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RISING OIL PRICES AND STAGFLATION

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CONTENTS

GENERAL STUDIES - I

NARASINGHAPETTAINAGASWARAM BAGS GI	GS-I CULTURE & HERITAGE

Context
- Classical wind music instrument narasinghapettainagaswaram gets Geographical Indication (GI) tag.

About Narasinghapettainagaswaram
- **Narasinghapettai**, a village in Thanjavur district of **Tamil Nadu**.
- **Nagaswaram:** It is a **classical wind music instrument** traditionally made by artisans based at a village near Kumbakonam. It holds an important place in the **world of Carnatic music**.
- The nagaswaram now being used by artists throughout is called '**parinagaswaram'**, which is longer than the **'thimiri'.**
- 'Narasinghapettainagaswaram' is made from the **aacha (Hardwickiabinata) tree** by using drilling machines, besides carpentry tools.
- Nagaswarams are played widely in functions like **weddings and temple festivals**. Its sonorous nature draws attention to the performance of temple rituals and social celebrations.

About GI Tag
- A geographical indication or GI is a sign used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin.
- Geographical Indications are part of the intellectual property rights that comes **under the Paris Convention for the Protection of Industrial Property.**
- In India, Geographical Indications registration is administered by the **Geographical Indications of Goods (Registration and Protection) Act of 1999.**
- This tag **is valid for a period of 10 years** following which it can be renewed.
- GI tags are **covered under World Trade Organization.**
- Geographical indications are typically used for agricultural products, foodstuffs, wine and spirit drinks, handicrafts, and industrial products.
- It is basically an assurance that the product is coming from that specific area. It's kind of trademark in the international market.
- **Karnataka has the highest number of GI tags i.e. 47** products followed by Tamil Nadu (39).

Benefits of registration of Geographical Indications
- It confers legal protection to Geographical Indications in India
- Prevents unauthorised use of a Registered Geographical Indication by others
- It provides legal protection to Indian Geographical Indications which in turn boost exports.
- It promotes economic prosperity of producers of goods produced in a geographical territory.

How a geographical indication is different from a trade mark?
- A trade mark is a sign which is used in the course of trade and it distinguishes goods or services of one enterprise from those of other enterprises.
- Whereas a geographical indication is an indication used to identify goods having special characteristics originating from a definite geographical territory.

PAR TAPI NARMADA RIVER-LINKING PROJECT

Context

- Hundreds of tribals assembled at Satyagrah Chhavani in Gandhinagar, protesting against the Par-Tapi-Narmada river-linking project.

About Par Tapi Narmada river-linking project

- The project proposes to transfer river water from the surplus regions of the Western Ghats to the deficit regions of Saurashtra and Kutch.
- It proposes to link three rivers —
1. **Par, originating from Nashik in Maharashtra** and flowing through Valsad.
2. **Tapi originating from Saputara** that flows through Maharashtra and Surat in Gujarat.
3. **Narmada originating in Madhya Pradesh** and flowing through Maharashtra and Bharuch and Narmada districts in Gujarat.

Benefits envisaged

- The excess water in the interlinked Par, Tapi and Narmada rivers which usually flow into the sea in the monsoon would be diverted to **Saurashtra and Kutch for irrigation.** It is expected to **irrigate an area of 2,32,175 hectares.**
- Presently water from Sardar Sarovar Dam is used for irrigation in Saurashtra. **This water will be saved & can be used for other purposes.**
- This will also **help in containing regular flood-like situations in the rivers in Valsad, Navsari, Surat and Bharuch.**

Dams to be constructed

- The link includes the construction of seven dams - **Jheri, Mohankavchali, Paikhed, Chasmandva, Chikkar, Dabdar and Kelwan**. Of these, the **Jheri dam falls in Nashik**, while the remaining dams are in Valsad and Dang districts of South Gujarat.

Plausible Impact of the project (As Reported by National Water Development Agency)

- About **6065 ha of land area will be submerged due to the proposed reservoirs.**
- A **total of 61 villages will be affected** in **Nashik, Valsad, Vansda and Ahwa in Gujarat (due to full/partial submergence).**
- **More than 2,509 families may lose their lands or houses or both in the submergence** when the reservoirs are created.

The affected families would be compensated for the loss of their lands and houses and those whose houses are submerged, would be resettled- NDWA.

River-linking project

- It aims to link India's rivers by a network of reservoirs & canals. The objective is **to reduce persistent floods in some parts and water shortages in other parts of India.**
- The project is being **managed by National Water Development Agency, under Ministry of Water Resources.**
- The idea to link rivers emerged with **the establishment of the NWDA in 1982 by then prime minister Indira Gandhi.**

Inter Basin Water Transfer Links

Himalayan component
1. Manas-Sankosh-Tista-Ganga
2. Kosi-Ghagra
3. Gandak-Ganga
4. Ghagra-Yamuna
5. Sarda-Yamuna
6. Yamuna-Rajasthan
7. Rajasthan-Sabarmati
8. Chunar-Sone Barrage
9. Sone dam-southern tributaries of Ganga
10. Ganga-Damodar-Subernarekha
11. Subernarekha- Mahanadi
12. Kosi-Mechi
13. Farakka-Sunderbans
14. Jogighopa-Tista-Farakka (alternative to 1)

— Water transfer link

Peninsular component
15. Mahanadi (Manibhadra)-Godavari (Dowlaiswaram)
16. Godavari (Inchampalli)-Krishna (Pulichintala)
17. Godavari (Inchampalli)-Krishna (Nagarjunasagar)
18. Godavari (Polavaram)-Krishna (Vijayawada)
19. Krishna (Almatti)-Pennar
20. Krishna (Srisailam)-Pennar
21. Krishna (Nagarjunasagar)-Pennar (Somasila)
22. Pennar (Somasila)-Cauvery (Grand Anaicut)
23. Cauvery (Kattalai)-Vaigai-Gundar
24. Ken-Betwa
25. Parbati-Kalisindh-Chambal
26. Par-Tapi-Narmada
27. Damanganga-Pinjal
28. Bedti-Varda
29. Netravati-Hemavati
30. Pamba-Achankovil-Vaippar

Component of National River Planning project

- It has two components
1. Himalayan Component 2. Peninsular Component

The Basic idea is to connect the Himalayan and peninsular rivers via a network of canals so that excess water from one channel can be diverted to another which has inadequate flow.
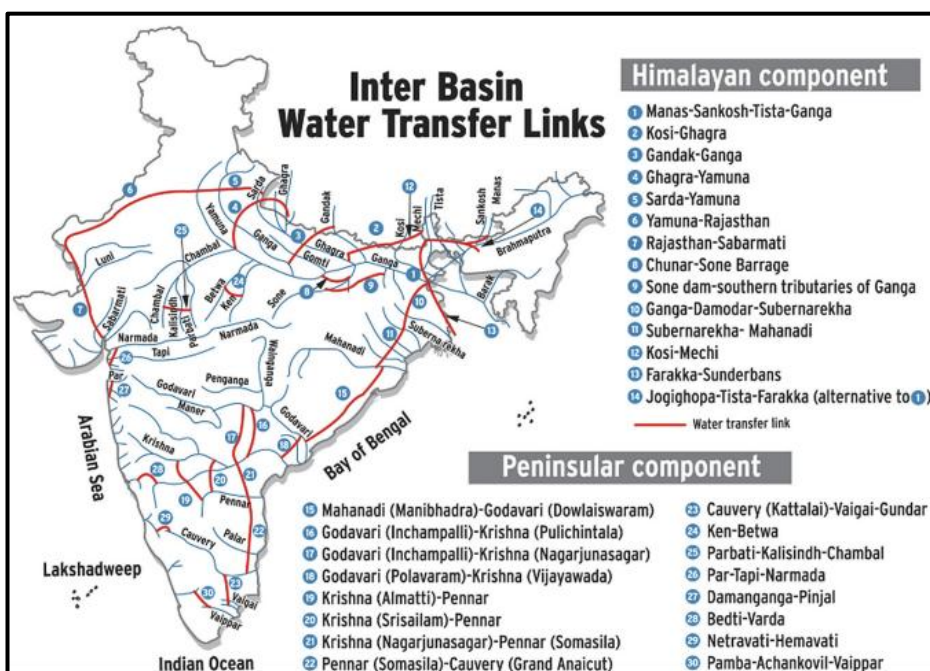
Merits of Interlinking: *River Linking will,*

- Create the potential **to increase agricultural production** by an additional 100 per cent.
- Provide for enhancing the security of the country by **an additional waterline of defense.**
- Provide **employment to lakhs of people.**
- **Eradicate the flooding problems** which recur in the northeast and the north every year.
- **Solve the water crisis situation** by providing alternative, perennial water resources.
- The large canals linking the rivers are also expected to **facilitate inland navigation easing pressure on railways and roads.**
- **Increase in food production** from about 200m tonnes a year to 500m tones **thereby ensuring food security.**
- **Boost the annual average income of farmers**.
- The proposed grid, especially the Himalayan component, is going to provide 34,000 MW of additional hydropower.

Demerits and Challenges of Interlinking Rivers

Environmental Problems

- Experts say massive inter- basin transfer of water will eventually result in **environmental degradation, climatic changes, evaporation losses , loss of aquatic eco-system, water logging and salinity and submergence of vast areas of land** in reservoirs.
- For example, the approved **Ken — Betwa river link** in the Madhya Pradesh-Uttar Pradesh region **will submerge 5000 hectares of Penna Tiger reserve.**

Loss of Livelihood & Displacement of Tribal Poor People

- The project will **cause loss of land, forests, fisheries etc. on which most of the tribal people sustain their livelihood**.
- There will be **massive displacement of people losing their age old property, source of income, their culture and identity**.

Social unrest

- Example : Psychological damage due to forced resettlement of local people (for example, Sardar Sarovar Project)

Massive Investment Required for Implementation

- The estimated cost of the project is Rs.5.6 lakh crores, and this is likely to further increase manifold due to cost & time overrun.
- This is going to **deprive important projects in other sectors for our socio-economic development due to inadequacy of funds.**

Interstate Dispute

- The country has witnessed bitter quarrel and animosity amongst Karnataka and Tamil Nadu over the sharing of water from rivers Cauveri and Krishna, **even though both are riparian states**.
- The degree of complexity and the dispute that will arise over sharing of water where a large numbers of states are involved is unimaginable. It will result in tension and rivalry amongst the people of different states.

Strained Inter-country relations

- Changing the Himalayan water system in the north east will affect the regions of Bangladesh, Myanmar, Nepal and Bhutan. For example, in the year 2000 the state Arunachal Pradesh suffered flash floods due to a breach in the dam constructed on the river Tsangpo in Tibet.

Alternatives of Inter State River Linking

- Water harvesting at a national scale to rejuvenate the depleting water table levels.
- Improving existing irrigation systems.
- Virtual water trade within the country. Instead of physically transferring large quantities of water from the flood-prone east to the water scarce west and south, it would be desirable to transfer virtual water in the form of food grains.
- Setting up desalination plants.
- Control of river pollution.

In many places across India, such initiatives have shown their positive potential while larger scale projects have failed miserably. Best example is Maharashtra, which has the country's largest concentration of large dams and the least irrigation potential.

Final Thoughts

- The immediate need is to **examine the feasibility of the river links and other alternatives with more data and sound economic analysis of cost- benefit.**
- There is a **need that other countries are made partners in the construction of such large scale projects**.
- **Need:** Strategizing project implementation so that the **immediate problems of the donor states are given the topmost priority**.
- The first phase of the execution should be **to develop water resources management within the river basin and then to interlink the rivers** to facilitate transfer of water from surplus areas to deficit areas.

Context

- Kashmir's highly fertile alluvial soil deposits called 'karewas' are being excavated to be used in construction for development of Kashmir.

About Karewa

- The word Karewa in Kashmiri dialect means, "elevated table-land."
- Karewas are **lacustrine deposits (deposits in lake) in the Valley of Kashmir and in Bhadarwah Valley of the Jammu Division.** These are the flat topped mounds that border the Kashmir Valley on all sides.
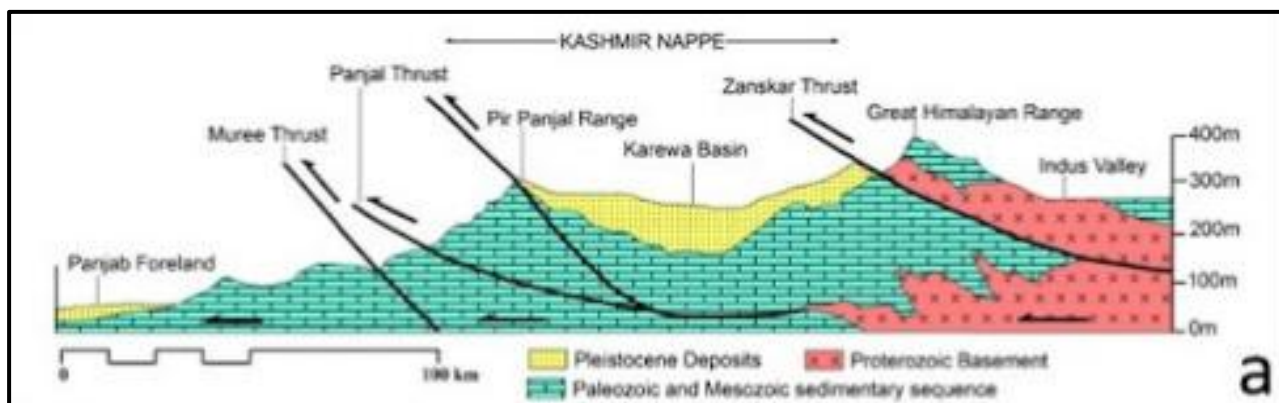
Formation

- Karewas were formed during the **Pleistocene Period (1 million years ago),** when the entire Valley of Kashmir was under water.
- Due to the rise of Pirpanjal, the drainage was impounded and a lake of about 5000 sq. km area was developed and thus a basin was formed.
- Subsequently, the lake was drained through Bramulla gorge. The deposits left in the process are known as karewas. The **thickness of karewas is about 1400 m**.

Importance of Karewas
Agricultural importance

- **Most of the cultivated fields** in the Kashmir Valley are situated on the Karewa sediments.
- These plateaus are 13,000-18,000 metre-thick **deposits of alluvial soil and sediments like sandstone and mudstone**. This makes them **ideal for cultivation of saffron, almonds, apples and several other cash crops.**
- **Kashmir saffron,** which received a Geographical Indication (GI) tag in 2020 for its longer and thicker stigmas, deep-red colour, high aroma and bitter flavour, is grown on these karewas.
- **Note:** Kashmir saffron is the **only saffron in the world grown at an altitude of 1,600 m to 1,800 m AMSL** (above mean sea level), which adds to its uniqueness and differentiates it from other saffron varieties available the world over.

Archaeological importance

- Karewa sediments **hold fossils and remnants of many human civilisations and habitations**.
- They are characterized with **fossils of mammals and at places by peat**.

Source of livelihood

- Most of the karewas are owned by individuals who use them for **farming and grazing**, some belong to the government.

Historical destruction of Karewas

- Between 1995 and 2005, massive portions of karewas in Pulwama, Budgam and Baramulla districts were razed to the ground for Qazigund-Baramulla rail line. The Srinagar airport is built on the Damodar karewa in Budgam.

Impact
Flood

- The destruction of the karewas has led to the enormous accumulation of silt in the Jhelum river, which makes it prone to flooding.

