolute right.

CONTEXT

- Recent amendment by central government done to the abortion laws not only retains the traditional notion that the state must intervene and decide for women as to when and in what circumstances abortions may be carried out, but even the pathetic measures set out in the Medical Termination of Pregnancy (Amendment) Act 2021 are too little and have come too late.

MEDICAL TERMINATION OF PREGNANCY ACT, 1971

- The Medical Termination of Pregnancy Act, 1971 (MTP) can be considered as a progressive act, as it came at the time, when abortions were a crime and the woman concerned and her doctor would invariably land up in jail.
- The act allows for legal abortions in India with few restrictions. Under it:
- Section 3 put an outer limit of 20 weeks on the length of the pregnancy and required two doctors to certify that the continuation of the pregnancy would involve a risk to the life of the woman or grave injury to her physical or mental health or that there was a substantial risk that the child born would suffer from such physical or mental abnormalities as to be seriously handicapped.
- Rape cases, pregnancies occurring as a result of the failure of contraception have also been considered as valid reasons for abortion over the years.
- Section 5 created an exception to the 20 week limit whenever such an abortion was immediately necessary to save the life of the pregnant woman.

CONCERNS

- The Medical Termination of Pregnancy (Amendment) Act 2021 fails miserably on

the main count while introducing few collateral progressive measures.

- The Act fails to recognise the absolute right of a woman over her body in taking decisions regarding abortions and reproductive health. It still reserves to the state the right to dictate to the woman that she cannot have an abortion at will.
- Even though the limit has been pushed back from 20 to 24 weeks, this comes with the same state conditionalities as before.
- 24 weeks is not rational given today's technology where abortions can be done safely up to full term.
- **Medical boards are obstacles**
- By far the biggest failure of the government lies in enacting section 3(2B) which requires the pregnant woman to approach a medical board in cases of substantial foetal abnormalities and where she has crossed the 24 week limit.
- These boards impose insurmountable obstacles to the woman seeking late abortions.
- First, what used to be an exchange between the pregnant woman and her gynaecologist who would take a decision as to safety, has now been replaced by a board of a minimum of three doctors. This is totally unnecessary and breaches her privacy.
- Second, and this is indicative of complete non-application of mind, the Act provides in section 3(2C) for a single board for a State.
- Given the millions of abortions taking place in India past the deadline, it is impossible for one board to handle all cases.
- Third, assuming multiple boards will be established, the records show that no State has the finances or the human resources to maintain the operation and functioning of these boards.
- Fourth, the right to seek termination is restricted to "such category of women as may be prescribed by rules".

POSSIBLE IMPLICATIONS

- It pushes women seeking abortions underground where terminations are carried out in unhygienic and dangerous places, and in horrific situations.
- Even today about 800,000 illegal and unsafe abortions are performed every year

in India, many of them resulting in morbidities and death, while the governments remain indifferent to their woes.

- Given that the statutory provisions would not allow abortions beyond the set limits despite the availability of the technology to do so, several petitions are filed in the Supreme Court and the High Courts. This adds on to already overburdened judiciary litigations.

CONCLUSION

- The provision for Medical boards is totally unnecessary and an invasion of woman's privacy.
- Pregnant women, should be left alone to consult their gynaecologist in late term pregnancies and carry out their abortion under the certificate of their own gynaecologist that the abortion can be performed safely. This is the trend worldwide and in the courts.
- The Indian government needs to wake up and educate itself on women's emancipation worldwide.

8) Plough to plate, hand held by the Indian state

GS-3 Indian Agriculture, Agricultural Reforms

NEWS

- The distinct characteristics of India's agriculture require that a reformed state must ensure farmer, consumer welfare.

CONTEXT

- For at least four decades now, global economic policy making has dogmatically adhered to the notion that a **progressively reduced role of the state would automatically deliver greater economic growth and welfare to the people.**
- While evidence over many years from all over the world, indicates that it is the state that has played the leading role in provisioning the most critical aspects of life: water, sanitation, education, health, food and nutrition.
- Similarly agriculture with very specific characteristics and also as crucial elements of the socio-historical context, indicates the continuance of intervention by the Indian state in multiple markets,

and in making critical investments, to ensure the welfare of both farmers and consumers.

