



# CURRENT AFFAIRS APRIL 2021

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## **1. Global Minimum Corporate Tax:**

- Recently, the Finance Ministers from the Group of Seven (G7) nations reached a landmark accord setting a Global Minimum Corporate Tax Rate (GMCTR).
- The agreement could form the basis of a worldwide deal. It will now be discussed in detail at a meeting of G20 financial ministers and central bank governors in July 2021.
- G7 also agreed to move towards making companies declare their environmental impact in a more standard way so investors can decide more easily whether to fund them.

### **Group of Seven (G7):**

- It is an intergovernmental organisation that was formed in 1975.
- The bloc meets annually to discuss issues of common interest like global economic governance, international security and energy policy.
- The G7 countries are the UK, Canada, France, Germany, Italy, Japan and the US.
- All the G7 countries and India are a part of G20.
- The G7 does not have a formal constitution or a fixed headquarters. The decisions taken by leaders during annual summits are non-binding.

### **Global Minimum Corporate Tax Rate:**

- G7 would back a minimum global corporation tax rate of at least 15%, and put in place measures to ensure taxes were paid in the countries where businesses operate.
- Corporation tax is a direct tax imposed on the net income or profit that enterprises make from their businesses.

### **Applicability:**

- It would apply to companies' overseas profits. Therefore, if countries agree on a global minimum, governments could still set whatever local corporate tax rate they want.
- But if companies pay lower rates in a particular country, their home governments could "top-up" their taxes to the agreed minimum rate, eliminating the advantage of shifting profits to a tax haven.
- A tax haven is generally an offshore country that offers foreign individuals and businesses little or no tax liability in a politically and economically static environment.
- Increasingly, income from intangible sources such as drug patents, software and royalties on intellectual property has migrated to low tax jurisdictions, allowing companies to avoid paying higher taxes in their traditional home countries (tax base erosion of the higher-tax jurisdictions).
- These companies typically rely on complex webs of subsidiaries to Hoover profits out of major markets into low-tax countries such as Ireland or Caribbean nations such as the British Virgin Islands or the Bahamas, or to central American nations such as Panama.
- India's annual tax loss due to corporate tax abuse is estimated at over USD 10 billion.
- GMCTR will end a decades-long race to the bottom in which countries have competed to attract corporate giants with ultra-low tax rates and exemptions. And it will bring uniformity in corporate taxation worldwide.

### **Challenges:**

- Getting all major nations on the same page is a problem, since the GMCTR impinges on the right of the sovereign to decide a nation's tax policy.

- Policy Issues:
- A global minimum rate would essentially take away a tool that countries use to push policies that suit them.
- A lower tax rate is a tool they can use to alternatively push economic activity. Also, a global minimum tax rate will do little to tackle tax evasion.
- **Other International Effort:** The Organization for Economic Cooperation and Development (OECD) has been coordinating tax negotiations among 140 countries for years on rules for taxing cross-border digital services and curbing tax base erosion, including a global corporate minimum tax.

#### India's Stand:

- While taxation is ultimately a sovereign function, and depends upon the needs and circumstances of the nation, the government is open to participate and engage in the emerging discussions globally around the corporate tax structure.
- India is likely to benefit from the global minimum 15% corporate tax rate pact as the effective domestic tax rate is above the threshold, and the country would continue to attract investment.
- In September 2019, the government had reduced the corporate tax rate to 22% for companies that gave up all exemptions and incentives. Further, a 15% rate was offered to new manufacturing firms.
- The effective tax rate, inclusive of surcharge and cess, for Indian domestic companies is around 25.17%.

#### Way Forward:

- A G20 meeting scheduled for Venice in July 2021 will see whether the G7 accord gets broad support from the world's biggest developed and developing countries.
- Much still needs to be ironed out - including the metrics that will determine how and to which multinational companies the tax will be applied.
- There should be appropriate coordination between the application of the new international tax rules including the Digital Services Taxes. Any final agreement could have major repercussions for low-tax countries and tax havens.

## 2. Opium Poppy Straw:

- The Central government has decided to rope in the private sector to commence production of concentrated poppy straw (CPS) from India's opium crop to boost the yield of alkaloids, used for medical purposes and exported to several countries.
- Alkaloids are a huge group of naturally occurring organic compounds which contain nitrogen atom or atoms (amino or amido in some cases) in their structures.
- These nitrogen atoms cause alkalinity of these compounds.
- Well-known alkaloids include morphine, strychnine, quinine, 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 non-addictive.

#### Poppy Straw:

- Poppy straw is the husk left after the opium is extracted from pods.
- This poppy straw also contains a very small morphine content and if used in sufficient quantities, poppy straw can give a high.
- Possession, sale, use, etc. of poppy straw is regulated by the State Governments under the State Narcotic Drugs & Psychotropic Substances Rules.

- Farmers sell the poppy straw to those licensed by the State Governments to purchase poppy straw.
- Any excess poppy straw is ploughed back into the field.
- Poppy straw is one of the narcotic drugs under the Narcotic Drugs & Psychotropic Substances Act 1985 (NDPS Act).
- Hence, anyone possessing, selling, purchasing or using poppy straw without a license or authorization or in violation of any conditions of the license is liable to prosecution under the NDPS Act.

#### **Current Extraction of Alkaloids:**

- India currently only extracts alkaloids from opium gum at facilities controlled by the Revenue Department in the Ministry of Finance.
- This entails farmers extracting gum by manually lancing the opium pods and selling the gum to government factories.
- The Ministry has now decided to switch to new technologies, after trial cultivation by two private firms showed higher extraction of alkaloids using the Concentrated Poppy Straw (CPS). Thus, the Government is mulling the idea of using public-private partnership (PPP).

#### **Partnership Model:**

- Two types of Narcotic Raw Material (NRM) can be produced from opium poppy - Opium gum and Concentrate of Poppy Straw (CPS).
- So far, only opium gum has been produced in India. The Government of India has now decided that CPS production should be commenced in India.
- The various stakeholders will frame an appropriate model including public-private partnership (PPP), advise on the changes needed to the rules and laws to facilitate private investment, and recommend security measures to protect the crop and the final product.
- The firms carrying out the trials faced legal hassles in terms of getting relevant licences from the State governments to manufacture bulk alkaloids on their premises, this issue will need to be ironed out.
- 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.
- Some firms also cultivated CPS with hydroponic and aeroponic methods under a greenhouse environment.
- Both Hydroponics and Aeroponics are sustainable, water-conservative farming methods, differing only by the medium which is used in the growth of the plants.

#### **Significance of the Move:**

- While alkaloid extraction from the current opium crop using the CPS was found more than opium gum, it is possible to have two or three crop cycles in one year if CPS varieties of seeds are used in an indoor greenhouse environment.
- 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 medicinal uses.

### **3. AI Portal SUPACE:**

- Recently, the Chief Justice of India (CJI) launched an Artificial Intelligence (AI) based portal 'SUPACE' in the judicial system aimed at assisting judges with legal research. SUPACE is short for Supreme Court Portal for Assistance in Court's Efficiency.

- Earlier, the E-Courts Project was conceptualised on the basis of "National Policy and Action Plan for Implementation of Information and Communication Technology (ICT) in the Indian Judiciary - 2005" submitted by the e-Committee of the Supreme Court.

#### **About SUPACE:**

- It is a tool that collects relevant facts and laws and makes them available to a judge.
- It is not designed to take decisions, but only to process facts and to make them available to judges looking for an input for a decision.
- Initially, it will be used on an experimental basis by the judges of Bombay and Delhi High Courts who deal with criminal matters.

#### **Significance:**

- It will produce results customized to the need of the case and the way the judge thinks.
- This will be time saving. It will help the judiciary and the court in reducing delays and pendency of cases.
- AI will present a more streamlined, cost effective and time bound means to the fundamental right of access to justice.
- It will make the service delivery mechanism transparent and cost-efficient.

#### **Challenge:**

- Redundancy of certain posts after introduction of SUPACE.
- Since it is intended to do what the human mind can do, but much more efficiently and methodically, there is apprehension in the generation of unemployment.

#### **What is E-Courts Project?**

- It was conceptualized with a vision to transform the Indian Judiciary by ICT (Information and Communication Technology) enablement of Courts.
- It is a pan-India Project, monitored and funded by the Department of Justice, Ministry of Law and Justice, for the District Courts across the country.

#### **Objectives of the Project:**

- To provide efficient & time-bound citizen-centric services delivery.
- To develop, install & implement decision support systems in courts.
- To automate the processes to provide transparency and accessibility of information to its stakeholders.
- To enhance judicial productivity, both qualitatively & quantitatively, to make the justice delivery system affordable, accessible, cost-effective, predictable, reliable and transparent.

#### **4. Sankalp Se Siddhi: TRIFED:**

- The Tribal Cooperative Marketing Development Federation of India (TRIFED), under the Ministry of Tribal Affairs, has launched "Sankalp se Siddhi" - Village and Digital Connect Drive.
- The main aim of this drive is to activate the Van Dhan Vikas Kendras (VDVKs) in the villages.

#### **Key Points:**

- The Sankalp se Siddhi drive will entail 150 teams (10 in each region from TRIFED and State Implementation Agencies/Mentoring Agencies/Partners) visiting ten villages each.
- Thus, 100 villages in each region and 1500 villages in the country will be covered.
- The visiting teams will also identify locations and shortlist potential Van Dhan Vikas Kendras for clustering as TRIFOOD, and SFURTI units as larger enterprises.
- Scheme of Fund for Regeneration of Traditional Industries (SFURTI) is a scheme of the Ministry of Micro, Small & Medium Enterprises (MSME).
- Rs. 200 crore Sales during the next 12 months is targeted as a result of this initiative once the VDKs are activated in these 1500 villages.



- The teams will also identify tribal artisans and other groups and empanel them as suppliers so that they can have access to larger markets through the Tribes India network – both physical outlets and TribesIndia.com.

#### **Other Involvements of the TRIFED:**

- Village and Digital Connect Initiative:
- To ensure that existing schemes and initiatives reach the tribals, TRIFED's regional officials across the country have been visiting identified villages with a significant tribal population.
- Schemes for Ensuring Fair Prices to Tribals:
- Schemes such as Mechanism for Marketing of Minor Forest Produce (MFP) Through Minimum Support Price (MSP) and Development of Value Chain for MFP provide MSP to gatherers of forest produces.
- The schemes ensure sustainability of the resource base by addressing the problems that tribals face such as perishable nature of the produce, lack of holding capacity, lack of marketing infrastructure, exploitation by middlemen, etc.
- **Tech For Tribals:**
- Tech for Tribals program aims to transform 5 crore Tribal Entrepreneurs by capacity building and imparting entrepreneurship skills to tribal forest produce gatherers enrolled under the Pradhan Mantri Van Dhan Yojana (PMVDY).
- The Van Dhan Vikas Yojana is an initiative of the Ministry of Tribal Affairs and TRIFED. It was launched to improve tribal incomes through value addition of tribal products.
- The program will ensure higher success rate of the Tribal Entrepreneurs by enabling and empowering them to run their business with marketable products with quality certifications.

#### **Van Dhan Vikas Kendras:**

- Van Dhan Vikas Kendras have been provided by Van Dhan Vikas Yojana.
- Van Dhan Vikas Kendra (VDVKs) are for providing skill upgradation and capacity building training to tribals and setting up of primary processing and value addition facilities.
- Tribals are trained here and then provided with working capital to add value to the products, which they collect from the jungle.

#### **TRIFOOD Scheme:**

- It is a joint initiative of the Ministry of Food Processing Industry, Ministry of Tribal Affairs and TRIFED and it promotes value addition to MFP.

#### **5. Acquittal by Benefit of Doubt:**

- The Supreme Court has held that a public employer can reject a candidate as unsuitable if he/she had, in the past, been acquitted of a serious crime merely on the benefit of doubt.
- Benefit of doubt is granted to the accused when there is total absence of evidence or in the **criminal jurisprudence requiring the case to be proved beyond reasonable doubt.**

#### **Background:**

- The Petitioner in the Supreme Court cleared the recruitment for the post of constable in Rajasthan Police Service.
- However, he was not appointed in view of being tried in a criminal case.
- It was found that, though he was acquitted, the charges against him were not of a trivial nature but were serious offences and the candidate was acquitted on the "Benefit of Doubt".
- He was not honourably acquitted by the Court.

#### **Supreme Court Observations:**

- The mere fact of an acquittal would not suffice but rather it would depend on whether it is a clean acquittal.

- Employers would be well within their rights to consider the antecedent and suitability of the candidate.
- In this context, the employer is entitled to take into account the job profile for which the selection is undertaken, and the severity of the charge levelled against the candidate and whether the acquittal in question was an honourable acquittal or was merely on the ground of benefit of doubt.
- An acquittal on the benefit of doubt is quite different from an honourable acquittal.
- A person should be honourably acquitted of a heinous crime to be considered eligible for public employment.
- The court, however, reminded employers that the rejection should not be mechanical since employment opportunity is a scarce commodity in the country.
- The trial court after giving due consideration to the evidence placed on record and examining the witness may do any of the following:
  1. Convict the person.
  2. Acquit the person unconditionally. In other words, it is Honourable acquittal.
  3. The term “Honorable acquittal” is nowhere defined under Indian laws and it is the invention of Indian judiciary.
  4. An accused who is acquitted after full consideration of the prosecution evidence and prosecution has miserably failed to prove the charges levelled against the accused.
  5. Acquitting the person by extending the “benefit of doubt” or due to the failure on the prosecution's side to prove the guilt “beyond reasonable doubt”.

#### **6. Potential of Lighthouses for Tourism: Sagarmala:**

- The Union Ministry of Ports, Shipping and Waterways seeks to develop 65 lighthouses on public-private-partnership mode. Odisha's five lighthouses present huge potential for tourism.
- The Ministry wants to develop lighthouses as hubs of tourism under the Sagarmala project.

#### **Key Points:**

##### Five lighthouses of Odisha:

1. 'False Point' island lighthouse: It is situated off the Kendrapara coast. It is the British era lighthouse and its location close to massive mangrove vegetation infested with crocodiles makes it an adventurous tourist place on the eastern coast.
2. Paradip lighthouse: It also holds tourism potential because of its proximity to the port town and Cuttack and Bhubaneswar cities (100 km). It was commissioned in the 1980s.
3. Gopalpur lighthouse: It is located in Ganjam district. If it is developed as a place of tourist interest, the Chilika Lake and the Gopalpur beach will be added attractions.
4. Chandrabhaga lighthouse: It is 10 km from the world famous Konark temple. It had withstood the severity of cyclones such as the Super Cyclone (1999), Phailin (2013) and Fani (2019).
5. Puri lighthouse: It is 4 km from the 12th century Shree Jagannath Temple, which is also a tourist place.
6. Lighthouse Tourism in India:

#### **Number of Lighthouses:**

- India has as many as 189 lighthouses dotting its vast coastline including the Andaman and Nicobar Islands in the Bay of Bengal and Lakshadweep Islands in the Arabian Sea.

#### **Objectives for Promoting Lighthouse based Tourism:**

- To enhance & develop the existing lighthouses & its surrounding areas into a Tourism Destination, Maritime Landmark, and Heritage Precinct.
- To develop allied Maritime Infrastructure like National Maritime Museums & National Lighthouse Museums.



- To explore the possibilities of developing these projects under various modes including the possibilities of Public Private Partnership (PPP) by integrating commercially viable interventions at the feasible locations in order to make the project viable.

**Advantages:**

- The advantages behind creation of lighthouses into a tourism product are that it shall help in attracting tourists from across the world & locally and thereby create a source of revenue for the government, employment opportunities for local people, increase in commerce through purchase and sale of goods and services, etc.

**Sagarmala Project:**

- The Sagarmala Programme was approved by the Union Cabinet in 2015 which aims at holistic port infrastructure development along the 7,516-km long coastline through modernisation, mechanisation and computerisation.
- The vision of the Sagarmala Programme is to reduce logistics cost for EXIM (Export-Import) and domestic trade with minimal infrastructure investment.
- Sagarmala could boost India's merchandise exports to USD 110 billion by 2025 and create an estimated 10 million new jobs (four million in direct employment).

**Components of the Sagarmala Programme:**

- Port Modernization & New Port Development: De-bottlenecking and capacity expansion of existing ports and development of new Greenfield ports.
- Port Connectivity Enhancement: Enhancing the connectivity of the ports to the hinterland, optimizing cost and time of cargo movement through multi-modal logistics solutions including domestic waterways (inland water transport and coastal shipping).
- Port-linked Industrialization: Developing port-proximate industrial clusters and Coastal Economic Zones to reduce logistics cost and time of EXIM and domestic cargo.
- Coastal Community Development: Promoting sustainable development of coastal communities through skill development & livelihood generation activities, fisheries development, coastal tourism etc.
- Coastal Shipping & Inland Waterways Transport: Impetus to move cargo through the sustainable and environment-friendly coastal and inland waterways mode.

**Public-Private Partnerships:**

- Public-private partnerships involve collaboration between a government agency and a private-sector company that can be used to finance, build, and operate projects, such as public transportation networks, parks, and convention centers.
- Financing a project through a public-private partnership can allow a project to be completed sooner or make it a possibility in the first place.
- Public-private partnerships often involve concessions of tax or other operating revenue, protection from liability, or partial ownership rights over nominally public services and property to private sector, for-profit entities.
- It can create complex principal-agent problems, such as corrupt dealings, pay-offs to political cronies, etc.
- Commonly adopted model of PPPs include Build-Operate-Transfer (BOT), Build-Own-Operate (BOO), Build-Operate-Lease-Transfer (BOLT), Design-Build-Finance-Operate-Transfer (DBFOT), Lease-Develop-Operate (LDO), Operate-Maintain-Transfer (OMT), etc.

**7. NABARD Registers 24% Growth:**

- National Bank for Agriculture and Rural Development (NABARD) closed its business at Rs. 6.57 lakh crore in FY 2020-21, recording a growth rate of 23.5%.

**NABARD's Business in 2020-21:**

- Under Aatmanirbhar Bharat Abhiyan, NABARD released amounts to cooperative banks, Regional Rural Banks (RRBs) and to NBFC-MFIs (Non-Banking Financial Company: Micro Finance Institution) through a Special Liquidity Facility (SLF).
- The SLF was with a view to augment the resources of the Cooperative banks and RRBs to enable them to extend credit to farmers.
- NABARD registered a total refinance disbursement of Rs. 2.23 lakh crore to support agriculture and rural development activities during the pandemic.
- A refinance facility of Rs. 500 crore was introduced to support the Government of India's Water, Sanitisation and Hygiene (WASH) programme.

#### **About NABARD:**

- NABARD came into existence on 12th July 1982 by transferring the agricultural credit functions of the Reserve Bank of India (RBI) and refinance functions of the then Agricultural Refinance and Development Corporation (ARDC).
- It is a statutory body established under 'National Bank for Agriculture and Rural Development Act, 1981'.
- It is a development bank focussing primarily on the rural sector of the country.
- It is the apex banking institution to provide finance for Agriculture and rural development.

#### **Cooperation with the RBI:**

- RBI provides 3 directors to NABARD's Board of Directors.
- NABARD provides recommendations to RBI on issue of licenses to Cooperative Banks, opening of new branches by State Cooperative Banks and RRBs.
- Headquarters: Mumbai

#### **Major Functions of NABARD:**

- It provides refinance support for building rural infrastructure.
- Refinancing institutions are important institutions who give loans to other institutions who ultimately give loans to the end customers.
- NABARD provides short-term, medium-term and long-term refinance to Cooperative banks and RRBs to supplement their resources for providing adequate credit for supporting investment activities of farmers and rural artisans.
- It supervises Cooperative Banks and Regional Rural Banks (RRBs) and helps them develop sound banking practices and integrate them to the CBS (Core Banking Solution) platform.
- CBS can be defined as a solution that enables banks to offer a multitude of customer-centric services on a 24x7 basis from a single location.
- It is involved in designing Union government's development schemes and their implementation.
- Examples: National Livestock Mission, Interest subvention Scheme, New Agricultural Marketing Infrastructure, etc.
- NABARD has various international partnerships including leading global organizations and World Bank-affiliated institutions that are breaking new ground in the fields of rural development as well as agriculture.
- These international partners play a key consultant role in providing advisory services as well as financial assistance designed to ensure uplifting of rural peoples as well as optimization of various agricultural processes.

#### **8. Oil Import Contracts:**

- Amid tensions with Saudi Arabia over oil production cuts, the Indian government has asked its state refiners (IOC, BPCL and HPCL) to look for oil supplies from outside the Middle East region and use collective bargaining power to get favourable terms.

#### **Tension with Saudi Arabia:**

- When oil prices started to rise in early 2021, India wanted Saudi Arabia to relax output controls but the Kingdom ignored its calls.
- This has led to the Indian government pressing for diversification of the supply base.
- Saudi Arabia and other OPEC (Organization of the Petroleum Exporting Countries) producers have been the mainstay suppliers of crude oil for India. But their terms have often been loaded against the buyers.
- OPEC is a permanent intergovernmental organization of 13 oil-exporting developing nations that coordinates and unifies the petroleum policies of its Member countries.
- Member Countries: Iran, Iraq, Kuwait, United Arab Emirates (UAE), Saudi Arabia, Algeria, Libya, Nigeria, Gabon, Equatorial Guinea, Republic of Congo, Angola, and Venezuela.

#### **Issues with the Contracts with OPEC Producers:**

- Indian firms buy two-third of their purchases on term or fixed annual contracts.
- These term contracts provide assured supplies of the contracted quantity but the pricing and other terms favour only the supplier.
- The buyer has to indicate at least six weeks in advance of their intention to lift quantity out of the annual term contract in any month and has to pay an average official price announced by the producer.
- While buyers have an obligation to lift all of the contracted quantity, Saudi Arabia and other producers have the option to reduce supplies in case OPEC decides to keep production artificially lower to boost prices.

#### **Options for India:**

- India needs pricing flexibility as well as the certainty of supply even during times when production falls due to any reason.
- Besides, choice of time of supply and flexibility on quantity (ability to reduce or increase) is what India should be looking at.
- Indian refiners can look to reduce the quantity they buy through term contracts and instead buy more from the spot or current market.
- Buying from the spot market would ensure that India can take advantage of any fall in prices on any day and book quantities.
- It's like the stock market where shares can be bought on a day or time when the prices are low.
- State-owned refiners have also been asked to coordinate buying and also explore joint strategy with private refiners such as Reliance Industries and Nayara Energy.

#### **India and Oil Import:**

- India is the world's third-largest consumer of oil.
- India imports 85% of its total oil needs and is often vulnerable to global supply and price shocks.
- The Middle East accounts for 60% of all oil bought by India while Latin America and Africa are the other big supplier blocks.
- In recent months, India has bought more oil from the USA and from newer sources such as Guyana, which has a large Indian diaspora.
- However, due to its geographical proximity, the Middle East can supply cargoes in less time and at low freight rates.

### **The World's Top 10 Oil Consumers**

Top 10	Million BPD	Global Share	Change
US	19.4	19.7%	-0.1%
China	14.1	14.3%	5.1%
India	5.3	5.4%	3.1%
Japan	3.8	3.9%	-1.1%
Saudi Arabia	3.8	3.9%	0.5%
Russia	3.3	3.4%	1.1%
South Korea	2.8	2.8%	-0.8%
Canada	2.4	2.4%	-1.7%
Brazil	2.4	2.4%	0.9%
Germany	2.3	2.3%	0.9%

### 9. Economic and Social Survey of Asia and the Pacific 2021: UNESCAP

- A report 'Economic and Social Survey of Asia and the Pacific 2021: Towards post-Covid-19 resilient economies' has recently been released by the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP).
- According to the report, India is estimated to record an economic growth of 7% in 2021-22, over a contraction of 7.7% witnessed in the previous fiscal on account of the pandemic's impact on normal business activity.

#### Other Observation Regarding India:

- India's 2021 economic output, however, is expected to remain below the 2019 level despite a robust reduction in new Covid-19 cases and the start of vaccine roll-out.
- India entered the pandemic with already subdued GDP (Gross Domestic Product) growth and investment.
- Moreover, one of the most stringent lockdowns in the world caused the severe economic disruptions that the country experienced in the year 2020.
- A subsequent change in lockdown policies and success in reducing infection rates supported an impressive economic turnaround in the later months of 2020.
- Challenges: The report mentions two major challenges for India on its path to faster recovery.
- Maintaining low borrowing costs, and
- Keeping non-performing loans in check.

#### Observation Regarding Asia Pacific Countries:

- The socio-economic impact of the Covid-19 pandemic was amplified due to lack of resilience and investments in people and the planet.
- China's swift and effective response to Covid-19 enabled it to become the only major economy worldwide to achieve a positive annual economic growth rate in 2020.
- On an average, developing Asia-Pacific economies are expected to grow 5.9% in 2021 and 5% in 2022.
- The prospect of a K-shaped recovery, characterized by uneven post-pandemic recovery across countries and widened inequality gaps within countries, is highlighted as a primary policy challenge.

#### K-Shaped Recovery:

- A K-shaped recovery occurs when, following a recession, different parts of the economy recover at different rates, times, or magnitudes. This is in contrast to an even, uniform recovery across sectors, industries, or groups of people.

- A K-shaped recovery leads to changes in the structure of the economy or the broader society as economic outcomes and relations are fundamentally changed before and after the recession.
- This type of recovery is called K-shaped because the path of different parts of the economy when charted together may diverge, resembling the two arms of the Roman letter "K."

#### **Suggestions:**

- For a more robust and inclusive recovery, the report calls for a more synchronised Covid-19 vaccination programme across countries. There is a need to leverage regional cooperation.
- It recommends that fiscal and monetary support should be sustained, as premature tightening could increase long-term scars.
- Continuity in policy support is a must and recovery policy packages should focus on building resilience and investing in the 2030 Agenda for Sustainable Development.
- To deal with various economic and non-economic shocks, a more integrated risk management approach to planning and policymaking is needed.

#### **Economic and Social Survey of Asia and the Pacific:**

- Produced annually since 1947, the Economic and Social Survey of Asia and the Pacific is the oldest United Nations report on the region's progress.
- The Survey monitors regional progress, provides cutting-edge analyses and guides policy discussion on the current and emerging socio-economic issues and policy challenges to support inclusive and sustainable development in the region.
- Since 1957, the Survey has also contained a study or studies focusing on a significant aspect or challenge relevant to the economies of the Asia-Pacific region.
- The Survey of 2021 studies the impact of Covid-19 pandemic and provides insights for post-Covid-19 resilient economies.

#### **United Nations Economic and Social Commission for Asia and the Pacific:**

- The United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) is the regional development arm of the United Nations for the Asia-Pacific region.
- It has 53 Member States and 9 Associate Members from Asia-Pacific Region including India.
- Established: 1947
- Headquarters: Bangkok, Thailand
- Objective: To overcome some of the region's greatest challenges by providing results-oriented projects, technical assistance and capacity building to member States.

#### **10. 4% Inflation Target Retained by Government:**

- The Government of India has decided to retain the inflation target of 4%, with a tolerance band of +/- 2 percentage points for the Monetary Policy Committee of the Reserve Bank of India (RBI) for the coming five years.
- Earlier, the RBI in its Currency and Finance (RCF) report for the year 2020-21 also recommended the inflation target to be kept same as 4% +/-2% for next 5 years.

#### **About:**

- To control the price rise, the Centre in 2016 gave a mandate to the RBI to keep the retail inflation at 4% with a margin of 2% on either side for a five-year period ending 31st March, 2021.
- The Consumer Price Index (CPI) tracks the change in retail prices of goods and services which households purchase for their daily consumption.
- The inflation target for the period 1st April, 2021 to 31st March, 2026 under the Reserve Bank of India Act 1934 has been kept at the same level as was for previous 5 years.

#### **Background:**

- The central bank and the government agreed in 2015 on a policy framework that stipulated a primary objective of ensuring price stability while keeping in mind the objective of growth.
- The Flexible Inflation Target (FIT) was adopted in 2016. The Reserve Bank of India Act, 1934 was amended to provide a statutory basis for a FIT framework.
- The amended Act provides for the inflation target to be set by the Government, in consultation with the RBI, once every five years.