Permanent loss

- Once destroyed, the karewas can never be restored because of its **topography and physiology**. As this area is predominated by mountain ranges that are made up of **hard rocks.**

Saffron Cultivation

- The saffron cultivation done on thousands of hectares of the Karewa land especially in Pampore, Samboora, Parigam, Wanpora, Kaisermulla, Sarai Khampora, Kuzweira, Kultreh and a number of other villages in Pulwama and Budgam has come down drastically already.
- Further excavation could be lethal to one of the best qualities of saffron in the world.

Loss of Biodiversity

- The karewas are home to unique biodiversity. The famous **almond orchids are best grown in the soils of karewas**.
- Their destruction results in the loss of such a unique biodiversity of Kashmir.

> **Violating laws**
>
> Residents allege that the government's decision to allow clay mining is illegal as it violates "The Jammu and Kashmir Land Revenue Act, 1996" and "The Jammu and Kashmir Minor Mineral (Storage, Transportation of Minerals and Prevention of Illegal Mining) Rules, 2016".

Final Thought

- The Govt. should ensure no soil excavation is done around Karewas for construction.
- The government should immediately desilt the Wular lake and its flood plain channel and the muck should be used for developmental projects.

POOR CALL

Instead of destroying karewas, the government should desilt the Wular lake and its flood channel and use the clay to build Srinagar ring road

Source: Centre for Conservation of Culture and Heritage, Srinagar
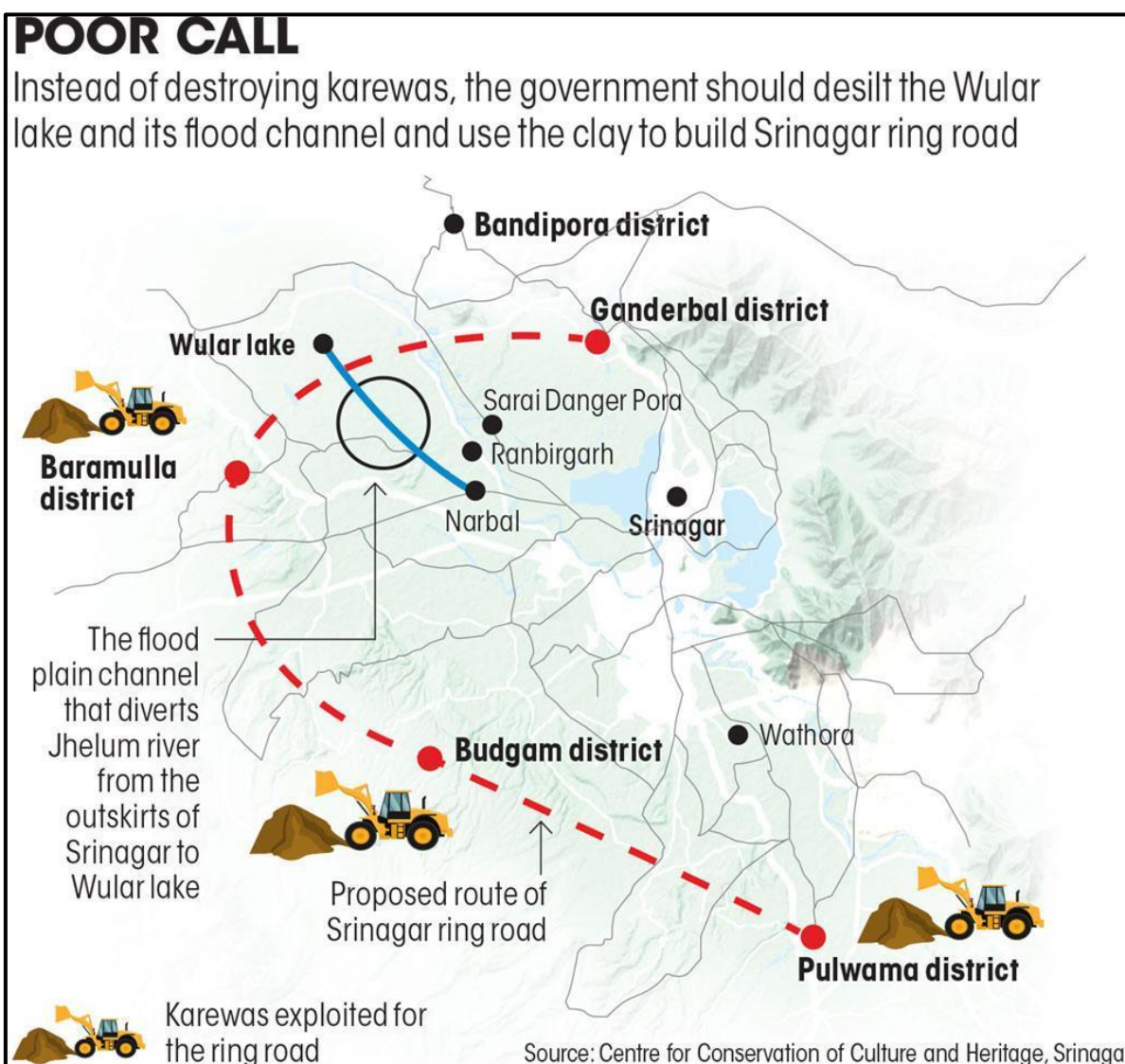
GENERAL STUDIES - II

| CRIMINAL PROCEDURE (IDENTIFICATION) BILL, 2022 | *GS-II POLITY* |

Context
- The Union Home Minister introduced the **Criminal Procedure (Identification) Bill 2022** in parliament.

Details
- The Union Home Minister Amit Shah introduced the Criminal Procedure (Identification) Bill 2022 in the Lok Sabha.
  - **It would authorise the police to take and preserve records of convicts and other persons for the purpose of identification and investigations.**
- **Once the new Bill is introduced, it would repeal the existing Identification of Prisoners Act, 1920.**

Key Features of the Bill
- **The Criminal Procedure (Identification) Bill, 2022, would allow the police and prison authorities to collect, store and analyse physical and biological samples, including retina and iris scans.**
- The Bill empowers the police to collect finger impressions, palm print impressions, footprint impressions, iris and retina scans, footprint impressions, physical, and biological samples and their analysis, behavioural attributes including signatures, handwriting or any other examination.
- **The Bill also seeks to apply these provisions to persons held under any preventive detention law.**
  - As per the provisions of the new Bill any person convicted, arrested or detained under any preventive detention law will be required to provide the above-mentioned measurements to the police or a prison official.
- **If any person resists or refuses to allow the taking of such measurements, it shall be lawful for the police officer or prison officer to take such measurements in such manner as may be prescribed.**
  - Resistance to or refusal to allow the taking of measurements under this Act shall be deemed to be an offence under section 186 of the Indian Penal Code.

Implementing body
- **The National Crime Records Bureau (NCRB) will be the repository of physical and biological samples, signatures and handwriting data that can be preserved for at least 75 years.**
- The State Government and Union territory Administration may notify an appropriate body to collect preserve and share the measurements in their respective jurisdictions.

Criminal Justice System in India
- The Criminal Justice System in India is a century-old system established by the colonial power.
- This system hardly experienced any substantial changes even after 70 years of Independence.
- **The Criminal Justice system includes the agencies of government charged with enforcing law and order, deciding criminal offences, and correcting criminal conduct.**
- The criminal justice system has the power to control crime and punish criminals and ensure rule of law in society.
- Source of Criminal law in India: Indian Penal Code of 1860, Protection of Civil Rights Act 1955, etc.
- The Criminal Justice System investigates, decides whether a person is guilty or not, and then imposes penalties on those who violate the established laws.
- **Criminal law and criminal procedure are part of the concurrent list of the 7th schedule of the constitution.**

Why reform the Indian Criminal Justice System?
- **Less than 20% of the total people booked for criminal offences are finally convicted**. Low rate of conviction points to the inefficiency of the Criminal Justice System in India.
- Century-old Indian Criminal Justice System has promoted dissatisfaction among people due to its lengthy and costly nature and also increased the burden on the judiciary.
- Lack of Cooperation and coordination among the judiciary, the prosecution and the police.
- A large number of guilty go unpunished. On the other hand, many innocent people remain as undertrial prisoners as well. **According to NCRB data, 67% of our total prison population comprises undertrial prisoners**.
- The nature of crime is changing fast in the world of digital connectivity and technological innovations.

Steps were taken by the government to reform the system
- The entire Code of Criminal Procedure (CrPC) was amended in 1973.

- The **Vohra Committee was appointed for reforming the Criminal Justice System in India.**
- **Malimath Committee was formed by the government to suggest reform in the Indian criminal justice system.**
- Adoption of "National Litigation Policy 2010" to transform government into an Efficient and Responsible litigant.
- Legal Information Management and Briefing System (LIMBS), was created in 2015 with the the objective of tracking cases to which the government is a party.

NATIONAL COOPERATION POLICY   *GS-II POLITY*

Context
- The Standing Committee on Agriculture, Animal Husbandry and Food Processing presented its report in Lok Sabha.

Details
- The Parliamentary Standing committee has advised the newly created Ministry of Cooperation to "exercise utmost prudence" in chalking out activities and programmes at the national level so that federal features of the country are not "impinged upon".
- **The Parliamentary Standing Committee Stated that the 'Cooperative Societies' is a State subject under the 7th schedule of the Indian Constitution.**
- **The committee's advice is important as the cooperation ministry, is in the process of drafting a new "National Cooperation Policy".**

Ministry of Cooperation
- **The Union Ministry of Cooperation was formed in July 2021**.
- The ministry aims to provide a separate administrative, legal and policy framework for strengthening the cooperative movement in the country.
- The ministry works with the objective of strengthening co-operatives at the grassroots level.
- Before the creation of the Cooperation ministry, the subjects under this ministry were looked after by the Ministry of Agriculture.
- **The ministry was created with the Vision of:**
  - **"Sahkar se Samriddhi" (prosperity through cooperation).**
  - **Promote 'Ease of doing business'' for co-operatives and encourage the development of Multi-State Co-operatives.**

About Cooperative Societies in India
- **A Cooperative Society can be defined as a voluntary association of individuals united voluntarily to meet their common economic, social, and cultural Interests.**
  - Its aim is to serve the interest of society through the principle of self-help and mutual help.
- **The roots of cooperative Societies in India were sown when the first Cooperative Societies Act was passed in 1904**.
- The Government Passed the Co-operative Societies Act of 1912.
- In 1958, the National Development Council (NDC) had recommended a national policy on cooperatives and the setting up of Cooperative Marketing Societies.
- National Cooperative Development Corporation (NCDC) was set up under National Cooperative Development Corporation Act, 1962.
- **Union Government announced a National Policy on Cooperatives in 2002.**
- **The 97th Constitutional Amendment Act of 2011 granted constitutional status and protection to cooperative societies.** This Amendment introduced 3 changes in the constitution:
  - It made the right to form cooperative societies a fundamental right (Article 19).
  - It included a new Directive Principle of State Policy on the promotion of cooperative societies (Article 43B).
  - It added Part IX-B in the Constitution "The Co-operative Societies" (Articles 243-ZH to 243-ZT).
- **Provisions under Indian Constitution**
  - Indian Constitution under Part IX-B contains various provisions related to cooperative societies.
  - The state legislature may make provisions for the incorporation, election, regulation and winding-up of cooperative societies.
- **Organisation Structure**
  - The board shall consist of a number of directors as may be provided by the state legislature, but, the maximum number of directors of a cooperative society shall not exceed 21.
  - The state legislature shall provide for the reservation of one seat for the Scheduled Castes or the Scheduled Tribes and two seats for women on the board of every cooperative society having members from such a category of persons.
- The functional directors of a cooperative society shall also be the members of the board and such members shall be excluded for the purpose of counting of the total number of directors (21).

- The term of office of elected members of the board and its office bearers shall be 5 years from the date of the election.

Significance of Cooperative Societies

- The village cooperative societies provide important inputs for the agricultural sector.
- The Consumer societies meet their consumption requirements at concessional rates.
- The Marketing societies help the farmer to get remunerative prices.
- The Cooperative processing units help in value additions to the raw products.
- **They also help in building up of storage, warehouse, cold storage, rural roads and in providing facilities like irrigation, electricity, transport, education and health**.
- They play the role of a balancing factor between the public and private sectors and also supplement the work of the government and its agencies.
- Many Cooperative societies have Successfully promoted rural development
  - National Cooperative Development Corporation (NCDC)
  - National Agricultural Cooperative Marketing Federation of India (NAFED)
  - AMUL and Co-operative Rural Development Trust (CORDET)
- **They play an important role in poverty reduction, promoting women empowerment, and improving literacy rate and skill development.**

Concern

- Cooperative Societies usually do not come forward to organise cooperatives of their own consensus, many times it is done by government or local administration.
- The cooperatives have limited resources.
- They grant loans only for agricultural operations. Farmers approach the money-lenders to meet their other requirements.
- **Lack of co-operation, as the people rarely understand the importance of cooperation in their lives. The absence of willing cooperation on their part hinders the growth of the cooperative movement.**
- **Political interference acts as a barrier to the growth of cooperative societies**. The selection of beneficiaries is mostly done on political relations.
- The cooperative credit structure is criticised on the ground that it is mostly managed by landlords and large farmers.
- **Poor performance, increasing debt and overdue, inefficient administration and management of Cooperative societies.**

Way Forward

- Need to ensure transparency in the processes and independence in the functioning of Boards.
- **Good Cooperative management includes setting up of clear objectives, accountability, sound planning, and establishing performance evaluation measures.**
- The objectives of the cooperative societies must be clearly recognized in their long-term strategy.
- Increase access to competitive and affordable external financing.
- Better operational and financial performance through improved strategic decision-making.
- Take a comprehensive approach including working with the government, other institutions, and the public.
- Take a practical, ground-level approach.
- Improve the decision-making process, and introduce specialists at the board meeting.
- **Put the right people in the right place, and don't let internal organizational structures to be politically influenced.**

| ⬤ | DELHI MUNICIPAL CORPORATION (AMENDMENT) BILL, 2022 | *GS-II POLITY* |

Context

- The Delhi Municipal Corporation (Amendment) Bill, 2022 was introduced in the Lok Sabha to merge the three municipal corporations of the national capital into a single entity.

Details

- The Delhi Municipal Corporation (Amendment) Bill, 2022 was introduced in Lok Sabha on March 25, 2022.
- **The Bill seeks to amend the Delhi Municipal Corporation Act, 1957 passed by Parliament.** The Act was earlier amended in 2011 by Delhi Legislative Assembly to trifurcate the erstwhile Municipal Corporation of Delhi into:
  - North Delhi Municipal Corporation
  - South Delhi Municipal Corporation
  - East Delhi Municipal Corporation
- The Bill seeks to unify the three corporations.

Key Features of the Bill

- **Unification of Municipal Corporations in Delhi:**
  - The Bill replaces the three municipal corporations under the Act with One Corporation named the Municipal Corporation of Delhi**.**
- **Powers of the Delhi government:** The Act as amended in 2011 empowers the Delhi government to decide various matters under the Act. These include:
  - The total number of seats of councillors and number of seats reserved for members of the Scheduled Castes.
  - Division of the area of corporations into zones and wards.
  - Delimitation of wards.
  - Matters such as salary and allowances
  - The Bill instead empowers the central government to decide these matters.
- **Number of councillors:** The Act provides that the number of seats in the three corporations taken together should not be more than 272.
  - **The Bill states that the total number of seats in the new Corporation should not be more than 250.**
- **Removal of Director of Local Bodies:** The Act provides for a Director of Local Bodies to assist the Delhi government and discharge certain functions which include:
  - Coordinating between Corporations.
  - Framing Recruitment Rules for various posts.
  - Coordinating the collecting and sharing of toll tax collected by the respective Corporations.
  - The Bill omits the provision for a Director of Local Bodies.
- **Special officer to be appointed by the central government:**
  - The Bill provides that the central government may appoint a Special Officer to exercise powers of the Corporation until the first meeting of the Corporation is held after the commencement of the Bill.
- **E-governance system for citizens:**
  - The Bill adds that obligatory functions of the new Corporation will include establishing an e-governance system for citizen services on an anytime-anywhere basis for a better, accountable, and transparent administration.
- **Conditions of service for sweepers:**
  - The Act provides that a sweeper employed for doing house scavenging of a building would be required to give a reasonable cause or a 14-day notice before discontinuing his service.
  - The Bill seeks to omit this provision.