SPECIFICITIES OF AGRICULTURE

- Due to a variety of limiting factors, from uncertainties of the weather to soil fertility and water availability, **increasing returns to scale are very difficult to achieve in farming.** This **underscores the need for the right kind of public investment in agriculture.**
- Unlike the economies of scale which allow producers in industry to make profits by cutting unit costs, in agriculture there is no such flexibility specially for small and marginal farmers.
- Instead members of the family are drafted to work on the family's farm, or in other farm and non-farm work. This phenomenon is quite widespread in India today.
- Of the nine crore rural families who draw their main income from unskilled manual labour, four crore are small and marginal farmers. Thus, through overwork and self-exploitation, peasant farmers are able to cling on to their land.
- Again, production processes in agriculture cannot be organised in an assembly line; they need to begin at the appropriate phase of the climatic annual cycle.
- This means that **all farmers harvest their crop at the very same time; 86% of India's farmers are 'small and marginal', too poor to afford warehousing facilities and are, therefore, compelled to bring their harvest to the market at around the same time.**

AGRICULTURE- A CASE OF STATE INTERVENTION

- During a bumper crop, prices fall. It is expected that consumers will be benefitted. But the food grains are hoarded by the traders resulting in **loss to the farmers and customers have to buy very expensive commodities.**
- Further this forceful situation traps most of the small farmers into the **debt trap by moneylenders**, thus making it worse.
- In the credit market, usurious interest rates (often as high as 60%-120% per annum) create a debt trap from which it is virtually impossible to escape.

- Further, the repayments due are 'adjusted' through exploitative practices in the input, output, labour and land-lease markets.
- This **interlocked grid works in tandem with the oppressive caste system**, with the poorer, 'lower' caste farmers, facing a cumulative and cascading spiral of expropriation.
- All the above reasons provide a **strong case for state intervention in multiple agricultural markets.**

INDIA SECURED RIGHTS OF BOTH-FARMERS AND CONSUMERS

- The **Food Corporation of India and the Agricultural Prices Commission** were set up in 1965.
- The idea was that as farm output rises with the Green Revolution, farmers are assured that their surplus would be bought by the government at a price high enough to leave them a margin.
- The crops procured were then made available to consumers at subsidised rates through the **Public Distribution System (PDS).**
- Thus, government intervention protected farmers during bumper crops and dipped into the buffer stock to protect consumers during droughts.
- This is how India got its much vaunted food security over the past several decades.

STILL PERSISTING CHALLENGES IN AGRICULTURE

- The Green Revolution which brought prosperity, also sowed the seeds of its own destruction.
- **More than 300,000 farmers have committed suicide in the last 30 years**, a phenomenon completely unprecedented in Indian history.
- There is growing evidence of a **steady decline in water tables and water quality.**
- The yield response to application of increasingly expensive chemical inputs is falling, which has meant **higher costs of cultivation, without a corresponding rise in output.**
- Around **90% of India's water is consumed in farming, and of this, 80% is used up by rice, wheat and sugarcane.**
- Farmers continue to grow these water-intensive crops even in water-short

regions primarily because of an **assured market** — for rice and wheat in the form of public procurement, which still covers only a very low proportion of India's crops, regions and farmers.