#### **Inflation Targeting:**

- It is a central banking policy that revolves around adjusting monetary policy to achieve a specified annual rate of inflation.
- Inflation targeting is known to bring more stability, predictability, and transparency in deciding monetary policy.

#### **Strict Inflation Targeting:**

- It is adopted when the central bank is only concerned about keeping inflation as close to a given inflation target as possible, and nothing else.

#### **Flexible Inflation Targeting:**

- It is adopted when the central bank is to some extent also concerned about other things, for instance, the stability of interest rates, exchange rates, output and employment.

#### **Monetary Policy:**

- It is the macroeconomic policy laid down by the central bank. It involves management of money supply and interest rate and is the demand side economic policy used by the government of a country to achieve macroeconomic objectives like inflation, consumption, growth and liquidity.
- In India, monetary policy of the Reserve Bank of India is aimed at managing the quantity of money in order to meet the requirements of different sectors of the economy and to increase the pace of economic growth.
- The RBI implements the monetary policy through open market operations, bank rate policy, reserve system, credit control policy, moral persuasion and through many other instruments.

#### **Monetary Policy Committee:**

- It is a statutory and institutionalized framework under the Reserve Bank of India Act, 1934, for maintaining price stability, while keeping in mind the objective of growth.
- The Governor of RBI is ex-officio Chairman of the committee.
- The MPC determines the policy interest rate (repo rate) required to achieve the inflation target (4%).
- An RBI-appointed committee led by the then deputy governor Urjit Patel in 2014 recommended the establishment of the Monetary Policy Committee.

### **11. Expansion of Emergency Credit Line Guarantee Scheme:**

- Recently, the government has extended the Rs. 3-lakh-crore Emergency Credit Line Guarantee Scheme (ECLGS) until 30th June 2021, and also widened its scope to new sectors, including hospitality, travel and tourism.
- ECLGS was rolled out in May 2020 as part of the Centre's Atmanirbhar package in response to the Covid-19 crisis.
- The objective was to support small businesses struggling to meet their operational liabilities due to the imposition of a nationwide lockdown.

#### **ECLGS 1.0:**

- To provide fully guaranteed and collateral free additional credit to MSMEs, business enterprises, MUDRA borrowers and individual loans for business purposes to the extent of 20% of their credit outstanding as on 29th February, 2020.
- MSMEs with up to Rs 25. crore outstanding and Rs. 100 crore turnover were eligible.



- However, the turnover cap was removed post amendment to ECLGS 2.0 in November 2020.

#### **ECLGS 2.0:**

- The amended version focused on entities in 26 stressed sectors identified by the Kamath Committee along with the healthcare sector with credit outstanding of more than Rs. 50 crore and up to Rs. 500 crore as of 29th February, 2020.
- The scheme also mandated borrower accounts to be less than or equal to 30 days past due as of 29th February, 2020, that is, they should not have been classified as SMA 1, SMA 2, or NPA by any of the lenders as of 29th February 2020.
- SMAs are special mention accounts, which show signs of incipient stress that lead to the borrower defaulting in servicing the debt.
- While SMA-0 are accounts having payments partially or wholly overdue for 1-30 days, SMA-1 and SMA-2 accounts have payments overdue for 31-60 days and 61-90 days respectively.
- The revised scheme also has a five-year repayment window up from four years in ECLGS 1.0.

#### **ECLGS 3.0:**

- It involves extending credit of up to 40% of total credit outstanding across all lending institutions as on 29th February 2020.
- The tenor of loans granted under ECLGS 3.0 would be 6 years, including a moratorium period of 2 years.
- Covers business enterprises in Hospitality, Travel & Tourism, Leisure & Sporting sectors,
- Which had, as on 29th february 2020,
- Total credit outstanding not exceeding Rs. 500 crore and overdues, if any, were for 60 days or less.
- National Credit Guarantee Trustee Company (NCGTC) is the guarantee provider under the ECLGS scheme.

#### **National Credit Guarantee Trustee Company Ltd:**

- NCGTC is a private limited company incorporated under the Companies Act, 1956 in 2014, established by the Department of Financial Services, Ministry of Finance, as a wholly owned company of the Government of India, to act as a common trustee company for multiple credit guarantee funds.
- Credit guarantee programmes are designed to share the lending risk of the lenders and in turn, facilitate access to finance for the prospective borrowers.

#### **12. India's Merchandise Trade Deficit:**

- Preliminary data released by the government showed that India's trade deficit in goods widened to USD 14.11 billion in March 2021 from USD 9.98 billion during March 2020.
- Merchandise Exports: India's merchandise exports in March 2021 were USD 34.0 billion as compared to USD 21.49 billion in March 2020, an increase of 58.23%.
- For the first time ever in a month, Indian exports crossed USD 34 billion in March 2021.
- Merchandise Imports: India's merchandise imports were USD 48.12 billion as compared to USD 31.47 billion in March 2020, an increase of 52.89%.
- India is thus a net importer in March 2021, with a trade deficit of USD 14.11 billion.

#### **Reasons for Increased Imports:**

- Relaxation in lockdown policy and start of economic activities are the main reasons for increase in demand for the goods and the import.
- Also the rise in global trade has made the global supply chain active and the commerce is taking place.
- Oil import has increased due to opening up of the transportation sector.

- Trade Deficit: A trade deficit is an amount by which the cost of a country's imports exceeds its exports.
- The trade deficit in goods shows a rise of demand in the economy.
- It is a part of the Current Account Deficit.

**Current Account Deficit:**

- The current account records exports and imports in goods and services and transfer payments. It represents a country's transactions with the rest of the world and, like the capital account, is a component of a country's Balance of Payments (BOP).
- There is a deficit in Current Account if the value of the goods and services imported exceeds the value of those exported.

**Major components are:**

1. Goods,
2. Services, and
3. Net earnings on overseas investments (such as interests and dividend) and net transfer of payments over a period of time, such as remittances.
4. It is measured as a percentage of Gross Domestic Product (GDP). The formulae for calculating Current Account Balance is:

$$\text{Current Account Balance} = \text{Trade gap} + \text{Net current transfers} + \text{Net income abroad.}$$

$$\text{Trade gap} = \frac{\text{Exports} - \text{Imports}}{\text{Balance of Payments}}$$

**Definition:**

- Balance of Payment (BoP) of a country can be defined as a systematic statement of all economic transactions of a country with the rest of the world during a specific period usually one year.
- For preparing BoP accounts, economic transactions between a country and rest of the world are grouped under - Current account, Capital account and Financial Account and Errors and Omissions.
- It also shows changes in Foreign Exchange Reserves.
- **Current Account:** It shows export and import of visibles (also called merchandise or goods - represent trade balance) and invisibles (also called non-merchandise).
- Invisibles include services, transfers and income.
- Capital Account and Financial Account: It shows a capital expenditure and income for a country.
- It gives a summary of the net flow of both private and public investment into an economy.
- External Commercial Borrowing (ECB), Foreign Direct Investment, Foreign Portfolio Investment, etc form a part of capital account.
- **Errors and Omissions:** Sometimes the balance of payment does not balance. This imbalance is shown in the BoP as errors and omissions. It reflects the country's inability to record all international transactions accurately.
- Overall the BoP account can be a surplus or a deficit.
- If there is a deficit then it can be bridged by taking money from the Foreign Exchange (Forex) Account.
- If the reserves in the forex account are falling short then this scenario is referred to as BoP crisis.

**13. PLI Scheme for Food Processing Industry:**

- Recently, the Union Cabinet has approved the Central Sector Scheme - "Production Linked Incentive Scheme for Food Processing Industry (PLISFPI)" entailing an outlay of Rs. 10,900 crore.

**PLI Scheme:**

- In order to boost domestic manufacturing and cut down on import bills, the central government in March 2020 introduced a PLI scheme that aims to give companies incentives on incremental sales from products manufactured in domestic units.
- Apart from inviting foreign companies to set shop in India, the scheme also aims to encourage local companies to set up or expand existing manufacturing units.
- PLI Scheme has also been approved for sectors such as automobiles, pharmaceuticals, IT hardware including laptops, mobile phones & telecom equipment, white goods, chemical cells and textiles, etc.

#### **Objectives of the PLISFPI:**

- To support creation of global food manufacturing champions.
- To strengthen select Indian brands of food products for global visibility and wider acceptance in the international markets.
- To increase employment opportunities of off-farm jobs.
- To ensure remunerative prices of farm produce and higher income to farmers.

#### **Features of PLISFPI:**

##### **Coverage:**

- It will support food manufacturing entities with stipulated minimum Sales and willing to make minimum stipulated investment for expansion of processing capacity and Branding abroad.
- The first component relates to incentivising manufacturing of four major food product segments viz. Ready to Cook/ Ready to Eat (RTC/ RTE) foods, Processed Fruits & Vegetables, Marine Products, Mozzarella Cheese.
- It also covers organic products, free-range eggs, poultry meat and egg products.
- The second component relates to support for branding and marketing abroad.
- Duration: Scheme will be implemented over a six year period from 2021-22 to 2026-27.

##### **Expected Benefits:**

- Expansion of processing capacity to generate processed food output of Rs. 33,494 crore.
- Create employment for nearly 2.5 lakh persons by the year 2026-27.

#### **Other Scheme Related to Food Processing Industry:**

- Pradhan Mantri Kisan Sampda Yojana (PMKSY)

#### **14. Decline in Forex Reserves:**

- According to the recent data from the Reserve Bank of India (RBI), India's Foreign Exchange (Forex) reserves declined by USD 2.986 billion to reach USD 579.285 billion in the week ended 26th March 2021.
- The gold reserve component of the Forex Reserve increased whereas the other components - Special Drawing Rights (SDR), the Foreign Currency Assets (FCA) and the Reserve Position witnessed decline.
- Foreign exchange reserves are assets held on reserve by a central bank in foreign currencies, which can include bonds, treasury bills and other government securities.
- It needs to be noted that most foreign exchange reserves are held in US dollars.
- Objectives Behind Holding Forex Reserves:
  - Supporting and maintaining confidence in the policies for monetary and exchange rate management.
  - Provides the capacity to intervene in support of the national or union currency.
  - Limits external vulnerability by maintaining foreign currency liquidity to absorb shocks during times of crisis or when access to borrowing is curtailed.

#### **India's Forex Reserve include:**

1. Foreign Currency Assets

2. Gold reserves
3. Special Drawing Rights
4. Reserve position with the IMF

**Foreign Currency Assets:**

1. FCAs are assets that are valued based on a currency other than the country's own currency.
2. FCA is the largest component of the forex reserve. It is expressed in dollar terms.
3. The FCAs include the effect of appreciation or depreciation of non-US units like the euro, pound and yen held in the foreign exchange reserves.

**Gold Reserves:**

- Gold occupies a special position in the foreign reserves of central banks as it is widely stated to be held for reasons of diversification.
- Moreover, the unique property of gold is believed to be its ability to enhance the credibility of the central bank when it holds adequately and this has been proved time and again.
- Gold compares extremely favorably to other traditional reserve assets with high-quality and liquidity helping Central Banks to preserve capital, diversify portfolios, mitigate risks on the medium/long-term.
- Gold has consistently outperformed the average returns of other alternative financial assets.

**Special Drawing Rights:**

- The SDR is an international reserve asset, created by the International Monetary Fund (IMF) in 1969 to supplement its member countries' official reserves.
- The SDR is neither a currency nor a claim on the IMF. Rather, it is a potential claim on the freely usable currencies of IMF members. SDRs can be exchanged for these currencies.
- The value of the SDR is calculated from a weighted basket of major currencies, including the US dollar, the euro, Japanese yen, Chinese yuan, and British pound.
- The interest rate on SDRs or (SDRi) is the interest paid to members on their SDR holdings.

**Reserve Position in the International Monetary Fund:**

- A reserve tranche position implies a portion of the required quota of currency each member country must provide to the IMF that can be utilized for its own purposes.
- The reserve tranche is basically an emergency account that IMF members can access at any time without agreeing to conditions or paying a service fee.

**15. Indian Energy Exchange:**

- The electricity market at Indian Energy Exchange (IEX) achieved an all-time high volume of 8,248.52 MU (million units) in the month of March 2021 surpassing all the previous milestones.
- It is the first and largest energy exchange in India providing a nationwide, automated trading platform for physical delivery of electricity, Renewable Energy Certificates and Energy Saving Certificates.
- The exchange platform enables efficient price discovery and increases the accessibility and transparency of the power market in India while also enhancing the speed and efficiency of trade execution.
- It is a publicly listed company with National Stock Exchange (NSE) and Bombay Stock Exchange (BSE).
- It is approved and regulated by Central Electricity Regulatory Commission (CERC) and has been operating since 2008.

**Mission:**

- To leverage technology and innovation to establish transparent and efficient energy marketplaces for delivering affordable, reliable energy to consumers.

**Trading Platform for:**

Classic IAS Academy | UG 33-34 Ansal Chamber-1Bhikaji Cama Place | New Delhi 110066  
 011-45069494 | [helpdesk@classiciasacademy.com](mailto:helpdesk@classiciasacademy.com) | [www.classiciasacademy.com](http://www.classiciasacademy.com)

- Physical Delivery of Electricity
- Day-Ahead Market (DAM)
- It is a physical electricity trading market for deliveries for any/some/all 15 minute time blocks in 24 hours of the next day starting from midnight.

#### **Term-Ahead Market (TAM):**

- The contracts under TAM cover a range for buying/selling electricity for duration up to 11 days.
- It enables participants to purchase electricity for the same day through intra-day contracts, for the next day through day-ahead contingency, on a daily basis for rolling seven days through daily contracts.
- **Renewable Energy Certificates (REC):**
- Under the REC mechanism, a generator can generate electricity through the renewable resources in any part of the country.
- For the electricity part, the generator receives the cost equivalent to that from any conventional source while the environment attribute is sold through the exchanges at the market determined price.
- The obligated entity from any part of the country can purchase these RECs to meet its RPO (Renewable Purchase Obligation) compliance.
- Obligated entities may either purchase renewable energy or can purchase RECs to meet their RPO set under RPO of their respective States.

#### **Energy Saving Certificates (ESCerts):**

- These are the tradable certificates under the Perform, Achieve, Trade (PAT) Scheme of the Bureau of Energy Efficiency (BEE).
- It is a market-based mechanism to incentivise energy efficiency in large energy-intensive industries.
- Central Electricity Regulatory Commission
- CERC is a regulator of the power sector in India.
- It intends to promote competition, efficiency and economy in bulk power markets, improve the quality of supply, promote investments and advise the government on the removal of institutional barriers to bridge the demand supply gap.
- It is a statutory body functioning with quasi-judicial status under the Electricity Act 2003.

#### **16. Depreciation in Rupee:**

- Recently, the Indian Rupee depreciated to a nine-month low of 75.4 against the USD, it is one of the biggest losers among the emerging market currencies.
- Over the last three weeks since 22nd March 2021, Rupee has lost 4.2% against the USD.

#### **Reasons for the Decline:**

##### **Rising Covid Cases:**

- Rising Covid-19 cases have emerged as a key concern. As several states are now considering more stringent lockdown measures, market participants are concerned over delay in the recovery of the economy, which was hit hard in 2020-21 by the pandemic.

##### **Strengthening of USD:**

- The strengthening of USD in line with expectations of better growth in the US economy, has also put pressure on the Rupee.

##### **Reserve Bank of India's (RBIs) G-SAP:**

- RBI's announcement of Government Securities Acquisition Programme (G-SAP) programme to infuse liquidity has also put additional pressure on the Rupee.

- This is being read as a sort of quantitative easing policy the global central banks had followed, in which the RBI will support the government's elevated borrowing programme through infusion of liquidity.

#### Decreasing FPI Investments:

- Another factor that is putting additional pressure is the decreasing support of the Foreign Portfolio Investors (FPIs), who pumped huge inflows into Indian equity markets between October 2020 and February 2021.
- While the FPIs invested a net of Rs. 1.94 lakh crore between October 2020 and February 2021 (in the Indian markets), in the month of April 2021 they have pulled out a net of Rs 2,263 crore (till date).

#### Impact of Depreciating Rupee:

##### Losers:

1. People Importing from outside.
2. People seeking foreign education.
3. People travelling abroad.
4. People investing abroad.
5. People seeking medical treatment abroad etc.

##### Gainers:

1. People exporting from India.
2. People receiving remittances from Non Resident Indian (NRI).
3. Foreign tourists as travel to India gets cheaper.
4. Currency Depreciation
  - Currency depreciation is a fall in the value of a currency in a floating exchange rate system.
  - In a floating exchange rate system, market forces (based on demand and supply of a currency) determine the value of a currency.
  - Rupee depreciation means that rupee has become less valuable with respect to dollar.
  - It means that the rupee is now weaker than what it used to be earlier.
  - For example: USD 1 used to equal to Rs. 70, now USD 1 is equal to Rs. 76, implying that the rupee has depreciated relative to the dollar i.e. it takes more rupees to purchase a dollar.
  - Some of the factors that influence the value of a currency:
    1. Inflation
    2. Interest rates
    3. Trade deficit
    4. Macroeconomic policies
    5. Equity market
  - Currency depreciation increases a country's export activity as its products and services become cheaper to buy.
  - The RBI intervenes in the currency market to support the rupee as a weak domestic unit can increase a country's import bill.

#### There are a variety of methods by which RBI intervenes:

- It can intervene directly in the currency market by buying and selling dollars.
- If the RBI wishes to increase the rupee value, then it can sell dollars and when it needs to bring down rupee value, it can buy dollars.
- The central bank can also influence the value of rupee by the way of monetary policy.
- RBI can adjust the repo rate (the rate at which RBI lends to banks) and the liquidity ratio (the portion of money banks are required to invest in government bonds) to control rupee.

#### 17. World Economic Outlook: IMF



- The latest edition of the International Monetary Fund's (IMF) World Economic Outlook has raised its Financial Year (FY) 2021 growth forecast for India to 12.5% from 11.5% estimated earlier in January 2021.
- **Indian Economy:**
- Indian economy is expected to grow by 12.5% in 2021 and 6.9% in 2022.
- In 2020, India's economy witnessed an estimated contraction of 8%.
- Growth rate for India in 2021 is stronger than that of China.
- China was the only major economy to have a positive growth rate of 2.3% in 2020, and is expected to grow by 8.6% in 2021 and 5.6% in 2022.

#### **Global Economy:**

- The IMF predicted stronger recovery in 2021 and 2022 with growth projected to be 6% in 2021 and 4.4% in 2022.
- In 2020, the global economy contracted by 3.3%
- The contraction for 2020 is 1.1% points smaller than previous projection, reflecting:
- Higher-than-expected growth outturns in the second half of the year for most regions after lockdowns were eased and as economies adapted to new ways of working.
- Additional fiscal support in a few large economies and the anticipated vaccine-powered recovery in the second half of the year.

#### **Suggestions:**

##### **Health Care:**

- The emphasis should be on escaping the health crisis by prioritising health care spending, on vaccinations, treatments, and health care infrastructure. Fiscal support should be well targeted to affected households and firms.

##### **Accommodative Monetary Policy:**

- Monetary policy should remain accommodative (where inflation is well behaved), while proactively addressing financial stability risks using macroprudential tools.

##### **Tailored Approach:**

- Policymakers will need to continue supporting their economies while dealing with more limited policy space and higher debt levels than prior to the pandemic.
- This requires better targeted measures to leave space for prolonged support if needed. With multi-speed recoveries, a tailored approach is necessary, with policies well-calibrated to the stage of the pandemic, the strength of the economic recovery, and the structural characteristics of individual countries.

##### **Priorities:**

- The priorities should include green infrastructure investment to help mitigate climate change, digital infrastructure investment to boost productive capacity and strengthening social assistance to arrest rising inequality.
- International Monetary Fund
- The IMF was set up along with the World Bank after the Second World War to assist in the reconstruction of war-ravaged countries.
- The two organisations were agreed to be set up at a conference in Bretton Woods in the US. Hence, they are known as the Bretton Woods twins.
- Created in 1945, the IMF is governed by and accountable to the 189 countries that make up its near-global membership. India joined on 27th December, 1945.
- The IMF's primary purpose is to ensure the stability of the international monetary system — the system of exchange rates and international payments that enables countries (and their citizens) to transact with each other.

- The Fund's mandate was updated in 2012 to include all macroeconomic and financial sector issues that bear on global stability.

#### Reports by IMF:

1. Global Financial Stability Report
  2. World Economic Outlook
  3. World Economic Outlook
- It is a survey by the IMF that is usually published twice a year in the months of April and October.
  - It analyzes and predicts global economic developments during the near and medium term.
  - In response to the growing demand for more frequent forecast updates, the WEO Update is published in January and July between the two main WEO publications released usually in April and October.

#### 18. Shaphari: Certification Scheme for Aquaculture Products:

- Recently, the Marine Products Exports Development Authority (MPEDA) has developed a certification scheme for aquaculture products called 'Shaphari'.

#### Key Points:

- Shaphari is based on the United Nations' Food and Agriculture Organization's technical guidelines on aquaculture certification.
- Shaphari is a Sanskrit word that means superior quality of fishery products suitable for human consumption.
- It is a market-based tool for hatcheries to adopt good aquaculture practices and help produce quality antibiotic-free shrimp products to assure global consumers.

#### Components and Process:

##### Two Components:

- Certifying hatcheries for the quality of their seeds.
- Those who successfully clear multiple audits of their operations shall be granted a certificate for a period of two years.
- Approving shrimp farms that adopt the requisite good practices.

##### Process:

- The entire certification process will be online to minimise human errors and ensure higher credibility and transparency.

##### Significance:

- The certification of hatcheries will help farmers easily identify good quality seed producers.
- Certified aquaculture products will help exporters to export their consignments to markets under stringent food safety regulations without the fear of getting rejected.
- It will bolster confidence in India's frozen shrimp produce, the country's biggest seafood export item.

##### India's Shrimp Exports:

- India exported frozen shrimp worth almost USD 5 billion in 2019-20, with the US and China its biggest buyers.
- Frozen shrimp is India's largest exported seafood item. It constituted 50.58% in quantity and 73.2% in terms of total USD earnings from the sector during 2019-20.
- Andhra Pradesh, West Bengal, Odisha, Gujarat and Tamil Nadu are India's major shrimp producing States, and around 95% of the cultured shrimp produce is exported.

##### Concern:

- Container shortages and incidents of seafood consignments being rejected because of food safety concerns.

- Consignments sourced from Indian shrimp farms have been rejected due to the presence of antibiotic residue and this is a matter of concern for exporters.

#### **Other Initiative for Food Safety of Exported Products:**

##### National Residue Control Programme:

- National Residue Control Plan (NRCP) is a statutory requirement for export to European Union countries.
- It is regulated and carried by MPEDA, under NRCP, definite sampling schedule and sampling strategies are drawn every year for monitoring the residues of substances like Antibacterial/Veterinary Medicinal Products and environmental contaminants.
- Samples are collected from hatcheries, feed mills, aquaculture farms and processing plants, located in maritime states and tested for the presence of any residue/contaminant.
- Marine Products Exports Development Authority
- MPEDA is a nodal coordinating, state-owned agency engaged in fishery production and allied activities.
- It was established in 1972 under the Marine Products Export Development Authority Act (MPEDA), 1972.
- It functions under the Union Ministry of Commerce and Industry.
- It is headquartered in Kochi, Kerala.
- Its mandate is to increase exports of seafood including fisheries of all kinds, specifying standards, marketing, processing, extension and training in various aspects.

#### **19. Visit of Defence Minister of Kazakhstan:**

- Recently, the Defence Minister of India held bilateral talks with the Defence Minister of the Republic of Kazakhstan in New Delhi.
- The two Ministers had last met in Moscow (Russia) in September 2020 on the sidelines of Shanghai Cooperation Organisation (SCO) Defence Ministers' meeting.
- **Highlights of the Talks:**
- Agreed that both sides must look at the possibility of defence industrial collaboration of mutual interest.
- Exchanged views to further strengthen bilateral defence cooperation, including through training, defence exercises and capacity building.
- Kazakhstan thanked India for the opportunity given to the Kazakh troops for deployment as part of the Indian battalion in the United Nations Interim Force in Lebanon (UNIFIL).
- UNIFIL was established by the UN Security Council in 1978 to confirm Israeli withdrawal from Lebanon, restore international peace and security and assist the Lebanese Government in restoring its effective authority in the area.
- Assessed the annual joint military exercise KAZIND.

#### **Indo-Kazakh Defence Cooperation:**

- It is carried out under the framework of an agreement on 'Defence and Military Technical Cooperation' signed in July 2015 during the visit of Indian Prime Minister to Kazakhstan.
- The agreement includes conduct of joint training, exercises, military-technical cooperation, UN peacekeeping and exchange of intelligence.
- Kazakh Armed Forces Unit underwent training on peacekeeping operations in India in April-May 2018 for deployment under the command of an Indian Battalion at UNIFIL, Lebanon.

#### **Significance of Kazakhstan to India:**

- There are three factors which make Kazakhstan important for India. First, its geo-strategic location; second, its economic potential, especially in terms of energy resources; and third, its multi-ethnic and secular structure.
- Kazakhstan's geo-political existence between Russia and Asia, along with long borders with China, makes it a country of great strategic importance.
- Kazakhstan lies to the northeast of the Caspian Sea, bordered by the Russian Federation to the north, China to the east, and Kyrgyzstan, Turkmenistan and Uzbekistan to the south.
- Kazakhstan can also help India achieve a geostrategic rebalancing with China. India's foremost objective is countering the rapid economic inroads China is making in the region through the One Belt One Road (OBOR) initiative.
- India seeks to achieve this with the competing North-South Transport Corridor (NSTC).
- NSTC is a multi-modal transportation established on 12th September 2000 in St. Petersburg, by Iran, Russia and India for the purpose of promoting transportation cooperation among the Member States. It has been expanded to include eleven new members.
- Kazakhstan has become one of the key activists in the field of global nuclear security, and has achieved a number of results in peacekeeping policies and the resolution of conflicts around Nagorno-Karabakh, Iran, Ukraine and Syria.



- **India - Kazakhstan Relations:**
- Relations between India and Kazakhstan are ancient and historical going back to more than 2000 years.
- There has been a constant and regular flow of trade in goods and, more importantly, exchange of ideas and cultural influences.
- The flow of Buddhism from India to Central Asia and Sufi ideas from Central Asia to India are two such examples.

#### Political Relations:

- India was one of the first countries to recognize the independence of Kazakhstan. Diplomatic relations were established in February 1992.

- India and Kazakhstan have been strategic partners since 2009.

#### **Cooperation at Multilateral Fora:**

- India and Kazakhstan actively cooperate under the aegis of Multilateral Fora including CICA, SCO and the UN organizations.
- India has been a consistent supporter of Kazakhstan's initiative on Conference on Interaction and Confidence-Building Measures in Asia (CICA) and is actively participating in the process.
- Kazakhstan supports India's permanent membership in an expanded United Nations Security Council (UNSC) and has extended its support for India's non-permanent membership in 2021-22.

#### **Trade and Economy:**

- The India-Kazakhstan Inter-Governmental Commission (IGC) established in 1993 is the apex bilateral institutional mechanism for developing trade, economic, scientific, technological, industrial and cultural cooperation between the two countries.
- The Ministry of Petroleum and Natural Gas on the Indian side and Ministry of Energy on the Kazakh side are the nodal ministries with respective Ministers as the Co-Chair of the Commission.
- Several Joint Working Groups (JWGs) have been established in the areas of Counter Terrorism, Trade & Economic Cooperation, Defence & Military Technical Cooperation, Information Technology, Hydrocarbons, Textiles, Tea Debt and Space Cooperation, Health and Transport, Connectivity & Logistics to take forward bilateral relations in the respective spheres.
- Kazakhstan is India's largest trade and investment partner in Central Asia.