Why unify?

- **The main objective of trifurcation of creating compact municipalities in Delhi to provide more efficient civic services to the public has not been achieved.**
  - Instead, owing to inadequacies in resources and uncertainty in fund allocation and release, the three corporations have been facing huge financial hardships, making it difficult for them to maintain the civic services in Delhi at the desired levels.
- **Trifurcation of the erstwhile Municipal Corporation of Delhi was uneven in terms of territorial divisions and revenue-generating potential**.
  - As a result, there was a huge gap in the resources available to the three corporations compared to their obligations.
  - It says that the gap has grown, leading to delays in the payment of salaries and retirement benefits which have resulted in frequent strikes.

Concern

- The Bill eliminates the role of the state government in the civic bodies
- The Bill will mark a total exit of the state government from the MCD. While there is a very small role now, these amendments will take the Delhi government out of the picture entirely.
- The Centre's move to unify the three corporations into a single entity means it was not satisfied with the current situation of the three local bodies. And, reduction in the number of wards would mean, a delimitation exercise will be required, which can take several months or even over a year's time.

Way Forward

- **According to Article 239AA of the Constitution of India, the Parliament has the power to amend or form laws on any matter formulated by the Delhi Assembly.**
- At the time when the MCD was trifurcated, the expectation was that it would lead to Delhi's progress. It was thought that the services provided by the MCDs will improve and there will be the welfare of its workers. But, the result was unsatisfactory in the last 10 years.

- The Bill has been introduced for greater transparency, improved governance and more efficient delivery of civic service for the people of Delhi, and also to ease the financial crisis faced by MCDs at present.

SUPPLEMENTARY DEMAND FOR GRANTS
GS-II POLITY

Context
- The Government sought Parliament nod for supplementary demands for the current fiscal year.

Details
- The Union Government sought Parliament nod for net additional spending of more than ₹1.07 lakh crore, including about Rs. 15,000 crore towards fertiliser subsidy, in the third batch of supplementary demands for the current fiscal year.

About Supplementary Grants
- **Supplementary, additional, or excess grants are provided under Article 115 of the constitution**.
  - Supplementary Grants are the additional funds necessary to satisfy the government's mandated expenditures.
- **The Ministry of Finance presents a Demand for Supplementary Grant when actual expenditure exceeds the allocated amounts by Parliament.**
  - **It is required for government spending that exceeds the amount for which Parliamentary approval was previously secured during the Budget session.**
- When grants authorised by Parliament fall short of the needed expenditure, an estimate for Supplementary or Additional funds is provided to Parliament.
  - Such excesses are brought to the attention of the Parliament by the Comptroller and Auditor General of India.
- **The Public Accounts Committee investigates and makes recommendations to the Lok Sabha.**
  - **After that, these grants are presented to Parliament and approved.**
- Thus, Grants along with Supplementary Grants make up an important part of budgetary resources to the departments to meet their financial needs in completion of the projects as well as day-to-day business.

Type of Grants
- **Article 113 of the Constitution requires that any proposal or estimate seeking withdrawal of money from the Consolidated Fund of India should be presented to the Lok Sabha in the form of a demand for grants.**
  - Under Article 113, the Lok Sabha has the power to give or refuse its assent to a demand for grants or it can reduce the amount specified in the demand.
- **Every ministry prepares a demand for grants for the expenditure to be incurred in the next financial year**. These demands are collectively presented in the Lok Sabha as part of the Union Budget.
- In addition to the budget that contains the ordinary estimates of income and expenditure for one financial year, various grants are made by the Parliament under extraordinary or special circumstances:
- **Supplementary Grant:** It is granted when the amount authorised by the Parliament through the appropriation act for a particular service for the current financial year is found to be insufficient for that year.
- **Additional Grant:** It is granted when a need has arisen during the current financial year for additional expenditure upon some new service not contemplated in the budget for that year.
- **Excess Grant:** It is granted when money has been spent on any service during a financial year in excess of the amount granted for that service in the budget for that year.
  - It is voted by the Lok Sabha after the financial year.
  - Before the demands for excess grants are submitted to the Lok Sabha for voting, they must be approved by the Public Accounts Committee of Parliament.
- **Vote of Credit:** It is granted for meeting an unexpected demand upon the resources of India, when on account of the magnitude or the indefinite character of the service, the demand cannot be stated with the details ordinarily given in a budget.
  - Hence, it is like a blank cheque given to the Executive by the Lok Sabha.
- **Exceptional Grant:** It is granted for a special purpose and forms no part of the current service of any financial year.
- Supplementary, additional, excess and exceptional grants and vote of credit are regulated by the same procedure which is applicable in the case of a regular budget.

SOCIAL STOCK EXCHANGE
GS-II POLITY

Context
- The Securities and Exchange Board of India (SEBI) approved the creation of Social Stock Exchanges (SSE) to promote financial inclusion.

Details

- With business impacted due to the COVID-19 induced lockdown, Securities and Exchange Board of India panel on social stock exchanges had recommended direct listing of non-profit organisations (NPOs) through the issuance of bonds and a range of funding mechanisms in a report submitted to the market regulator.

About Social Stock Exchanges (SSE)

- **The idea of the Social Stock Exchange (SSE) as a platform for listing social enterprise, voluntary and welfare organisations so that they can raise capital was mentioned in the Union Budget 2019-20.**
  - **Social enterprise can be defined as a non-loss; non-dividend paying company created and designed to address a social problem.**
- It was proposed to be set up under the market regulator SEBI.
- The objective is to help social and voluntary organisations which work for social causes to raise capital as equity or debt or a unit of mutual fund.
- SSE already exists in many countries such as Singapore, UK, Canada among others. These countries allow firms operating in sectors such as health, environment and transportation to raise capital.
- **An SSE allows the listing of non-profit or non-government organisations on stock exchanges, providing them with an alternative fund-raising structure.**
- The fund-raising is proposed through several instruments such as zero-coupon-zero-principal bonds, social venture funds and mutual funds.
- **According to the draft SEBI report, a Social Stock Exchange may be helpful in rebuilding the livelihoods of people who are affected during pandemics like COVID-19.**
- "The SSEs will aim at unlocking large pools of social capital, and encourage blended finance structures, so that conventional capital can partner with social capital to address the urgent challenges of COVID-19."

Eligible Activities: Social enterprises can engage in activities in such as:

- **Eradicating hunger, poverty, malnutrition and inequality; promoting health care (including mental health) and sanitation; and making available safe drinking water.**
- Promoting education, employability and livelihoods.
- Promoting gender equality, empowerment of women and LGBTQIA+ communities.
- **Ensuring environmental sustainability, addressing climate change (mitigation and adaptation), and forest and wildlife conservation.**
- **Promoting livelihoods for rural and urban poor, including enhancing income of small and marginal farmers and workers in the non-farm sector.**
- Slum area development, affordable housing and other interventions to build sustainable and resilient cities.

INTELLECTUAL PROPERTY RIGHTS   GS-II POLITY

Context

- Chief Justice of India called for effective enforcement of intellectual property rights.

Details

- **Chief Justice of India N.V. Ramana called for effective enforcement of intellectual property rights**, including geographical indications such as Darjeeling Tea, Banarasi Sari, Tirupati Laddu and Dharwad Peda, to achieve the country's full potential.
- While addressing the National Seminar on Adjudication of IPR Disputes in India at the DRDO Auditorium, Justice Ramana said: "From Banarasi to Pochampally Sarees, from Darjeeling Tea to Banaganapalli Mangoes, Tirupati Laddu to Dharwad Peda, geographical indications represent our tradition, heritage and territory.

About Intellectual Property Rights

- **Intellectual property (IP)** is a category of property that includes intangible creations of the human intellect.
- **Intellectual property rights include patents, copyright, industrial design rights, trademarks, plant variety rights, trade dress, geographical indications.**
- The main purpose of intellectual property law is to encourage the creation of a wide variety of intellectual goods, to achieve this, the law gives people and businesses property rights to the information and intellectual goods they create, usually for a limited period of time.
  - This gives economic incentive for their creation, because it allows people to benefit from the information and intellectual goods they create, and allows them to protect their ideas and prevent copying.
  - **These economic incentives are expected to promote innovation and contribute to the technological progress of**

countries.

About Geographical Indications (GI)

- **A geographical indication (GI) is a sign used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin.**
- In order to function as a GI, a sign must identify a product as originating in a given place. EX- Darjeeling tea.
- **India, as a member of the World Trade Organization (WTO), enacted the Geographical Indications of Goods (Registration & Protection) Act, 1999 which came into force with effect from September 2003.**
- **In 2004, Darjeeling Tea was the first Indian product to get the geographical indication tag.**
- India has approximately 400 registered geographical indications.
- Geographical Indication tags in India are **valid for a period of 10 years** following which it can be renewed.
- The Union Minister of Commerce and Industry had launched the logo and tagline for the Geographical Indications (GI) of India.

Concern

- There is a great disparity between the states in India concerning GI registration. **Certain states are performing better than others.**
- Placing the IPR jurisdiction with the high court's when the judiciary is already overburdened with the backlog.
- **Inadequate Infrastructure and manpower.**

Steps taken by the Government

- **The Cell for IPR Promotion and Management (CIPAM) has been set up to coordinate the implementation of the National IPR Policy**.
- IP awareness programmes have been undertaken in academic institutions, at both school and college level, as also for industry.
- To streamline the processing of IP applications, IP procedures have been simplified and made user friendly by amendment to the Patents Rules in 2016 and Trademarks Rules in 2017.
- **Under the amended Patents Rules, 80% patent fee reduction has been provided for Startups as compared to large companies.**
- Establishment of Center of Excellence in Intellectual Property.
- Providing IP Facilitation Support, Help-Desk services For IPR.
- Creation of IPR Awareness through Digital Media.

Way Forward

- There is an immediate need to take corrective steps to achieve the full potential of geographical indications."
- Provisions for stronger enforcement and action against Violation are the need of the hour".
- Awareness campaigns, especially in rural areas, on these intellectual property rights and promotes the success stories of Darjeeling Tea, Chanderi Silk, etc.
- **Building sufficient capacities in the high court's so that intellectual property litigation can be conducted efficiently and smoothly**.
- These new and additional challenges can be effectively met by strengthening the high courts.
- Need to fill the existing vacancies on an urgent basis, but there is also a need to increase the number of judges.
- Judicial infrastructure needs to be improved. Mere allocation of funds is not enough. The challenge is to put the available resources to optimum use.
- **While adjudicating the claims of intellectual property rights, a balance must be struck between contemporary claims and the sustainable interests of the future generations.**

AMENDMENT TO THE 2002 FLAG CODE OF INDIA   *GS-II POLITY*

Context

- The Union Government has allowed manufacture and import of machine-made polyester national flags by amending the 2002 Flag Code of India.

About Flag Code of 2002

- **The Flag Code of India is a set of laws, practices and conventions that apply to the display of the national flag of India.**
- The Flag Code of India, 2002, has been divided into 3 parts.
  - A general description of the national flag.
  - Display of the national flag by members of public, private organizations, educational institutions, etc.

- o Display of the national flag by union and state governments and their organizations and agencies.
- The Flag Code of India, 2002, took effect from 26 January 2002.
- **The Flag Code of India allowed the unrestricted display of the Tricolor as long as the honor and dignity of the flag were being respected.**
- The flag code was an effort to bring together all the previous laws, conventions and practices governing the correct display of the flag.

About India Flag

- The national flag of India (*Tiraṅgā*) is a horizontal rectangular tricolor; saffron, white and India green; with the *Ashoka Chakra*, a 24-spoke wheel, in navy blue at its center.
- **It was adopted in its present form during a meeting of the Constituent Assembly held on 22 July 1947, and it became the official flag of the Dominion of India on 15 August 1947.**
- **The flag is based on the *Swaraj* flag, a flag of the Indian National Congress designed by Pingali Venkayya.**
- By law, the flag is to be made of *khadi*, a special type of hand-spun cloth or silk, made popular by Mahatma Gandhi.
    - o **The Tricolor was adopted as our national flag at a Congress Committee meeting in Karachi in 1931.**
- The manufacturing process and specifications for the flag are laid out by the Bureau of Indian Standards.
- **The right to manufacture the flag is held by the Khadi Development and Village Industries Commission, who allocates it to regional groups.**
- Usage of the flag is governed by the Flag Code of India and other laws relating to the national emblems.
- **The original code prohibited use of the flag by private citizens except on national days such as the Independence Day and the Republic Day.**
- **In 2002, the Supreme Court of India directed the Government of India to amend the code to allow flag usage by private citizens. The Union Cabinet of India amended the code to allow limited usage.**

Evolution of the Tricolor

- Flag of freedom fight in 1857
- Flag of 'Bhagini (Sister) Nivedita in 1905
- The first national flag in India is said to have been hoisted in 1906, in Calcutta now Kolkata.
    - o The flag was composed of three horizontal strips of red, yellow and green.
- **The Berlin committee flag raised by Bhikaiji Cama in 1907**
    - o **The Flag was hoisted in Paris by Madame Cama.**
    - o This was very similar to the first flag except that the top strip had only one lotus but seven stars denoting the Saptarishi.
- **During the Bezwada session of the All India Congress Committee an Andhra youth 'Pingali Venkayya' prepared a flag and took it to Gandhiji.**
    - o **It was made up of two colors-red and green-representing the two major communities i.e. Hindus and Muslims.**
    - o **Gandhiji suggested the addition of a white strip to represent the remaining communities of India and the spinning wheel to symbolize progress of the Nation.**
- **The flag was adopted in 1931**
    - o A resolution was passed adopting a tricolor flag as our national flag.
    - o This flag, the forebear of the present one, was saffron, white and green with Mahatma Gandhi's spinning wheel at the center.
    - o It was, however, clearly stated that it bore no communal significance and was to be interpreted thus.
- Pingali Venkayya's version was first designed for the Indian National Congress and subsequently modified in 1947.
- On July 22, 1947, the Constituent Assembly adopted it as the Free India National Flag.
    - o After Independence, the colors and their significance remained the same.
    - o Only the Dharma Charkha of Emperor Asoka was adopted in place of the spinning wheel as the emblem on the flag.
    - o Thus, the tricolor flag of the Congress Party eventually became the tricolor flag of Independent India.
- **In the national flag of India the top band is of Saffron color, indicating the strength and courage of the country.**
    - o **The white middle band indicates peace and truth with Dharma Chakra.**
    - o **The last band is green in color and shows the fertility, growth and auspiciousness of the land.**
- The Dharma Chakra depicted the "wheel of the law" in the Sarnath Lion Capital made by the 3rd-century BC Mauryan Emperor Ashoka.
    - o The chakra intends to show that there is life in movement and death in stagnation.

DEPUTATION OF DIGS

Context

- The Union Government has Proposed a new Rules for deputation of Deputy Inspector General (DIGs).

Details

- After the proposal to amend the All India Service Rules, now the **Union government has issued another order related to the central deputation** of Deputy Inspector General (DIGs).
- Department of Personnel and Training (DoPT) has said that IPS officers coming to the Center at DIG level would no longer be required to be enrolled at that level with the Union Government.