WAY FORWARD

- **Diversify public procurement:**
- We need to greatly expand the basket of public procurement to include more crops, more regions and more farmers.
- If done right, this single reform would secure multiple win-wins: **higher and more sustainable farmer incomes, greater water security and better consumer health.**
- **Follow logic of regional agro-ecology:**
- Huge volumes of water could be saved if cropping patterns are diversified to include a **variety of millets, pulses and oilseeds.**
- To incentivise farmers to make this change, governments must include them in procurement operations.
- **Steady markets:**
- The locally procured crops should then be incorporated into **anganwadi supplementary nutrition and school mid-day meal programmes.**
- This would ensure a large and steady market for farmers, while also making a huge contribution to **tackling India's twin syndemic of malnutrition and diabetes.**
- Public investment in specific infrastructure required for millets and pulses, especially those grown through natural farming, would also help expand their cultivation.
- **Expansion of mandis network:**
- There is a need to expand the present mandis network as today, **only 17% of farm produce passes through mandis.**
- To provide farmers access within a radius of five kilometres, India needs 42,000 mandis, which are also in need of urgent reform.
- Rather than moving in the direction of weakening or dismantling mandis, we need to make their functioning more transparent and farmer-friendly.

NEED TO STRENGTHEN AGRICULTURE

- Ever since the Second Five Year Plan initiated in 1956, the central plank of Indian economic policy has been to get

people off the land and move them into industry and urban areas.

- However, even after all these efforts, the **United Nations estimates that in the year 2050, around 800 million people will continue to live in rural India.**
- Given this unique Indian demographic transition, agriculture will need to be greatly strengthened.

CONCLUSION

- In a context characterised by grave and growing inequalities, as also a historically skewed balance of power, no reform can succeed that does not strengthen the weak and the excluded.
- Therefore, agriculture can only be reformed by radically enhanced state capacities and qualitatively better regulatory oversight, rather than by opening up spaces for more predatory action by those already entrenched in positions of overwhelming power in the economy.

9) India does have a refugee problem

GS-2 International Relation

NEWS

- India needs to clinically address the issue of refugee protection and introduce appropriate legal and institutional measures.

CONTEXT

- The heart-wrenching scenes of Myanmar citizens, including little children — fleeing from a junta bent on killing its way into power in Myanmar — being turned away at the Indian border in the Northeast has once again revived the domestic debate about refugee protection in India.

SIMILAR CASES IN THE PAST

- The current plight of the Myanmar citizens has been preceded by that of another group of Myanmar citizens, the Rohingya.
- Also, a similar debate was dominated by the Citizenship (Amendment) Act, 2019 and its impact on those seeking refuge in India, even though new refugees would not be benefited by the law since the cut-off year of the CAA is 2014.
- Given the geopolitical, economic, ethnic and religious contexts of the region,

refugee flows to India are unlikely to end any time soon.

- Hence, there is an urgent need today to clinically address the issue of refugee protection in India and put in place appropriate legal and institutional measures.

REFUGEE Vs ILLEGAL IMMIGRATION

- A refugee is a displaced person who has been forced to cross national boundaries and who cannot return home safely because of fear of persecution, while an immigrant is one who generally travels voluntarily because of economic opportunity in the host country.

JUMBLED ISSUES OF REFUGEE AND ILLEGAL IMMIGRATION

- Illegal immigration is a threat to the socio-political fabric of any country and has potential security implications.
- Therefore, India has emphatically argued over time, particularly in the recent past, that illegal immigration from the neighbouring countries to India must come to an end.
- But, despite much of the debate in the country is about the illegal immigrants, not refugees, the two categories tend to get bunched together.
- Since, we have jumbled up the two issues over time, our policies and remedies to deal with these issues suffer from a lack of clarity as well as policy utility.
- This brings no justice to the helpless people fleeing from persecution at home.

AMBIGUITY IN THE FRAMEWORK

- The main reason why our policies towards illegal immigrants and refugees is confused is because as per Indian law, **both categories of people are viewed as one and the same and are covered under the Foreigners Act, 1946 .**
- It offers a simple definition of a foreigner — “foreigner” means “a person who is not a citizen of India”.
- There are fundamental differences between illegal immigrants and refugees, but India is legally ill-equipped to deal with them separately due to a lack of legal provisions.
- As a result of this confused policy, **India is not a party to the 1951 Refugee Convention and its 1967 Protocol**, the

key legal documents pertaining to refugee protection.