#### **Space Cooperation:**

- Indian Space Research Organization (ISRO) launched "Al-Farabi-1", a 1.7 kg Technology Demonstrator Nano Satellite built by Al-Farabi Kazakh National University, Almaty along with 103 other satellites in 2017.
- A delegation from ISRO attended Kazakh Defence Expo 'KADEX' in May 2018.**

#### **Civil Nuclear Cooperation:**

- Kazakhstan supported India in obtaining India-specific exemption to allow civil nuclear cooperation with Nuclear Suppliers Group (NSG) countries in 2008.
- Indian Technical and Economic Cooperation (ITEC):
- India provides capacity building assistance to Kazakhstan in various specialized fields under ITEC program sponsored by the Ministry of External Affairs.

#### **Consular:**

- India and Kazakhstan have an agreement on visa free entry for Diplomatic and Official Passport holders.
- Since February 2018, Indian has extended e-visa facility to Kazakh citizens.
- Kazakhstan has also introduced electronic visa facilities for travelers from India with effect from 1st January 2019.

#### **Way Forward:**

- Being part of central Asia, Kazakhstan is strategically important for India. India needs to use its instrument of economic leverages more efficiently to build closer ties with Central Asia.
- At its core, the heightened India-Kazakhstan relationship allows New Delhi to bypass Pakistan and the highly unstable Afghanistan to reach a resource-rich Nur-Sultan, complementing India's developing economy.

#### **20. US Restores Aid to Palestinians:**

- The United States, in a significant reversal to the earlier policy, has announced the restoration of at least USD 235 million in financial assistance to the Palestinians.



- The US administration had already announced USD 15 million in coronavirus relief to the Palestinians.

#### **Financial Aid:**

- The financial aid includes USD 75 million economic help for the West Bank & Gaza, USD 10 million for 'peace-building' programmes of the US Agency for International Development (USAID) and USD 150 million in humanitarian assistance to the UN Relief and Works Agency (UNRWA).
- The UNRWA funds would include educational assistance for at least 5,00,000 Palestinian children living in West Asia.
- The Trump administration (former administration) had almost ended all funding to the organisation in 2018.
- The UN welcomed the move, hoping it would attract more funds to the body. There were a number of countries that had greatly reduced or halted contributions to UNRWA after the US stopped the aid.
- The Prime Minister of Palestine welcomed the move and called it a new political path that meets the rights and aspirations of the Palestinian people based on international law and UN resolutions.
- However, Israel, which has accused UNRWA of anti-Semitism (hostility to, prejudice, or discrimination against Jews), objected to the funding plans.

#### **Israel -Palestine Issues:**

- The decades-long conflict between Israelis and Palestinians is rooted in competing claims to the Holy Land, and includes disputes over borders, Jerusalem, security, and Palestinian refugees.
- The Israel-Palestine Conflict can be traced back to 1917.
- Holy Land is a Middle Eastern region with great religious and historical significance to Christians, Jews, and Muslims.
- Mideast War, 1967 was a major turning point. It is also known as the six-day war or Third Arab-Israeli war.
- Israel captured the West Bank, east Jerusalem and Gaza Strip in the war. In the decades since, Israel has built settlements in the West Bank and east Jerusalem that now house a million Israelis.

#### **US Recent Policy:**

- US President Donald Trump's decision in 2017, to relocate the US Embassy to Jerusalem, was criticized for being heavily tilted towards Israel.
- Mideast Plan or Middle East Peace Plan: It was unveiled by the then US government in January, 2020.
- Under it, the Palestinians would have a limited statehood contingent on a list of stringent requirements while Israel would annex some 30% of the West Bank.
- The Palestinians rejected the plan and threatened to withdraw from key provisions of the Oslo Peace Accords, which are a series of agreements between Israel and the Palestinians signed in the 1990s.
- Present US President Joe Biden has reaffirmed the United States' commitment to a two-state solution.

#### **India's Stand:**

- India recognised Israel in 1950 but it is also the first non-Arab country to recognise Palestine Liberation Organisation (PLO) as the sole representative of the Palestinian.
- India is also one of the first countries to recognise the statehood of Palestine in 1988.
- In 2014, India favored UNHRC's resolution to probe Israel's human rights violations in Gaza. Despite supporting the probe, India abstained from voting against Israel in UNHRC in 2015.



- As a part of Link West Policy, India has de-hyphenated its relationship with Israel and Palestine in 2018 to treat both the countries mutually independent and exclusive.
- In June 2019, India voted in favor of a decision introduced by Israel in the UN Economic and Social Council (ECOSOC) that objected to granting consultative status to a Palestinian non-governmental organization.
- So far India has tried to maintain the image of its historical moral supporter for Palestinian self-determination, and at the same time to engage in the military, economic, and other strategic relations with Israel.

#### The Territorial Puzzle:

- **West Bank:** The West Bank is sandwiched between Israel and Jordan. One of its major cities is Ramallah, the de facto administrative capital of Palestine.
- Israel took control of it in the 1967 war and has over the years established settlements there.
- **Gaza:** The Gaza Strip located between Israel and Egypt. Israel occupied the strip after 1967, but relinquished control of Gaza City and day-to-day administration in most of the territory during the Oslo peace process.
- In 2005, Israel unilaterally removed Jewish settlements from the territory, though it continues to control international access to it.
- **Golan Heights:** The Golan Heights is a strategic plateau that Israel captured from Syria in the 1967 war. Israel effectively annexed the territory in 1981.
- The US has officially recognized Jerusalem and Golan Heights as part of Israel.
- **Fatah:** Founded by the late Yasir Arafat in the 1950s, Fatah is the largest Palestinian political faction.
- Unlike Hamas, Fatah is a secular movement, has nominally recognized Israel, and has actively participated in the peace process.
- **Hamas:** Hamas is regarded as a terrorist organization by the US government. In 2006, Hamas won the Palestinian Authority's legislative elections.
- It ejected Fatah from Gaza in 2007, splitting the Palestinian movement geographically, as well.



**Way Forward:**Balanced approach towards the Israel-Palestine:

- The world at large needs to come together for a peaceful solution but the reluctance of the Israeli government and other involved parties have aggravated the issue more.
- Thus a balanced approach would help to maintain favorable relations with Arab countries as well as Israel.
- Abraham Accords, a Positive Step: The recent normalization agreements between Israel and the UAE, Bahrain, Sudan, and Morocco, known as the Abraham Accords, are the steps in the right direction.
- All regional powers should envisage peace between the two countries on line of Abraham Accords.

**21. Ukraine's Bid to Join NATO:**

- Ukrainian President urged the North Atlantic Treaty Organization (NATO) to speed up his country's membership in the alliance.
- Ukraine hopes to be invited this year to join a NATO Membership Action Plan (MAP).
- Key Points

**Reasons for Ukraine to Join NATO:**

- Ukraine is of the opinion that joining NATO is the only way to end fighting with pro-Russia separatists.
- There is an increase in clashes and Russian military movements on the border raise fears of an escalation of the separatist conflict in eastern Ukraine.
- Ukraine accuses Russia of massing thousands of military personnel on its northern and eastern borders as well as on the Crimean peninsula (annexed by Russia in 2014).
- Ukraine's Western allies have rushed to its defence, with a series of statements warning Russia against taking further action.
- India did not join the Western powers' condemnation of Russia's intervention in Crimea and kept a low profile on the issue.

**About North Atlantic Treaty Organization (NATO):**

- It is a military alliance established by the North Atlantic Treaty (also called the Washington Treaty) of 4th April, 1949, by the United States, Canada, and several Western European nations to provide collective security against the Soviet Union.
- It is headquartered at Brussels, Belgium.
- A key provision of the treaty, the so-called Article 5, states that if one member of the alliance is attacked in Europe or North America, it is to be considered an attack on all members. That effectively put Western Europe under the "nuclear umbrella" of the US.
- NATO has only once invoked Article 5, on 12th September, 2001, following the 9/11 attacks on the World Trade Center in the US.
- NATO's protection does not extend to members' civil wars or internal coups.
- As of 30th March 2021, there are 30 member states, with the Republic of North Macedonia becoming the latest member to join the alliance in 2020.

**Membership Action Plan:**

- It is a NATO programme of advice, assistance and practical support tailored to the individual needs of countries wishing to join the Alliance.
- Participation in the MAP does not prejudice any decision by the Alliance on future membership.
- Bosnia and Herzegovina is currently participating in MAP.

## 22. Multilateral Maritime Exercise La Perouse:

- Indian Navy Ships INS Satpura and INS Kiltan alongwith P8I Long Range Maritime Patrol Aircraft are participating, for the first time in multilateral maritime exercise La Pérouse, being conducted in the Eastern Indian Ocean Region from 5th to 7th April 2021.
- Post conduct of La Perouse, the Indo-French Naval exercise “Varuna” is scheduled in the Western Indian Ocean, wherein UAE too shall be participating.

### About the Exercise:

- The first edition of La Pérouse joint exercise, initiated by France in 2019, included ships from Australia, Japan and the US.
- The exercise is named after the eighteenth century French Naval explorer.
- India's participation in 2021 completed the QUAD force representation in the French led Naval Exercise.
- QUAD is a grouping of India, USA, Australia and Japan which aims to safeguard the interests of democratic nations in the Indo-Pacific region and address global challenges.
- It will witness complex and advanced naval operations including surface warfare, anti-air warfare and air defence exercises, weapon firing exercises, cross deck flying operations, tactical manoeuvres and seamanship evolutions such as replenishment at sea.
- It will provide an opportunity for these five like-minded, high-end naval forces to develop closer links, sharpen their skills, and promote maritime cooperation throughout a free and open Indo-Pacific.

### Naval Significance of Indo-Pacific:

- The Indo-Pacific is slowly but surely turning into a serious Naval Theatre for multi-national activities with a vision to establish a free, open, inclusive and a rule-based ordering of the Indo-Pacific to support the freedom of navigation and peaceful cooperative use of the seas.
- The goal is to respect and adhere to the international laws like the United Nations Convention on the Law of the Sea (UNCLOS) and peaceful resolution of territorial sea disputes.
- The role of the QUAD navies in the IOR (Indian Ocean Region) has been well illustrated by the effective cooperative engagement capabilities of the multi-national Naval powers through naval exercises like formation sailing, live fire drills, Search and Rescue (SAR) operations etc.
- Navies of member countries of QUAD participated in Malabar wargaming exercise in November 2020.
- On the other hand, China endeavours to establish a defensive perimeter around its seas (Yellow Sea, East China Sea and part of South China Sea) by following a sea denial policy in these regions.



**QUAD+ France Pacific Ocean Concerns:**

- The region of Pacific Islands stretches from Hawaii in the north to Tonga in the south, and Easter Island in the east to New Caledonia in the west.
- US interest in the Indo-Pacific region has always been well illustrated with the fact that US Indo-Pacific Command established after World War II is the largest unified command.
- France has a direct strategic and economic stake in New Caledonia, French Polynesia, and Wallis and Futuna. France is a member of the Pacific Community and the Secretariat of the Pacific Regional Environment Programme (SPREP).
- Japan although has trade ties with China but has always been suspicious of China's growth as a military power. China's assertiveness closer to Japanese waters and airspace have been a testing time for Japan.
- Indian Navy has always maintained a tactical advantage over the IOR to ensure compliance to the internationally established Rules of the Road (ROR) for the seas.
- This has been respected by the world (like declaration of warships transiting IOR etc.), but Indian Navy has observed and reported multiple sightings of undeclared Chinese ships and submarines suspiciously lurking within the IOR.

**Indo-French Joint Exercises:**

1. Desert Knight-21 and Garuda (Air exercise)
2. Varuna (Naval exercise)
3. Shakti (Army exercise)

**23. Trade Between India and Pakistan:**

- Pakistan will allow the import of cotton and sugar from India, partially reversing a two-year old decision to suspend all trade with India.
- The decision to cancel trade was taken by the Pakistan government in August, 2019, days after the Indian government amended Article 370 and reorganised Jammu and Kashmir.

**Pakistan's Trade Ban:**

- Pakistan's decision to suspend bilateral trade with India in August 2019 was a fallout of the constitutional changes in Jammu and Kashmir.
- However, an underlying reason for suspending trade was the 200% tariff imposed by India on Pakistani imports earlier that year after India revoked Pakistan's Most Favoured Nation (MFN) status in the aftermath of the Pulwama terrorist attack.
- Trade between the two countries suffered greatly.
- India's exports to Pakistan dropped nearly 60% to USD 816.62 million, and its imports fell 97% to USD 13.97 million in 2019-20.

**India-Pakistan Trade Before Ban:**

- Over the years, India has had a trade surplus with Pakistan, with much less imports than exports and trade has always been linked to politics.
- India's exports to Pakistan fell around 16% to USD 1.82 billion in 2016-17 as compared to 2015-16 after relations deteriorated in the aftermath of the Uri terror attack and the Indian Army's surgical strikes on militant launchpads in Pakistan-occupied Kashmir in 2016.
- Despite continuing tensions, trade between the two countries grew marginally in subsequent years.
- Indian exports rose nearly 6% to USD 1.92 billion in 2017-18, and then by around 7% in 2018-19.
- Imports from Pakistan, though much less in volume, also increased by 7.5% to USD 488.56 million in 2017-18 as compared to 2016-17.

**Major Products Traded:**

- Pakistan was among India's top 50 trade partners in 2018-19, but was pushed out of the list in 2019-20.
- It had been anticipated that a trade ban between the countries would affect Pakistan more, since it relied heavily on India for key raw materials for its textiles and pharmaceuticals industries.
- Indian Export to Pakistan:
  - In 2018-19, cotton and organic chemicals accounted for around half of Indian export to Pakistan.
  - Other major items included plastic, tanning/dyeing extracts, and nuclear reactors, boilers, machinery, and mechanical appliances.
  - After the ban, imports of many items fell drastically, while cotton imports stopped altogether.
  - The only increase has been in pharmaceutical products. Pakistan has so far imported drug products and organic chemicals to ensure sufficient supplies of medicines during the Covid-19 pandemic.

**Indian Import from Pakistan:**

- India's major imports from Pakistan in 2018-19 were mineral fuels and oils, edible fruits and nuts, salt, sulphur, stone and plastering materials, ores, slag and ash and raw hides and leather.

**Removal of Trade Ban by Pakistan:****Shortage in Raw Material:**

- Pakistan decided to lift the ban on cotton imports as there is a shortage in raw material for Pakistan's textile sector, which has suffered due to low domestic yields of cotton.

**Cheaper Imports from India:**

- Cotton and sugar imports from countries like the USA and Brazil are costlier and take longer to arrive.

**High Domestic Demand and Prices:**

- The decision on sugar was dictated by high demand and high domestic prices.
- The decision to import from India is a measure to stabilize the market prices.

**Implications:**

- The decision by Pakistan to allow trade in the selected items will gradually lead to restoration of normalcy in India-Pakistan trade.
- This might be a good time for India to explore a reduction in its 200% import duties on products that its industries can benefit from.
- The move by Pakistan has raised hopes for further measures besides the granting of sports related visas by India after a gap of three years, scheduling a much-delayed meeting of the Indus Water Commissioners in Delhi, peace at the Line of Control (LoC) after more than 5,000 ceasefire violations, as well as the exchange of salutary messages between Indian and Pakistan Prime Ministers.

**24. 7<sup>th</sup> BIMSTEC Ministerial Meeting:**

- Recently, the External Affairs Minister of India participated in the 17th Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) Ministerial Meeting.
- The meeting, chaired by Sri Lanka, was held in virtual mode.

**Key Points:****India's Stand at the Meeting:**

- India's Commitment:
  - To further build the momentum of regional cooperation under the BIMSTEC framework and make the organization stronger, vibrant, more effective and result-oriented.
- Progress:

- Highlighted progress achieved in sectors where India is the Lead Country viz Counter Terrorism & Trans-national Crime, Transport & Communication, Tourism, and Environmental & Disaster management and other activities.

#### **Importance of Connectivity:**

- Robust connectivity is an essential prerequisite for economic integration of the region with smooth cross-border movement of people and goods.

#### **Outcome of the Meeting:**

- The meeting endorsed the BIMSTEC Master Plan for Transport Connectivity for adoption at the next BIMSTEC Summit, which will be held in Sri Lanka.
- India's northeastern states form a key part of the master plan, with several road and river links passing through the region.
- Called for early adoption of the BIMSTEC Charter.
- The meeting also endorsed three MoUs/agreements relating to convention on Mutual Legal Assistance in Criminal matters, cooperation between diplomatic and training academies and establishment of BIMSTEC Technology Transfer Facility in Colombo (Sri Lanka).
- Took note that the BIMSTEC Centre for Weather and Climate, being hosted in India, is fully functional with state of the art facilities to provide Disaster Early Warnings.

#### **Concerns:**

- Cohesion among the members has been difficult to achieve mainly because of the Rohingya refugee crisis which created bitterness between Myanmar and Bangladesh.
- This affected the working of the organisation to some extent as it could not develop a common charter.
- BIMSTEC
- **About:**
- The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) is a regional organization.
- It comprises seven countries. Five of these seven countries- India, Nepal, Sri Lanka, Bhutan and Bangladesh- are from South Asia while the remaining two, Thailand and Myanmar, are from Southeast Asia.
- The group remained dormant for many years till it was revived a few years ago as an alternative to the South Asian Association for Regional Cooperation (SAARC), which despite having the potential, has not been able to move forward due to friction between India and Pakistan.
- With a focus on intra-regional cooperation, the BIMSTEC has also formed a platform with the SAARC and the Association of Southeast Asian Nations (ASEAN) member countries.
- Currently, the BIMSTEC is involved in 15 sectors including trade, technology, agriculture, tourism, fisheries, energy and climate change among others, for sectoral cooperation.
- In 1997, it started with just six sectors and later expanded to the remaining nine sectors in 2008.
- Secretariat: Dhaka, Bangladesh.

#### **Objectives:**

- Creating an enabling environment for the rapid economic development of the sub-region.
- Encouraging the spirit of equality and partnership.
- Promoting active collaboration and mutual assistance in the areas of common interests of the member countries.
- Accelerating support for each other in the fields of education, science, and technology, etc.

#### **25. India-Russia Foreign Ministers Meet:**

- To build on the common "resilient" ground, Indian and Russian Foreign Ministers addressed each other's concerns on a wide range of issues.



- The issues range from defence supplies to the S-400 air defence system, India's role in Afghanistan and Taliban's involvement in power-sharing to cooperation on Covid vaccines and India's participation in the Quad grouping.

#### **Key Points:**

#### **Discussed Cooperation in Following Sectors:**

- Economic opportunities in the Russian Far East.
- The Russian Far East stretches from Lake Baikal, the world's largest freshwater lake, to the Pacific Ocean and comprises roughly a third of Russia's territory.
- Although it is rich in natural resources including minerals, hydrocarbons, timber and fish, it is an economically underdeveloped region.
- Leveraging the Atmanirbhar Bharat campaign to boost manufacturing in India.
- Connectivity through the International North-South Transport Corridor (INSTC).
- INSTC is a multi-modal transportation established in September 2000 in St. Petersburg, by Iran, Russia and India for the purpose of promoting transportation cooperation.
- The Chennai-Vladivostok Eastern maritime corridor.
- It is a maritime route covering approximately 5,600 nautical miles, aimed at increasing bilateral trade between India and Russia.
- Long standing partnership in space and nuclear sectors.

#### **S-400 Air Defence System:**

- Issues regarding the sale of the S-400 air defence system figured in the discussions.
- The S-400 Triumf is a mobile, surface-to-air missile system (SAM) designed by Russia.
- It is the most dangerous operationally deployed modern long-range SAM (MLR SAM) in the world, considered much ahead of the US-developed Terminal High Altitude Area Defense system (THAAD).
- While India is keen on buying it, the USA has expressed reservations by threatening sanctions under Countering America's Adversaries Through Sanctions Act (**CAATSA**).
- Views on Military Alliance and Indo-Pacific:

#### **Military Alliance:**

- Russian Foreign Minister clarified that the Russia-China relations are at the highest in the history, but these relations do not pursue a goal of establishing a military alliance.
- He also referred to the Quad grouping and called it an "Asian NATO", a term sometimes used by China.
- Quadrilateral Security Dialogue (Quad) is an informal strategic dialogue between India, USA, Japan and Australia with a shared objective to ensure and support a "free, open and prosperous" Indo-Pacific region.

#### **Indo-Pacific:**

- Russia and India are working for stability and connectivity in the Asia-Pacific and urged that "military alliances" should not come up in Asia.
- Russia referred to the formulation of "Asia Pacific" while India referred to "Indo-Pacific".

#### **Afghan Peace:**

- There is a need to "harmonise" the interests of various stakeholders that are active in and around Afghanistan.
- The peace process should be based on foundational principles and a political solution should mean independent, sovereign, united and democratic Afghanistan.
- Decision on the settlement in Afghanistan should foresee the participation of all political, ethnic and religious groups in the country. Otherwise the solution will not be stable.
- It needs to be noted that India was not a part of a recent meeting led by Russia on Afghan peace.

**Medical Cooperation:**

- The Russian Fund for Direct Investment has signed contracts with various Indian manufacturers for Sputnik V vaccines for 700-750 million doses.
- Both ministers also took up the possible export of the Covaxin to Russia which is likely to be cleared by experts.

**India - Russia Relations:**

- **Political (Annual Summit):** The Annual Summit meeting between the Prime Minister of India and the President of the Russian Federation is the highest institutionalized dialogue mechanism in the strategic partnership between India and Russia.
- **Economic:** India-Russia trade, amounting to USD 10.11 billion in 2019-2020, is far below the potential. Both countries have set the bilateral trade target at USD 30 billion by 2025.
- **Defence and Security:** BrahMos Missile System as well as the licensed production in India of SU-30 aircraft and T-90 tanks, are examples.
- **Cooperation in Nuclear Energy:** Kudankulam Nuclear Power Plant (KKNPP) is being built in India with Russian cooperation.
- **Cooperation in Space Sector:** Cooperation in Gaganyaan program.

**Common Multilateral Forums:**

- **BRICS**
- Russia-India-China Grouping: RIC
- Shanghai Cooperation Organisation (SCO)
- Military Exercises:
- Exercise TSENTR 2019.
- Indra Exercises - Joint Tri-Services (Army, Navy, Air Force) Exercises.

**Way Forward:**

- **India Engaging Russia Into Indo-Pacific Narrative:** India should pursue and facilitate Russia's engagement in the Indo-Pacific.
- **Russia's active engagement in the region** would contribute to making the Indo-Pacific truly "free and inclusive".
- **Prioritizing RIC in Indian Foreign Policy:** India can also promote a mutually beneficial trilateral cooperation between Russia, China, and India that could contribute towards the reduction of mistrust and suspicion between India and China.

**26. Meeting of Education Ministers of E9 Countries:**

- Recently, a consultation meeting of Education Ministers of E9 countries was held.
- The meeting was held on the theme 'E9 initiative: Scaling up digital learning to accelerate progress towards SDG4'.

**Key Points:**

- **Scaling up Digital Learning to Accelerate Progress towards SDG4 (Concept):**
- The United Nations (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.
- This initiative focuses on three of the five priorities of the 2020 Global Education Meeting (GEM) Declaration: supporting teachers; investing in skills; and narrowing the digital divide.
- E9 countries offer a starting gate to accelerate progress on digital learning and skills in the immediate term and ultimately on the SDG4 agenda in the longer term.

**E9 Countries:**

- E9 Partnership was first established in 1993, formed to achieve the goals of UNESCO's Education For All (EFA).

- A group of E9 countries (Bangladesh, Brazil, China, Egypt, India, Indonesia, Mexico, Nigeria, and Pakistan) aims at strengthening 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.

#### **Education For All (EFA):**

- An international initiative, first launched at the World Conference on Education for All by UNESCO, UNDP, UNFPA, UNICEF and the World Bank in Thailand in 1990.
- Participants endorsed an 'expanded vision of learning' and pledged to universalize primary education and massively reduce illiteracy by the end of the decade.
- Ten years later, with many countries far from having reached this goal, a broad coalition of national governments, civil society groups, and development agencies met again in Dakar, Senegal, and affirmed the commitment to achieving EFA by the year 2015.
- They identified six key education goals which aim to meet the learning needs of all children, youth and adults by 2015 (e.g. the Dakar Framework for Action).

#### **2020 Global Education Meeting Declaration:**

As part of the Decade of Action to accelerate progress on SDG4 and in response to Covid-19, the 2020 GEM Declaration identified five priorities for urgent action:

1. Education financing;
  2. Safe school reopening;
  3. Supporting teachers as frontline workers;
  4. Investment in skills; and
  5. Narrowing the digital divide.
6. The Covid-19 crisis revealed the weakness and unpreparedness of the current education systems worldwide, prompting the deployment of digital learning during mass school closures across almost all countries.
7. SDG4
- To bring sustainable development in the mainstream, the United Nations (UN) member states, in 2015, adopted the 2030 Agenda for Sustainable Development and Sustainable Development Goals (SDGs).
  - There are 17 goals and 169 specific targets to be achieved by 2030.
  - SDGs are not legally binding.
  - SDG4 is to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

#### **27. India-Seychelles Relations:**

- Recently, a virtual meet was held between the Prime Minister of India and the President of Seychelles.

#### **Events at the Meet:**

##### **Joint Inauguration:**

- Inaugurated the new magistrates' court building in Mahé constructed with a USD 3.5-million, a 1 MW solar power plant built at a cost of USD3.4 million, and 10 community development projects in Seychelles.
- All the projects were built by the help of India.
- India has so far taken up 29 small people-oriented development projects in Seychelles, while the 1MW solar project was built in addition to installing solar systems at 146 government buildings and domestic households.
- The solar plant will meet the electricity needs of around 400 houses round the year.

##### **Fast Patrol Vehicle:**

- India handed over a fast patrol vessel (PS Zoroaster) to the island nation.
- The 48.9-metre patrol boat was built by Garden Reach Shipbuilders and Engineering (under the administrative control of the Ministry of Defence) at a cost of Rs. 100 crore and has a top speed of 35 knots and an endurance of 1,500 nautical miles.
- The vessel will be used for multi-purpose operations, such as patrolling, anti-smuggling and anti-poaching operations, and search and rescue.
- India gifted similar vessels to the Seychelles in 2005, 2014 and 2016.

#### **India's Stand:**

- Seychelles is central to India's vision of Security and Growth for All in the Region (SAGAR).
- India is honoured to be a partner of Seychelles in the development of its security capabilities and in meeting its infrastructural and developmental needs.

#### **Seychelles Stand:**

- India is a reliable and trusted partner.
- India's precious donation of 50,000 doses of Covid-19 vaccines had helped Seychelles in moving towards the goals of achieving 70% herd immunity by the end of April 2021 and opening up the economy.
- Seychelles was the first country to receive the Covid vaccine from India.
- India-Seychelles Relation

#### **Background:**

- Diplomatic ties were established with Seychelles after its independence in 1976.
- When Seychelles attained freedom, a contingent from the Indian Naval Ship, INS Nilgiri, took part in the Independence Day celebrations.
- Since then the tradition of Indian military participation at the Seychelles National Day celebrations has continued till date.
- An Indian Mission was established in 1979 in Victoria, Seychelles with the High Commissioner based in Dar-es-Salaam (Tanzania) and concurrently accredited to Seychelles.
- The first resident High Commissioner was appointed in 1987, while Seychelles opened its resident mission in New Delhi in early 2008.

#### **Economic Relation:**

- India exported goods worth USD 84.49 million and imported goods worth USD 5.27 million from Seychelles during the financial year 2018-19.
- Tax Information Exchange Agreement (TIEA) between India and Seychelles was signed in August 2015. Seychelles is also keen to sign the Double Tax Avoidance Agreement (DTAA).
- Energy & Environment:
- Blue Economy Protocol between India and Seychelles was signed in August 2015.
- Recently, India has been accepted as an observer of the Indian Ocean Commission, of which Seychelles is a member.
- With the ratification of the International Solar Alliance (ISA) Framework Agreement in September 2017, Seychelles has officially become one of the Founding Members of ISA.
- **The ISA is an initiative that was launched by the Prime Minister of India and the President of France on 30 November 2015 at Paris, France on the side-lines of the COP-21.**

#### **Cultural Relations:**

- With a significant presence of Indian Diaspora in Seychelles, cultural contacts between the two countries have been primarily community-driven with support from the two governments.
- At the initiative of prominent Person of Indian Origin (PIO) associations in Seychelles, several Indian cultural troupes regularly visit Seychelles for performance.
- In June 2018, Cultural Exchange Programme (CEP) was signed with Seychelles to mark the friendship and goodwill between the two countries.