About Deputy Inspector General of Police (DIG)

- **Deputy Inspector General of Police** is a high-ranking official position in the Police department.
- DIG is a rank held by Indian Police Service officers who had successfully served as Senior Superintendent of Police or Deputy Commissioner of Police and got promoted to this rank.
- DIGs rank just below the Inspector General of Police.
- There is no limit to the number of DIGs a state can have and most states have several DIGs.

Why Police reforms?

- **To ensure an efficient, accountable and people-centric police that upholds the Rule of Law in all situations.**
- **Police forces need to be well-equipped, in terms of personnel, weaponry, forensic, communication and transport support, to perform their role well.**
- Police forces need to have the operational freedom to carry out their responsibilities professionally and satisfactory working conditions while being held accountable for poor performance or misuse of power.
- To promote Internal and external accountability of the Police department.
- The UN recommended standard is 222 police per lakh persons, in India the actual police strength in India is at 137 police per lakh persons.
- To improve the quality of Crime investigation.
- To resolve the issue of underreporting of crime in India.
- **The conviction rate for crimes recorded under the Indian Penal Code, 1860 was less than 50%.**
- To Strengthen Police infrastructure; Strong communication support, modern weapons, and a high degree of mobility.
- **To create a strong Police-Public relations, as police requires the confidence, cooperation and support of the community to prevent crime and disorder.**

Directions of the Supreme Court in Prakash Singh v/s Union of India

- **Constitute a State Security Commission in every state** that will lay down policy for police functioning, evaluate police performance, and ensure that state governments do not exercise unwarranted influence on the police.
- **Constitute a Police Establishment Board** in every state that will decide postings, transfers and promotions for officers below the rank of Deputy Superintendent of Police, and make recommendations to the state government for officers of higher ranks.
- **Constitute Police Complaints Authorities** at the state and district levels to inquire into allegations of serious misconduct and abuse of power by police personnel.
- **Provide a minimum tenure of at least two years for the DGP** and other key police officers within the state forces.
- Ensure that the DGP of state police is appointed from amongst three senior-most officers on the basis of length of service, good record and experience.
- **Separate the investigating police from the law and order police.**
- **Constitute a National Security Commission** to shortlist the candidates for appointment as Chiefs of the central armed police forces.

PROJECT UNNATI

Context
- The Union Minister of Rural Development and Panchayati Raj, Shri Giriraj Singh interacted with the trained candidates of Project UNNATI.

Details
- **The Union Minister of Rural Development Panchayati Raj interacted with the trained candidates of 'Project UNNATI' under Mahatma Gandhi NREGA.**
- The Minister stated that "Rural women have the talent and expertise required for livelihoods like beekeeping, dairy farming, organic composting, etc. They just need a little support".
  - o He stressed that 20% of workers under Mahatma Gandhi NREGA should get training under the Unnati programme.
- A total of 2,00,000 beneficiaries will be trained under this project in a span of three years in 26 states and 2 UTs.
  - o A total number of 18,166 candidates have been trained under Project UNNATI.

About Project 'UNNATI'
- **Project 'UNNATI', is a skilling scheme to upgrade the skill base of the Mahatma Gandhi NREGA beneficiaries.**
- The main objective of the project is to improve livelihoods opportunities by providing training for one adult member (of age 18-45 years old) of a household who has completed 100 days of work under Mahatma Gandhi NREGA (MGNREGA) in the last financial year.
- **The household of selected candidates would continue to enjoy 100 days of work under MGNREGA**.
- The candidate undergoing training is paid an allowance for a maximum period of 100 days.
  - o Total expenditures are borne by Central Government.

Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) 2005
- The MGNREGA is Indian labour law and social security programme that aims to guarantee the 'right to work'.
- **It provides a legal right for 100 days of employment in every financial year to at least one member of every rural household whose adult members agree to do unskilled manual work.**
- **The Ministry of Rural Development is monitoring the implementation of this scheme.**
- **Women were guaranteed one-third of the jobs made available under the MGNREGA.**
- The MGNREGA programme also helps in creating durable assets (such as roads, canals, ponds and wells).
- **Work to be provided within 5 km of workers' residence and minimum wages are to be paid.**
- **Right to get unemployment allowance in case employment is not provided within 15 days of submitting the application.**
- **MGNREGA is implemented mainly by gram panchayats.** Adult members of rural households submit their details to the Gram Panchayat. The Gram Panchayat registers households after making an enquiry and issues a job card. The job card contains the details of the adult member enrolled and his /her photo.
- **The involvement of contractors is banned.**
- **A social Audit of MGNREGA works is mandatory**, which ensures accountability and transparency.

Significance of MGNREGA
- **The programme is providing economic security and creating rural assets.**
- **It also helps in protecting the environment, reducing rural-urban migration and promoting social equity, etc.**
- It focuses on the economic and social empowerment of women.
- It provides "Green" and "Decent" work.
- Works under MGNREGA help to address the climate change vulnerability and protect the farmers from such risks and conserve natural resources.

BAHINI SCHEME

Context
- The State Government of Sikkim plans free sanitary pads in all govt schools under "Bahini" Scheme.

About 'Bahini' Scheme
- **The "Bahini" Scheme, aims at providing "100% access to free and safe sanitary pads to secondary and senior secondary school going girls"**
  - o **It is also aimed to curb dropout of girls from schools and raise awareness about menstrual hygiene.**

- Training programmes for teachers and counsellors who will then transfer the information to the students.
  o The Students will take this information back to their communities and promote awareness among the women of these communities.
- Incinerators will also be installed at these schools for proper disposal of pads.
- All Government schools will be covered and tenders will be issued for the dispensing machines.
  o There are about 18,665 adolescent girls studying in government schools in Sikkim.

Significance of the scheme

- It would ensure access to sanitary napkins, especially in rural Sikkim, much of which is remote and difficult terrain is difficult.
- Promote women education and empower them
  o The dropout rate of students in Sikkim, for both boys and girls, is similar to the national average, which is approximately 20% for both genders.
  o While girls in Sikkim may not drop out of schools due to menstruation, it is definitely a contributing factor.
  o During menstruation, adolescent girls skip school for five to six days every month.
  o **23% opt to drop out completely due to lack of proper toilet facilities and inadequate provisions.**
- Easy accessibility and availability of sanitary napkins will be provided.
- **More awareness will come to people and less stigmatisation of menstrual hygiene.**
- Budgetary allocation will help in providing continuous and qualitative availability of pads.
- Dropout rate might decrease with availability at school level.
- **Sensitization of teachers through training programmes will help adolescent girls to reach out to their teachers in case of problems.**

Steps need to be taken for promoting Women Healthcare

- Develop and Implement a Gender Health policy and Strategy.
- Recognise Women's Reproductive Rights.
- Focus on Young mothers and adolescent unmarried girls.
- Enforcement of Child marriage prevention programs.
- **Adolescent girls' programmes should focus on protecting girls from early and unwanted childbearing.**
- Encourage young women to delay marriage age by promoting education and skill development.
- Encourage young couples to practice family planning and delay their first child.
- Family planning programme is dominated by a single method: female Sterilisation, Programme should promote men's participation.
- Train Social workers in hospitals, and Community health workers under the national health mission.
- Strengthen programmes to delay age at marriage.
- Improve mental health services for women.
- **Address stigma, discrimination and violence against HIV-positive women and female sex workers.**
- Address infertility problems in public health sector.
- Address health problems of women in the informal sector.
- Improve water and sanitation Situation for women

Way Forward

- Need to **focus on a strategy that converge key initiatives** by the government and **improves accountability towards issues** related to menstrual health management.
- Promoting a **community-based approach** in which local influencers and decision-makers are **involved would result in behavioural change and also** target myths and misconceptions.
- Promote **public-private collaborations** and increase access to affordable menstrual hygiene products for rural and semi-urban regions.
  o This could be done through the **installation of sanitary pad vending machines** at key public places, workplaces, schools, and colleges, as well as Anganwadicentres or childcare centres for rural areas.
- We need to understand that menstrual **health is not just a women's issue, but a matter of human rights and dignity.**

CAPTIVE EMPLOYMENT UNDER DDU-GKY   GS-II GOVERNANCE

Context

- Webinar to promote the 'Captive Employer' initiative under the Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY).

Details

- 'Captive Employer' initiative aimed at addressing the vision of a dynamic and demand-based skilling ecosystem catering to the requirements of industry partners ensuring sustainable placements for rural poor youth.
- **The initiative is a shot in the arm for the Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY) programme, assuring post-training placement of candidates for a minimum of six months with a minimum CTC of Rs 10,000/-.**
- The model will allow the industry to source trainees as per their requirement with active support from States/UTs and train them as per the requirement of their own organizational/industry/ subsidiaries /operational need and provide candidates with assured placement.
  - It will also allow employers to select rural youth and skills and deploy them in one of their establishments/subsidiaries.

Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY)

- The **Ministry of Rural Development announced the Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY) in 2014**.
- **DDU-GKY is a part of the National Rural Livelihood Mission (NRLM)**, tasked with the dual objectives of adding diversity to the incomes of rural poor families and caters to the career aspirations of rural youth.
- It is a nationwide **placement-linked skill training program funded by the Ministry of Rural Development.**
- DDUGKY aims to build the placement-linked skills of the poor rural youth and place them in wage employment across various sectors of the economy.
- The programme has an outcome led design with guaranteed placements for at least 70% trained candidates.

Present Status

- The DDU-GKY programme is being implemented in 27 states and 3 UTs for rural poor youth with a special focus on placements.
- More than 871 Project Implementation Agencies (PIAs) are training rural poor youth through more than 2381 training centers.
- Nearly 11.5 lakh youth have been trained and 7.5 lakh youth have been placed till 31st January 2022.
- **The DDU-GKY scheme mandates one-third of the total candidates being trained under the scheme to be women.**
- **The scheme targets rural poor youth in the age group of 15-35 years, the upper age limit for women candidates is 45 years.**

Significance of DDU-GKY Scheme

- **It plays an instrumental role in supporting the social and economic programs of the government like the Make in India, Digital India, Smart Cities and Start-Up India, Stand-Up India campaigns.**
- Over 180 million or 69% of the country's youth population between the ages of 18 and 34 years, live in its rural areas. Of these, the bottom of the pyramid youth from poor families with no or marginal employment number about 55 million. DDU-GKY focuses on these rural youth.
- The Skilling Ecosystem integrated by DDU-GKY, ensures overall development of rural areas.
- **Rural Youths are supported through investment, capacity building, strategies for retention, linkages to placement and technology support for training purposes.**

NATIONAL DIGITAL TOURISM MISSION   *GS-II GOVERNANCE*

Context

- The Ministry of Tourism released a draft report for setting up the National Digital Tourism Mission.

Details

- **The Ministry of Tourism had constituted an inter-ministerial task force for National Digital Tourism Mission in July, 2021 to undertake consultations with the tourism industry and domain experts, define the context, mission, vision, objectives, and overall scope of the National Digital Tourism Mission.**
- The Task Force has prepared a draft report on proposed National Digital Tourism Mission, which lays down domain and technology principles, standards, digital stack, governance structure and plan for implementation of the envisaged National Digital Tourism Mission.
- The Ministry of Tourism has invited final comments from the stakeholders on a draft report for the setting up of the National Digital Tourism Mission. The draft report has also been published on a website for suggestions and feedback from the public.

Key Points of the Draft Report on the National Digital Tourism Mission

- The draft report prepared by the inter-ministerial task force comprises the following:
  - Domain and technology principles
  - Standards

- o   Digital stack
- o   Governance structure
- o   Plan for implementation of the National Digital Tourism Mission
- The draft report points out that the tourism sector in India is **highly fragmented**. The tourism systems formed by the Central government, State governments, public and private sectors **function in silos**. Therefore, the tourism ecosystem is **not able to harvest the combinatorial benefits** of information exchange.
- Sub-sectors of tourism i.e. accommodation, transport, restaurants and catering, and personal services face very different challenges and opportunities and therefore policies have to be devised accordingly.
- In the tourism sector, the **data systems currently don't interact** with each other using a common language, thereby limiting data analytics and resultant policymaking. Therefore, it is important to have a **seamless, standardized data exchange** among various stakeholders in the tourism sector.

Significance of Tourism Sector in India

- Tourism is a big employment generator.
- Foreign tourists' arrival brings Foreign Currency.
- Livelihood to local Population and revenue to the Government.
- Positive Impact on Education, Culture, Textiles, Development of North-East India, Rural Development.
- Promote Sustainable Economic Growth, Social Inclusiveness, Employment, and Poverty Reduction.
- Promotes Inclusive Growth, Strengthens Rural Communities, Benefits Women, Resource Efficiency, Environmental Protection.
- Protects Cultural Values, Diversity, and Heritage.
- Tourism plays an important role in Cultural heritage management, Funding, and Protection - Promote Mutual Understanding, Peace, and Security.
- Tourism Sector development often results in improvements in basic infrastructure.
- Countries with a more open and Sustainable tourism Sector tend to be more peaceful.

Concern

- Lack of basic infrastructure like roads and Providing Clean, Comfortable accommodation to tourists.
- Safety Concerns, Low awareness about e-visa facilities.
- Infrastructure and Connectivity, online marketing/branding remains limited.
- Tourist information centers are poorly managed.
- Limited number of multilingual trained guides.

Steps Taken by Government

- Introduced online visa facility, extended e-visa facility for medical and business travelers, and increasing time Period of Stay.
- Launched e-ticketing of Historical monuments like Taj Mahal.
- Introduction of **dedicated tourist trains across India** and **24x7 tourist helpline.**
- The Ministry of Tourism adopted the Code **of Conduct for Safe tourism.**
- Tourism ministry has encouraged and developed a Chain of B&B (Bed and Breakfast) homes.
- **Special Tourism Zone** in Partnership with the States, **Permitting 100% FDI**.
- **Swacch Bharat Abhiyan** under which the tourist destinations are kept Clean.
- **AdarshSmaarak** Scheme by Archaeological Survey of India to promote basic tourist facilities in well-known historical Sites.
- **Swadesh Darshan Scheme** for integrated development of theme based tourist Circuits.
- **PRASHAD Scheme** to beautify and improve amenities and infrastructure at Pilgrimage Sites.
- Launching of Incredible India 2.0 Campaigns.
- Generating sufficient manpower to meet the requirements of the tourism and hospitality industry.
- Launching 24x7 toll free Multilingual Tourist Helpline.

Steps Need to taken

- Promote benefits of tourism, Cultural diversity, Promote **Domestic tourists**.
- Tourism related infrastructure needs lots of improvement, Infrastructure for visiting and residents needs to be developed.
- Ensure Last mile Connectivity, Promote **'Home Stays' in rural and Semi-urban areas**.
- Economical and better way to interact directly with the local Population and to know about their traditions and Culture.
- Broadcast the diversity of India through Social media, Create more Skilled, digitally-literate hospitality entrepreneurs.
- Promote entrepreneurship under Skill India Programme.
- **Conservation efforts of Rural Heritage will help promote Tourism and Development in Rural India.**
- Conservation and development of all heritages Sites Should be undertaken and completed through either government funding or through NGOs/Corporate Social Responsibility (CSR) activities.