IMPLICATIONS OF AMBIGUOUS POLICIES

- The absence of such a legal framework also leads to policy ambiguity whereby India’s refugee policy is guided primarily by ad-hocism which often has its own ‘political utility’.
- Ad hoc measures enable the government in office to pick and choose ‘what kind’ of refugees it wants to admit for whatever political or geopolitical reasons, and what kind of refugees it wants to avoid giving shelter, for similar reasons.
- At the same time, the absence of a legal framework increases the possibility of the domestic politicisation of refugee protection and complicates its geopolitical fault lines.
- Also the absence of a clearly laid down refugee protection law also opens the door for geopolitical considerations while deciding to admit refugees or not.
- For example: the most recent case of Myanmarese refugees fleeing to India for protection from the junta at home.
- New Delhi’s concern is that if it takes a decision that irks the Generals in Naypyitaw, Beijing would get closer to the junta and use the opportunity to hurt India’s interests in Myanmar.
- This fear, at least partly, is what has prompted India’s decision not to admit the refugees.
- However, if New Delhi had a domestic legislation regarding refugees, despite not being a signatory to the relevant international conventions, it could have tempered the expectations of the junta to return the fleeing Myanmarese.

LEGAL, MORAL COMPLEXITIES

- India, for the most part, has had a stellar record on the issue of refugee protection, a moral tradition that has come under great stress of late.
- **New Delhi has been one of the largest recipients of refugees in the world** in spite of not being a party to the 1951 Refugee Convention and its 1967 Protocol.
- Whether or not India should be a party to these international legal instruments has been a matter of some debate in the country.

- As per India's interpretation, the definition of refugees in the 1951 convention **only pertains to the violation of civil and political rights, but not economic rights**, of individuals, for instance.
- Hence, from this interpretation, it can be concluded that a country like India, given its track record of refugee protection as well as a vulnerable geopolitical and socio-economic situation, need not unreservedly accede to the convention and the protocol in the way they currently stand.

WHAT OTHER OPTIONS DO WE HAVE TO RESPOND TO REFUGEE SITUATION?

- The answer perhaps lies in a **new domestic law aimed at refugees**.
- The CAA, however, is not the answer to this problem primarily because of its deeply discriminatory nature.
- It is morally untenable to have a discriminatory law to address the concerns of refugees who are fleeing their home country due to such discrimination in the first place.
- A domestic refugee law should allow for temporary shelter and work permit for refugees.
- A domestic refugee law is crucial because in the absence of proper legal measures, refugee documentation, and work permit, refugees may end up becoming illegal immigrants using illicit means.
- The absence of a refugee law incentivises illegal immigration into the country.
- A distinction must be made between temporary migrant workers, illegal immigrants and refugees and deal with each of them differently through proper legal and institutional mechanisms.

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INDIAN EXPRESS EXPLAINED

1) What is a telescope doing inside the world's deepest lake?

Why in the News?

- Recently, Russian scientists **launched one of the world's biggest underwater neutrino telescopes** called the **Baikal-GVD (Gigaton Volume Detector)** in the waters of **Lake Baikal**, the world's deepest lake situated in Siberia.

Importance of Neutrino study

- Studying the neutrino helps in understanding of the **origins of the universe** since some neutrinos were formed during the Big Bang, others continue to be formed as a result of supernova explosions or because of nuclear reactions in the Sun.
- The Baikal-GVD is one of the three largest neutrino detectors in the world along with the **IceCube at the South Pole and ANTARES in the Mediterranean Sea**.

What are fundamental particles?

- The particles of matter can be classified into **quarks and leptons**. But this only applies to "normal matter" or the matter that scientists know that **five per cent of the universe** is made up of.
- **Protons, Electrons and Neutrons** are fundamental particles that all the particles are made up of.
- **Protons (carry a positive charge) and neutrons (no charge) are types of quarks, whereas electrons (carry a negative charge) are types of leptons.**
- **Remaining 95% of the universe comprises dark matter (27 percent) and dark energy (68 percent).**

Detection of Neutrinos

- One way of detecting neutrinos is in water or ice, where neutrinos leave a flash of light or a line of bubbles when they interact. To capture these signs, scientists have to build large detectors.
- An underwater telescope such as the GVD is designed to detect high-energy neutrinos that may have come from the Earth's core, or could have been produced during nuclear reactions in the Sun.