**Indian Community:**

- The number of PIOs with Seychelles citizenship is estimated to be around 10,000 (or 11% of the population), which is significant in a country with a total population of 96,000 (April 2019).
- There are about 10,000 Indian citizens holding Gainful Employment Permits, who are mostly workers in the construction sector, shop assistants and a few professionals.

**Defence:**

- India and Seychelles have an elaborate architecture of defence and security cooperation that has deepened over the years with the growing piracy menace and other economic offences in the strategic Indian Ocean region.
- India gifted and installed six coastal surveillance radar systems in Seychelles in 2015 enabling better coastal security for Seychelles.
- The Seychelles government has leased the Assumption Island to the Indian Navy to build an overseas base of operations there.
- Developing infrastructure on Assumption Island in Seychelles is a key piece in India's proactive maritime strategy as it counters China's moves in the Indian Ocean region.
- Developing its infrastructure is being regarded as a "strategic asset" in India's arsenal.

**SAGAR:**

- Security and Growth for All in the Region (SAGAR) was launched in 2015. It is India's strategic vision for the Indian Ocean Region (IOR).
- Through SAGAR, India seeks to deepen economic and security cooperation with its maritime neighbours and assist in building their maritime security capabilities.
- Further, India seeks to safeguard its national interests and ensure Indian Ocean region to become inclusive, collaborative and respect international law.
- The key relevance of SAGAR emerges when seen in conjunction with India's other policies impacting the maritime domain like Act East Policy, Project Sagarmala, Project Mausam, India as 'net security provider', focus on Blue Economy etc.

**Way Forward:**

- Seychelles has been a strategic destination for several major powers with vested interests in the region, however India's image and visibility in Seychelles is very high as compared to others.
- The geo-strategic importance of Seychelles's location remains undiminished in contemporary times, and will become enhanced and China is fighting to get an upper hand which India must not allow.
- There is also a need to strengthen shared efforts of both the countries to combat drug trafficking, IUU (Illegal, unreported and unregulated) fishing, piracy and climate change while protecting the ocean ecosystem.

**28. US Patrol in India's EEZ:**

- Recently, India protested against the US decision to conduct a patrol in the Indian Exclusive Economic Zone (EEZ) in the western Indian Ocean, rejecting the US' claim that India's domestic maritime law was in violation of international law.

**Key Points:**

- The US Seventh Fleet announced that one of its warships, USS John Paul Jones (DDG 53), had carried out a Freedom of Navigation Operation (FONOP) west of Lakshadweep Islands, inside India's EEZ, without requesting India's prior consent, consistent with international law.

**Seventh Fleet:**

- It is the largest of the US Navy's forward deployed fleets.
- India had a close encounter with the 7th fleet during the 1971 war with Pakistan.
- Freedom of Navigation Operations (FONOP):

- It involves passages conducted by the US Navy through waters claimed by coastal nations as their exclusive territory.
- It reaffirms the US policy of exercising and asserting its navigation and overflight rights and freedoms around the world.
- This communicates that the US does not accept the excessive maritime claims of other nations, and thus prevents those claims from becoming accepted in international law.
- This is the first time the US Navy has issued a public statement giving details of the operation.

**US' Stand:**

- India requires prior consent for military exercises or maneuvers in its EEZ or continental shelf.
- India's claim to EEZ is inconsistent with international law (United Nations Convention on the Law of the Sea 1982).
- FONOP upheld the rights, freedoms, and lawful uses of the sea recognized in international law by challenging India's excessive maritime claims.

**India's Protest:**

- India's stated position on the United Nations Convention on the Law of the Sea (UNCLOS) is that the Convention does not authorise other States to carry out in the EEZ 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.
- It is only when it is "military manoeuvres" in Indian EEZ that nations need to seek India's permission and not if they are simply transiting through.
- The term military manoeuvres is not defined anywhere.
- Seventh Fleet to carry out FON missions in Indian EEZ in violation of Indian domestic law (Territorial Waters, Continental Shelf, Exclusive Economic Zone and Other Maritime Zones Act, 1976).
- United Nations Convention on the Law of the Sea 1982

**About:**

- The UNCLOS is an international treaty that provides a regulatory framework for the use of the world's seas and oceans.
- It lays down a comprehensive regime of law and order in the world's oceans and seas establishing rules governing all uses of the oceans and their resources.
- It enshrines the notion that all problems of ocean space are closely interrelated and need to be addressed as a whole.

**Ratification:**

- The Convention was opened for signature in December 1982 in Montego Bay, Jamaica.
- The Convention entered into force in accordance with its article 308 in November 1994, 12 months after the date of deposit of the sixtieth instrument of ratification or accession.
- Today, it is the globally recognized regime dealing with all matters relating to the law of the sea.
- The convention has been ratified by 168 parties, which includes 167 states (164 United Nations (UN) member states plus the UN Observer state Palestine, as well as the Cook Islands and Niue) and the European Union. An additional 14 UN member states have signed, but not ratified the convention.
- While India ratified UN Law of the Seas in 1995, the US has failed to do it so far.

**Exclusive Economic Zone:**

- According to UNCLOS, the EEZ is an area beyond and adjacent to the territorial sea, subject to the specific legal regime under which the rights and jurisdiction of the coastal State and the rights and freedoms of other States are governed by the relevant provisions of this Convention.



- It is defined as generally extending 200 nautical miles from shore, within which the coastal state has the right to explore and exploit, and the responsibility to conserve and manage, both living and non-living resources.

**Indian Law:**

As per India's Territorial Waters, Continental Shelf, Exclusive Economic Zone and Other Maritime Zones Act, 1976:

- The EEZ of India is an area beyond and adjacent to the territorial waters, and the limit of such zone is two hundred nautical miles from the baseline.
- India's limit of the territorial waters is the line every point of which is at a distance of twelve nautical miles from the nearest point of the appropriate baseline.
- All foreign ships (other than warships including sub-marines and other underwater vehicles) shall enjoy the right of innocent passage through the territorial waters.
- Innocent passage: It is the passage that is not prejudicial to the peace, good order or security of India.

**29. Violence in Northern Ireland (UK):**

- Recently, Northern Ireland, the United Kingdom (UK) saw the worst violence in years. Parts of Northern Ireland are split along sectarian lines, 23 years after a peace deal largely ended Northern Ireland's troubles.

**Key Points:**

**Historical Conflict:**

- Geographically, Northern Ireland is part of Ireland. Politically, it's part of the UK.
- Ireland, long dominated by the UK, broke free about 100 years ago after centuries of colonisation and an uneasy union. 26 of its 32 counties became an independent, Roman Catholic-majority country. 6 counties in the north, which have a Protestant majority, stayed British.
- Northern Ireland's Catholic minority experienced discrimination in the Protestant-run state.
- In the 1960s, a Catholic civil rights movement demanded change, but faced a harsh response from the government and police.
- The British Army was deployed in 1969, initially to keep the peace.
- The situation deteriorated into a conflict between Irish republican militants who wanted to unite with the south, loyalist paramilitaries who sought to keep Northern Ireland British, and UK troops.
- During three decades of conflict, more than 3,600 people, a majority of them civilians, were killed in bombings and shootings. Most were in Northern Ireland, though the Irish Republican Army also set off bombs in London and other British cities.

**Ending the Conflict:**

- By the 1990s, after secret talks and with the help of diplomatic efforts by Ireland, Britain and the United States, the combatants reached a peace deal.
- The 1998 Good Friday accord saw the paramilitaries lay down their arms and established a Catholic-Protestant power-sharing government for Northern Ireland.
- The question of Northern Ireland's ultimate status was deferred: it would remain British as long as that was the majority's wish, but a future referendum on reunification was not ruled out.
- While the peace has largely endured, small Irish Republican Army splinter groups have mounted occasional attacks on security forces, and there have been outbreaks of sectarian street violence.
- The power-sharing arrangement has had periods of success and failure and still the government is not trusted by both the sides.

**Problem Child of Brexit:**

- Northern Ireland has been called the “problem child” of Brexit, the UK’s divorce from the European Union (EU).
- As the only part of the UK that has a border with an EU nation, Ireland, it was the trickiest issue to resolve after Britain voted narrowly in 2016 to leave the 27-nation bloc.
- An open Irish border, over which people and goods flow freely, underpins the peace process, allowing people in Northern Ireland to feel at home in both Ireland and the UK.
- The insistence of Britain’s government on a “hard Brexit” that took the country out of the EU’s economic order meant the creation of new barriers and checks on trade.
- Both Britain and the EU agreed that the border could not be in Ireland because of the risk that would pose to the peace process. The alternative was to put it, metaphorically, in the Irish Sea between Northern Ireland and the rest of the UK.
- That arrangement has alarmed British unionists, who say it weakens Northern Ireland’s place in the UK and could bolster calls for Irish reunification.

**Reason for Current Violence:****Brexit and Corona:**

- Britain left the EU on 31st December and the new trade arrangements quickly became an irritant to Northern Ireland unionists who want to stay in the UK.
- Early trade glitches, exacerbated by the coronavirus pandemic, led to some empty supermarket shelves, fueling alarm.
- There was anger that British Prime Minister long insisted there would be no new checks on trade as a result of Brexit, had downplayed the scale of the changes wrought by leaving the EU.

**Identity Crisis:**

- Some in Northern Ireland’s British loyalist community feel as if their identity is under threat. And many other loyalists believe that, de facto, Northern Ireland has ceased to be as much a part of the UK as it was.

**30. Exercise Shantir Ogroshena:**

- Multinational military exercise Shantir Ogroshena, which went for 10 days in Bangladesh, concluded on 12th April 2021.
- The year 2021 marks the 50th anniversary of diplomatic relations between India and Bangladesh.

**Key Points:**

- The exercise was organised to commemorate the birth centenary of Bangabandhu Sheikh Mujibur Rahman, Bangladesh’s Father of the Nation and celebrate the golden jubilee of the liberation of Bangladesh.
- It was held at Bangabandhu Senanibas (BBS), Bangladesh.
- ‘Shantir Ogroshena’ 2021 means “Front Runner of the Peace”.

**Theme:**

- The theme of this exercise was to strengthen defence ties and enhance interoperability amongst neighbourhood countries to ensure effective peacekeeping operations.
- It was a UN (United Nations)- mandated counterterrorism exercise.
- Countries that Participated:
  - Troops from India, Bangladesh, Bhutan and Sri Lanka participated in the exercise with observers from the USA, UK, Russia, Turkey, Saudi Arabia, Kuwait and Singapore.
  - Other Exercises involving Bangladesh:
    1. SAMPRITI (Army).
    2. TABLE TOP (Air).

3. IN-BN CORPAT (Navy).
4. SAMVEDNA (Multinational Air Exercise with Bangladesh, Nepal, Sri Lanka and UAE).

### **31. India-Netherlands Relations:**

- Recently, India's Prime Minister (PM) and the PM of the Netherlands held a Virtual Summit.
- It was the first high level Summit attended by the PM of Netherlands after the general elections held in March 2021.
- Earlier in 2019 the King and Queen of the Netherlands visited India to give an impetus to the bilateral ties shared by the two nations.

#### **Key Points:**

##### **Review of Bilateral Engagements:**

- Exchanged views on further expanding and diversifying the relationship in trade and economy, water management, agriculture sector, smart cities, science & technology, healthcare and space.
- Agreed that the ambitious and innovative flagship programs like Clean India, Digital India, Make in India, Sagarmala, Ayushman Bharat and Startup India have provided immense opportunities for Indo-Dutch (India-Netherlands) collaboration in multiple sectors.
- Exchanged views on regional and global challenges such as climate change, counter-terrorism and Covid-19 pandemic and agreed to leverage the emerging convergences in new areas like Indo-Pacific, Resilient Supply Chains and Global Digital Governance.

##### **Strategic Partnership on Water:**

- Agreed on instituting a 'Strategic Partnership on Water' to further deepen the Indo-Dutch cooperation in the water related sector, and upgrading the Joint Working Group on Water to Ministerial-level.
- In 2019, India and Netherlands had launched the second phase of the Local Treatment of Urban Sewage streams for Healthy Reuse (LOTUS-HR) plant as a part of joint collaboration in New Delhi.

##### **Commitment to International Peace:**

- Reiterated their commitment to a rules-based multilateral order for ensuring international peace, stability and prosperity and looked forward to a successful India-EU (European Union) Leaders' Meeting in Porto, Portugal in May 2021.

##### **India's Stand:**

- India and Netherlands have similar approach in dealing with global challenges like climate change, terrorism and pandemics.
- It thanked the Netherlands for their support to International Solar Alliance (ISA) and Coalition for Disaster Resilient Infrastructure (CDRI).
- ISA and CDRI are Indian Initiatives.
- It also welcomed the Netherlands' Indo-Pacific Policy and its desire to collaborate during India's G20 Presidency in 2023.
- Setting up a fast track mechanism for investment promotion will give new momentum to the strong economic cooperation between the two countries.

##### **Economic and Trade:**

- Economic Partnership between India & Netherlands is a key pillar of the bilateral ties.
- The Netherlands was the third largest investor in India, after Mauritius and Singapore for Financial Year (FY) 2018-19 with Foreign Direct Investments (FDI) inflows of USD 3.87 billion across a variety of sectors.
- The Netherlands was the second largest destination of foreign investment by Indian companies as of end-March 2018.

- In 2017-18, the bilateral trade between India and the Netherlands was around USD 8.77 billion. In 2018-19, it was around USD 12.87 billion.
- By 2025, it shall touch around USD 18-23 billion.
- The Netherlands is India's 5th largest trading partner in the European Union. And is also one of the leading investor nations in India.
- There are 200 (Dutch) companies that are present in India. Around 160 Indian companies are active in the Netherlands. During the Covid-19 pandemic, there has been a sizable uptick in the Indian IT companies investing in the Netherlands.

#### Historical Relations:

- Indo-Dutch relations can be traced back to more than 400 years when the first Dutch EIC (East India Company) got established in India (in around 17th century AD).
- The official relations between the two nations were established in the year 1947 which, since then, have been cordial and friendly.
- The two countries also share common ideals of democracy, pluralism and the rule of law.

#### Cultural Relations:

- The Netherlands currently is home to the largest Indian community on the European mainland. The growing Indian student and professional community in the Netherlands is making the cultural knot stronger and the technological partnership deeper.
- An Indian Council for Cultural Relations (ICCR) Cultural Centre "The Gandhi Centre" was established in The Hague in October 2011.
- The fifth International Day of Yoga was celebrated on 16th June, 2019 at prestigious Dam Square in Amsterdam.

#### Way Forward:

- The Netherlands and India have hardly achieved their true potential. There is huge potential for collaborations given the geopolitical and economic necessities of both nations.
- Engagement of leaders at the highest level along with greater economic and defence cooperation is the need of the hour to take ties to new levels.
- In the next five years, as India will move ahead, Dutch companies will come to India and will be a key collaborator in helping India achieve its USD 5 trillion economy vision.

#### 32. B.1.617: Indian Double Mutant Strain:

- The 'double mutant' virus that is having a bearing on the spread of the pandemic in India, has been formally classified as B.1.617.
- Mutation is an alteration in the genetic material (the genome) of a cell of a living organism or of a virus that is more or less permanent and that can be transmitted to the cell's or the virus's descendants.

#### Double Mutant (B.1.617):

- Earlier Genome sequencing of a section of virus samples by the Indian SARS-CoV-2 Consortium on Genomics (INSACOG), revealed the presence of two mutations, E484Q and L452R.
- Though these mutations have individually been found in several countries, the presence of both these mutations together have been first found in coronavirus genomes from India.
- This double mutant from India has been scientifically named as B.1.167. However, it is yet to be classified as 'Variant of Concern'.
- Till now only three global 'Variants of Concern' have been identified: the U.K. variant (B.1.1.7), the South African (B.1.351) and the Brazilian (P.1) lineage.
- Spread of B.1.617: According to the INSACOG, sequencing a sample of genomes from coronavirus patients in India, B.1.617 was first detected in India in December, 2020.

- Today, nearly 70% of the genome sequences with the mutations characterising B.1.617 are from India.
- This is followed by the United Kingdom (23%), Singapore (2%) and Australia (1%).

#### **Variant of Concern:**

- These are variants for which there is evidence of an increase in transmissibility, more severe disease (increased hospitalizations or deaths), significant reduction in neutralization by antibodies generated during previous infection or vaccination, reduced effectiveness of treatments or vaccines, or diagnostic detection failures.

#### **Issues Associated with Mutants:**

- Mutant virus is associated with large spikes of Covid-19 cases in some countries.
- It enables viruses to become more infectious as well as evade antibodies.
- It has also been associated with a reduction in vaccine efficacy. International studies have shown reduced efficacy of vaccines particularly those by Pfizer, Moderna and Novavax to certain variants.
- However, the vaccines continue to be significantly protective in spite of this.

#### **Another Mutation:**

- According to INSACOG, there is also a third significant mutation, P614R other than the two mutations (E484Q and L452R).
- All three concerning mutations are on the spike protein. The spike protein is the part of the virus that it uses to penetrate human cells.
- Virus' spike protein may increase the risks and allow the virus to escape the immune system.

#### **Resistant to T cells:**

- L452R could even make the coronavirus resistant to T cells, that is the class of cells necessary to target and destroy virus-infected cells.
- T cells are different from antibodies that are useful in blocking coronavirus particles and preventing it from proliferating.

#### **T Cells:**

- A type of white blood cell that is of key importance to the immune system and is at the core of adaptive immunity.
- It creates the body's immune response to specific pathogens.
- The T cells are like soldiers who search out and destroy the targeted invader.

#### **Indian SARS-CoV-2 Consortium on Genomics:**

- Indian SARS-CoV-2 Consortium on Genomics (INSACOG) is a multi-laboratory, multi-agency, pan-India network to monitor genomic variations in the SARS-CoV-2.
- It helps in the understanding of how the virus spreads and evolves.
- Genomic surveillance can generate a rich source of information for tracking pathogen transmission and evolution on both national and international levels.

### **33. Covid-19 Reinfection:**

- A team of scientists from the Indian Council of Medical Research (ICMR) examined the cases of 1,300 individuals who had tested positive for the corona virus twice.
- It was found that 58 cases of the 1,300 individuals or 4.5% could be classified as possible reinfections.

#### **Worldwide Cases of Reinfection:**

- The first confirmed case was reported from Hong Kong.
- A couple of cases from the United States and Belgium also emerged.
- However, there have been several cases of people testing positive for the virus multiple times, even in India, but not all such cases are considered reinfections.

- Such cases are the result of what is called “persistent viral shedding”.

#### **Persistent Viral Shedding:**

- When an individual gets infected by a respiratory virus like SARS-CoV-2, the virus particles bind to the various types of viral receptor.
- Thus, Recovered patients can sometimes continue to carry low levels of virus within their system for up to three months.
- These levels are no longer enough to make the person sick or transmit the disease to others, but it can get detected in diagnostic tests.
- The disease developed from such persistent virus is what is called Persistent viral shedding.

#### **Significance of the Study of Reinfection:**

- It is crucial to make it clear whether a person who has been infected once develops permanent immunity against the disease, or can get reinfected after some time.
- This understanding of the possibility of reinfection is crucial to the fight against the Covid-19 pandemic.
- It will help decide the intervention strategies required to control the spread of the disease.
- It will also help assess how long people would have to depend on masks and physical distancing.
- It will have implications on the vaccination drive as well.

#### **Determination of Reinfection:**

- Genome sequence analysis of the virus sample is done by scientists for conclusive proof of reinfection.
- Because the virus mutates continuously, the genome sequences of the two samples would have some differences.
- However, virus samples from every infected person are not being collected for genome analysis.
- Therefore, in most of the cases there is usually no genome sequence from the previous infection to compare with.
- Thus the scientists of ICMR looked at cases in which patients had reported positive results at least at the gap of 102 days. That would not include the disease from persistent viral shedding.
- According to the Centers for Disease Control (CDC) in the USA, viral shedding continues until only about 90 days.

#### **Symptoms in Reinfection:**

- The majority of the disinfectant patients remained asymptomatic during the intervening period, while few reported mild symptoms.
- Some had symptoms such as intermittent fever, cough, or shortness of breath.

#### **Implications of the Reinfection:**

- The scientists point out that permanent immunity cannot be assumed.
- Reinfection might very well be happening and could be confirmed if it was possible to do genome analysis of every infected person.
- If reinfection is the case the use of masks and social distancing would be a new normal.

#### **Indian Council of Medical Research:**

- Indian Council of Medical Research (ICMR) is the apex body in India for the formulation, coordination and promotion of biomedical research.
- Its mandate is to conduct, coordinate and implement medical research for the benefit of the Society; translating medical innovations into products/processes and introducing them into the public health system.
- It is funded by the Government of India through the Department of Health Research, Ministry of Health & Family Welfare.

### **34. Ocean Acoustic during Covid-19:**



- There was reduced noise pollution on the surface of earth during the Covid-19 pandemic owing to lockdowns and stop of economic activities (like international trade).
- In the underwater world, too, anthrophony (human-made sounds) reduced substantially for long months.

**Noise in the Ocean:** The three broad components of oceanic acoustics are:

1. Geophony: Sounds created by non-biological natural events like earthquakes, waves and bubbling.
2. Biophony: Sounds created by the ocean's living creatures.
3. Anthrophony: Sounds created by human beings (a large portion of which is shipping noise).
  - According to 'the Soundscape of the Anthropocene Ocean report' published in Science Journal in 2021, geophony and biophony dominated the soundscape of oceans before the industrial era.
  - However, now, anthrophony interferes with and alters these natural components.

**Noise Level in Modern Times:**

- The oceans of the current geological era (Anthropocene era - when human-made disruptions largely influence the environment) are noisier than the pre-industrial times.
- During the first few days of the pandemic, ocean sound monitors at several places recorded a decibel (dB) drop.
- The hydrophones at the Endeavour node of Canada's Neptune Ocean Observatory showed an average decrease of 1.5 dB in year-over-year mean weekly noise power spectral density at 100 hertz.

**Impact of Anthrophony:**

- In the short term anthrophony masks the auditory signal processing by marine animals, weakening their ability to forage for food, escape a predator or attract a mate.
- In the long run, it can thin out the population of some underwater species.

**The International Quiet Ocean Experiment (IQOE):**

- It is an international scientific program to promote research, observations, and modelling to improve understanding of ocean soundscapes and effects of sound on marine organisms.
- It started in 2015 and will go on till the end of 2025. The IQOE team has gathered large quantities of data during the Covid-19 pandemic.
- IQOE is developing methods to make ocean acoustic data more comparable. These data will be compiled into a global dataset to establish trends in ocean sound and look for effects of the Covid-19 pandemic on ocean sound.
- The IQOE has identified a network of over 200 non-military hydrophones (underwater microphones) in oceans across the world.
- Most of the hydrophones in the network of this project are along the shores of the USA and Canada. Now the presence is increasing in several other parts of the world, especially Europe.
- These hydrophones (that pick up even faraway low-frequency signals) have recorded sounds from whales and other marine animals, as well as those emanated by human activities.

**Hydrophone:**

- Just as a microphone collects sound in the air, a hydrophone detects acoustic signals under the water.
- Most hydrophones are based on a special property of certain ceramics that produces a small electrical current when subjected to changes in underwater pressure.
- When submerged in the ocean, a ceramic hydrophone produces small-voltage signals over a wide range of frequencies as it is exposed to underwater sounds emanating from any direction.
- By amplifying and recording these electrical signals, hydrophones measure ocean sounds with great precision.

### 35. National Supercomputing Mission:

- The second phase of the National Supercomputing Mission (NSM) will be completed by September 2021, taking India's total computational capacity to 16 Petaflops.

#### About the National Supercomputing Mission (NSM):

- Launch: NSM was announced in 2015, with an aim to connect national academic and R&D institutions with a grid of more than 70 high-performance computing facilities at an estimated cost of Rs. 4,500 crores over the period of seven years by 2022.
- It supports the government's vision of 'Digital India' and 'Make in India'.
- Implementation: NSM is jointly steered by the Ministry of Electronics and IT (MeitY) and Department of Science and Technology (DST - Ministry of Science and Technology) and implemented by the Centre for Development of Advanced Computing (C-DAC), Pune and the Indian Institute of Science (IISc), Bengaluru.

#### Features:

- It is also an effort to improve the number of supercomputers owned by India.
- These supercomputers will also be networked on the National Supercomputing grid over the National Knowledge Network (NKN). The NKN connects academic institutions and R&D labs over a high-speed network.
- Under NSM, the long-term plan is to build a strong base of 20,000 skilled persons over the next five years who will be equipped to handle the complexities of supercomputers.

#### Progress of NSM:

- In the first phase, PARAM Shivay, PARAM Shakti, PARAM Brahma, PARAM Yukti and PARAM Sanganak were deployed at IIT (BHU), IIT Kharagpur, Indian Institute of Science Education and Research, Pune, and Jawaharlal Nehru Centre for Advanced Research.
- Recently, PARAM-Siddhi AI, has been ranked 63rd in the Top 500 list of most powerful supercomputers in the world. It was developed under the NSM.

#### Recent Development:

- In October 2020, C-DAC had inked MoUs with IITs along with IISc, National Agri-Food Biotechnology Institute and NIT, Tiruchirapalli-where a High Power Computing (HPC) system in each institute is currently being installed.
- So far, over 4,500 people have been trained in HPC and further training in Artificial Intelligence will be held at special NSM nodal centres established at four IITs-Kharagpur, Madras, Goa and Palakkad.

#### Challenges:

- The NSM envisages setting up a network of 70 high-performance computing facilities in the country but skewed funding for the mission during the initial years slowed down the overall pace of building supercomputers.
- Only 16.67% of the total budget of Rs. 4,500 crore, was utilised during the first four-and-a-half years for execution of the mission.

#### Global Scenario:

- Globally, China has the maximum number of supercomputers and maintains the top position in the world, followed by the US, Japan, France, Germany, Netherlands, Ireland and the United Kingdom.

### 36. 100% Sustainable Fuel for Formula 1:

- Recently, the Fédération Internationale de l'Automobile (FIA) has announced the first barrels of 100% sustainable fuel, made from bio waste and developed to stringent F1(Formula One) specifications, have been delivered to Power Unit manufacturers.

- FIA announced its intent to make F1 carbon neutral by 2030 and to have sustainable races by 2025.

#### **Formula One:**

- Formula One, also called F1 in short, is an international auto racing sport. F1 cars are the fastest regulated road-course racing cars in the world.
- F1 is the highest level of single-seat, open-wheel and open-cockpit professional motor racing contest.
- Formula One racing is governed and sanctioned by a world body called the Fédération Internationale de l'Automobile (FIA) or the International Automobile Federation. The name 'Formula' comes from the set of rules that the participating cars and drivers must follow.

#### **F1 Current Carbon Footprint:**

- Direct Effect: F1's driving activities produce approximately 2,56,000 tonnes of carbon dioxide per year, which is the equivalent to powering roughly 30,000 houses in the UK over the same time period.
- Indirect Effect: The main issue is not the cars themselves, which accounted for only 0.7% of the sport's emissions in 2019, but the logistics of transporting teams and equipment across the globe.
- In 2019, road, sea and air logistics for equipment transportation accounted for 45% of F1's emissions with business travel for teams contributing an additional 27.7%.
- Rounding up the list, factories and facilities servicing the sport represent 19.3% of emissions, and event operations, another 7.3%.

#### **Uncounted Emission:**

- The 2,56,000 number doesn't even factor in the impact of fans, millions of whom require transportation and accommodation on and around the race weekend.
- If one were to include the emissions generated by fans, the total carbon footprint of F1 catapults to approximately 1.9 million tonnes of carbon dioxide generated by the sport annually.

#### **100% Sustainable Fuels:**

- One of the most high-profile ways in which F1 plans to reduce its environmental impact is through the continued evolution of energy-efficient engines.
- Starting from 1989 when the FIA Alternative Fuel Commission was formed, F1 has committed to a number of initiatives designed to improve engine efficiency, with the most notable being its global fuel economy initiative in 2007 which aims to reduce fuel consumption by 50% across the competition.
- In 2020, the FIA announced that it had developed a 100% sustainable fuel and that engine manufacturers were already in the process of testing it, intending to start using it by 2026.