- Developing new tourist Circuits. Fully utilize Swadesh Darshan and existing Schemes, Connect local Communities to tourism.
- Targeted Promotional Campaigns

Way Forward

- India with her Cultural, Spiritual and Natural richness offers unique experiences.
- Diverse traditions, life Styles, Colorful fairs and festivals offer a variety of Choice for the domestic and foreign tourists.
- Forests, tribal lifestyles, beautiful Coastline and beaches, wild life Sanctuaries and National Parks Provides rare opportunity to the visitors, Compelling them to revisit the Country to experience this diversity.
- **Tourism based on Inclusive Economic Growth, bringing decent Jobs to local Communities, Preservation of Environment, Addressing Climate Change and respecting the unique Cultural identity of the People. Bring and Share the benefit of travel and tourism equitably with the local Communities**.

MODERNISATION PLAN-IV FOR CAPFS — *GS-II GOVERNANCE*

Context

- The Union Government has approved the scheme 'Modernisation Plan-IV for CAPFs with a financial outlay of over Rs 1,500 crore.

Details

- **The Union Government has approved the scheme 'Modernisation Plan-IV for Central Armed Police Forces (CAPFs)'** to improve the overall operational efficiency and preparedness of the CAPFs with a financial outlay of over Rs 1,500 crore.

Central Armed Police Forces (CAPFs)

- Under the Constitution, Police and public order are State Subjects. However, the Ministry of Home Affairs (MHA) assists State governments by providing them Support of Central Armed Police Forces.
- **Home Ministry maintains 7 CAPFs:**
  - Central Reserve Police Force (CRPF) assists in internal Security and Counter insurgency.
  - The Central Industrial Security Force (CISF) protects vital installations (like airports) and public Sector undertakings.
  - National Security Guards (NSG), A Special Counter terrorism force.
  - Border Security Force (BSF)
  - Indo-Tibetan Border Police (ITBP)
  - SashastraSeema Bal
  - Assam Rifles

Concern

- Data from Bureau of Police Research and Development Shows that **'15% of Posts are lying vacant'.**
- Heavy dependence by States on Central police forces even for day-to-day law and order issues. This is likely to affect anti-insurgency and border-guarding operations of the Forces.
- Most of the expenditure of the CAPFs was on Salaries, less on Modernization.
- **Concern over the working Conditions of personnel of the border guarding forces.**
- CAPFs have not been treated at par with Armed Forces, in terms of pay and allowances.
- Hard-area allowance for personnel of the Border Guarding forces was much lower as Compared to members of Armed Forces.

Way Forward

- **States must develop their own Systems, and Support their police forces by providing adequate training and equipment.**
- The Central Government should supplement the efforts of the State by providing financial assistance and other help for Capacity building of their forces.
- Need to upgrade the Curriculum and infrastructure of training institutes.
- **Contents of training should be a mix of Conventional matters as well as latest technologies Such as IT, and Cyber Security**.
- Provide financial Support to CAPFs for modernisation in areas of arms, Clothing, and equipment.
- Public-Private Partnership to ensure an uninterrupted Supply of equipment and other infrastructure.

CASTE-BASED MGNREGA WAGES PAYMENT

Context

- A Parliamentary Standing Committee has asked the Union Ministry of Rural Development to withdraw the caste-based wage payment provisions under MG-NREGS and restore the single Fund Transfer Order (FTO) without segregating beneficiaries on caste lines.

Details

- **Parliament's Standing Committee on Rural Development and Panchayati Raj has asked the government to roll back the system of caste-based wages, under which MGNREGA workers are paid based on whether they belong to a Scheduled Caste, Scheduled Tribe, or Others.**
- The panel has asked the Ministry of Rural Development to restore the earlier system by which a single Fund Transfer Order was generated without "any sort of segregation on the basis of caste".

About caste-based wage payment system

- **The government in March 2021 issued a circular directing the state governments to create three separate Fund Transfer Orders (FTOs) for receiving central funds to disburse MGNREGA workers' wages.**
  - One each is meant for Scheduled Castes (SCs) and Scheduled Tribes (STs) and the third for the "Other" Category.
- So instead of the earlier system wherein a single FTO stating how many people had worked under MGNREGS and the wages they should be paid, the government has asked the states to create 3 FTOs for the MGNREGA workers belonging to different castes.
- **Problem with the new payment system**
  - Once the caste-based system was implemented, the payment of wages to workers became erratic and non-uniform, triggering caste-based tensions among MGNREGA workers.
  - **This has led to workers from one caste receiving wages faster than the other despite workers doing the same work in the same region for the same number of days.**

Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) 2005

- The MGNREGA is an Indian **labour law and social security programme that aims to guarantee the 'right to work'.**
- **It provides a legal right for 100 days of employment in every financial year to at least one member of every rural household whose adult members agree to do unskilled manual work.**
- The **Ministry of Rural Development** is monitoring the implementation of this scheme.
- **Women were guaranteed one third of the jobs made available under the MGNREGA**.
- The MGNREGA programme also helps in creating durable assets (such as roads, canals, ponds and wells).
- **Work to be provided within 5 km of workers residence** and minimum wages are to be paid.
- **Right to get unemployment allowance in case employment is not provided within 15 days of submitting the application.**
- **MGNREGA is implemented mainly by gram panchayats**. Adult members of rural households submit their details to the Gram Panchayat. The Gram Panchayat registers households after making enquiry and issues a job card. The job card contains the details of adult member enrolled and his /her photo.
- **The involvement of contractors is banned.**
- **Social Audit of MGNREGA works is mandatory**, which ensures accountability and transparency.

Significance of MGNREGA

- **The programme is providing economic security and creating rural assets**.
- It also helps in **protecting the environment, reducing rural-urban migration and promoting social equity, etc.**
- It focuses on the economic and social empowerment of women.
- It provides "Green" and "Decent" work.
- Works under MGNREGA helps to address the climate change vulnerability and protect the farmers from such risks and conserve natural resources.

Constitutionality of MGNREGA

- **MGNREGA provides a 'right to work' in accordance with Article 41** that directs the State to secure to all citizens the right to work.
- It also **protects the environment through sustainable rural works, which is consistent with Article 48A** that directs the State to protect the environment.
- **Article 21 guarantees the right to life with dignity to every citizen of India, this act promotes dignity among the rural**

people through an assurance of livelihood security.

- Article 16 guarantees equality of opportunity in matters of public employment and prevents the State from discriminating against anyone in matters of employment on the grounds only of religion, race, caste, sex, descent, place of birth, place of residence or any of them.
- **MNREGA also follows Article 46 that requires the State to promote the interests of and work for the economic uplift of the scheduled castes and scheduled tribes** and protect them from discrimination and exploitation.
- Article 40 mandates the State to organise village panchayats and award them with such powers and authority as may be necessary to enable them to function as units of self-government.

SEXUAL HARASSMENT OF WOMEN AT WORKPLACE, (POSH ACT)   GS-II SOCIAL JUSTICE

Context
- The Kerala High Court asked organisations associated with the film industry to take steps to constitute a joint committee to deal with cases of sexual harassment of women, in line with the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act of 2013.

About Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act of 2013
- **The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act was passed in 2013.**
- The Act defines sexual harassment at the work place and creates a mechanism for Redressal of complaints. It also provides safeguards against false or malicious charges.
- **The Act extended the Vishaka guidelines. The Vishaka guidelines were laid down by the Supreme Court in a judgement in 1997.**
  - **This was in a case filed by women's rights groups, one of which was Vishaka. They had filed public interest litigation over the alleged rape of Bhanwari Devi, a social worker from Rajasthan.**

About Vishaka Guidelines
- The court observed that it is the duty of an employer to protect the safety of their employees and other people who might be affected by their business.
- **The court said that such an incident results in a violation of the fundamental rights of 'Gender Equality' and the 'Right of Life and Liberty'. It is a clear violation of the rights under Articles 14, 15 and 21 of the Constitution.**
- It shall be the duty of the employer or other responsible persons in workplaces or other institutions to prevent sexual harassment and to provide for the resolution and settlement mechanism.
- **The court defined what constitutes sexual harassment.** For this purpose, sexual harassment includes such unwelcome sexually determined behaviour (whether directly or by implication) as:
  - Physical contact and advances.
  - A demand or request for sexual favours.
  - Sexually coloured remarks.
  - Showing pornography
  - Any other unwelcome physical verbal or non-verbal conduct of sexual nature.
- **All employers should take appropriate steps to prevent sexual harassment. Without prejudice to the generality of this obligation, they should take the following steps**:
  - Express prohibition of sexual harassment as defined above at the workplace should be notified, published and circulated in appropriate ways.
  - The Rules/Regulations of Government and Public Sector bodies relating to conduct and discipline should include rules/regulations prohibiting sexual harassment and provide for appropriate penalties in such rules against the offender.
  - Appropriate work conditions should be provided in respect of work, leisure, health, and hygiene to further ensure that there is no hostile environment towards women at workplaces.
  - Awareness of the rights of female employees in this regard should be created in particular by prominently suitably notifying the guidelines.
- **The Vishaka guidelines have laid the foundation for the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013.**

Features of Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act of 2013
- **The definition of "aggrieved woman", who will get protection under the Act is extremely wide to cover all women, irrespective of her age or employment status, whether in the organised or unorganised sectors, public or private and covers clients, customers and domestic workers as well.**
- While the "workplace" in the Vishaka Guidelines is confined to the traditional office set-up where there is a clear employer-

employee relationship, the Act goes much further to include organisations, department, office, branch unit etc. in the public and private sector, organised and unorganised, hospitals, nursing homes, educational institutions, sports institutes, stadiums, sports complex and any place visited by the employee during the course of employment including the transportation.

- o Even non-traditional workplaces which involve telecommuting will get covered under this law.
- **Local Committees (LCs) are to be constituted under the Act in districts to receive complaints in organisations having less than 10 workers or if complaints are against employers themselves.**
- Employers are also required to organise workshops and awareness programmes at regular intervals for sensitising the employees about the provisions of this legislation.
- **Every employer is required to constitute an Internal Complaints Committee at each office or branch with 10 or more employees.**
  - o **The District Officer is required to constitute a Local Complaints Committee at each district, and if required at the block level.**
- **The Committee is required to complete the inquiry within a time period of 90 days. On completion of the inquiry, the report will be sent to the employer or the District Officer, as the case may be, they are mandated to take action on the report within 60 days**.
- The Complaints Committees have the powers of civil courts for gathering evidence.
  - o The inquiry process under the Act should be confidential and the Act lays down a penalty of Rs 5000 on the person who has breached confidentiality.
- The Act requires employers to conduct education and sensitization programmes and develop policies against sexual harassment, among other obligations.
  - o It is recommended that the eLearning or Classroom Training be delivered in the primary communication language of the employee.
- **Every organization must file an Annual Report to the District Officer every calendar year as prescribed under the Rule of the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Rules, 2013.**
- Government can order an officer to inspect workplace and records related to sexual harassment in any organisation.
- Under the Act, which also covers students in schools and colleges as well as patients in hospitals, employers and local authorities will have to set up grievance committees to investigate all complaints.
  - o Employers who fail to comply will be punished with a fine of up to 50,000 rupees.

Other Steps taken by the Government

- **In order to promote women empowerment and their safety to increase their participation in the workforce, the Government has approved a new and comprehensive Umbrella Scheme for safety, security and empowerment of women under the name 'Mission Shakti'.**
- The Mission Shakti, includes the components such as;
  - o National, State and District level Hubs for Empowerment of Women.
  - o Women Hiplines, One Stop Centres.
  - o BetiBachaoBetiPadhao, Sakhi Niwas (Working Women's Hostels).
  - o Palna (crèches for children of working women) etc.
- The schemes of One Stop Centres and Universalization of Women Helpline are implemented by the Ministry of Women and Child Development to support women facing violence or distress of any kind which may adversely affect their participation in the workforce.
- **Working Women Hostels** for ensuring safe accommodation for women working away from their place of residence.
- **National Crèche Scheme** to provide daycares' facilities to children of the age group of 6 months to 6 years of working women who are employed.
- **In order to enhance the employability of female workers and ensure economic independence of women through skill development and vocational training, the Government has also introduced Skill India Mission under which training is provided through a network of women Industrial Training institutes, National Vocational Training Institutes and Regional Vocational Training Institutes**.
- The National Skill Development Policy focuses on inclusive skill development, with the objective of increased women participation for better economic productivity.
- **There are schemes like Pradhan Mantri Mudra Yojana and Stand-up India, for helping the women to set up their own enterprises.**
- The Labour Codes, viz. The Code on Wages 2019, the Industrial Relations Code, 2020, Occupational Safety, Health and Working Conditions Code, 2020 and the Code on Social Security, 2020, collectively include provisions to promote participation of women in the workforce in a dignified manner and with adequate safety measures adopted by the employers.

YEMEN WAR

Context
- The Yemen's Houthi rebels hit Aramco, other facilities in Saudi Arabia.

Background
- The ongoing conflict between Saudi Arabia and the **Iran-backed Houthi rebels** has taken a devastating toll on Yemen since 2015.
- Yemen has been drawn into a **civil war since 2014** when the Iran-backed Houthis ousted the government.
- The rebels took control of the country's northern parts, including the capital, Sanaa, forcing the internationally recognized government to flee to the south.
- The **Saudi-led coalition** has been fighting the rebels in Yemen since 2015.
- In response, the Houthis have frequently targeted the kingdom's southern region with missile and drone attacks.
- Although there was no direct intervention by Iran, who support the Houthis, the **conflict has been widely seen as an extension of the Iran–Saudi Arabia proxy conflict** and as a means to combat Iranian influence in the region.
- **UAE:** After five years of fighting, the **United Arab Emirates pulled out of the war last year**. And the UAE-backed Southern Transitional Council wants southern Yemen to be an independent entity.In January 2022, the Houthis launched air strikes against the UAE, a rare move **that could lead Abu Dhabi to reinvigorate its involvement** in a conflict it has mostly tried to walk away from in recent years.

What caused the current crisis?
Several factors widened these political divisions and led to full-scale military conflict.
- **Fuel price hikes:** Under pressure from the International Monetary Fund, which had extended to Yemen a $550 million loan premised on promises of economic reforms, Hadi's government lifted fuel subsidies in 2014.
- **Houthi takeover**: The Houthis captured much of Sanaa by late 2014. Reneging on a UN peace deal, they consolidated control of the capital and continued their southward advance. Hadi's government resigned under pressure in January 2015 and Hadi later fled to Saudi Arabia.
- **Military division:** Military units loyal to Saleh aligned themselves with the Houthis, contributing to their battlefield success.
- **Saudi intervention**: In 2015, with Hadi in exile, Riyadh launched a military campaign—primarily fought from the air—to roll back the Houthis and restore the Hadi administration to Sanaa.

Humanitarian crisis
- The country's **humanitarian crisis** is said to be among the worst in the world, due to **widespread hunger, disease, and attacks on civilians. According to the UN, 50,000 Yemenis are starving to death and 16 million will go hungry this year. They are depending on food assistance to survive,**
- As the UN-backed, **two-party peace process has stalled**, some experts have suggested that better representing the many parties involved in the conflict would yield better results.
- The crisis in Yemen is not only about the Saudi-Houthi conflict. It has many more dimensions: **humanitarian, civil, geopolitical and sectarian.**
- The Houthis are living in permanent war, unable to provide even basic services to the people in the territories they control.
- Yemen's internationally recognised government practically lacks any power and legitimacy at home as the war is being fought by other players.

What's the latest in the conflict?
- The six-nation Gulf Cooperation Council invited the Houthis for talks on Yemen on the conflict in Riyadh, but rebels said they would welcome talks with the coalition if the venue is a neutral country, including some Gulf states.
- It also said that the priority was lifting "arbitrary" restrictions on Yemeni ports and Sanaa airport.