2) What is net-zero, and what are India's objections?

Why in the News?

- Recently, the US President's Special Envoy on Climate visited India to rekindle the climate change partnership between the two countries.
- In its bid to reclaim global climate leadership, the US is widely expected to commit itself to a **net-zero emission target for 2050**.
- Several other countries, including **the UK and France**, have already enacted laws promising to achieve a net-zero emission scenario by the middle of the century. Even **China** has promised to go net-zero by 2060.

What is net-zero?

- Net-zero, which is also referred to as **carbon-neutrality**, does not mean that a country would bring down its emissions to zero. Rather, net-zero is a state in which a **country's emissions are compensated by absorption and removal of greenhouse gases from the atmosphere**.
- Absorption of the emissions can be increased by **creating more carbon sinks** such as forests, while removal of gases from the atmosphere requires **futuristic technologies** such as carbon capture and storage.
- This way, it is even possible for a country to have **negative emissions**, if the absorption and removal exceed the actual emissions. A good example is **Bhutan** which is often described as carbon-negative because it absorbs more than it emits.
- It is being argued that global carbon neutrality by 2050 is the **only way to achieve the Paris Agreement target** of keeping the planet's temperature from rising beyond 2°C compared to pre-industrial times.
- Theoretically, a country can become carbon-neutral at its current level of emissions, or even by increasing its emissions, if it is able to absorb or remove more. From the perspective of the developed world, it is a big relief, because

now the burden is shared by everyone, and does not fall only on them.

India's objections

- **India** is the only one opposing this target because it is **likely to be the most impacted by it**. India's position is unique. Over the next two to three decades, India's emissions are likely to grow at the fastest pace in the world, as it **presses for higher growth to pull hundreds of millions of people out of poverty**.
- No amount of afforestation or reforestation would be able to compensate for the increased emissions. Most of the carbon removal technologies right now are either **unreliable or very expensive**.
- The **net-zero goal does not figure in the 2015 Paris Agreement**, the new global architecture to fight climate change. The Paris Agreement only requires every signatory to take the best climate action it can. Countries need to set **five- or ten-year climate targets** for themselves, and demonstrably show they have achieved them.
- Implementation of the Paris Agreement has begun only this year. Most of the countries have submitted targets for the 2025 or 2030 period.
- India has been arguing that instead of opening up a parallel discussion on net-zero targets outside of the Paris Agreement framework, **countries must focus on delivering on what they have already promised**. New Delhi is hoping to lead by example. It is well on its way to achieving its targets under the Paris Agreement, and looks likely to overachieve them.
- Several studies have shown that **India is the only G-20 country** whose climate actions are compliant to the Paris Agreement goal of keeping global temperatures from rising beyond 2°C.

- New Delhi also repeatedly points to the fact that the **developed nations have never delivered on their past promises and commitments**. No major country achieved the emission-cut targets assigned to them under the **Kyoto Protocol**, the climate regime preceding the Paris Agreement.
- India has been arguing that the 2050 carbon-neutrality promise might meet a similar fate, although some countries are now binding themselves in law. It has been insisting that the developed countries should, instead, take more ambitious climate actions now, to compensate for the unfulfilled earlier promises.
- At the same time, it has been saying that it does not rule out the possibility of achieving carbon-neutrality by 2050 or 2060. Just that, it does not want to make an international commitment so much in advance.

Related Information

India's Nationally Determined Contributions (NDCs) for Paris agreement

- To reduce the **emissions intensity of its GDP by 33 to 35 percent** by 2030 from 2005 levels.
- To achieve about **40 per cent** cumulative electric power installed capacity from **non-fossil fuel-based energy resources by 2030**, with the help of transfer of technology and low-cost international finance, including from the Green Climate Fund.
- To create an **additional carbon sink of 2.5 to 3 billion tonnes of CO2 equivalent** through additional forest and tree cover by 2030.

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