#### **About:**

- A 100% sustainable fuel essentially represents the third generation and most advanced iteration of biofuels, which typically are made from by-products of industrial or agricultural waste.
- F1 cars already use biofuels but current regulations only mandate that the fuel include 5.75% of bio-components.
- In 2022 that number will increase to 10% and by 2025, when new power units are proposed to enter the competition, the FIA hopes to transition completely to 100% advanced sustainable fuels.

#### **Biofuels:**

- Any hydrocarbon fuel that is produced from an organic matter (living or once living material) in a short period of time (days, weeks, or even months) is considered a biofuel.
  - Biofuels may be solid, liquid or gaseous in nature.
1. Solid: Wood, dried plant material, and manure

2. Liquid: Bioethanol and Biodiesel
3. Gaseous: Biogas
4. These can be used to replace or can be used in addition to diesel, petrol or other fossil fuels for transport, stationary, portable and other applications. Also, they can be used to generate heat and electricity.
5. Categories of Biofuels:
6. First generation biofuels:
  - These are made from food sources such as sugar, starch, vegetable oil, or animal fats using conventional technology.
  - Common first-generation biofuels include Bioalcohols, Biodiesel, Vegetable oil, Bioethers, Biogas.
1. **Second generation biofuels:**
  - These are produced from non-food crops or portions of food crops that are not edible and considered as wastes, e.g. stems, husks, wood chips, and fruit skins and peeling.
  - Thermochemical reactions or biochemical conversion processes are used for producing such fuels.
  - Examples: Cellulose ethanol and biodiesel.
2. **Third generation biofuels:**
  - These are produced from micro-organisms like algae.
  - Example: Butanol
  - Micro-organisms like algae can be grown using land and water unsuitable for food production, therefore reducing the strain on already depleted water sources.

#### Fourth Generation Biofuels:

- In the production of these fuels, crops that are genetically engineered to take in high amounts of carbon are grown and harvested as biomass.
- The crops are then converted into fuel using second generation techniques.
- The fuel is pre-combusted and the carbon is captured. Then the carbon is geo-sequestered, meaning that the carbon is stored in depleted oil or gas fields or in unmineable coal seams.
- Some of these fuels are considered as carbon negative as their production pulls out carbon from the environment.

#### India's Related Initiatives:

- E20 Fuel: The Indian government has invited public comments for introducing adoption of E20 fuel (a blend of 20% ethanol with gasoline).
- Pradhan Mantri JI-VAN Yojana, 2019: The objective of the scheme is to create an ecosystem for setting up commercial projects and to boost research and development in the 2G Ethanol sector.

#### Reduction in GST:

- The Government has also reduced GST on ethanol for blending in fuel from 18% to 5%.
- National Biofuel Policy 2018: The Policy categorises biofuels as "Basic Biofuels" viz. First Generation (1G) bioethanol & biodiesel and "Advanced Biofuels" - Second Generation (2G) ethanol, Municipal Solid Waste (MSW) to drop-in fuels, Third Generation (3G) biofuels, bio-CNG etc. to enable extension of appropriate financial and fiscal incentives under each category.

#### 37. HGCO19: mRNA Vaccine Candidate:

- India's mRNA-based Covid-19 vaccine candidate-HGCO19 has received additional government funding for its clinical studies.
- This funding has been awarded under the 'Mission Covid Suraksha'.

#### HGCO19:

- The novel mRNA vaccine candidate, HGC019 has been developed by Pune-based biotechnology company Gennova Biopharmaceuticals Ltd. in collaboration with HDT Biotech Corporation, USA.
- HGC019 has already demonstrated safety, immunogenicity, neutralization antibody activity in the rodent and non-human primate models.
- Gennova has initiated the enrolment of volunteers for Phase 1/2 clinical trials for its vaccine candidate HGC019.

#### **mRNA Vaccine vs Traditional Vaccines:**

- Vaccines work by training the body to recognise and respond to the proteins produced by disease-causing organisms, such as a virus or bacteria.
- Traditional vaccines are made up of small or inactivated doses of the whole disease-causing organism, or the proteins that it produces, which are introduced into the body to provoke the immune system into mounting a response.
- mRNA vaccines tricks the body into producing some of the viral proteins itself.
- They work by using mRNA, or messenger RNA, which is the molecule that essentially puts DNA instructions into action. Inside a cell, mRNA is used as a template to build a protein.

#### **Functioning of mRNA Vaccines:**

- To produce an mRNA vaccine, scientists produce a synthetic version of the mRNA that a virus uses to build its infectious proteins.
- This mRNA is delivered into the human body, whose cells read it as instructions to build that viral protein, and therefore create some of the virus's molecules themselves.
- These proteins are solitary, so they do not assemble to form a virus.
- The immune system then detects these viral proteins and starts to produce a defensive response to them.

#### **Advantages of using mRNA based Vaccines:**

- mRNA vaccines are considered safe as mRNA is non-infectious, non-integrating in nature, and degraded by standard cellular mechanisms.
- They are highly efficacious because of their inherent capability of being translatable into the protein structure inside the cell cytoplasm.
- Additionally, mRNA vaccines are fully synthetic and do not require a host for growth, e.g., eggs or bacteria. Therefore, they can be quickly manufactured inexpensively to ensure their "availability" and "accessibility" for mass vaccination on a sustainable basis.

#### **Mission Covid Suraksha:**

- Mission Covid Suraksha is India's targeted effort to enable the development of indigenous, affordable and accessible vaccines for the country.
- The Centre had announced this package during the third economic stimulus.
- The Mission with its end-to-end focus from preclinical development through clinical development and manufacturing and regulatory facilitation for deployment consolidate all available and funded resources towards accelerated product development.
- It is led by the Department of Biotechnology and implemented by a dedicated Mission Implementation Unit at Biotechnology Industry Research Assistance Council (BIRAC).

#### **BIRAC:**

- Biotechnology Industry Research Assistance Council (BIRAC) is a not-for-profit Section 8, Schedule B, Public Sector Enterprise.
- It has been set up by the Department of Biotechnology (DBT) as an Interface Agency to strengthen and empower the emerging Biotech enterprise to undertake strategic research and innovation, addressing nationally relevant product development needs.

#### **Sputnik V Vaccine:**

- Sputnik V, the vaccine against Covid-19 developed by Russia, has been cleared for emergency use by the Drugs Controller General of India (DCGI).
- It is now the third coronavirus vaccine to get emergency use approval, after Covishield (Serum Institute of India) and Covaxin (Bharat Biotech).

#### **About the Sputnik V Vaccine:**

- The Sputnik V vaccine has been developed by Gamaleya National Research Institute of Epidemiology and Microbiology in Moscow.
- It uses two different viruses that cause the common cold (adenovirus) in humans.
- The adenoviruses are weakened so they cannot replicate in humans and cannot cause disease.
- They are also modified so that the vaccine delivers a code for making the coronavirus spike protein. This aims to ensure that when the real virus tries to infect the body, it can mount an immune response in the form of antibodies.
- Sputnik uses a different vector for each of the two shots in a course of vaccination. This provides immunity with a longer duration than vaccines using the same delivery mechanism for both shots.
- The two shots are given 21 days apart.
- Sputnik V is to be stored at  $-18^{\circ}\text{C}$  in its liquid form. However, in its freeze-dried form, it can be stored at  $2-8^{\circ}\text{C}$ , in a conventional refrigerator without any need to invest in additional cold-chain infrastructure.

#### **38. Narrow-Line Seyfert 1 (NLS1): Farthest Gamma-Ray Emitting Galaxy:**

- Recently, Astronomers have discovered a new active galaxy called Narrow-Line Seyfert 1 (NLS1) which has been identified as the farthest gamma-ray emitting galaxy.
- Scientists from Aryabhata Research Institute of Observational Sciences (ARIES) in collaboration with researchers from other institutions, studied around 25,000 luminous Active Galactic Nuclei (AGN) from the Sloan Digital Sky Survey (SDSS).
- AGN are the most powerful, long-lived objects and steady sources of luminosity in the Universe. The emission is spread widely across the electromagnetic spectrum, often peaking in the Ultra Violet, but with significant luminosity in the x-ray and infrared bands.
- SDSS is a major multi-spectral imaging and spectroscopic redshift survey using a dedicated 2.5-m wide-angle optical telescope at Apache Point Observatory in New Mexico, United States.
- It has created the most detailed three-dimensional maps of the Universe ever made, with deep multi-color images of one third of the sky, and spectra for more than three million astronomical objects.

#### **Findings:**

- They found a unique object that emits high-energy gamma rays located at a high redshift (more than 1)
- It was identified as a gamma-ray emitting NLS1 galaxy, which is a rare entity in space.
- The new gamma-ray emitting NLS1 was formed when the Universe was only about 4.7 billion years old as compared to its current age of about 13.8 billion years.
- Redshift

#### **About:**

- It is the displacement of spectral lines towards longer wavelengths (the red end of the spectrum) in radiation from distant galaxies and celestial objects.
- It reveals how an object is moving in space and enables astronomers to discover otherwise-invisible planets and the movements of galaxies, and to uncover the beginnings of our universe.
- Significance:



- Astronomers use redshifts to measure how the universe is expanding, and thus to determine the distance to our universe's most distant (and therefore oldest) objects.

**Measurement:**

- The most accurate way to measure redshift is by using spectroscopy.
- When a beam of white light strikes a triangular prism it is separated into its various components (ROYGBIV). This is known as a spectrum (plural: spectra).
- Astronomers can look at the spectra created by different elements and compare these with the spectra of stars. If the absorption or emission lines they see in the star's spectra are shifted, they know the object is moving either towards us or away from us.
- Astronomers calculate redshift in terms of the redshift parameter ( $z$ ) which helps in calculating the distance of the object (galaxy, planet etc).
- With increasing value of  $z$  the distance of the object increases.

**Instrument Used:**

- The scientists used the Japanese 8.2 m Subaru Telescope which is one of the largest ground-based telescopes in the world, located at Hawaii, USA.
- Its powerful light collecting capability can capture weak light from celestial objects. A major feature of the Subaru Telescope is that its prime focus boasts an overwhelming wide field of view compared to other large telescopes

**Significance:**

- Detection of gamma-ray emission from NLS1 challenges the idea of how relativistic jets are formed because NLS1s are a unique class of AGN that are powered by black holes of low mass and hosted in spiral galaxies.

**Relativistic Jets:**

- Supermassive black holes in the centers of some active galaxies that create powerful jets of radiation and particles travelling close to the speed of light are called relativistic jets.
- These jets are believed to be the sources of the fastest-travelling particles in the Universe that are cosmic rays.
- No method was present till date to find NLS1 at redshifts larger than one.
- This discovery opens up a new way to find gamma-ray emitting NLS1 galaxies in the early Universe.

**Aryabhata Research Institute of Observational Sciences:**

- ARIES is one of the leading research Institutes which specializes in observational Astronomy & Astrophysics and Atmospheric Sciences situated in Nainital, Uttarakhand.
- It was established in 1955 and its primary objective has been to develop facilities for modern astrophysical research in stellar, solar & theoretical branches of astrophysics. On some selected clear nights the visitors are also shown some celestial objects through the telescopes.
- Galaxy
- A galaxy is a huge collection of gas, dust, and billions of stars and their solar systems, all held together by gravity.
- Earth is the part of the Milky Way Galaxy, which also has a super Massive Blackhole in the middle.

**Black Hole:**

- It refers to a point in space where the matter is so compressed as to create a gravity field from which even light cannot escape.
- The concept was theorized by Albert Einstein in 1915 and the term 'black hole' was coined in the mid-1960s by American physicist John Archibald Wheeler.

**All the black holes observed so far belong to two categories:**

- One category ranges between a few solar masses and tens of solar masses. These are thought to form when massive stars die.
- The other category is of supermassive black holes. These range from hundreds of thousands to billions of times that of the sun from the Solar system to which Earth belongs.

#### **Gamma Ray Astronomy:**

- It is the study of astronomical objects and phenomena that emit gamma rays. Gamma-ray telescopes are designed to observe high-energy astrophysical systems.
- As Earth's atmosphere blocks most gamma rays, observations are generally conducted by high-altitude balloons or spacecraft.
- Gamma-ray astronomy presents unique opportunities to explore exotic objects. By exploring the universe at these high energies, scientists can search for new physics, testing theories and performing experiments which are not possible in earth-bound laboratories.

#### **39. Research on Lithium Ion Battery Performance:**

- Researchers from IIT Guwahati have developed a technique to improve the performance of rechargeable lithium-ion batteries, which power most of the portable devices used today.

#### **Lithium Ion Batteries:**

- The 2019 Nobel Prize in Chemistry was jointly awarded to Stanley Whittingham, John Goodenough and Akira Yoshino for work that led to the development of lithium-ion batteries.
- The foundation of the lithium-ion (Li-ion) battery was laid during the oil crisis of the 1970s, around which time Whittingham started working on developing methods that could lead to fossil fuel-free energy technologies.
- The first commercially viable Li-ion battery was created by Yoshino in 1985.

#### **Utility:**

- Li-ion batteries provide portable electricity, powering electronic gadgets such as mobile phones, laptops and tablets.
- Today, most Electrical Vehicles (EV) use Li-ion batteries as well, but are slowly reaching their theoretical limits of being able to provide roughly up to 300-watt hour per kilogram of energy.
- These batteries can also be used to store solar and wind power, which means that with their widespread use it may even be possible to live in a fuel free society.

#### **Disadvantage:**

- Some of the disadvantages of Li-ion batteries include their susceptibility to overheating and their being prone to damage at high voltages.
- Since they are made with flammable and combustible materials.
- Such batteries also start losing their capacity over time—for instance, a laptop battery in use for a few years does not function as well as a new one.

#### **New Research:**

- Researchers from IIT Guwahati have developed a technique which can precisely estimate one of the most important battery internal states known as SOC, 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.
- To improve a battery's lifespan and optimize its capacity, it is important to predict its various states accurately. One of these states is the SOC, which has so far been difficult to estimate.
- Through their work, the researchers have proposed an approach that avoids overestimation and therefore helps in taking accurate measurements.

**State Of Charge:**

- The state of charge (SOC) of a cell denotes the capacity that is currently available as a function of the rated capacity.
- The value of the SOC varies between 0% and 100%. If the SOC is 100%, then the cell is said to be fully charged, whereas a SOC of 0% indicates that the cell is completely discharged.
- In practical applications, the SOC is not allowed to go beyond 50% and therefore the cell is recharged when the SOC reaches 50%.
- Similarly, as a cell starts aging, the maximum SOC starts decreasing. This means that for an aged cell, a 100% SOC would be equivalent to a 75%–80% SOC of a new cell.

**Related Developments:**

- The Johns Hopkins Applied Physics Laboratory developed a Lithium-ion battery that does not catch fire.
- Earlier in January 2020, researchers from Australia claimed that they developed the world's most efficient lithium-sulfur (Li-S) battery, capable of powering a smartphone for five continuous days.
- While the materials used in the Li-S batteries are not different from those in Li-ion batteries, the Australian researchers reconfigured the design of the sulfur cathodes (a type of electrical conductor through which electrons move) to accommodate higher stress without a drop in overall capacity.
- India, through a newly-floated state-owned company Khanij Bidesh India Ltd, has inked a pact with an Argentine firm to jointly prospect lithium in Argentina, a country that has the one of the largest reserves of Lithium in the world.

**Potential Alternatives to Li-ion Technology:****Lithium-Sulfur Batteries:**

- Li-S batteries are generally considered the successors of Li-ion batteries because of their lower cost of production, energy efficiency and improved safety.
- Their cost of production is lower because sulfur is abundantly available.
- Even so, there have been some difficulties when it comes to commercialising these batteries, mainly due to their short life cycle and poor instantaneous power capabilities.

**Graphene Batteries:**

- Graphene batteries may be an important alternative to lithium-ion batteries, with the latter having limitations due to the frequency with which lithium requires charging. Graphene is a newly stabilized and isolated material.

**Fluoride Batteries:**

- Fluoride Batteries have the potential to last eight times longer than lithium batteries.

**Sand Battery:**

- This alternative type of lithium-ion battery uses silicon to achieve three times better performance than current graphite Li-ion batteries. The battery is still lithium-ion like the one found in a smartphone, but it uses silicon instead of graphite in the anodes.

**Ammonia-powered Batteries:**

- Ammonia-powered batteries may not be coming any time soon, but the chemical commonly known as a household cleaner is still an alternative to lithium in the way it can power fuel cells in vehicles and other equipment.
- If scientists can figure out a way to produce ammonia without creating the greenhouse gas emissions that result right now, they can ship it anywhere in the world to be converted into hydrogen to power those fuel cells.

**Vertically Aligned Carbon Nanotube Electrode:**

- These are good candidates for lithium-ion battery electrodes which require high rate capability and capacity.

#### **Solid-state Batteries:**

- It uses alternatives to aqueous electrolyte solutions, an innovation that could lower the risk of fires, sharply increase energy density and potentially take only 10 minutes to charge an EV, cutting the recharging time by two-thirds.
- These cells can extend the driving distance of a compact electric vehicle while maintaining legroom - a quantum leap in battery tech.

#### **40. Reducing Risk of Zoonosis in Food Production:**

- The World Health Organization (WHO), World Organization for Animal Health and the United Nations Environment Programme have laid down fresh guidelines for governments to reduce the risk of transmission of zoonotic pathogens to humans in food production and marketing chains.
- Covid-19 has brought new attention to this threat, given the magnitude of its consequences.

#### **Zoonosis:**

- A zoonosis is an infectious disease that jumps from a non-human animal to humans.
- Zoonotic pathogens may be bacterial, viral or parasitic.
- They can spread to humans through direct contact or through food, water and the environment.

#### **Concern:**

- Animals, particularly wild animals, are the source of more than 70% of all emerging infectious diseases in humans, many of which are caused by novel viruses.
- Most emerging infectious diseases – such as Lassa fever, Marburg hemorrhagic fever, Nipah viral infections and other viral diseases – have wildlife origins.
- Significant problems can arise when traditional food markets allow the sale and slaughter of live animals, especially wild animals, which cannot be properly assessed for potential risks – in areas open to the public.
- Such environments provide the opportunity for animal viruses, including coronaviruses, to amplify themselves and transmit to new hosts, including humans.

#### **WHO Guidelines:**

- Emergency regulations to suspend live wild animal sales in traditional food markets.
- Conducting risk assessments for developing regulations to control the risks of transmission of zoonotic microorganisms from farmed wild animals and caught wild animals.
- Ensuring that food inspectors are adequately trained to ensure that businesses comply with regulations to protect consumers' health and are held accountable.
- Strengthening surveillance systems for zoonotic pathogens.

#### Indian Scenario

#### **Zoonotic Diseases:**

- India is among the top geographical hotspots where zoonotic diseases are a major public health issue causing high burden of morbidity and mortality.
- Major public health zoonotic diseases in India include Rabies, Brucellosis, Toxoplasmosis, Cysticercosis, Echinococcosis, Japanese Encephalitis (JE), Plague, Leptospirosis, Scrub typhus, Nipah, Trypanosomiasis, Kyasanur forest disease (KFD) and Crimean-Congo haemorrhagic fever (CCHF).

#### **Challenges:**

- Large human population and its frequent interactions with animals.
- Poverty: Leads to increased dependence on animal rearing as a means of livelihood. The intimate human-animal contact puts them at risk for this category of diseases.

- Unawareness: Large part of population remains unaware of the basic hygiene routine to be followed.
- Antimicrobial Resistance (AMR): AMR occurs when bacteria, viruses, fungi and parasites change over time and no longer respond to medicines making infections harder to treat and increasing the risk of disease spread, severe illness and death.
- Lack of proper vaccination programmes, poor sero-surveillance and lack of diagnostic facilities make the preventive and precautionary approach more difficult.

#### **Measures Taken:**

- Following Programmes have been launched under National Centre for Disease Control:
  - Integrated Disease Surveillance Programme (IDSP).
  - National Programme for Containment of Antimicrobial Resistance.
  - National Viral Hepatitis Surveillance Programme.
  - Strengthening Inter-sectoral coordination for prevention and control of Zoonotic Diseases of Public Health Importance.

#### **National Rabies control programme:**

- Programme for prevention and control of Leptospirosis.
- Further, experts have underscored the need for the One Health framework in the country. One Health is a collaborative, multisectoral, and transdisciplinary approach linking human, animal, and environmental health.

#### **41. Forest Fires: A Very Big Concern:**

- Since the advent of the year 2021, there has been a series of forest fires in many states of India, including in Wildlife Sanctuaries.

#### **Forest Fires:**

- Also called bush or vegetation fire or wildfire, it can be described as any uncontrolled and non-prescribed combustion or burning of plants in a natural setting such as a forest, grassland, brush land or tundra, which consumes the natural fuels and spreads based on environmental conditions (e.g., wind, topography).
- Forest Fires can be incited by human actions, such as land clearing, extreme drought or in rare cases by lightning.
- There are three conditions that need to be present in order for a wildfire to burn: fuel, oxygen, and a heat source.

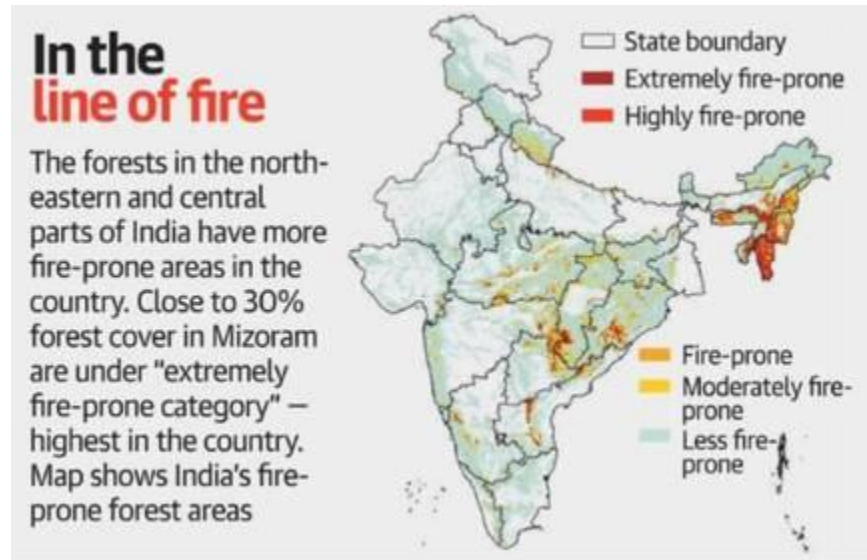
#### **Instances of Forest Fires in 2021:**

- January saw prolonged fires in Uttarakhand, Himachal Pradesh (Kullu Valley) and Nagaland-Manipur border (Dzukou Valley).
- The Simlipal National Park in Odisha saw a major fire between February-end and early March.
- Recent fires also include those in Bandhavgarh Forest Reserve in Madhya Pradesh, and in sanctuaries for the Asiatic lion and the great Indian bustard in Gujarat.

#### **Vulnerability of India's Forests to Fires:**

- As of 2019, about 21.67% (7,12,249 sq km) of the country's geographical area is identified as forest, according to the India State of Forest Report 2019 (ISFR) released by the Forest Survey of India (FSI), Dehradun.
- Tree cover makes up another 2.89% (95, 027 sq km).
- Based on previous fire incidents and records, forests of the Northeast and central India regions are the most vulnerable areas to forest fires.
- Forests in Assam, Mizoram and Tripura have been identified as 'extremely prone' to forest fire.
- States with large forest areas under the 'very highly prone' category include Andhra Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Maharashtra, Bihar and Uttar Pradesh.

- As per the 2020-2021 annual report of the MoEFCC, Western Maharashtra, Southern Chhattisgarh and areas of Telangana and Andhra Pradesh, along with central Odisha, are turning into 'extremely prone' forest fire hotspots.
- Areas under the 'highly prone' and 'moderately prone' categories make up about 26.2% of the total forest cover — a whopping 1,72,374 sq km.



#### Cause of Forest Fires:

- Forest fires can be caused by a number of natural causes, but many major fires in India are triggered mainly by human activities.
- Emerging studies link climate change to rising instances of fires globally, especially the massive fires of the Amazon forests in Brazil and in Australia in the last two years.
- Fires of longer duration, increasing intensity, higher frequency and highly inflammable nature are all being linked to climate change.
- In India, forest fires are most commonly reported during March and April, when the ground has large quantities of dry wood, logs, dead leaves, stumps, dry grass and weeds that can make forests easily go up in flames if there is a trigger.
- In Uttarakhand, the lack of soil moisture too is being seen as a key factor. In two consecutive monsoon seasons (2019 and 2020), rainfall has been deficient by 18% and 20% of the seasonal average, respectively.
- Most fires are man-made, sometimes even deliberately caused. For example, in Odisha, which saw a major fire last month in Simlipal forest, villagers are known to set dry leaves to fire in order to collect mahua flowers, which go into preparation of a local drink.

#### Impact of Forest Fire:

- Forest fires can have multiple adverse effects on the forest cover, soil, tree growth, vegetation, and the overall flora and fauna.
- Fires render several hectares of forest useless and leave behind ash, making it unfit for any vegetation growth.
- Heat generated during the fire destroys animal habitats.
- Soil quality decreases with the alteration in their compositions.
- Soil moisture and fertility, too, is affected.
- Forests can shrink in size.



- The trees that survive fire often remain stunted and growth is severely affected.
- Importance of Forests:
- Forests play an important role in mitigation and adaptation to climate change.
- They act as a sink, reservoir and source of carbon.
- A healthy forest stores and sequesters more carbon than any other terrestrial ecosystem.
- In India, with 1.70 lakh villages in close proximity to forests (Census 2011), the livelihood of several crores of people is dependent on fuelwood, bamboo, fodder, and small timber.

#### **Efforts to Mitigate Forest Fires:**

- Since 2004, the FSI (Forest Survey of India) developed the Forest Fire Alert System to monitor forest fires in real time.
- In its advanced version launched in January 2019, the system now uses satellite information gathered from NASA and ISRO.
- National Action Plan on Forest Fires (NAPFF) 2018 and Forest Fire Prevention and Management Scheme.

#### **42. Navegaon-Nagzira Tiger Reserve: Maharashtra:**

- Three labourers were killed and two others injured during an operation to douse a forest fire at Navegaon-Nagzira Tiger Reserve (NNTR) in Maharashtra.
- NNTR is situated in Gondia and Bhandara districts of Maharashtra.
- Gondia District shares common boundaries with the state of Madhya Pradesh and Chhattisgarh in the north and eastern side respectively.
- Strategically, the Tiger Reserve is located in the heart of central Indian Tiger landscape which contributes almost one sixth of the total tiger population of the country.

#### **Formation:**

- It was notified as the 46th Tiger Reserve of India in December 2013.
- NNTR comprised of the notified area of Nawegaon National Park, Nawegaon Wildlife Sanctuary, Nagzira Wildlife Sanctuary, New Nagzira Wildlife Sanctuary and Koka Wildlife Sanctuary.

#### **Connectivity:**

- NNTR has connectivity with the major tiger reserves in Central India like,
- Kanha and Pench tiger reserve in Madhya Pradesh,
- Tadoba-Andhari Tiger reserve in Maharashtra,
- Indravati Tiger Reserve in Chhattisgarh,
- Indirectly with the Kawal and Nagarjuna Sagar in Telangana and Andhra Pradesh and, Achanakmar Tiger reserve in Chhattisgarh.
- It is also connected to important tiger bearing areas like Umred-Karhandla sanctuary and Brahampuri Division (Maharashtra).

#### **Flora:**

- The major forest type is "Southern Tropical Dry Deciduous Forest".
- Few thorny plants are also found.
- Bamboo occurs in abundance.

#### **Fauna:**

- Large Carnivores such as leopards and smaller carnivores like wild dogs, wolf jackals, jungle cats and also the good population of sloth bears are seen.
- The important herbivore includes Cheetal, Sambar, Nilgai, Chousingha, Barking deer, Wild pig and Indian gaur. Mouse deer has also been recorded from the area.
- More than 300 species of birds have been reported from the area.