U.S. and Yemen war
- One of the first key foreign policy decisions that President Joe Biden took after assuming office was **to end the U.S.'s support for Saudi Arabia's six-year-long war on Yemen.**
- He **halted weapons sales to Saudi Arabia**, appointed a Special Envoy for Yemen, and removed the Shia Houthi rebels, who control the northwestern parts of the Arab country, from the list of foreign terrorist organisations.
- This is part of his larger attempts **to rewrite the U.S.'s West Asia policy** which, under Mr. Trump, was almost entirely focused on containing Iran.

India and Yemen crisis

- The Government of India has expressed concerns about the continued intensification of military operations in Yemen and called upon **all parties to the conflict to immediately cease fighting**.
- India has **maintained healthy diplomatic ties with all invested nations** including Iran and Saudi Arabia, while keeping its own interests afloat and ensuring the safety of all Indians.
- **India's Yemen policy**: India has maintained neutrality as it shares a deep relationship with Yemen and other Middle Eastern countries like Saudi Arabia and the UAE.
- **Oil security:**
  o Violence in Yemen could disrupt oil supplies and increase prices as **Saudi Arabia is the world's largest exporter of crude oil.**
  o **Yemen's proximity to the Bab el-Mandeb Strait** which connects the Gulf of Aden to the Red Sea, is also a concern. If the strait gets blocked, tankers would have to take a longer route around the Horn of Africa, increasing the cost of their voyages and eventually resulting in higher crude oil and liquified natural gas prices.

What are the prospects for a solution to the crisis?

- **UN-backed peace negotiations** have made limited progress. The **2018 Stockholm Agreement** averted a battle in the vital port city of Hodeidah, but there has been little success in implementing the accord's provisions.
- Yemen can find a way out of the current crisis provided the **war is brought to an immediate end and the country is given diplomatic assistance.**
- Once a ceasefire between the two main rival blocs is achieved, the U.S. and its regional allies could call for **a multilateral conference involving all stakeholders to discuss Yemen's future.**
- Ending the war is in the best interest of all parties. **U.S. should push Saudi Arabia and its allies** to end their blockade of Yemen and initiate talks with the country's multiple rebel factions.

ANTI-INDIA CAMPAIGN IN MALDIVES	*GS-II INTERNATIONAL RELATIONS*

Context

- Maldivian Parliament accepted an emergency motion disallowing a planned opposition rally two days later in the capital Male.
- It had been called by former president Abdulla Yameen and his Progressive Party, and its ally, the People's National Congress.
- The theme of the rally was **"India Out",** a slogan coined two years ago by protesters who claimed that the MDP government led by President Ibrahim Solih had "sold out" the Maldives to India.
- The recent **'India Out' campaign in the Maldives** is against the opposition to the UthuruThilaFalhu (UTF) harbour development deal with India in February 2021, which is being seen as a **way of allowing Indian military presence on native soil.**

More about news

- The 'India Out' campaign, is widely spreading across social media platforms.
- Reports are being published in Maldives media alleging that the present incumbent government is **allowing India to establish a military base in the island by signing secret agreements, in exchange for financial assistance or other material benefits.**
- This allegation is made against the government because the leader of the current ruling party Mohamed Nasheed urged India to intervene militarily to restore peace and democracy in 2018.
- Progressive Party of Maldives (PPM) of former President Abdulla Yameen and its coalition partner People's National Congress (PNC) are trying **to mobilise people against the current government by spreading misleading propaganda against India.**
- India out campaign was launched by the opposition coalition **PPM and PNC both on the street as well as on social media demanding the expulsion of Indian military personnel present in the country.**

How India has become a victim of the internal political situation in the Maldives

- Former President Abdullah Yameen is perceived as a **friend of China**. During Yameen's term as President from 2013 to 2018, **New Delhi-Male relations deteriorated drastically**.
- On the other hand, the present Solih administration opt for an **'India first' foreign policy.**
- The Solih government has rejected the 'India Out' campaign and has expressed concern at attempts **to spread "misguided and unsubstantiated information to propagate hatred towards India".**

Why this campaign is gaining ground again?

- Although campaign gained popularity in the past year or so, its root cause can be **traced back to 2013** when Abdulla Yameen

Abdul Gayoom of the Progressive Party (PPM) became the president.

- The **next presidential election is scheduled in 2023**, and Mr. Yameen is trying to make a political comeback, tapping on both the anti-incumbency, and the anti-India sentiments among sections loyal to him.

India's reaction

- India's requested to take action against local media and have repeatedly urged people to not spread hate against India.
- Foreign ministry's urged the media not to affect bilateral relations and, as per **article 29 of the Vienna Convention on Diplomatic Relations**, it is the responsibility of the Maldives to treat the diplomats with due respect, and take all appropriate steps to prevent any attack on freedom, and dignity of foreign diplomats.

India-Maldives bilateral Relations

- India and Maldives are neighbors as they share a maritime border. Relations have been friendly and close in strategic, economic and military cooperation. India continues to contribute to maintaining security on the island nation.

Historical relations:

- Both nations' were Britain colonies.
- India was among the **first to recognise Maldives after its independence in 1965** and to establish diplomatic relations with the country. India established its mission at Malé in 1972.
- India and Maldives share ethnic, linguistic, cultural, religious and commercial links steeped in antiquity and enjoy cordial and multi-dimensional relations.

Political relations:

- India and Maldives have consistently supported each other in multilateral fora such as the **UN, the Commonwealth, the NAM and the SAARC.**
- **High connectivity:** High People-to-People contacts, as Air India operates daily flights to Malé from Thiruvananthapuram, Bangalore and Chennai.
- **Tourism:** The proximity of location and improvements in air connectivity in recent years has led to a very substantial increase in the number of Indians visiting Maldives for **tourism** (around 33,000) and business.
- **Soft diplomacy**: India is a preferred destination for Maldivian for **education, medical treatment, recreation and business.**
- **Diaspora:** Indians are the **second largest expatriate community in the Maldives.**

Why Maldives matters to India?

Strategic location:

- Maldives holds strategic importance for India under the Modi government's **'Neighborhood First' policy** due to its location in the Indian Ocean.
- The **Eight Degree Channel** is one of the major maritime lanes of the world.
- **Stability, maturity and democratic systems** in the Maldives can ensure peace and security in the Indian Ocean.

Major challenges

Chinese influence:

- India has been quite apprehensive of the growing Chinese influence in Maldives even as it continues to give utmost priority to the island nation.
- There have been growing concerns regarding China's role in the Maldivian economy through so-called **"debt-trap diplomacy."**
- Maldives incurred a debt of about **$1.4 billion owing** to loans from China to finance several of its infrastructure projects.
- Maldives and China had also entered into a **free trade agreement.**

India's position in Male crisis

- During the pro-Beijing regime of their former President Abdulla Yameen, ties between the nations got strained. In fact, there came a point in 2018 when **India even contemplated a military intervention.**

Dhruv controversy

- India gave **two Dhruv Advanced Light Helicopters (ALF) to the Maldives in 2010 and 2015** both of which were to be used for ocean search-and-rescue operations, maritime weather surveillance and for airlifting patients between islands.
- However, some people in the PPM stirred up a controversy by saying that the **helicopters marked the start of military presence in the country.**
- The Maldives government requested India to take back the helicopters in 2016, but **India refused to do.**

Lack of transparency

- Another issue is the lack of transparency when it comes to the **signing of agreements between India and the Solih government.**
- The Maldives government has refused to share details of agreements signed with India citing **security reasons**

The Naval Base controversy

- The **Uthuru Thilafalhu** is a **strategically located atoll** near the capital Malé and was called the **UTF Harbour project.**
- Also, in 2016, an action plan was signed by both the governments for defence cooperation to enhance "shared strategic and security interests of the two countries in the Indian Ocean region".
- However, after the Solih government took over, there was speculation that the UTF project would be turned into an Indian naval base.

Measures taken so far

- After coming to power for the second time in May last year, Prime Minister Modi's first international destination was Maldives. He was also the **only head of state to attend Maldives President** Ibrahim Mohamed Solih's swearing-in ceremony in November 2018, when he came to power ousting Yameen.
- India has also **offered a $1.4-billion development assistance package to Maldives**, which is being utilised in several projects.
- 30 years ago, in 1988, an intervention by the Indian armed forces - codenamed **'Operation Cactus'** - trounced an attempted coup on the island nation. On November 3, 1988, when mercenaries attacked the Maldives, India was the first to respond.
- In 2004, when the tsunami hit Maldives, Indian naval ships were dispatched to assist rescue operation.
- During the **Male water crisis**. Within four hours Indian Navy and Air Force vessels delivered water.

Way forward

- **Past learning's:** Despite repeated calls for intervention, India firmly avoided military action against the Yameen regime. New Delhi thoughtfully coordinated its diplomatic response with other stakeholders, and put enormous pressure on Yameen to hold the presidential elections in a fair and transparent manner. This patience seems to have yielded a positive outcome as India finds itself in an advantageous situation now.
- **Cautious approach:** India needs to remain careful if it wants to avoid a Nepal-like situation, where New Delhi's perceived interference in Nepal's internal affairs had turned the Nepali people against India. Having a lighter diplomatic footprint is the only way forward in the Maldives.'

WORLD HAPPINESS REPORT   *GS-II INTERNATIONAL RELATIONS*

Context

- According to the World Happiness Report (2022), Finland secured the top spot in the World Happiness Index.

Key findings of World Happiness Report 2022

- **Finland secured the top spot** in the World Happiness Index. Finland's score was "significantly ahead of other countries in the top ten".
- **Denmark secured the second spot**, followed by Iceland, Switzerland, Netherlands and Luxemburg.
- **Lebanon and Afghanistan ranked the lowest.**
- The top ten countries with the largest gains from 2008-12 to 2019-2021 were Serbia, Bulgaria, Romania, Hungary, Togo, Bahrain, Latvia, Benin, Guinea and Armenia.
- **India ranked 136 among 146 countries** in the Index.

What is the World Happiness Report?

- **Published by:** The United Nation's Sustainable Development Solutions Network (SDSN).
- **Parameters used for assessment include:**
  o GDP per capita in terms of Purchasing Power parity (PPP)
  o healthy life expectancy at birth
  o level of social support
  o generosity
  o perceptions on corruption and
  o freedom to make life choices.
- **Methodology:**
  o It **uses survey data** to determine how people evaluate their lives in more than 150 countries.
  o The rankings use **both secondary and survey data** in order to formulate the ranking.

o Life expectancy and GDP per capita are computed from ready-made data of the **World Bank and World Health Organisation (WHO)** respectively.

- **Sample size:** It reaches out typically to 1,000 people in a country annually.
- **Grading operandi:** All questions pertaining to the respondent's evaluation of their life is answered using Cantrill Ladder grading operandi. They are asked to imagine a ladder, with the best possible life for them being a 10 and the worst being 0.
- **Significance:**
  o It presents a framework gauging people's qualitative assessment of their lives, progress and well-being through quantitative indicators.
  o It aspires to prioritise discussions on happiness among governments and academics for assessment and establishment of social and economic objectives.
- The World Happiness Report is **released every year**.
  o Bhutan has a self-devised **Gross National Happiness Index** that assess happiness and well-being of the population using **33 indicators under 9 domains**.

PERMANENT NORMAL TRADE RELATIONS   GS-II INTERNATIONAL RELATIONS

Context
- United States considering revoking Russia's "permanent normal trade relations" status to punish Moscow over its invasion of Ukraine.

About permanent normal trade relations (PNTR) status:
- It is a **legal designation** in the **United States** for free trade with a foreign nation.
- In the United States, the name was changed from most favored nation (MFN) to PNTR in 1998.
  o MFN status means that the receiving nation will be granted all trade advantages, such as low tariffs, that any other nation also receives.
- Granting of permanent normal trade relations status is **automatic,** except where specifically denied by law.

What is 'most favoured nation' status?
- In international economic relations and international politics, **most favoured nation (MFN) is a status or level of treatment accorded by one state to another in international trade.**
- The World Trade Organization's 164 members commit to treat other members equally so they can all benefit from each other's **lowest tariffs, highest import quotas, customs union and fewest trade barriers for goods and services**.
- In effect, a country that has been accorded MFN status may not be treated less advantageously than any other country with MFN status by the promising country.
- This **principle of non-discrimination is known as most favoured nation (MFN) treatment.**

Cases of exceptions in MFN
The WTO provides the following exemptions from MFN provisions for the following:
- trade blocs like the USMCA and the European Union, which are allowed to discriminate against imports from outside the bloc
- trade barriers in response to unfair competition
- for trade preferences extended to developing countries
- for trade in services, on a limited basis
- when members strike bilateral trade agreements or when members offer developing countries special access to their markets.

*For **countries outside the WTO, such as Iran, North Korea, Syria or Russian ally Belarus**, WTO members can impose whatever trade measures they wish without flouting global trading rules.*

Removal of MFN status
- There is **no formal procedure for suspending MFN treatment** and it is not clear whether members are obliged to inform the WTO if they do so.
- **India suspended Pakistan's MFN status in 2019** after a suicide attack by a Pakistan-based Islamist group killed 40 police. **Note:** Pakistan never applied MFN status to India.

Benefits of the Most-Favored-Nation Clause
The most-favored-nation clause offers the following benefits:
- **Increases free trade**: The most-favored-nation clause increases trade creation and decreases trade diversion, essentially encouraging more free trade between countries. It allows more efficient outcomes since the lowest cost producers can export goods to areas with the highest demand without government intervention.

- **Equal treatment of disadvantaged countries**: The most-favored-nation clause allows smaller countries to participate in advantages that they may not normally receive since they are overlooked among the large global trade players. The clause helps the small countries to negotiate favorable trade terms that they normally would not receive.
- **Simplifies trade laws**: The implementation of the most-favored-nation clause simplifies the complex trade agreements established bilaterally between countries. If all countries are under the same trade terms, it makes trade laws much simpler.
- **More competitive trade**: MFN status is extremely gainful to developing countries. The clear upsides are access to a wider market for trade goods, reduced cost of export items owing to highly reduced tariffs and trade barriers. These essentially lead to more competitive trade.
- **Cuts down bureaucratic hurdles**: MFN also cuts down bureaucratic hurdles and various kinds of tariffs are set at par for all imports. It then increases demands for the goods and giving a boost to the economy and export sector. It also heals the negative impact caused to the economy due to trade protectionism.

Disadvantage

- The main disadvantage is that the country has to give the same treatment to all other trade partners who are members of the WTO. This translates into **a price war and vulnerability of the domestic industry** as a result.
- The country is not able to protect domestic industry from the cheaper imports and in this price war, some **domestic players have to face heavy losses or growth restrictions**.

Pros and Cons of Most-Favored-Nation Status

Pros:
- Access to a larger market
- Lowered cost of exports
- Products become more competitive
- More opportunities for growth

Cons:
- No protection against cheaper goods produced by foreign countries
- Local agricultural industry still can't compete with subsidized U.S. and E.U. markets
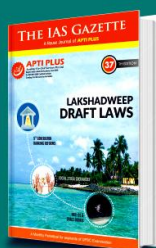
AFFORDABLE HEALTH CARE IN INDIA

Context

- Recently, India marked the Jan Aushadhi Diwas 2022. The theme of the occasion was **"Jan Aushadhi-Jan Upyogi".**
- Jan Aushadhi week is celebrated to generate awareness about the usage of generic medicines and benefits of Jan Aushadhi Pariyojana.

Healthcare in India

- According to the World Health Organization (WHO), **India ranks 184 out of 191 countries in health spending**. (The US spends over 16% of its total GDP on healthcare, while Japan, Canada, Germany etc. spend over 10% of their GDP on healthcare).
- **India's existing spend is only 1.6 percent of GDP**. National Health Policy 2017 aims to increase the health budget to 2.5 percent.
- India currently **imports nearly 80 percent of all medical devices**.