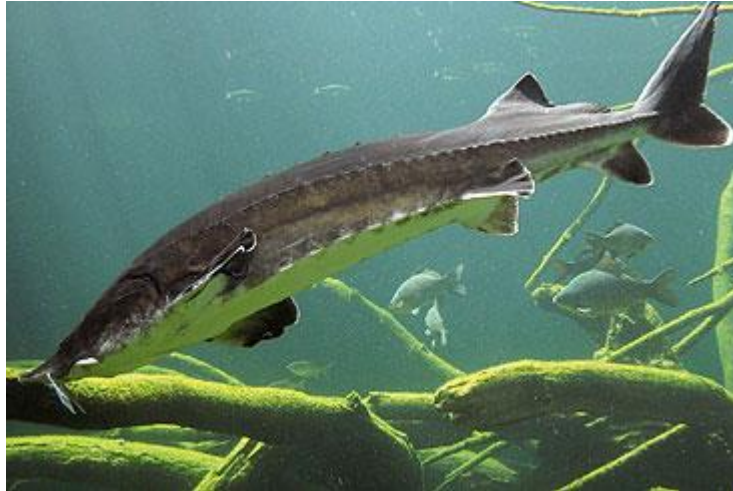
#### **Other Protected Areas in Maharashtra:**

3. Sahyadri Tiger Reserve.

4. Melghat Tiger reserve.
5. Great Indian Bustard Sanctuary.
6. Karnala Bird Sanctuary.
7. Sanjay Gandhi National Park.
8. Pench National Park

#### 43. Danube Sturgeon:

- According to a report released by the World Wildlife Fund (WWF), illegal sale of Danube Sturgeon, one of the most endangered species in the world, is rampant in the lower Danube (River) region, especially in Bulgaria, Romania, Serbia and Ukraine.
- Danube is the second longest river in Europe after the Volga. It rises in the Black Forest mountains of western Germany and flows for some 2,850 km to its mouth on the Black Sea.



#### Key Points:

- Sturgeons have existed since the time of dinosaurs, for about 200 million years. Some of the species can grow up to eight metre in length and live more than a century.
- They are called 'living fossils' because their appearance has altered very little over the years.
- Living Fossil is an organism that has remained unchanged from earlier geologic times and whose close relatives are usually extinct.
- Other than Sturgeons, Horseshoe crab and ginkgo trees are examples of living fossils.
- Because the sturgeons live for so many years, mature late and spawn with long intervals, they take a long time to recover from environmental and human pressures, according to WWF. This makes them great indicators for the health of the river and other ecological parameters.

#### Habitat:

- There are 27 species of sturgeons and paddlefishes distributed across the Northern hemisphere. While some species inhabit only freshwater, most species are anadromous, spawning in freshwater but spending much of their life history in marine or brackish environments.
- Danube sturgeons live mostly in the Black Sea, migrating up the Danube and other major rivers to spawn.

#### Threats:

- Over-exploitation and poaching (exacerbated by poor fishery management and insufficient legal enforcement of fishing bans).
- Blocked migration routes through dams.
- Loss or degradation of habitats.
- Pollution.

**Protection Status:**

- IUCN Red list: There are 6 species of sturgeon in the Danube River. Five of them are now listed as critically endangered.
- CITES: Appendix-II.
- World Wildlife Fund for Nature

**About WWF:**

- It is the world's leading conservation organization and works in more than 100 countries.
- Establishment:
- It was established in 1961 and is headquartered at Gland, Switzerland.

**Mission:**

- To conserve nature and reduce the most pressing threats to the diversity of life on Earth.

**Important Initiatives of WWF:**

- TX2 Goal
- TRAFFIC
- Living Planet Report
- Earth Hour

**About Black Sea:**

- Black Sea is an inland sea located between far-southeastern Europe and the far-western edges of the continent of Asia and the country of Turkey.
- It connects to the Mediterranean Sea first through the Bosphorus Strait, then through the Sea of Marmara and the Dardanelles Strait, then south through the Aegean Sea and the Sea of Crete.
- The Black Sea is also connected to the Sea of Azov by the Strait of Kerch.
- Bordering Countries: Romania, Bulgaria, Ukraine, Russia, Georgia, and Turkey.

**44. Indian Rhino Vision 2020:**

- The Indian Rhino Vision 2020 (IRV2020) program has come to a close with the recent translocation of two rhinos to Manas National Park in Assam.
- It was the eighth round of rhino translocation under IRV2020.

**About Indian Rhino Vision 2020:**

- Launched in 2005, Indian Rhino Vision 2020 was an ambitious effort to attain a wild population of at least 3,000 greater one-horned rhinos spread over seven protected areas in the Indian state of Assam by the year 2020.
- Seven protected areas are Kaziranga, Pobitora, Orang National Park, Manas National Park, Laokhowa wildlife sanctuary, Burachapori wildlife sanctuary and Dibru Saikhowa wildlife sanctuary.
- Wild-to-wild translocations were an essential part of IRV2020 – moving rhinos from densely populated parks like Kaziranga NP, to ones in need of more rhinos, like Manas NP.
- It is a collaborative effort between various organisations, including the International Rhino Foundation, Assam's Forest Department, Bodoland Territorial Council, World Wide Fund - India, and the US Fish and Wildlife Service.

**Performance of the Program:**

- Target of attaining a population of 3,000 rhinos almost achieved but the animal could be reintroduced in only one of the four protected areas planned.
- The plan to spread the Greater one-horned rhino across four protected areas beyond Kaziranga National Park, Orang National Park and Pobitora could not materialise.
- The translocated rhinos helped Manas National Park get back its World Heritage Site status in 2011.

- 2018 and 2019 saw significant decreases in poaching, the results of forestry, local and national government officials coordinating efforts to combat wildlife crime across Assam.

**About Greater One-Horned Rhino:**

- There are three species of rhino in Asia — Greater one-horned (*Rhinoceros unicornis*), Javan and Sumatran.
- Poaching for the horns and habitat loss are the two greatest threats to the survival of Asia's rhinos.
- The five rhino range nations (India, Bhutan, Nepal, Indonesia and Malaysia) have signed a declaration 'The New Delhi Declaration on Asian Rhinos 2019' for the conservation and protection of the species.

**Protection Status:**

- Javan and Sumatran Rhino are critically endangered and the Greater one-horned (or Indian) rhino is vulnerable under the IUCN Red List.
- All three listed under Appendix I (CITES).
- Greater one-horned rhino is listed under the Schedule I of the Wildlife Protection Act, 1972.

**Habitat of Greater One-Horned Rhino:**

- The species is restricted to small habitats in Indo-Nepal terai and northern West Bengal and Assam.
- In India, rhinos are mainly found in Kaziranga NP, Pobitora WLS, Orang NP, Manas NP in Assam, Jaldapara NP and Gorumara NP in West Bengal and Dudhwa TR in Uttar Pradesh.

**45. National Mission on Sustaining Himalayan Ecosystem:**

- Scientists, with support from the National Mission on Sustaining Himalayan Ecosystem (NMSHE) Programme, have been able to disseminate available scientific information to the farmers to enable sustainable and climate-resilient agriculture in the Leh region.
- NMSHE is one of the eight missions under the National Action Plan on Climate Change (NAPCC).

**Key Points:**

- It was launched in 2010 but was formally approved by the government in 2014.
- It is a multi-pronged, cross-cutting mission across various sectors.
- It contributes to the sustainable development of the country by enhancing the understanding of climate change, its likely impacts and adaptation actions required for the Himalayas- a region on which a significant proportion of India's population depends for sustenance.

**States Covered:**

- Eleven states: Himachal Pradesh, Uttarakhand, Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura, Meghalaya, Assam and West Bengal.
- Two Union Territories: Jammu and Kashmir and Ladakh.

**Objective:**

- To facilitate formulation of appropriate policy measures and time-bound action programmes to sustain ecological resilience and ensure the continued provisions of key ecosystem services in the Himalayas.
- To evolve suitable management and policy measures for sustaining and safeguarding the Himalayan ecosystem along with developing capacities at the national level to continuously assess its health status.
- To address a variety of important issues, including studying the Himalayan glaciers and associated hydrological consequences and prediction and management of natural hazards.

**Himalayas:**

- The Himalayas are the highest and the youngest fold mountain ranges of the world.

- Their geological structure is young, weak and flexible since the Himalayan uplift is an ongoing process, making them one of the highest earthquake-prone regions of the world.
- It separates India, along its north-central and northeastern frontier, from China (Tibet).

**Area:**

- The Indian part of Himalayas covers an area about 5 lakh km<sup>2</sup> (about 16.2% of the country's total geographical area) and forms the northern boundary of the country.
- The region is responsible for providing water to a large part of the Indian subcontinent. Many rivers considered holy like the Ganga and Yamuna flow from the Himalayas.

**Ranges:**

- The Himalayas are a series of parallel mountain ranges extending along the North-West to the South-East direction (known as the Strike of the Himalayas). These ranges are separated by longitudinal valleys. They include,
  - Trans-Himalayas
  - The Greater Himalayas or Himadri
  - The Lesser Himalayas or Himachal
  - Shiwaliks or the Outer Himalayas
  - The Eastern Hills or Purvanchal

**National Action Plan on Climate Change:**

- It was launched in 2008 by the Prime Minister's Council on Climate Change.
- The Ministry of Environment, Forest and Climate Change (MoEFCC) is the coordinating Ministry of NAPCC.
- It aims at creating awareness among the representatives of the public, different agencies of the government, scientists, industry and the communities on the threat posed by climate change and the steps to counter it.

**Missions:**

- There are 8 national missions forming the core of the NAPCC which represent multi-pronged, long term and integrated strategies for achieving key goals in climate change.
- National Solar Mission: This initiative started in 2010 to promote the use of solar power.
- National Mission for Enhanced Energy Efficiency: The initiative was undertaken in 2009 to promote the market for energy efficiency by fostering innovative policies and effective market instruments.
- National Mission on Sustainable Habitat: Approved in 2011, it aims to make cities sustainable through improvements in energy efficiency in buildings, management of solid waste and shift to public transport.

**National Water Mission:**

- The mission was put in place to ensure integrated water resource management helping to conserve water, minimize wastage and ensure more equitable distribution both across and within states.
- National Mission for Sustaining the Himalayan Ecosystem: It is aimed at protecting the Himalayas, it has mapped institutes and civil society organisations working on the Himalayan ecology for ease of coordination between governmental and non-governmental agencies.

**National Mission for a Green India:**

- It aims at protecting; restoring and enhancing India's diminishing forest cover and responding to climate change by a combination of adaptation and mitigation measures. It was started in 2014.
- National Mission for Sustainable Agriculture: It has been formulated for enhancing agricultural productivity especially in rain-fed areas focusing on integrated farming, water use efficiency, soil health management and synergizing resource conservation. It was started in 2010.

- National Mission on Strategic Knowledge for Climate Change: It seeks to build a dynamic and vibrant knowledge system that informs and supports national policy and action for responding effectively to climate change challenges, while not compromising on the nation's growth goals.

#### 46. Babu Jagjivan Ram:

- Recently, the Prime Minister paid tributes to freedom fighter and former Deputy Prime Minister Babu Jagjivan Ram on his 113th birth anniversary.
- Jagjivan Ram, popularly known as Babuji, was a national leader, a freedom fighter, a crusader of social justice, a champion of depressed classes and an outstanding Parliamentarian.

#### Key Points:

- Jagjivan Ram was born on 5th April 1908 in Chandwa in Bihar to a Dalit family.
- He pursued his schooling at the nearby town of Arrah where he faced discrimination for the first time.
- He was considered 'untouchable' and had to drink water from a different pot. Jagjivan Ram protested against this by breaking the pot. The principal then had to remove the separate pot from the school.
- In 1925, Jagjivan Ram met scholar Pandit Madan Mohan Malaviya and was greatly inspired by him. On Malaviya's invitation, he joined the Banaras Hindu University.
- Even at the university, Jagjivan Ram faced discrimination. This inspired him to protest against such social boycotts of a section of society.
- He also organised the scheduled castes to protest against injustice.
- After his stint at BHU, he joined the University of Calcutta from where he secured a B.Sc. degree in 1931.
- Jagjivan Ram had organized a number of Ravidas Sammelans and had celebrated Guru Ravidas Jayanti in different areas of Calcutta (Kolkata).

#### Pre-Independence Contributions:

- In 1931, he became a member of the Indian National Congress (Congress Party).
- He was instrumental in the foundation of the All India Depressed Classes League, an organisation dedicated to attaining equality for untouchables, in 1934-35.
- He was a champion of social equality and equal rights for the Depressed Classes.
- In 1935, he proposed at a session of the Hindu Mahasabha that drinking water wells and temples be open to untouchables.
- In 1935, Babuji also appeared before the Hammond Commission at Ranchi and demanded, for the first time, voting rights for the Dalits.
- He was jailed twice in the early 1940s for his political activities associated with the Quit India movement against British rule.

#### Post-Independence Contributions:

- When Jawaharlal Nehru formed the provisional government, Jagjivan Ram became its youngest minister.
- After independence he held the labour portfolio until 1952. Thereafter he served in Nehru's cabinet in the posts of minister for communications (1952-56), transport and railways (1956-62), and transport and communications (1962-63).
- He served as minister for food and agriculture (1967-70), and in 1970 he was made minister of defence.
- The Indo-Pakistan War of 1971 was fought when he was the defence minister.
- He left Congress in 1977 and joined the Janata Party alliance, along with his Congress for Democracy (new party). He later served as the Deputy Prime Minister of India (1977-79).



- Jagjivan Ram was a member of the Parliament uninterrupted from 1936 to 1986 (40 years) and this is a world record.
- He also holds another record for being the longest-serving cabinet minister in India (30 years).
- He died on 6th July 1986 at New Delhi.
- His memorial at his cremation place is named Samta Sthal (Place of Equality).

#### 47. Jyotirao Phule:

- The 'Tika Utsav (vaccination festival)', started on the birth anniversary of Mahatma Jyotirao Phule (11th April) will continue till the birth anniversary of Babasaheb Ambedkar on 14th April 2021.
- The aim of the four day festival is to vaccinate as many people as possible for the priority groups and zero wastage of Covid-19 vaccine.
- Jyotirao Phule was an Indian social activist, thinker, anti-caste social reformer and writer from Maharashtra. He is also known as Jyotiba Phule.

#### Key Points:

- Birth: Phule was born on 11th April, 1827 in present-day Maharashtra and belonged to the Mali caste of gardeners and vegetable farmers.
- Education: In 1841, Phule was enrolled at the Scottish Missionary High School (Pune), where he completed education.
- Ideology: His Ideology was based on: Liberty; Egalitarianism; Socialism.
- Phule was influenced by Thomas Paine's book titled The Rights of Man and believed that the only solution to combat the social evils was the enlightenment of women and members of the lower castes.
- Major Publications: Tritiya Ratna (1855); Powada: Chatrapati Shivajiraje Bhosle Yancha (1869); Gulamgiri (1873), Shetkarayacha Aasud (1881).
- Related Association: Phule along with his followers formed Satyashodhak Samaj in 1873 which meant 'Seekers of Truth' in order to attain equal social and economic benefits for the lower castes in Maharashtra.
- Municipal Council Member: He was appointed commissioner to the Poona municipality and served in the position until 1883.
- Title of Mahatma: He was bestowed with the title of Mahatma on 11th May, 1888 by a Maharashtrian social activist Vithalrao Krishnaji Vandekar.

#### Social Reformer:

- In 1848, he taught his wife (Savitribai) how to read and write, after which the couple opened the first indigenously run school for girls in Pune where they both taught.
- He was a believer in gender equality and he exemplified his beliefs by involving his wife in all his social reform activities.
- By 1852, the Phules had established three schools but all of them had shut by 1858 due to the shortage of funds after the Revolt of 1857.
- Jyotiba realised the pathetic conditions of widows and established an ashram for young widows and eventually became an advocate of the idea of Widow Remarriage.
- Jyotirao attacked the orthodox Brahmins and other upper castes and termed them as "hypocrites".
- In 1868, Jyotirao constructed a common bathing tank outside his house to exhibit his embracing attitude towards all human beings and wished to dine with everyone, regardless of their caste.
- He started awareness campaigns that ultimately inspired the likes of Dr. B.R. Ambedkar and Mahatma Gandhi, stalwarts who undertook major initiatives against caste discrimination later.

**48. Jallianwala Bagh Massacre:**

- It is believed by many that it was Phule who first used the term 'Dalit' for the depiction of oppressed masses often placed outside the 'varna system'.
- He worked for abolishment of untouchability and caste system in Maharashtra.
- Death: 28th November, 1890. His memorial is built in Phule Wada, Pune, Maharashtra.

- The Prime Minister of India paid tributes to the martyrs of the Jallianwala Bagh massacre of 1919.
- 13th April, 2020 marks the 101 years of the incident.

**Key Points:**

- Jallianwala Bagh Massacre, also called Massacre of Amritsar was an incident on April 13, 1919, in which British troops fired on a large crowd of unarmed Indians in an open space known as the Jallianwala Bagh in Amritsar in Punjab.
- The Jallianwala Bagh site in Amritsar is now a national monument.
- It killed several hundred people and wounded many hundreds more. It marked a turning point in India's modern history, in that it left a permanent scar on Indo-British relations and was the precursor to Mahatma Gandhi's full commitment to the cause of Indian nationalism and independence from Britain.

**Events before the Jallianwala Bagh Massacre:**

- During World War I (1914–18) the British government of India enacted a series of repressive emergency powers that were intended to combat subversive activities.
- By the war's end, expectations were high among the Indian populace that those measures would be eased and that India would be given more political autonomy. The Montagu-Chelmsford Report, presented to the British Parliament in 1918, did in fact recommend limited local self-government.
- Further, the then government of India passed what became known as the Rowlatt Acts in early 1919, which essentially extended the repressive wartime measures. The acts were met by widespread anger and discontent among Indians, notably in the Punjab region. Gandhi in early April called for a one-day general strike (Rowlatt Satyagraha) throughout the country.
- In Amritsar the news that prominent Indian leaders (Satya Pal and Saifuddin Kitchlew) had been arrested and banished from that city sparked violent protests on April 10, in which soldiers fired upon civilians and angry mobs killed several foreign nationals.
- A force of several dozen troops commanded by Brig. Gen. Reginald Edward Harry Dyer was given the task of restoring order. Among the measures taken was a ban on public gatherings.

**On the Date of the Jallianwala Bagh Massacre:**

- On the afternoon April 13, a crowd of at least 10,000 men, women, and children gathered in the Jallianwala Bagh, which was nearly completely enclosed by walls and had only one exit.
- It is not clear how many people there were protesters who were defying the ban on public meetings and how many had come to the city from the surrounding region to celebrate Baisakhi, a spring festival.
- Dyer and his soldiers arrived and sealed off the exit. Without warning, the troops opened fire on the crowd, reportedly shooting hundreds of rounds until they ran out of ammunition.

**After the Incident:**

- The Bengali poet and Nobel laureate Rabindranath Tagore renounced the knighthood that he had received in 1915. Gandhi soon began organizing his first large-scale and sustained nonviolent protest (satyagraha) campaign, the Non Cooperation Movement (1920–22).
- The then government of India ordered an investigation of the incident (the Hunter Commission), which in 1920 censured Dyer for his actions and ordered him to resign from the military.

#### 49. B R Ambedkar: 130th Birth Anniversary:

- The nation celebrated the 130th birth anniversary of B R Ambedkar on 14th April 2021.
- Dr. Ambedkar was a social reformer, jurist, economist, author, polyglot (knowing or using several languages) orator, a scholar and thinker of comparative religions.

#### Key Points:

- Birth: Babasaheb Dr. Bhimrao Ambedkar was born in 1891 in Mhow, Central Province (now Madhya Pradesh).
- He is known as the Father of the Indian Constitution and was India's first Law Minister.
- He was the Chairman of the Drafting Committee for the new Constitution.
- He was a well-known statesman who fought for the rights of the Dalits and other socially backward classes.

#### Contributions:

- He led the Mahad Satyagraha in March 1927 against Hindus who were opposing the decision of the Municipal Board.
- In 1926, Municipal Board of Mahad (Maharashtra) passed an order to throw open the tank to all communities. Earlier, the untouchables were not allowed to use water from the Mahad tank.
- He participated in all three Round Table Conferences.
- In 1932, Dr. Ambedkar signed the Poona pact with Mahatma Gandhi, which abandoned the idea of separate electorates for the depressed classes (Communal Award).
- However, the seats reserved for the depressed classes were increased from 71 to 147 in provincial legislatures and to 18% of the total in the Central Legislature.
- His ideas before the Hilton Young Commission served as the foundation of the Reserve Bank of India (RBI).

#### Election and Designation:

- In 1936, he was elected to the Bombay Legislative Assembly as a legislator (MLA).
- He was appointed to the Executive Council of Viceroy as a Labour member in 1942.
- In 1947, Dr. Ambedkar accepted PM Nehru's invitation to become Minister of Law in the first Cabinet of independent India.

#### Shift to Buddhism:

- He resigned from the cabinet in 1951, over differences on the Hindu Code Bill.
- He converted to Buddhism. He passed away on 6th December 1956 (Mahaparinirvan Diwas).
- Chaitya Bhoomi is a memorial to B R Ambedkar, located in Mumbai.
- He was awarded India's highest civilian honour the Bharat Ratna in 1990.

#### Important Works:

##### Journals:

1. Mooknayak (1920)
2. Bahishkrit Bharat (1927)
3. Samatha (1929)
4. Janata (1930)

##### Books:

1. Annihilation of Caste
2. Buddha or Karl Marx
3. The Untouchable: Who are They and Why They Have Become Untouchables
4. Buddha and His Dhamma
5. The Rise and Fall of Hindu Women

##### Organisations:

- Bahishkrit Hitkarini Sabha (1923)

- Independent Labor Party (1936)
- Scheduled Castes Federation (1942)

#### **Relevance of Ambedkar in Present Times:**

- Caste-based inequality in India still persists. While Dalits have acquired a political identity through reservation and forming their own political parties, they lack behind in social dimensions (health and education) and economic dimension.
- There has been a rise of communal polarization and communalization of politics. It is necessary that Ambedkar's vision of constitutional morality must supersede religious morality to avoid permanent damage to the Indian Constitution.

#### **Round Table Conferences:**

- First Round Table Conference: It was held in London on 12th November, 1930 but the Congress did not participate in it.
- In March 1931, Mahatma Gandhi and Lord Irwin (Viceroy of India 1926-31) entered into a Pact, called Gandhi-Irwin Pact, by which the Congress called off the Civil Disobedience Movement and agreed to participate in the Round Table Conference.
- Second Round Table Conference: It was held in London on the 7th of September, 1931.
- Third Round Table Conference: It was held in London on the 17th of November, 1932 to consider the reports of various sub-committees appointed from time to time. It ultimately led to the passage of Govt. of India Act, 1935.
- The Congress did not participate as most of the leaders were in jail.

#### **50. Poet Sarala Das:**

- The Vice President addressed Odia Adikabi Sarala Das's 600th birth anniversary function in Cuttack.
- Sarala Das was one of the great scholars of Odia literature.

#### **Key Points:**

- He was the first scholar who wrote his works in Odia in 15th century A.D.
- Best known for three Odia books, Mahabharata, Vilanka Ramayana and Chandi Purana.
- He also wrote the book Laxmi Narayana Vachanika.
- He started writing his Mahabharata in the reign of Kapileswar, otherwise known as Kapilendra, the famous Gajapati king of Odisha (AD 1435–67).

#### **Odia Language:**

- Oldest of the eastern group of the Indo-Aryan family, Odia is derived from Ardhamagadhi Prakrit.
- Odia is one of the six languages that got **Classical Language Status** in India.
- A language officially "scheduled," in the Indian constitution.
- It is also the main official language of the Indian state of Odisha.

#### **51. Traditional New Year Festivals:**

- The Vice President of India greeted the people on festivals 'Chaitra Sukladi, Gudi Padwa, Ugadi, Cheti Chand, Vaisakhi, Vishu, Puthandu, and Bohag Bihu'.
- These festivals of the spring season mark the beginning of the traditional New Year in India.

#### **Chaitra Sukladi:**

- It marks the beginning of the new year of the Vikram Samvat also known as the Vedic [Hindu] calendar.
- Vikram Samvat is based on the day when the emperor Vikramaditya defeated Sakas, invaded Ujjain and called for a new era.

- Under his supervision, astronomers formed a new calendar based on the luni-solar system that is still followed in the northern regions of India.
- It is the first day during the waxing phase (in which the visible side of moon is getting bigger every night) of the moon in the Chaitra (first month of Hindu calendar).

#### **Gudi Padwa and Ugadi:**

- These festivals are celebrated by the people in the Deccan region including Karnataka, Andhra Pradesh and Maharashtra.
- The common practice in the celebrations of both the festivals is the festive food that is prepared with a mix of sweet and bitter.
- A famous concoction served is jaggery (sweet) and neem (bitter), called bevu-bella in the South, signifying that life brings both happiness and sorrows.
- Gudi is a doll prepared in Maharashtrian homes.
- A bamboo stick is adorned with green or red brocade to make the gudi. This gudi is placed prominently in the house or outside a window/ door for all to see.
- For Ugadi, doors in homes are adorned with mango leaf decorations called toranalu or Torana in Kannada.

#### **Cheti Chand:**

- Sindhis celebrate the New Year as Cheti Chand. Chaitra month is called 'Chet' in Sindhi.
- The day commemorates the birth anniversary of Uderolal/Jhulelal, the patron saint of Sindhis.

#### **Navreh:**

- It is the lunar New Year that is celebrated in Kashmir.
- It is the Sanskrit word 'Nav-Varsha' from where the word 'Navreh' has been derived.
- It falls on the first day of the Chaitra Navratri.
- On this day, Kashmiri pandits look at a bowl of rice which is considered as a symbol of riches and fertility.

#### **Vaishakhi:**

- It is also pronounced as Baisakhi, observed by Hindus and Sikhs.
- It marks the beginning of Hindu Solar New year.
- It commemorates the formation of Khalsa panth of warriors under Guru Gobind Singh in 1699.
- Baisakhi was also the day when colonial British Empire officials committed the Jallianwala Bagh massacre at a gathering, an event influential to the Indian movement against colonial rule.

#### **Vishu:**

- It is a Hindu festival celebrated in the Indian state of Kerala, Tulu Nadu region in Karnataka, Mahé district of Union Territory of Pondicherry, neighbouring areas of Tamil Nadu and their diaspora communities.
- The festival marks the first day of Medam, the ninth month in the solar calendar followed in Kerala.
- It therefore always falls in the middle of April in the Gregorian calendar on 14th or 15th April every year.

#### **Puthandu:**

- It is known as Puthuvarudam or Tamil New Year, is the first day of the year on the Tamil calendar and traditionally celebrated as a festival.
- The festival date is set with the solar cycle of the lunisolar Hindu calendar, as the first day of the Tamil month Chithirai.
- It therefore falls on or about 14th April every year on the Gregorian calendar.

#### **Bohag Bihu:**

- Bohag Bihu or Rongali Bihu also called Xaat Bihu (seven Bihus) is a traditional aboriginal ethnic festival celebrated in the state of Assam and other parts of northeastern India by the indigenous ethnic groups of Assam.
- It marks the beginning of the Assamese New Year.
- It usually falls in the 2nd week of April, historically signifying the time of harvest.

### 52. Antarctica's Doomsday Glacier:

- Researchers from Sweden's University of Gothenburg have been able to obtain data from underneath Thwaites Glacier, also known as the 'Doomsday Glacier'.
- They find that the supply of warm water to the glacier is larger than previously thought, triggering concerns of faster melting and accelerating ice flow.

#### Doomsday Glacier:

- Called the Thwaites Glacier, it is 120 km wide at its broadest, fast-moving, and melting fast over the years.
- Because of its size (1.9 lakh square km), it contains enough water to raise the world sea level by more than half a metre.
- Studies have found the amount of ice flowing out of it has nearly doubled over the past 30 years.
- Today, Thwaites's melting already contributes 4% to global sea level rise each year.
- It is estimated that it would collapse into the sea in 200-900 years.
- Thwaites is important for Antarctica as it slows the ice behind it from freely flowing into the ocean.
- Because of the risk it faces, and poses, Thwaites is often called the Doomsday Glacier (Doomsday meaning warning or threat, something that can cause destruction).

#### Previous Studies:

- Hole in the Glacier: A 2019 study had discovered a fast-growing cavity in the glacier, sized roughly two-thirds the area of Manhattan.
- The size of a cavity under a glacier plays an important role in melting. As more heat and water get under the glacier, it melts faster.

#### Detection of Warm Water at Grounding Line:

- About: In 2020, researchers from New York University (NYU) detected warm water at a vital point below the glacier. In the NYU study, scientists dug a 600-m-deep and 35-cm-wide access hole, and deployed an ocean-sensing device called Icefin to measure the waters moving below the glacier's surface.

#### Findings:

- The NYU study reported water at just two degrees above freezing point at Thwaites's "grounding zone" or "grounding line".
- The grounding line is the place below a glacier at which the ice transitions between resting fully on bedrock and floating on the ocean as an ice shelf. The location of the line is a pointer to the rate of retreat of a glacier.
- When glaciers melt and lose weight, they float off the land where they used to be situated. When this happens, the grounding line retreats. That exposes more of a glacier's underside to seawater, increasing the likelihood it will melt faster.
- This results in the glacier speeding up, stretching out, and thinning, causing the grounding line to retreat ever further.

#### Findings from Sweden's Gothenburg Study (New Study):

- **About:** Sweden's Gothenburg study used an uncrewed submarine to go under the Thwaites glacier front to make observations.



- The submersible called “Ran” measured among other things the strength, temperature, salinity and oxygen content of the ocean currents that go under the glacier.
- Using the results, the researchers have been able to map the ocean currents that flow below Thwaites’s floating part.
- **Findings:** The researchers have been able to identify three inflows of warm water, among whom the damaging effects of one had been underestimated in the past.
- The researchers discovered that there is a deep connection to the east through which deep water flows from Pine Island Bay, a connection that was previously thought to be blocked by an underwater ridge.
- Pine Island Bay is a drainage system of West Antarctica.
- The study also looked at heat transport in one of the three channels which brings warm water towards the glacier from the north.
- They found that there were distinct paths that water takes in and out of the ice shelf cavity, influenced by the geometry of the ocean floor.

#### Way Forward:

- The study shows that warm water is approaching the pinning points of the glacier from all sides, impacting these locations where the ice is connected to the seabed and where the ice sheet finds stability. This has the potential to make things worse for Thwaites, whose ice shelf is already retreating.
- For the first time, data is being collected that is necessary to model the dynamics of Thwaites glacier. This data will help better calculate ice melting in the future.
- With the help of new technology, models can be improved and the great uncertainty that now prevails around global sea level variations can be reduced.

#### 53. Godavari River:

- The Godavari water is to be released into the irrigation canals in East and West Godavari districts from the Polavaram irrigation project site up to 15th April 2021 against the previous deadline of 31st March 2021.
- Work on the cofferdam is scheduled to commence in April.

#### Godavari River:

- The Godavari is the largest Peninsular river system. It is also called the Dakshin Ganga.
- **Source:** Godavari river rises from Trimbakeshwar near Nasik in Maharashtra and flows for a length of about 1465 km before outfalling into the Bay of Bengal.
- **Drainage Basin:** The Godavari basin extends over states of Maharashtra, Telangana, Andhra Pradesh, Chhattisgarh and Odisha in addition to smaller parts in Madhya Pradesh, Karnataka and Union territory of Puducherry.
- **Tributaries:** Pravara, Purna, Manjra, Penganga, Wardha, Wainganga, Pranhita (combined flow of Wainganga, Penganga, Wardha), Indravati, Maner and the Sabri.
- **Cultural Significance:** Kumbh Mela also takes place on the banks of the Godavari river in Nashik.
- **Other locations for Kumbh** are the Shipra river in Ujjain, the Ganges in Haridwar, and the confluence of the Ganges, Yamuna, and the mythical Saraswati river in Prayag.
- **Godavari River Dispute:** Godavari river water sharing is bone of contention among Andhra Pradesh, Madhya Pradesh, Chhattisgarh, Odisha, and Karnataka.

#### Important Projects on Godavari:

1. Polavaram Irrigation Project.
2. Kaleshwaram.

- Sadarmatt Anicut across river Godavari is one among the two irrigation projects in the International Commission on Irrigation and Drainage (ICID) Register of Heritage Irrigation Structures.

#### **Inchampalli:**

- The Inchampalli project is proposed on the Godavari River about 12 km downstream of the confluence of Indravati with the Godavari River in Andhra Pradesh.
- It is a joint project among the States of Maharashtra, Madhya Pradesh, Telangana and Andhra Pradesh.
- Sriram Sagar Project (SRSP): The Sriram Sagar Project is a multipurpose project, located across the Godavari River near Pochampad of Nizamabad District in Telangana.

#### **Polavaram Irrigation Project:**

- Polavaram Project is located in Andhra Pradesh on the river Godavari, near Polavaram village.
- It is a multi-purpose irrigation project as the project once completed will provide Irrigation benefits and will generate HydroElectric Power.
- In addition, this project will also supply drinking water.
- It will facilitate an inter-basin transfer to the Krishna river basin through its Right canal.
- It will also provide indirect benefits such as development of Pisciculture (breeding and rearing of fish), tourism and urbanisation.
- The Project has been accorded national project status by the union government in 2014 (under Section-90 of Andhra Pradesh Reorganization Act, 2014).

#### **Cofferdam:**

- A cofferdam is defined as a temporary barrier in or around a body of water which allows the process of de-watering, diversion, or damming of water within an enclosed area.
- The major purpose of any cofferdam type is to hold back overwhelming or inconvenient waters and create a dry work environment.
- This allows a project to proceed with as little resistance and as much safety as possible.

#### **54. Effect of Dust on Monsoon:**

- Recently, a study details how the Indian monsoon gets influenced by the atmospheric dust particles swept up by winds from deserts in the Middle East (Asian Deserts).

#### **Dust:**

- Dust is very small dry particles of earth or sand.
- PM10 and PM2.5 refers to dust classified by the size of particles.
- The natural erosion of soil, sand and rock is the most common source of dust.
- Dust emission is common in urban areas from a range of activities such as gardening, to large scale industrial operations.
- It is known to influence monsoons, hurricanes and even fertilize rainforests.
- The dust emission scheme is extremely sensitive to climate change and understanding these mechanisms and effects of dust can help understand our monsoon systems in the face of global climate change.

#### **Effect of Dust on Monsoon:**

- Dust storms from the desert when lifted by strong winds can absorb solar radiation and become hot.
- This can cause heating of the atmosphere, change the air pressure, wind circulation patterns, influence moisture transport and increase precipitation and rainfall.

#### **Effect on Indian Monsoon:**

- Dust from the Middle East [West Asia] and also from the Iranian Plateau also influences the Indian Summer Monsoon (South West Monsoon).

- The hot air over the Iranian Plateau can heat the atmosphere over the plateau, strengthen the circulation over the deserts of the Arabian Peninsula and increase dust emission from the Middle East [West Asia].

#### Reverse Effect:

- Indian Summer Monsoon has a reverse effect and can increase the winds in West Asia to produce yet more dust.
- A strong monsoon can also transport air to West Asia and again pick up a lot of dust.

#### Effect of Anthropogenic Dust:

- There is a difference of opinion, some studies found that anthropogenic aerosols emitted from the Indian subcontinent can decrease summer monsoon precipitation, while others found that absorbing aerosols such as dust can strengthen the monsoon circulation.
- Aerosols are defined as a combination of liquid or solid particles suspended in a gaseous or liquid environment.
- Anthropogenic aerosols include sulfate, nitrate, and carbonaceous aerosols, and are mainly from fossil fuel combustion sources.
- However, a recent study showed that they can strengthen Indian summer monsoon rainfall.
- Aerosol particles, such as dust, play an important role in the precipitation process, providing the nuclei upon which condensation and freezing take place.

#### Role of Deserts in Monsoon:

- Deserts across the globe play important roles in monsoons.
- The dust aerosols from deserts in West China such as the Taklamakan desert and the Gobi Desert can be transported eastward to eastern China and can influence the East Asia summer monsoon.
- In the southwest United States, there are some small deserts that influence the North African monsoon.

#### Major Deserts of the World:

##### About Monsoon:

- A monsoon often brings about thoughts of torrential rains, similar to a hurricane or typhoon. But there is a difference: a monsoon is not a single storm; rather, it is a seasonal wind shift over a region.
- The shift may cause heavy rains in the summer, but at other times, it may cause a dry spell.
- Cause for Monsoon:
- A monsoon (from the Arabic mawsim, which means "season") arises due to a difference in temperatures between a land mass and the adjacent ocean.
- The sun warms the land and ocean differently, causing the winds to play "tug of war" eventually switching directions bringing the cooler, moister air from over the ocean.
- The winds reverse again at the end of the monsoon season.

##### Types:

- **Wet Monsoon:** A wet monsoon typically occurs during the summer months (about April through September) bringing heavy rains.
- On average, approximately 75% of India's annual rainfall and about 50% of the North American monsoon region comes during the summer monsoon season.
- The wet monsoon begins when winds bring cooler, more humid air from above the oceans to the land.
- **Dry Monsoon:** A dry monsoon typically occurs between October and April.
- Instead of coming from the oceans, the winds tend to come from drier, warmer climates such as from Mongolia and northwestern China down into India.
- Dry monsoons tend to be less powerful than their summer counterparts.

- The winter monsoon occurs when "the land cools off faster than the water and a high pressure develops over the land, blocking any ocean air from penetrating." This leads to a dry period.

**Location:**

- A monsoon forms in the tropics (between 0 and 23.5 degrees latitude north and south) and subtropics (between 23.5 degrees and 35 degrees latitude north and south).
- The strongest monsoons tend to occur in India and South Asia in the north and Australia and Malaysia in the south.
- Monsoons also occur in southern parts of North America, in Central America, northern areas of South America, and in western Africa.

**55. Chenab Bridge:**

- Recently, Indian Railways completed the arch closure of the iconic Chenab Bridge in Jammu & Kashmir.
- It is the world's highest railway bridge and is part of the Udhampur-Srinagar-Baramulla rail link project (USBRL).
- The Project was declared as a Project of National Importance in March 2002.
- This bridge is 1,315-metre long and is the highest railway bridge in the world being 359 metres above the river bed level.
- The completion of the steel arch is a major leap towards the completion of the 111 km long winding stretch from Katra to Banihal.
- It is arguably the biggest civil-engineering challenge faced by any railway project in India in recent history.

**Unique Features of this Bridge:**

- Bridge designed to withstand high wind speed up to 266 Km/Hour.
- Bridge designed for blast load in consultation with DRDO for the first time in India.
- Bridge designed to bear earthquake forces of highest intensity zone-V in India.
- First time on Indian Railways, Phased Array Ultrasonic Testing machine used for testing of welds.
- First time on Indian Railways, National Accreditation Board for Testing and Calibration Laboratories (NABL) accredited lab established at site for weld testing.
- Extensive health monitoring and warning systems planned through state of art instrumentation.

**Chenab River**





- **Source:** It rises in the upper Himalayas in the Lahaul and Spiti district of Himachal Pradesh state.
- The river is formed by the confluence of two rivers, Chandra and Bhaga, at Tandi, 8 km southwest of Keylong, in the Lahaul and Spiti district.
- The Bhaga river originates from Surya taal lake, which is situated a few kilometers west of the Bara-lacha la pass in Himachal Pradesh.
- The Chandra river originates from glaciers east of the same pass (near Chandra Taal).
- **Flows Through:** It flows through the Jammu region of Jammu and Kashmir into the plains of Punjab, Pakistan, before flowing into the Indus River.
- **Some of the important projects/dams on Chenab:**
  1. Ratle Hydro Electric Project
  2. Salal Dam- hydroelectric power project near Reasi
  3. Dul Hasti Hydroelectric Plant- power project in Kishtwar District
  4. Pakal Dul Dam (under construction)- on a tributary Marusadar River in Kishtwar District.

### 56. Red Sea:

- An Iranian freighter was hit by Israel in the Red Sea in retaliation for past Iranian strikes on its vessels. The blast struck the Iranian commercial vessel MV Saviz off the coast of Djibouti.
- The attack came as Iranian officials gathered in Vienna to negotiate the restoration of a 2015 deal Joint Comprehensive Plan of Action (JCPOA) that was designed to curb Iran's nuclear activities.



#### Key Points:

- The Red Sea is a semi-enclosed tropical basin, bounded by northeastern Africa, to the west, and the Arabian peninsula, to the east.
- The elongated and narrow-shaped basin extends between the Mediterranean Sea, to the north-west, and the Indian Ocean, to the south-east.
- At the northern end, it separates into the Gulf of Aqaba and the Gulf of Suez, which is connected to the Mediterranean Sea via the Suez Canal.

- At the southern end, it is connected to the Gulf of Aden, and the outer Indian Ocean, via the Strait of Bab-el-Mandeb.
- It is surrounded by desert or semi-desert areas, with no major freshwater inflow.
- The Red sea acquired its present shape over the past 4 to 5 million years, by slow seafloor spreading, a fact that makes it a geologically recent opening and one of the youngest oceanic zones on Earth. Today, the basin continues to widen at a rate of 1-2 cm per year

#### **Biodiversity:**

- The unique habitats of the Red sea support a wide range of marine life, including sea turtles, dugongs, dolphins and many endemic fish species.
- Coral reefs mainly extend along the northern and central coasts, and decrease in abundance towards the southern region, as coastal waters become more turbid.
- The Reason why it is called Red Sea:
- There are various theories as to how the name came about, with the most popular being a reference to the seasonal blooms of **Trichodesmium erythraeum** (a red-colored algae) near the water's surface.
- Other scholars believe it is linked to the way Asiatic languages often use colors to refer to cardinal directions, with "red" referring to "south" just as the Black Sea may be referring to the north.

#### **Joint Comprehensive Plan of Action:**

- In 2015, Iran with the P5+1 group of world powers - the US, UK, France, China, Russia, and Germany agreed on a long-term deal on its nuclear programme.
- The deal was named as Joint Comprehensive Plan of Action (JCPOA) and in common parlance as Iran Nuclear Deal.
- The deal came after years of tension over Iran's alleged efforts to develop nuclear weapons.
- Iran insisted that its nuclear programme was entirely peaceful, but the international community did not believe that.
- Under the JCPOA, Iran agreed to limit its nuclear activities by stopping uranium enrichment and allowing the international agencies to inspect its nuclear facilities in return for the lifting of economic sanctions.
- However, in May 2018, the USA pulled out of the JCPOA and threatened to impose sanctions on Iran and on nations doing a significant amount of trade with Iran.

#### **57. Online Grievance Management Portal: NCSC**

- The Government launched the "Online Grievance Management Portal of National Commission for Scheduled Castes (NCSC)" on the occasion of 130th birth anniversary of Dr. B R Ambedkar.
- The portal would make it easier for the SC population to register their complaints.

#### **About the Online Portal:**

- It has been designed in collaboration with the Bhaskaracharya Institute for Space Applications and Geoinformatics (BISAG-N), a Centre of Excellence under the Ministry of Electronics and Information Technology.
- It will facilitate an end-to-end e-filing of complaints and grievances and their tracking.
- It is for submission of complaints about atrocities against citizens who belong to the Scheduled Castes.
- It is "intended to make the hearing processor" similar to India's e-Courts project and allow grievance redressal for the country's scheduled caste population in a "time bound manner".
- It will supplement the physical submission of complaints and grievances.

#### **About the National Commission for Scheduled Castes (NCSC):**



- NCSC is a constitutional body that works to safeguard the interests of the Scheduled Castes (SC) in India.
- Article 338 of the Constitution of India deals with this commission.
- It provided for a National Commission for the Scheduled Castes and Scheduled Tribes with duties to investigate and monitor all matters relating to safeguards provided for them, to inquire into specific complaints and to participate and advise on the planning process of their socio-economic development etc.
- By the amendment in 2003, the erstwhile National Commission for SC and ST was replaced by two separate Commissions from the year 2004 which are: National Commission for Scheduled Castes (NCSC) and National Commission for Scheduled Tribes (NCST)-under Article 338-A.

#### **Functions of the NCSC:**

- Monitoring and investigating all issues concerning the safeguards provided for the SCs under the Constitution.
- Enquiring into complaints relating to the deprivation of the rights and safeguards of the SCs.
- Taking part in and advising the central or state governments with respect to the planning of socio-economic development of the SCs.
- Regular reporting to the President of the country on the implementation of these safeguards.
- Any other function with respect to the welfare, protection, development and advancement of the SC community.
- The Commission is also required to discharge similar functions with regard to the Anglo-Indian Community as it does with respect to the SCs.
- Till 2018, the commission was also required to discharge similar functions with regard to the Other Backward Classes (OBCs). It was relieved from this responsibility by the 102nd Amendment Act of 2018.

#### **Other Constitutional and Legal Provisions For Upliftment of the Schedule Caste:**

- Article 15(4) refers to the special provisions for their advancement.
- Article 16(4A) speaks of “reservation in matters of promotion to any class or classes of posts in the services under the State in favour of SCs/STs, which are not adequately represented in the services under the State’.
- Article 17 abolishes Untouchability.
- Article 46 requires the State ‘to promote with special care the educational and economic interests of the weaker sections of the people, and, in particular, of the Scheduled Castes and the Scheduled Tribes, and to protect them from social injustice and all forms of exploitation.
- Article 335 provides that the claims of the members of the Scheduled Castes and the Scheduled Tribes shall be taken into consideration, consistently with the maintenance of efficiency of administration, in the making of appointments to services and posts in connection with the affairs of the Union or of a State.
- Article 330 and Article 332 of the Constitution respectively provide for reservation of seats in favour of the Scheduled Castes and the Scheduled Tribes in the House of the People and in the legislative assemblies of the States.
- Under Part IX relating to the Panchayats and Part IXA of the Constitution relating to the Municipalities, reservation for SC and ST in local bodies has been envisaged and provided.
- The SC and the ST (Prevention of Atrocities) amendment Act, 2018.

#### **58. Child Labour and Forced labour in India:**

- A recent study has raised the issue of ambiguity about definitions of child labour and forced labour in India, especially for sugarcane producing states of Bihar, Karnataka, Maharashtra, Punjab, and Uttar Pradesh.

- The study was commissioned by the United Nations Development Programme (UNDP) and The Coca-Cola Company.

#### **Findings from the Study:**

- Authorities discounted underage child labour as “children helping parents in the field”.
- Similarly, confusion was about the advance payment to migrant workers, and associated risks of forced or bonded labour.
- Most of the interventions in the sugarcane sector, either by government authorities or by the Corporate Social Responsibility (CSR) arm of companies, were focused just on “improving farming techniques to ensure an increase in cane productivity”.
- Child Labour and Forced Labour (Meaning):
- The term “child labour” is often defined as work that deprives children of their childhood, their potential and their dignity, and that is harmful to physical and mental development.
- Forced labour is defined as “all work or service which is exacted from any person under the menace of any penalty and for which the said person has not offered himself voluntarily”.
- The term forced labour includes slavery and practices similar to slavery as well as bonded labour or debt bondage.
- Bonded Labour is a practice in which employers give high-interest loans to workers who work at low wages to pay off the debt.

#### **Provisions of Child Labour (Prohibition and Regulation) Amendment Act, 2016:**

- According to the Act, employment of children below the age of 14 years in any commercial enterprise is illegal.
- The Act also bars the employment of adolescents in occupations that deal with hazardous working conditions such as chemical plants and mines.
- The Act says that children can only work after school hours or during holidays and that children are allowed to work in family owned secure sectors.

#### **Criticism:**

- It is criticised that the Act allows child labour in “family or family enterprises” or allows the child to be “an artist in an audio-visual entertainment industry”.
- It excludes a section of toiling children in the unorganized sectors including agriculture as well as the household work.
- The Act does not define the hours of work and it simply states that children may work after school hours or during vacations.

#### **Bonded Labour in India:**

- The Supreme Court of India has interpreted bonded labour as the payment of wages that are below the prevailing market wages and legal minimum wages.
- The Constitution of India prohibits forced labour under Article 23 (Fundamental Rights).
- Article 23: Prohibition of traffic in human beings and forced labour.
- Bonded labour was historically associated with rural economies where peasants from economically disadvantaged communities were bound to work for the landlords.
- Bonded labour is found to exist in both rural and urban pockets in unorganized industries such as brick kilns, stone quarries, coal mining, agricultural labour, domestic servitude, circus, and sexual slavery.

#### **Sugarcane Cultivation in India:**

- It is a tropical as well as a subtropical crop. It grows well in hot and humid climate with a temperature of 21°C to 27°C and an annual rainfall between 75cm and 100cm
- In India, sugarcane is primarily grown and cultivated in Bihar, Karnataka, Maharashtra, Punjab and Uttar Pradesh.

- Of these, Uttar Pradesh is the largest sugarcane producer and accounts for nearly 40% of the cash crop grown in the country, followed by Maharashtra and Karnataka, which account for 21% and 11% of the total domestic production.

#### **Other Child Labour Laws/Programmes in India:**

- Article 24 of the Constitution: No child below the age fourteen years shall be employed in work in any factory or mine or engaged in any other hazardous employment.
- National Policy on Child Labour (1987): It focuses more on rehabilitation of children working in hazardous occupations and processes, rather than on prevention.
- Juvenile Justice (Care and Protection of Children) Act 2015: It includes the working child in the category of children in need of care and protection, without any limitation of age or type of occupation.

#### **National Child Labour Project (NCLP) Scheme 2007:**

- Under it, children in the age group of 9-14 years, rescued/withdrawn from work are enrolled in the NCLP Special Training Centres, where they are provided with bridge education, vocational training, mid day meal, stipend, health care, etc. before being mainstreamed into formal education system.
- The Right to Education Act, 2009 has made it mandatory for the state to ensure that all children aged 6 to 14 years are in school and receive free education.
- According to the Mines Act of 1952, employment of children below the age of 18 years is illegal in mines.
- Platform for Effective Enforcement for No Child Labour (PENCIL) Portal 2017:
- It is an electronic platform that aims at involving Centre, State, District, Governments, civil society and the general public in achieving the target of child labour free society.
- It has been launched for the effective implementation of Child Labour Act and National Child Labour Project (NCLP) Scheme.
- Recently, India has ratified International Labour Organizations Convention (ILO) no 138 (minimum age for employment) and Convention no 182 (worst forms of child labour).

#### **Bonded Labour Related Schemes/Acts:**

##### **Bonded Labour System (Abolition) Act 1976:**

- The Act extends to the whole of India but implemented by respective state governments.
- It provides for an institutional mechanism at the district level in the form of Vigilance Committees.
- Vigilance committees advise District Magistrate (DM) to ensure the provisions of this act are properly implemented.
- The State Governments/UTs may confer, on an Executive Magistrate, the powers of a Judicial Magistrate of the first class or second class for the trial of offences under this Act.

##### **Central Sector Scheme for Rehabilitation of Bonded Labourers (2016):**

- Under this scheme financial assistance to the extent of three lakhs Rupees is provided to released bonded labourers along with other non-cash assistance for their livelihood.
- Way Forward
- The cycle of poverty and its implications must be addressed properly, so families can find other means to survive and send their children to schools.
- Many NGOs like Bachpan Bachao Andolan, ChildFund, CARE India, Kailash Satyarthi Children Foundation etc. have been working to eradicate child labour in India. Right kind of focus and orientation with state level authorities is also needed to avoid the practice of child labour.
- Forced Child Labour requires an urgent action from governments and the international communities.

- A very robust, reliable and fairly decent social security package and strict implementation of the acts is needed.

### 59. Decriminalising Begging:

- The Supreme Court has asked the Centre and four States to file their response on a plea seeking a direction to repeal the provisions criminalising begging.
- It has been argued in the plea that a person, who is compelled to beg due to certain circumstances, cannot be faulted for his actions.
- Recently, the Ministry of Railways has also proposed to decriminalise begging on trains or railway premises.

#### Plea's Argument For Decriminalising Begging:

- Earlier Judgment on Decriminalisation: The Delhi High Court which had decriminalised begging in the national capital said provisions of the Bombay Prevention of Begging Act, 1959, which treats begging as an offence cannot sustain constitutional scrutiny.
- Criminalising Begging Against Right To Life: The provisions of the statutes criminalising the act of begging put people in a situation to make an unreasonable choice between committing a crime or not committing one and starving, which goes against the very spirit of the Constitution and violates Article 21 i.e. Right to Life.
- Government's Obligation To Provide Social Security: The government is mandated to provide social security to everyone and ensure that all had basic facilities, as embedded in the Directives Principles of State Policy (DPSP) in the Constitution.
- The presence of beggars is evidence that the state has failed to provide basic facilities to all its citizens.
- So instead of working on its failure and examining what made people beg, criminalising the act of beggary is irrational and against the approach of a socialist nation as embedded in the preamble of Indian Constitution.

#### Plea's Suggestion:

- Fast Forward Beggars Rehabilitation Legislation: The plea has claimed that the Abolition of Begging and Rehabilitation of Beggars Bill 2018 had been introduced in the Lok Sabha but till now, this bill is not passed and is wedged in lengthy parliamentary procedures.
- It has resulted in thousands of poor facing more hardships because of present arbitrary statutes.
- The legislation process must be fast forwarded.
- Declare Some Provision As Void: The petition has sought directions to declare as "illegal and void" all provisions, except some sections, of the Bombay Prevention of Begging Act, 1959, Punjab Prevention of Beggary Act, 1971, Haryana Prevention of Begging Act, 1971 and Bihar Prevention of Begging Act 1951.
- It has also sought to declare all other similar Acts prevailing in any part of the country as illegal.

#### Bombay Prevention of Begging Act, 1959:

- There is no central Act on beggary, many states and Union Territories have used the Bombay Act as the basis for their own laws.
- The Act defines a "beggar" as anyone having no visible means of subsistence, and wandering about or remaining in any public place in such condition or manner, as makes it likely that the person doing so exists by soliciting or receiving alms.
- "Begging" under the Act includes soliciting or receiving alms in a public place, whether or not under any pretence of singing, dancing, fortune-telling, performing or offering any article for sale.

- The Act gives the police the power to arrest individuals without a warrant. It gives magistrates the power to commit them to a detention centre for up to three years on the commission of the first “offence”, and up to 10 years upon the second “offence”.
- Before that, it strips them of their privacy and dignity by compelling them to allow themselves to be fingerprinted.
- The Act also authorises the detention of the family of the beggar, and the separation of children over the age of five.
- Certified institutions or detention centres have absolute power over detainees, including the power of punishment, and the power to exact “manual work”. Disobeying the rules of the institution can land an individual in jail.

#### **Number of Beggars In India:**

- According to the Census 2011 total number of beggars in India is 4,13,670 (including 2,21,673 males and 1,91,997 females) and the number has increased from the last census.
- West Bengal tops the chart followed by Uttar Pradesh and Bihar at number two and three respectively. Lakshadweep merely has two vagrants according to the 2011 census.
- Among the union territories, New Delhi had the largest number of beggars 2,187 followed by 121 in Chandigarh.
- Among the northeastern states, Assam topped the chart with 22,116 beggars, while Mizoram ranked low with 53 beggars.

#### **Way Forward:**

- The Centre made an attempt at repealing the Act through the Persons in Destitution (Protection, Care and Rehabilitation) Model Bill, 2016, with provisions including doing away with the Beggary Act and proposing rehabilitation centres for the destitute in each district.
- Persons in Destitution Bill, 2016, needs to see the light of the day.
- Bihar government’s Mukhyamantri Bhikshavriti Nivaran Yojana is a scheme worth emulation.
- The scheme, instead of detaining persons under the Act, provides for open homes and community outreach for destitute persons.
- Now, rehabilitation centres have been set up, with facilities for treatment, family reintegration and vocational training.
- The very real problem of organised begging rackets will have to be addressed by other means, perhaps based on the law of trafficking.