Problems faced by healthcare in India

- **Dominance of expensive private sector:** The private sector provides for 58 percent of the hospitals and 81 percent of the doctors in India. The public sector provides healthcare at little or no cost, but is considered to be **inconsistent, of indifferent quality, inaccessible and not the first choice** unless private insurance cannot be afforded.
- **Cost of healthcare:** Nearly **75% of healthcare spending comes from household wallets**. **India's out-of-pocket expenditure on healthcare is more than 60 per cent** – NITI AAYOG and this **is the major cause of poverty**.
- **Patented Drugs over Generic drugs**: Patented drugs have taken over generic drugs in India despite the fact that India is the world's largest provider of generic drugs. This is due to **privatization, market competition and profit hunger in the pharmaceutical industry**. Lack of awareness results in burning a hole in the pockets of individuals for maintaining essential health hygiene.

> As per Indian household, the term 'generic' implies the drug is a cheaper, less effective and duplicate version of the brand name product. In reality, generic drugs are of the same quality and as effective as of the branded medicine. Misconception is because many Indian doctors disfavor generic drugs because they receive a 'commission' from drug-makers for prescribing particular branded drugs.

- **Lack of Infrastructure:** The shortage of physicians, nurses, and hospitals contributes to the inefficient infrastructure. Also, Health care infrastructure is heavily **skewed in favor of urban areas**.
- **Lack of Access:** India has 1.4 beds per 1,000 people, 1 doctor per 1,445 people, and 1.7 nurses per 1,000 people. India had 7 physicians per 1,00,000 people in 2017 (in contrast to 98 in Pakistan, 100 in Sri Lanka and 241 in Japan).About **one-third population of our country is devoid of health insurance.**
- **Corruption:** States retain control over the spending and distribution of resources. While this has the ability to motivate states to make their citizens' wellbeing a priority, **corruption, and inability to cooperate have resulted in a national health system that is inconsistent.**

Government's steps towards affordable healthcare

- **Pradhan Mantri Bhartiya Janaushadhi Pariyojna (PMBJP) 2015:** PMBJP aims to make quality generic medicines available to everyone at affordable rates. Objective is to minimize medical expenses out of pocket. More than 8,000 janaushadhikendrashave been operationalised across India. These centres offer 1,451 generic drugs and 240 surgical items at an affordable price. Medicines and surgical equipment have a larger share in healthcare .Making them reach the common mass of our society solves a major issue in healthcare. This **makes 'Jan Aushadhi' a jan-upyogi (useful for the mass).**
- **National Nutrition Mission:** Its primary objective is to ensure nutritional status in a timely manner among children 0-6 years of age, adolescent and anaemic girls, pregnant women and lactating mothers.
- **Mission Indradhanush:** It aims to protect children up to 2 years of age and pregnant women from diseases that can be cured by low-cost, timely vaccinations. Tuberculosis, poliomyelitis, hepatitis B, diphtheria, pertussis, tetanus and measles are among the targeted diseases.
- **Ayushman Bharat Yojana:** A national public health insurance fund to provide cashless secondary and tertiary care treatment from the empanelled public and private hospitals providing coverage to more than 10 crore poor and vulnerable beneficiary families.

Way Ahead

- **Increase in public spending**: An increase in public spending to 3% of GDP can **decrease the OOPE from 65% to 30% of overall healthcare spend.** The life expectancy in a country correlates positively with per capita public health expenditure.
- **Infrastructure:** Private hospitals charge much higher than government hospitals for treatment of same ailment and higher charges do not assure better quality. The **health infrastructure of the country needs to be ramped up on war footing.**
- **For affordable and accessible medicines**
1. **Revamping PMBJP for affordable medicines:** There is a need to **increase the outreach of Janaushadhi Kendra**. For this, **increase in the healthcare budget for infrastructure and financial support is required.** In addition, **public-private partnership models for generic drugs** should be used to increase competitive participation of more private players and expand the outreach. **Training and development of pharmaceutical staff** will also be required in expansion of Janaushadhi Kendra.
2. **Awareness Generation:** To **spread awareness about PMBJP** and Janaushadhi Kendra, **collaboration with local hospitals, clinics and doctors** is required. Apart from typical advertisement campaigns, this is a very effective way **to build the trust of locals on the efficacy of generic drugs**. Patients believe in doctor's prescription, not in ad description.
3. **Research and development of drugs:** To fight against inflation and maintain the affordable prices of the generic drugs, **supply-side intervention** is required. This primarily includes **research and development of drugs to bring the efficacy in generic drugs at par with that of patented drugs, at less cost.** Efficiency in production, storage and supply chain would also help in slashing the input cost and thereby, maintain the affordable prices without compromising the stakeholders' profit interest.

Health of a nation depends critically on its citizens having access to an <u>equitable, affordable and accountable healthcare system</u>. Affordable and accessible Healthcare is <u>every citizen's right</u>. Health is not just a choice of individuals but necessity of the nation.

NATIONAL AIDS AND STD CONTROL PROGRAMME

GS-II HEALTH

Context

- The Union Cabinet has approved continuation of National AIDS and STD Control Programme till 2026 (Phase-V).

AIDS

- Acquired immunodeficiency syndrome (AIDS) is a **chronic, potentially life-threatening condition caused by the Human immunodeficiency virus (HIV).**
- The virus **attacks the immune system by destroying the body's immune cells called CD4, which help it respond to infection**.
- By damaging the immune system, HIV interferes with the body's ability to fight infection and disease.

Transmission

- **Bodily fluids** such as blood, semen, vaginal fluids, rectal fluids and breast-milk can be carriers for HIV.
- It can be transmitted through **unprotected sex, transfusion of contaminated blood, sharing needles and syringes**, and from a **mother with HIV to her infant** during pregnancy.
- Typically, the **time between HIV transmission and AIDS diagnosis is 10-15 years**, although it may occur sooner.

Prevention

- **There's no vaccine to prevent HIV infection** and no cure for AIDS. But medications can dramatically slow the progression of the disease.

India and AIDS

- The main factors which have contributed to India's large HIV-infected population are **extensive labour migration and low literacy levels in certain rural areas resulting in a lack of awareness and in gender disparities**. The Government of India has also raised concerns about the role of **intravenous drug use and prostitution in spreading AIDS.**
- In India, populations which are at a higher risk of HIV are **female sex workers, men who have sex with men, injecting drug users, and transgender.**

National AIDS and STD Control Programme

- NACP is a comprehensive programme for prevention and control of HIV/AIDS in India. The first phase of the National AIDS and STD Control Programme was **initiated by the Government of India in 1992**.
- It is a **Central Sector Scheme fully funded by the Government of India.** Four phases of NACP has been conducted so far.

Initiatives taken under various phases of NACP

- The **National AIDS Control Board (NACB)** was constituted and an **autonomous National AIDS Control Organisation (NACO) was set** up.
- Adoption of **National AIDS Prevention and Control Policy** (2002).
- Adoption of National Blood Policy.
- National Adolescent Education Programme (NAEP).
- National Antiretroviral Treatment (ART) programme.
- Setting up of the National Council on AIDS, chaired by the Prime Minister.
- Setting up of State AIDS Control Societies in all states.
- A dedicated North-East regional Office for focused attention to the North Eastern states.
- Targeted Interventions for High Risk Groups and Bridge Population (Female Sex Workers (FSW), Men who have Sex with Men (MSM), Transgender, Injecting Drug Users (IDU), and Truckers & Migrants).

- Free First line & second line Antiretroviral Treatment (ART) through ART centers.
- Early Infant Diagnosis for HIV exposed infants and children below 18 months.
- HIV/AIDS Prevention and Control Act (2017).
- Test and Treat Policy.
- Universal Viral Load Testing.
- Mission Sampark.
- Community-Based Screening.
- Transition to Dolutegravir-based Treatment Regimen etc.

All these have augmented the success of NACP. Around **14.20 lakh People Living with HIV (PLHIV) are taking lifelong, free, high-quality anti-retroviral treatment (ART)** *from the Programme supported facilities.*

Performance of National AIDS and STD Control Programme

- The national AIDS response under NACP is **globally considered to be an extremely successful programme.**
- **New Infection Rate:** The annual new **HIV infections in India has declined by 48 per cent against the global average of 31 per cent (the baseline year of 2010).**
- **Annual Death Rates:** The **annual AIDS-related deaths have declined by 82 per cent against the global average of 42 per cent** (the baseline year of 2010).
- **Prevalence: HIV prevalence in India continues to be low with an adult HIV prevalence of 0.22 per cent.**

Steps to be taken under Phase-V of National AIDS Control Project (NACP)

- The programme will offer **free HIV prevention, detection and treatment services** in facility and community settings of high-risk/ vulnerable/'at-risk' /People Living With HIV/AIDS without any stigma and discrimination promoting equity and inclusiveness.
- The programme includes **community system strengthening**. This will be though **formal and informal engagement with an emphasis on the decentralized model of district-level programme monitoring and community feedback loop**.
- The programme will continue **special attention to most at-risk populations, youth, and pregnant women**.
- The community will be engaged in the **design, concurrent appraisal and feedback to the project for providing strategic guidance and mid-course corrections.**

Final Thought

- NACP Phase-V is the right step towards the attainment of **United Nations' Sustainable Development Goals 3.3 of ending the HIV/AID Sepidemic as a public health threat by 2030**. This would be through a comprehensive package of prevention, detection and treatment services.

MATERNAL MORTALITY RATIO

GS-II HEALTH

Context

- India's Maternal Mortality Ratio (MMR) has dropped by 10 points -Registrar General of India's Special Bulletin.

What is Maternal Mortality Ratio?

- The maternal mortality ratio (MMR) is defined as **the number of maternal deaths during a given time period per 100,000 live births during the same time period** –WHO Definition.
- It depicts the risk of maternal death relative to the number of live births and essentially captures the risk of death in a single pregnancy or a single live birth.

India's current MMR scenario (Registrar General of India's Special Bulletin Data)

Overall

- MMR has gradually decreased in the country, falling from 130 in 2014-2016 to 122 in 2015-17, 113 in 2016-18, and 103 in 2017-19.

- From 2016-18 to 2017-19, this ratio has decreased, witnessing **an 8.8 % decline**.

Targets Reachable
- With the continuous drop, India is on pace to meet the National Health Policy (NHP) objective of 100 lakh live births by 2020.
- It is almost guaranteed to meet the SDG target of 70 lakh live births by 2030.

State-wise performance
- There are now **nine states that have met the NHP's MMR objective.**
- This includes: Kerala (30), Maharashtra (38), Telangana (56), Tamil Nadu (58), Andhra Pradesh (58), Jharkhand (61), Gujarat (70), Karnataka (83) and Haryana (96).
- **MMR is between 100 and 150 in five states** Uttarakhand (101), West Bengal (109), Punjab (114), Bihar (130), Odisha (136), and Rajasthan (141).
- **MMR is above 150 in four states -**Chhattisgarh (160), Madhya Pradesh (163), Uttar Pradesh (167), and Assam (205).
- Uttar Pradesh, which has seen the **greatest drop of 30 points.**
- Kerala, Maharashtra, and Uttar Pradesh have seen MMR **declines of more than 15%.**
- West Bengal, Haryana, Uttarakhand, and Chhattisgarh have all **seen an increase in MMR.**

Initiatives taken by the Government to improve the Maternal Mortality Rate (MMR):
1. **Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA)**: Introduced in 2016, it provides pregnant women with a fixed day of free and high-quality Antenatal Care on the 9th of every month.
2. **Pradhan Mantri Matru Vandana Yojana (PMMVY):** It is a direct benefit transfer (DBT) scheme in which financial benefits are immediately transferred to pregnant women's bank accounts to satisfy increased nutritional demands and partially compensate for wage loss.
3. **Labor Room Quality Improvement Initiative (LaQshya):**It intends to improve the quality of care in labour rooms and maternity operating rooms in order to ensure that pregnant women receive respectful and quality care throughout delivery and the early postpartum period.
4. **POSHAN Abhiyaan:** Launched in 2018, POSHAN Abhiyaan's, purpose is improving the nutritional status of Children, Adolescent Girls, Pregnant Women, and Lactating Mothers in a timely way.
5. **Anemia Mukt Bharat:** AMB aims to reduce anaemia prevalence owing to nutritional & non-nutritional reasons, using a lifecycle approach.
6. **Surakshit Matratva Ashwasan (SUMAN):** It aims to provide assured, dignified, respectful, and quality healthcare at no cost, with zero tolerance for service denial <u>for every woman and newborn</u> visiting a public health facility.
7. **Extending Maternity Leave:** duration from 12 weeks to 26 weeks.
8. **Janani Suraksha Yojana (JSY):** Implemented under the National Health Mission (NHM), it is a safe motherhood intervention promoting institutional delivery among pregnant women especially with weak socio-economic status i.e. women from SC, ST, BPL households.
9. **Scheme for Adolescent Girls:** It aims at girls in the age group 11-18, to empower and improve their social status through nutrition, life skills, home skills and vocational training.
10. **Maternal Perinatal Child Death Surveillance Response (MPCDSR) software:** Announced in 2021 in order to provide a one-stop integrated information platform to collect actionable data for both maternal and perinatal mortality.
11. **Midwifery Initiative:** Government has initiated the creation of a new cadre of "Nurse Practitioners in Midwifery" under the Midwifery Initiative. This is to ensure a positive childbirth experience for women with respect and dignity at Midwifery care led units.

Effective strategies for reducing the MMR further
- To place a high priority on maternal and child health (MCH) services and **integrate vertical programs (e.g., family planning) with MCH.**
- To provide **community-based delivery huts** which can provide a clean and safe delivery place close to home.
- To **improve the quality of MCH care at the rural community level** (proper history taking, palpation, blood pressure and fetal heart screening, risk factor screening, and referral).
- To **improve quality of care at the primary health care level** (emergency care and proper referral).
- To include in the **postpartum program MCH and family planning services**.
- To examine the feasibility of a **national blood transfusion service network.**
- To **improve transportation.**
- To **educate young girls on health and sex.**
- To informally **educate the masses on MCH.**

- **Life Cycle approach** to empowerment of girls and women.
- Recognition of **Women's Reproductive Rights.**
- Enforcement of **Child marriage prevention programs.**
- Emphasis on **safe delivery in institutional set ups.**
- **Delay in marriage age** by promoting education and skill development.
- **Family planning** and **delay their first child.**
- **Training of Social workers** in hospitals, and Community health workers under the national health mission.
- **Improvement of mental health services**, address stigma, discrimination & violence against HIV-positive women & sex workers.
- Address health problems of **women in the informal sector.**
- **Improve water and sanitation situation** for women.
- **Universal availability of maternity benefits and Childcare facilities** to all women workers across the organized and unorganized Sectors.
- **Flexible designs for the Schemes**, depending on local needs and region-Specific issues.
- **Need-based Schemes**, Pro-active Publicity of Schemes, Creation of Simple, local language materials to explain.

DRAFT NATIONAL POLICY 2022   *GS-II HEALTH*

Context
- The Department of Pharmaceuticals (DoP), Ministry of Chemicals and Fertilizers released, an Approach Paper for the Draft National Policy for the Medical Devices, 2022.

Background: Status of India's Medical Devices Sector
Import Dependency
- India has a**80% import dependency on medical devices with the US, Germany, China, Singapore and Netherlands being top exporters of such devices to the country.**

Disadvantages to local manufacturers
- The Do Precognised that indigenous manufacturers have an **inherent cost competitiveness disability of 12-15 per cent on account of various factors.** They include
  o lack of adequate infrastructure,
  o supply chain and logistics,
  o high cost of finance,
  o inadequate availability and cost of quality power,
  o limited design capabilities,
  o low focus on research and development and
  o skill development.