#### **60. Human Rights Report 2020: USA:**

- The US State Department, in its 2020 Human Rights Report, pointed out several Human Rights Issues in India.
- The report, which is submitted each year to the US Congress, is retrospective and contains a country wise discussion of the state of human rights.
- Earlier in March 2021, Freedom in the World 2021 report had downgraded India’s status from ‘Free’ to ‘Partly Free’.
- India has also been classified as an “electoral autocracy” in the annual report named Autocratisation Goes Viral of Sweden-based Varieties of Democracy (V-Dem) Institute.

#### **Harassment of Journalists:**

- The harassment and detention of journalists critical of the (Indian) government in their reporting and on social media, has continued, although the government generally respected the freedom of expression.
- It mentioned restrictions on the press, including violence, threats of violence, or unjustified arrests or prosecutions against journalists.

#### **Accessing Private Data:**

- Government's requests for user data from Internet companies had increased dramatically.
- The government made 49,382 user data requests in 2019 from Facebook, a 32% increase from 2018. Over the same period, Google requests increased by 69%, while Twitter requests saw a 68% increase.
- Arbitrary Deprivation of Life:
- The report highlighted the case of custodial deaths in Tamil Nadu.

#### **Unreasonable Detentions:**

- The report takes note of the April 2020 detention of protesters against the citizenship laws and various other incidents under the Unlawful Activities Prevention Act 1967.
- Detention of politicians under the Jammu & Kashmir's Public Safety Act 1978, was also mentioned.
- Improvement in Human Rights Situation in Jammu & Kashmir:
- The government continued taking steps to restore normalcy in Jammu and Kashmir by gradually lifting some security and communications restrictions.
- The government partially restored internet access, however, high-speed 4G mobile internet remained restricted in most parts of Jammu & Kashmir for the year 2020.

#### **Restrictive Rules and Lack of Investigation:**

- Overly restrictive rules on non-governmental organisations, restrictions on political participation, widespread corruption at all levels in the government, lack of investigation of and accountability for violence against women, and forced and compulsory child labour, as well as bonded labour.

#### **Religious Freedom:**

- Tolerance of violations of religious freedom; crimes involving violence and discrimination targeting members of minority groups including women based on religious affiliation or social status.

#### **Human Right Provisions in India:**

##### Enunciated in the Constitution:

- Fundamental Rights: Articles 12 to 35 of the Constitution. These include the Right to Equality, Right to Freedom, Right Against Exploitation, Right to Freedom of Religion, Cultural & Educational Rights, Saving of Certain Laws and Right to Constitutional Remedies.
- Directive Principles of State Policy: Article 36 to 51 of the Constitution. These include 'right to social security, right to work, to free choice of employment, and protection against unemployment, right to equal pay for equal work, right to existence worthy of human dignity, right to free & compulsory education, equal justice & free legal aid and the principles of policy to be followed by the State.'

##### **Statutory Provisions:**

- Protection of Human Rights Act (PHRA), 1993 (as amended in 2019) provided for the constitution of a National Human Rights Commission at the Union level, which steers State Human Rights Commission in States and Human Rights Courts for better protection of Human Rights and for matters connected therewith or incidental thereto.
- Section 2(1) (d) of the PHRA defines Human Rights as the rights relating to life, liberty, equality and dignity of the individual guaranteed by the Constitution or embodied in the International Covenants and enforceable by courts in India.
- India took active part in drafting of the Universal Declaration of Human Rights (UDHR).
- These 30 rights and freedoms include civil and political rights, like the right to life, liberty, free speech and privacy and economic, social and cultural rights, like the right to social security, health and education, etc.



### **61. Increased Maternal Deaths Due to Covid: Lancet Report:**

- According to a study published in The Lancet Global Health Journal, the failure of the health system to cope with Covid-19 pandemic resulted in an increase in maternal deaths and stillbirths.
- The report is an analysis of 40 studies across 17 countries including Brazil, Mexico, the US, Canada, the U.K., Denmark, Netherlands, Italy, India, China and Nepal.

#### **Global Scenario:**

##### Increase in Death:

- Overall, there was a 28% increase in the odds of stillbirth, and the risk of mothers dying during pregnancy or childbirth increased by about one-third.
- The disruption caused by the Covid-19 pandemic has led to avoidable deaths of both mothers and babies.
- There was also a rise in maternal depression.

#### **Poor Countries More Affected:**

- Covid-19 impact on pregnancy outcomes was disproportionately high on poorer countries.
- Marginalised are the Sufferers:
- The impact was high among the marginalised across various settings such as:
- In Nepal where hospital deliveries decreased most markedly among disadvantaged groups.
- In the U.K., where 88% of pregnant women, who died during the first wave of the pandemic, were from black and minority ethnic groups.

#### **Indian Scenario:**

- During the months of national lockdown in 2020 between April and June, compared to the same period in 2019, there was:
- 27% drop in pregnant women receiving four or more ante-natal check-ups.
- 28% decline in institutional deliveries.
- 22% decline in prenatal services.

#### **Reason:**

##### Failure of Healthcare:

- The inefficiency of the healthcare system and their inability to cope with the pandemic instead of strict lockdown measures resulted in reduced access to care.

##### Societal Changes:

- Wider societal changes could have also led to deterioration in maternal health including intimate-partner violence (domestic violence), loss of employment and additional care-responsibilities because of closure of schools.

#### **Suggestions:**

##### Device Strategies:

- Policy makers and healthcare leaders must urgently investigate robust strategies for preserving safe and respectful maternity care, even during the ongoing global emergency.

##### Avoid Rolling Back of Investments:

- Immediate action is required to avoid rolling back decades of investment in reducing mother and infant mortality in low-resource settings.

#### **Don't Redeploy Personnel for Maternity Services:**

- Personnel for maternity services not be redeployed for other critical and medical care during the pandemic and in response to future health system shocks.

#### **Some Indian Initiatives for Mother and Child health:**

1. LaQshya program.
2. Safe Motherhood Assurance (SUMAN) initiative.
3. Janani Suraksha Yojana.

4. Janani Shishu Suraksha Karyakaram (JSSK).
5. Pradhan Mantri Matru Vandana Yojana (PMMVY).
6. Mission Indradhanush.
7. Poshan Abhiyan.
8. Mother and Child Protection Card.

## **62. National Rare Disease Policy 2021:**

- Recently, the Ministry of Health and Family Welfare has approved the National Rare Disease Policy 2021.
- Earlier, the Delhi High Court had directed the Centre to set up a Rare Diseases Committee, a Rare Diseases Fund and to finalise and notify the National Health Policy for Rare Diseases on or before 31st March, 2021.

### **Objectives:**

- To increase focus on indigenous research and local production of medicines.
- To lower the cost of treatment of rare diseases.
- To screen and detect rare diseases early at early stages, which will in turn help in their prevention.

### **Major Provisions of the Policy:**

#### Categorization:

- The policy has categorised rare diseases in three groups:
- Group 1: Disorders amenable to one-time curative treatment.
- Group 2: Those requiring long term or lifelong treatment.
- Group 3: Diseases for which definitive treatment is available but challenges are to make optimal patient selection for benefit, very high cost and lifelong therapy.

#### Financial Support:

- Those who are suffering from rare diseases listed under Group 1 will have the financial support of up to Rs. 20 lakh under the umbrella scheme of Rashtriya Arogya Nidhi.
- Rashtriya Arogya Nidhi: The Scheme provides for financial assistance to patients, living below poverty line (BPL) and who are suffering from major life threatening diseases, to receive medical treatment at any of the super specialty Government hospitals / institutes.
- Beneficiaries for such financial assistance would not be limited to BPL families, but extended to about 40% of the population, who are eligible as per norms of Pradhan Mantri Jan Arogya Yojana, for their treatment in Government tertiary hospitals only.

#### Alternate Funding:

- This includes voluntary crowdfunding treatment by setting up a digital platform for voluntary individual contribution and corporate donors to voluntarily contribute to the treatment cost of patients of rare diseases.

#### **Centres of Excellence:**

- The policy aims to strengthen tertiary health care facilities for prevention and treatment of rare diseases through designating eight health facilities as 'Centres of Excellence' and these will also be provided one-time financial support of up to Rs. 5 crore for upgradation of diagnostics facilities.

#### **National Registry:**

- A national hospital-based registry of rare diseases will be created to ensure adequate data and comprehensive definitions of such diseases are available for those interested in research and development.

#### **Concerns Raised:**

##### Lack of Sustainable Funding:

- Unlike conditions under Group 1 and Group 2, patients with Group 3 disorders require sustainable treatment support.
- In the absence of a sustainable funding support for Group 3 patients, the precious lives of all patients, mostly children, are now at risk and at the mercy of crowdfunding.

#### **Lack of Drug Manufacturing:**

- Where drugs are available, they are prohibitively expensive, placing immense strain on resources.
- Currently few pharmaceutical companies are manufacturing drugs for rare diseases globally and there are no domestic manufacturers in India except for those who make medical-grade food for those with metabolic disorders.

#### **Rare Diseases:**

- There are 6,000-8,000 classified rare diseases, but less than 5% have therapies available to treat them.
- Example: Lysosomal Storage Disorders (LSD), Pompe disease, cystic fibrosis, muscular dystrophy, spina bifida, haemophilia etc.
- About 95% rare diseases have no approved treatment and less than 1 in 10 patients receive disease-specific treatment.
- These diseases have differing definitions in various countries and range from those that are prevalent in 1 in 10,000 of the population to 6 per 10,000.
- However broadly, a 'rare disease' is defined as a health condition of low prevalence that affects a small number of people when compared with other prevalent diseases in the general population. Many cases of rare diseases may be serious, chronic and life-threatening.
- India has close to 50-100 million people affected by rare diseases or disorders, the policy report said almost 80% of these rare condition patients are children and a leading cause for most of them not reaching adulthood is due to the high morbidity and mortality rates of these life-threatening diseases.

#### **63. International Day for the Elimination of Racial Discrimination:**

- Every year, 21st March, is observed as International Day for the Elimination of Racial Discrimination.
- The day calls for solidarity against racism and racial discrimination.

#### **Key Points:**

- The United Nation General Assembly in October 1966 proclaimed 21st March as the International Day for the Elimination of Racial Discrimination, to be commemorated annually.
- On that day, in 1960, police opened fire and killed 69 people at a peaceful demonstration in Sharpeville, South Africa, against the apartheid pass laws.

#### **Apartheid:**

- It was a policy which governed relations between South Africa's white minority and non-white majority.
- It sanctioned racial segregation, political and economic discrimination against non-whites.
- Proclaiming the Day in 1966 which signifies the struggle to end the policy of apartheid in South Africa.
- **2021 Theme:** 'Youth standing up against racism'

#### **Significance:**

- Racial discrimination, beyond being a breach of human rights, has harmful effects on human health and well-being, and risks wider disruptions to social cohesion.

#### **Racism:**

- Racism, also called racialism, the belief that humans may be divided into separate and exclusive biological entities called “races”; that there is a causal link between inherited physical traits and traits of personality, intellect, morality, and other cultural and behavioral features; and that some races are innately superior to others.
- The term is also applied to political, economic, or legal institutions and systems that engage in or perpetuate discrimination on the basis of race or otherwise reinforce racial inequalities in wealth and income, education, health care, civil rights, and other areas.
- **Xenophobia** and **Racism** mostly overlap, but the stark difference is racism is discrimination based on physical characteristics whereas xenophobia is discrimination based on the perception that someone is foreign or originating from another community or nation.
- The word Xenophobia originates from the Greek word Xeno.

#### 64. India's Life Expectancy on World Health Day 2021:

- According to the estimates from the Sample Registration System (SRS)-based Abridged Life Tables 2014-18 of the Census and Registrar General of India, the life expectancy of an Indian child born on World Health Day 2021 is below the world's average.
- Every year 7th April marks the celebration of World Health Day.

#### Life Expectancy:

- It is an estimate of the average number of additional years that a person of a given age can expect to live.
- The most common measure of life expectancy is life expectancy at birth.
- India's life expectancy (for a child born in 2021) which is 69 years and 4 months is less than the world's average lifespan of 72.81 years.

#### Infant Mortality Rate (IMR):

- It is the number of deaths per 1,000 live births of children under one year of age.
- For India, IMR is 33.

#### Life Expectancy will be Reduced Further Due to Pollution:

- The quality of life of these children will suffer and the average life span is estimated to be cut short by two years and six months due by constant exposure to “toxic air” in the country.
- India topped the chart by recording the world's highest annual average concentration of PM 2.5 exposure in its air in 2019, according to the State of Global Air 2020.
- In 2020, India was home to 35 of the world's 50 most polluted cities, according to IQ Air's World Air Quality Report.
- These included Ghaziabad, Bulandshahr and Delhi among the top 10.
- Thus, an Indian child will live for 66 years and 8 months only and may not survive to celebrate his/her 67th birthday beyond April 2089.

#### World Health Day:

- Its idea was conceived at the First Health Assembly in 1948 and it came into effect in 1950.
- Over the years, it has brought to light important health issues such as mental health, maternal and child care and climate change.
- It aims to create awareness of a specific health theme to highlight a priority area of concern for the World Health Organization (WHO).
- Theme for 2021: Building a fairer, healthier world for everyone.

#### Some Indian Initiatives in Health Sector:

1. National Medical Commission (NMC) Act, 2019.
2. Pradhan Mantri Bhartiya Janaushadhi Pariyojana.
3. Pradhan Mantri - Jan Arogya Yojana.
4. India's Health Index.

### 65. Anamaya: Tribal Health Collaborative:

- Recently, the Ministry of Tribal Affairs has launched Tribal Health Collaborative (THC) 'Anamaya' through a video conference.
- In 2018, an expert committee released a comprehensive report on tribal health in India which highlighted the issues and concerns of tribal health.
- It is an initiative bringing together governments, philanthropists, national and international foundations, Non-Governmental Organizations (NGOs)/Community Based Organizations (CBOs) to end all preventable deaths among the tribal communities of India.
- It will converge efforts of various Government agencies and organisations to enhance the health and nutrition status of the tribal communities of India.

#### Objectives:

- To build a sustainable, high-performing health ecosystem to address the key health challenges faced by the tribal population of India.

#### Stakeholders:

- It is a multi-stakeholder initiative of the Ministry of Tribal Affairs supported by Piramal Foundation and Bill and Melinda Gates Foundation (BMGF).
- Piramal Foundation is the philanthropic arm of Piramal Group. The foundation undertakes projects under the four broad areas – healthcare, education, livelihood creation and youth empowerment.

#### Operation:

- It will begin its operations with 50 tribal, Aspirational Districts (with more than 20% Scheduled Tribe population) across 6 high tribal population states.
- Over a 10-year period, the work of the THC will be extended to 177 tribal Districts as recognised by the Ministry of Tribal Affairs.

#### Other Initiatives Related to the Tribal Communities:

- Programme for Capacity Building of Scheduled Tribe (ST) Representatives in Local Self Governments:
- It is aimed at empowering tribal Panchayati Raj Institution (PRI) representatives by enhancing their decision making capabilities at local government level.

#### 1000 Springs Initiative:

- The 1000 Springs Initiative aims at improving access to safe and adequate water for the tribal communities living in difficult and inaccessible parts of rural areas in the country.
- The initiative will help in harnessing the potential of perennial springs' water to address natural scarcity of water in tribal areas.

#### Tribal Health Cell:

- A 'Tribal Health Cell' is being set up in the Ministry of Tribal Affairs.
- It will help central ministries and state governments to facilitate and strengthen primary health care systems and invest in tribal health research.

### 66. MANAS Mobile App:

- Recently, the government of India launched a mobile app, MANAS (Mental Health and Normalcy Augmentation System) to promote mental wellbeing across age groups.
- MANAS was endorsed as a national program by the Prime Minister's Science, Technology, and Innovation Advisory Council (PM-STIAC).
- **PM-STIAC:** It is an overarching Council that facilitates the Principal Scientific Adviser's Office to assess the status in specific science and technology domains, comprehend challenges in hand,

formulate specific interventions, develop a futuristic roadmap and advise the Prime Minister accordingly.

**Key Points:**

- It is a comprehensive, scalable, and national digital wellbeing platform and an app developed to augment mental well-being of Indian citizens.
- It integrates the health and wellness efforts of various government ministries, scientifically validated indigenous tools with gamified interfaces developed/researched by various national bodies and research institutions.
- It is based on life skills and core psychological processes, with universal accessibility, delivering age-appropriate methods and promoting positive attitude focusing on wellness.

**Developed By:**

- National Institute of Mental Health and Neuro Sciences (NIMHANS) Bengaluru, Armed Forces Medical College (AFMC) Pune and Centre for Development of Advanced Computing(C-DAC) Bengaluru.

**Beneficiaries:**

- Catering to the overall wellbeing of people of all age groups, the initial version of MANAS focuses on promoting positive mental health in the age group of 15-35 years.

**Objective:**

- To build a healthier and happier community, to empower it to nurture its innate potential for building a Swasth and Atmanirbhar Bharat.
- Motto of MANAS: Uttam Mann, Saksham Jan.

**Mental Health in India:**

- A report published in The Lancet Psychiatry in February 2020 indicates that in 2017, there were 197.3 million people with mental disorders in India.
- The top mental illnesses were depressive disorder (45.7 million) and anxiety disorder (44.9 million).
- The contribution of mental disorders to the total Disability-Adjusted Life Years (DALYs) in India increased from 2.5% in 1990 to 4.7% in 2017.
- Depressive disorder and anxiety disorder contributed the most to the total mental disorders DALYs.
- DALYs: The burden of disability associated with a disease or disorder can be measured in units called DALYs.
- DALYs represent the total number of years lost to illness, disability, or premature death within a given population.

**Other Indian Initiatives to Improve Mental Health:**

**The Mental Health Care Act (MHCA) 2017:**

- The Mental Health Care Act (MHCA) 2017 came into force in 2018 to meet the requirements of the United Nations Convention on the Rights of Persons with Disabilities which India ratified in 2007.

**KIRAN:**

- The Ministry of Social Justice and Empowerment has launched a 24/7 toll-free helpline to provide support to people facing anxiety, stress, depression, suicidal thoughts and other mental health concerns.

**Manodarpan Initiative:**

- Manodarpan is an initiative of the Ministry of Education under Atmanirbhar Bharat Abhiyan.
- It is aimed to provide psychosocial support to students, family members and teachers for their mental health and well-being during the times of Covid-19.

**NIMHANS RAAH APP:**



- It is a one-stop source of data on mental health centres and professionals. It is developed by the NIMHANS.

#### Way Forward:

- Although developing apps to cater mental well-being of citizens on scalable, secure and digital platforms is the need of the hour the app must be integrated with the public health schemes like the National Health Mission, Poshan Abhiyan, e-Sanjeevani and others so that it is used widely. Besides, the application must be made multi-lingual.
- Increasing the number of psychologists and psychiatrists, and Apps alone won't help. Stigma and awareness are two separate issues although interlinked. They need to be addressed in parallel in order to tackle the burden of mental illness.

#### 67. Maoist Attack in Sukma:

- A team of security forces was attacked by a People's Liberation Guerilla Army (PLGA) unit in the Tarrem area near the Sukma-Bijapur district border, Chhattisgarh. Several security personnel were killed and many were injured.
- PLGA was founded in 2000. It has been declared as a terrorist organisation and banned under the Unlawful Activities (Prevention) Act-1967 (UAPA).

### Deadly attacks

Sukma has witnessed several Maoist attacks in the past. A look at some of the previous encounters



**MARCH 23, 2021:** Five DRG personnel of the Chhattisgarh police killed after their bus is blown up by a powerful bomb in Narayanpur district

**MAY 9, 2020:** A sub-inspector of the Chhattisgarh police killed in an encounter with the Maoists in Rajnandgaon

**MARCH 22, 2020:** 17 members of a police patrol killed in an ambush in Sukma

**OCT. 27, 2018:** Four CRPF personnel killed in an ambush in Bijapur district

**MARCH 11, 2017:** 12 CRPF personnel killed in an ambush in Sukma district

#### About the Sukma District:

- Located in the southern tip of the state of Chhattisgarh, the district was carved out of Dantewada in the year 2012.
- It is covered with the semi-tropical forest and is a mainland of tribal community Gond.
- One major river that flows through the district is Sabari (a tributary of Godavari river).
- Over a few decades, this region has become a fostering ground for Left Wing Extremism (LWE) activities.
- Uneven terrains and the tricky geographic locations made this region a safer hideout for the LWE activists.

#### Left Wing Extremism in India:

- Left-wing extremists, popularly known as Maoists worldwide and as Naxalites in India.
- The term Naxalism derives its name from the village Naxalbari of West Bengal. It originated as a rebellion against local landlords who bashed a peasant over a land dispute.
- The rebellion was initiated in 1967, with an objective of rightful redistribution of the land to working peasants under the leadership of Kanu Sanyal and Jagan Santhal.

- The movement has spread across the Eastern India in less developed areas of states such as Chhattisgarh, Odisha and Andhra Pradesh.
- It is considered that Naxals support Maoist political sentiments and ideology.
- Maoism is a form of communism developed by Mao Tse Tung. It is a doctrine to capture State power through a combination of armed insurgency, mass mobilization and strategic alliances.

### **Reasons for Left Wing Extremism:**

#### Tribal Discontent:

- The Forest (Conservation) Act, 1980 has been used to target tribals, who depend on forest produce for their living.
- Massive displacement of tribal population in the naxalism-affected states due to development projects, mining operations and other reasons.
- Easy Target for Maoists: Such people who do not have any source of living are taken into naxalism by Maoists.
- Maoists provide arms and ammunition and money to such people.

#### **Gaps in the Socio-Economic system of the Country:**

- Government measures its success on the basis of the number of violent attacks rather than the development done in the naxal-affected areas.
- Absence of strong technical intelligence to fight with naxalites.
- Infrastructural problems, for instance, some villages are not yet connected properly with any communication network.

#### **No Follow-Up from Administration:**

- It is seen that even after police take hold of a region, administration fails to provide essential services to the people of that region.
- Confusion over tackling naxalism as a social issue or as a security threat.

#### **Government Initiatives to Fight LWE:**

- Greyhounds: It was raised in 1989 as an elite anti-naxal force.
- Operation Green Hunt: It was started in 2009-10 and massive deployment of security forces was done in the naxal-affected areas.
- LWE Mobile Tower Project: To improve mobile connectivity in the LWE areas, the Government in 2014, approved installation of mobile towers in LWE affected States.
- Aspirational Districts Programme: Launched in 2018, it aims to rapidly transform the districts that have shown relatively lesser progress in key social areas.

#### **SAMADHAN:**

##### It stands for

S- Smart Leadership,

A- Aggressive Strategy,

M- Motivation and Training,

A- Actionable Intelligence,

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

H- Harnessing Technology,

A- Action plan for each Theatre, and

N- No access to Financing.

- This doctrine is the one-stop solution for the LWE problem. It encompasses the entire strategy of government from short-term policy to long-term policy formulated at different levels.

#### **Way Forward:**

- Though the number of incidents of LWE violence has come down in the recent past, continued efforts and focus are needed in eliminating such groups.

- Government needs to ensure two things; security of the peace-loving people and the development of the naxalism-affected regions.
- Centre and states should continue with their coordinated efforts in development and security both where Centre should play a supportive role with state police forces taking the lead.
- Government needs to undertake technological solutions such as the use of drones to minimize loss of lives of security personnel.

#### **68. Challenges with National Security Act, 1980:**

- In some cases it has been found that the National Security Act-1980 (NSA) was invoked to prevent the person from being released from judicial custody even if the accused had got bail.
- The NSA empowers the state to detain a person without a formal charge and without trial.

#### **Key Points:**

##### **About the National Security Act, 1980:**

- The NSA is a preventive detention law.
- Preventive Detention involves the detainment of a person in order to keep him/her from committing future crimes and/or from escaping future prosecution.
- Article 22 (3) (b) of the Constitution allows for preventive detention and restriction on personal liberty for reasons of state security and public order.
- Further, Article 22 (4) states that no law providing for preventive detention shall authorise the detention of a person for a longer period than three months unless:
  1. An Advisory Board reports sufficient cause for extended detention.
  2. Such a person is detained in accordance with the provisions of any law made by the Parliament.

##### **Gives Power to the Government:**

- The NSA empowers the Centre or a State government to detain a person to prevent him from acting in any manner prejudicial to national security.
- The government can also detain a person to prevent him from disrupting public order or for maintenance of supplies and services essential to the community.
- Period of Confinement: The maximum period for which one may be detained is 12 months. But the term can be extended if the government finds fresh evidence.

##### **Issues with the Act:**

- It is an administrative order passed either by the Divisional Commissioner or the District Magistrate (DM) and not detention ordered by police based on specific allegations or for a specific violation of the law.

##### **Conditions when NSA can be evoked:**

- Even if a person is in police custody, the DM can invoke NSA against him.
- If a person has been granted bail by a trial court, he can be immediately detained under the NSA.
- If the person has been acquitted by the court, the same person can be detained under the NSA.
- Against the Constitutional Right: The law also takes away an individual's constitutional right (Article 22 of Indian Constitution) to be produced before the magistrate within 24 hours as is the case when the accused is in police custody.
- The detained person also does not have the right to move a bail application before a criminal court.
- Immunity for Passing and Carrying Out Order: The DM who passed the detention order is protected under the Act, no prosecution or any legal proceeding can be initiated against the official who carried out the orders.

##### **Supreme Court Observation:**

- The Court has held that the preventive detention under NSA has to be strictly maintained with the delicate balance between social security and citizen freedom.
- It also held that to prevent “misuse of this potentially dangerous power, the law of preventive detention has to be strictly construed” and “meticulous compliance with the procedural safeguards” has to be ensured.

#### **Safeguard Against the Act:**

- Procedural safeguard under the NSA is granted under Article 22 (5), where all the detained persons have the right to make an effective representation before an independent advisory board.
- This advisory board consists of three members and the board is chaired by a member who is a judge of a High Court.
- The writ of Habeas Corpus is also the protection guaranteed under the Constitution against the unchecked state power of taking people into custody under the NSA.

#### **69. India Energy Dashboards Version:**

- Recently, the government think tank NITI Aayog has launched India Energy Dashboards (IED) Version 2.0.
- NITI Aayog launched the Version 1.0 in May 2017.

#### **Key Points:**

- India Energy Dashboards (IED) is an endeavour to provide single-window access to the energy data for the country.
- It is an initial step towards building a comprehensive, open, and freely accessible energy data portal for India.
- Energy data published/provided by Central Electricity Authority, Coal Controller’s Organisation, and Ministry of Petroleum and Natural Gas is compiled in the Dashboards.
- The IED Provides time series data from FY 2005-06 until FY 2019-20.
- IED provides data at sub-yearly frequencies as well. This includes monthly data and API (Application Programming Interface) linked data from some portals maintained by the government agencies.
- API linked data from Saubhagya, UJALA, PRAAPTI, and Vidyut PRAVAH has been incorporated in the dashboards.

#### **Saubhagya Scheme:**

- Pradhan Mantri Sahaj Bijli Har Ghar Yojana - ‘Saubhagya’ was launched in September, 2017 with a target to electrify all households by December 2018.
- All the states had declared on Saubhagya portal that all the willing un-electrified households had been electrified as on 31st March 2019, except 18,734 households in LWE (left wing extremist) affected areas of Chhattisgarh.

#### **UJALA Scheme:**

- UJALA (Unnat Jyoti by Affordable LEDs for All) is a zero-subsidy scheme launched by the Government in 2015.
- It is touted as the world’s largest domestic lighting project.
- Every domestic household having a metered connection from their respective Electricity Distribution Company is eligible to get the LED bulbs under the Scheme.

#### **PRAAPTI:**

- It is a web portal launched in 2018 by the Ministry of Power.
- ‘PRAAPTI’ stands for Payment Ratification and Analysis in Power Procurement for bringing transparency in invoicing of generators.

- The power distribution companies are able to clear the invoices and reply to claims raised by the generators on this portal.

**Vidyut PRAVAH:**

- The Mobile/Web App provides real-time information of current demand met, shortages if any, surplus power available and the prices in Power Exchange.

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