Unethical Marketing
- Unethical marketing where **labelled MRP has become a licence to charge the full MRP, leads to profiteering at the hospitals.**
- **MRP is artificially increased to provide higher trade margin to hospitals to induce them to push higher-margin brands**, leading to artificial inflation.

No mechanism to address disabilities
- Presently there is no mechanism to address these disabilities in manufacturing of medical devices in India. MSME (micro, small and medium enterprise) entrepreneurs survive and cope with these handicaps and counter marketing challenges.

The medical devices industry is an area in which India's vulnerability in healthcare stands exposed.
This industry needs to be rescued from this dependency, from the cash-flow challenges, poor financing viability, and supported in its will to compete with cheap imports.

In line with this, a slew of steps have been taken in the last few years and *DRAFT NATIONAL POLICY FOR THE MEDICAL DEVICES, 2022* is one of them.

Some steps taken:
- The **Central Drugs Standard Control Organisation (CDSCO)** is presently **regulating 28 categories of notified medical devices under the provisions of the Drugs and Cosmetics Act, 1940 and the Medical Devices Rules, 2017.**
- Other than this, a slew of schemes have been formulated to promote domestic manufacturing of medical devices/equipments and attract large investment in the sector.
- Such schemes/initiatives are the **National Biopharma Mission, DBT-AMTZ COMManD (COVID-19 Medtech Manufacturing Development) Consortia launched by the Department of Biotechnology with Andhra Pradesh Med-tech Zone (AMTZ), Production Linked Incentive Scheme for Promoting Domestic Manufacturing of Medical Devices and Scheme for Promotion of Medical Devices Parks etc.**

Draft national policy for the medical devices, 2022

Objectives of the policy

- The aim of the government is to **reduce import dependence from 80% to below 30% in next 10 years** and **ensure self-reliance quotient of 80% in Med-Tech** by ensuring Make in India withSMART milestones.
- For accelerated growth of the medical devices sector, The National Medical Devices Policy 2022 emphasizes upon:
  - Access, Equality & Universality
  - Affordability
  - Patient Centred & Quality Care
  - Preventive & Promotive Health
  - Security

Key focus areas of the draft policy

- **Quality Standards and Safety of the Devices** in order to provide safe devices to the consumers, in harmony with the global standards.
- **Regulatory Streamlining** for easier business licensing mechanism to enhance ease of doing business.
- **Building Competitiveness through Fiscal and Financial Support** for stimulating the development of local manufacturing ecosystem with private sector investments.
- **Infrastructure Development** in order to provide best in class physical foundation, including medical devices parks with common facilities such as testing centers, to improve cost competitiveness.
- **Facilitating R&D and innovation** with a focus on enhanced collaboration, global partnerships, and joint ventures among key stakeholders to bridge the gap between academic curriculum and industry requirements. Coordinating in innovation and R&D projects.
- **Human Resource Development** to ensure relevant curriculum at higher education level for enabling the clinician-engineering partnership and skilling of stakeholder. Creation of high-end jobs with in-demand skill sets across the innovation value chain.
- **Awareness Creation and Brand Positioning** in key domestic and global forums and positioning India as a hub for manufacturing of medical devices as part of the "Make in India, Make for the World" initiative.

Goals envisaged in the draft policy

It is envisaged that by 2047,
- India will be one amongst Top 5 Global manufacturing hubs in terms of value andtechnology for Medical Devices.
- India will be home to 25 MedTech $Bn companies and home & originator to 25 high-end futuristic technologies in Med-Tech.
- India will emerge as Champion in critical components, cancer diagnostics, medical imaging, ultrasonic scans, molecular imaging, & PCR technologies.
- India will achieve 10-12% of Global Market Share of Medical Devices Sector to arrive at a $100-300 Bn industry.

Prospects of the Sunshine Sector
- The Medical devices sector has been **rightly recognized as the "Sunshine Sector" in the Make in India campaign.** The Medical Devices industry in **India is presently valued at USD 5.2 billion and contributes 4-5% to the USD 96.7 billion Indian health care industry.**
- Currently, **India has about 750–800 medical device manufacturers in the country**. The industry has steadily grown and witnessed a surge from USD 2.02 billion in 2009 to USD 3.9 billion in 2015 at a Compound Annual Growth Rate (CAGR) of 15.8%.
- As per industry estimates, **the Indian medical devices market will grow to USD 50 billion by 2025.**
- Currently, **India is counted among the top 20 global medical devices market and is the 4th largest medical devices market in Asia** after Japan, China and South Korea. With proper intervention India can become a manufacturing hub for domestic as well as international markets.

Other Steps that can be taken
- **Rationalizing trade margin over import landed price**- By this the consumer can gain and not feel exploited. This will also help locally made products, as proven in stents and knee implants, and favour ethical marketing by overseas and Indian manufacturers.
- **Rehabilitation of MSMEs:** MSME companies need to be rehabilitated with supporting policies like **nominal duty protection of 10 to 15 per cent** that nurture them.
- **Make in India Ecosystem: Creating an ecosystem for making in India that is also rewarding**. **Recognizing and nurturing Indian manufacturing champions** who will lead other mid-size and small-sized manufacturers to form ancillaries to thrive on their growth.
- **Converting opportunity cost to positive opportunity:** For manufacturers, demand comes from local consumption or exports. **Imports of medical devices are an opportunity cost of loss of demand** as domestic purchasing power is diverted to foreign goods. Import of pre-owned medical equipment is another opportunity cost on demand. **Converting opportunity cost to positive opportunity is the need of the hour** to achieve and boost the economy as well as create jobs.

Final Thought
- Based on the locally available resources, talent, and skills of human capital, we must aim to gradually reduce imports in every sector, including one as critical as medical devices.

PRADHAN MANTRI BHARTIYA JANAUSHADHI PARIYOJANA   *GS-II HEALTH*

Context
- Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP) Kendras, which currently offer a product basket of 1,451 drugs and 240 surgical instruments, have added nutraceuticals products, including protein powder and bar, malt-based food supplements and immunity bar for its customers.

Details
- **About:** Pradhan Mantri Bharatiya Janaushadhi Pariyojana (PMBJP) is a campaign launched by the Department of Pharmaceuticals, Ministry of Chemicals and Fertilizers. It was initially **launched in 2008** as 'Jan Aushadhi Scheme'.
- **Re-launch:** In 2015, the 'Jan Aushadhi Scheme' was revamped as 'Pradhan Mantri Jan Aushadhi Yojana' (PMJAY).
- **Implementating Agency:** Pharmaceutical & Medical Devices Bureau of India (PMBI) is the implementation agency for PMBJP.
- **Aim:** To provide quality medicines at affordable prices to the masses through special kendras known as Pradhan Mantri Bharatiya Janaushadhi Pariyojana Kendras. To bring down the healthcare budget of every citizen of India.

Pradhan Mantri Bharatiya Janaushadhi Pariyojana Kendra (PMBJPK)
- PMBJPK have been set up **to provide generic drugs**, which are available at lesser prices but are equivalent in quality and efficacy as expensive branded drugs.

Who can open a Jan Aushadhi store?
- State Governments or any organization / reputed NGOs / Trusts / Private hospitals / Charitable institutions / Doctors / Unemployed pharmacist/ individual entrepreneurs are eligible to apply for new Jan Aushadhi stores.
- The applicants shall have to employ one B Pharma / D Pharma degree holder as Pharmacist in their proposed store.

Quality assurance of medicines
- The medicines listed in the product list of PMBJP **are procured only from the World Health Organization – Good Manufacturing Practices (WHO-GMP) certified suppliers** for ensuring the quality of the products.
- Apart from this, each batch of the drug is tested at laboratories **accredited by the 'National Accreditation Board for Testing and Calibration Laboratories' (NABL).** Only after passing the quality tests, the medicines are dispatched to PMBJP Kendras.
- Point-of-Sale application for value added services has been implemented by Pharmaceuticals and Medical Devices Bureau of India (PMBI) to monitor end-to-end supply chain management system.

Benefits envisaged
Affordable medicines
- Under the PMBJP, **a medicine is priced on the principle of maximum of 50% of average price of the top three brands of the said medicine.**
- Thus, the prices of Jan Aushadhi Medicines are **cheaper at least by 50% and in some cases, by 80% to 90% of the market price** of the branded medicines.
Inclusive

- To ensure easy availability of the menstrual health services to all women across India, **"Janaushadhi Suvidha Oxy-Biodegradable Sanitary Napkin"** was launched @ Rs. 1.00 per sanitary pad.

Ease of access

- A mobile application **"Janaushadhi Sugam"** has been also launched for facilitating the general public by providing a digital platform at the tip of their fingers.
- Thus, people can avail a host of user-friendly options like - **locate nearby PMBJK (direction guided through Google Maps), search janaushadhi medicines, analyze product comparison of Generic vs Branded medicine in the form of MRP & overall Savings, etc.**

Current Status

- Currently there are about **8,675 PMBJP Kendras** that have been opened in districts across the country.
- In its fight against COVID-19, over 900 quality generic-medicines and 154 surgical equipments and consumable was available at affordable prices.
- In the financial year 2020-21, Bureau of Pharma PSUs of India clocked sales turnover of Rs 665.83 crore despite the lock down and testing times. This has led to savings of approximately Rs 4,000 crores of the common citizens of the country.

Challenges

- **Inventory Management** – **Unavailability of medicines is an issue**. The current procurement and distribution system for supplies to the JAKs results in incomplete inventory. This becomes a deterrent for patient servicing.
- **Maintenance of Quality Standards-** The Bureau of Pharma PSUs (BPPI) that procures and supplies medicines to the JAKs has taken stringent action against 18 companies for supplying medicines **'not of standard quality'**.
- **Quality perception:** Even a poor patient would not like to take a medicine that is not perceived as 'standard quality'. The extremely low pricing of the generic medicines **raises a doubt in the patients' minds about their quality**.
- **Location:** The footfalls at the JAKs, that are **not situated in the vicinity of Government Hospitals** are abysmally low.
- **Demotivated stakeholders:** Pharma companies that BPPI has to make the payment within 90 days after receiving the products. However, it would never receive payments on time even after a lot of follow-up. Delay in payments dent their margins.
- **Supply crunch:** Non-availability of any particular API in India leads to some delay. India is mainly dependent on other countries like China (80%), Germany etc for the raw material and any such shortage is beyond the control of the manufacturer.

Way Ahead

- **Better planning and better systems** need to be brought and implemented at the earliest **to plug the gaps that threaten to derail the whole initiative.**
- The focus should not be solely on meeting the demands, **but also to maintain quality of medicines**. For this, only those companies with more than Rs 50 crores turnover can be allowed to participate in tenders.
- The BPPI must ensure to **proactively develop a reliable bank of suppliers and embed a resupply quality check** before accepting any batch for distribution.
- To focus on quality supply, **only US FDA approved or WHO cGMP-certified plants should participate**. These way substandard/spurious drugs don't reach the patients.
- **Self reliance in API** by setting up manufacturing units is the need of the hour.
- **Improving the forecasting and relaxing the supply timelines** can help in getting more organisations to participate in BPPI tenders and help meet the demand requirements.
- Rather than immediately scaling up the number of stores, the government needs to **streamlines the entire procurement and supply chain** which helps build confidence in the patients' mind regarding the PMBJP.
- Then only the vision of PMBJP **'to bring down the healthcare budget of every citizen of India through providing Quality generic medicines at Affordable Prices'** will be realized.

PRICE REGULATION OF DRUGS IN INDIA

- In India, **National Pharmaceutical Pricing Authority** under the Department of Pharmaceuticals regulates the prices of all drugs – whether branded or generic. While it fixes the ceiling price of scheduled medicines specified in the first schedule of the Drugs (Prices Control) Order, 2013, in case of non-scheduled medicines, the manufactures are free to fix Maximum Retail Price (MRP) of the drug.
- However, DPCO provides that the same do not increase by more than 10% of their MRP during the preceding twelve months.

Similarities of generic and brand name drugs

A generic drugs/ medicine of a brand name drug must have the same:

- o Active ingredient(s),
- o Strength,
- o Indications,
- o Dosage form such as tablet or syrup or suspension or emulsion,
- o Route of administration such as oral or IV,
- o Exact manufacturing standards as the brand-name drug,
- o Safe and effective as brand name drug,
- o Label as the brand-name drug.

Bureau of Pharma Public Sector Undertaking of India (BPPI)

- It is an **independent society, registered under the Societies Registration Act, 1860**.
- It is set up by the pharma PSUs with a major objective to have focused and empowered structure to implement the Janaushadhi Campaign initiated by the Department of Pharmaceuticals.

Generic Drugs	Features	Brand Name Drugs
Off patent.	Patents	Patent protected.
Marketed under the Generic name of the drug.	Trade Name	Marketed under a unique proprietary name given by the company.
Manufactured by several pharmaceutical companies after patents expiration of the relevant brand name drug.	Manufactured by	Developed and manufactured by an innovator company.
Not required to perform.	Animal & Clinical study	Essential to perform.
Cheaper.	Price	Costly than generic drugs.
Look different from relevant brand name drug.	Appearance (Color, Shape, Size)	Unique look as design during product development.
Same Generic drug name in any country.	Name variation	Same or different brand names in different countries.
Same or altered but acceptable excipients	Excipients	Uses acceptable excipients
After expiration of patents and exclusivities	Availability	From product launch after proving the safety and effectiveness.
Paracetamol	Examples	Tylenol, Para, NAPA, Mapap, Nortemp, Acamol. Acetalgin, Calpol, Febridol, Hedanol, Daleron, Depon, Dexamol, Dolex.

- The Bureau is headed by the Chief Executive Officer (CEO), who reports to the Governing Council of the Bureau.

GENERAL STUDIES - III

| EXPORT PREPAREDNESS INDEX 2021 (NITI AAYOG) | *GS-III ECONOMY* |

Context

- Gujarat has been named India's top State in terms of export preparedness for the second year in a row as per an index released by the NITI Aayog.
- Maharashtra, Karnataka, Tamil Nadu were ranked second, third and fourth in the index, as coastal States with higher industrial activity and access to sea ports account for a majority of India's exports.

Himalayan

State	Score	Rank
Uttarakhand	40.79	1
Himachal Pradesh	40.43	2
Tripura	27.46	3
Sikkim	27.41	4
Manipur	15.78	5

Coastal

State	Score	Rank
Gujarat	78.86	1
Maharashtra	77.14	2
Karnataka	61.72	3
Tamil Nadu	56.84	4
Andhra Pradesh	50.39	5

Landlocked

State	Score	Rank
Haryana	53.20	1
Uttar Pradesh	51.09	2
Madhya Pradesh	51.03	3
Punjab	50.99	4
Telangana	47.92	5

UT/City States

State	Score	Rank
Delhi	43.66	1
Goa	41.95	2
Jammu and Kashmir	30.06	3
Chandigarh	28.41	4
Puducherry	22.19	5

Details

- NITI Aayog, in partnership with the Institute of Competitiveness, released the Export Preparedness Index (EPI) 2021.
- The report is a comprehensive analysis of India's export achievements.
- The index can be used by states and union territories (UTs) to benchmark their performance against their peers and analyse potential challenges to develop better policy mechanisms to foster export-led growth at the sub national level.
- The Export Preparedness Index is a data-driven endeavour to identify the fundamental areas critical for sub national export promotion.
- The EPI ranks states and UTs on 4 main pillars: Policy; Business Ecosystem; Export Ecosystem; Export Performance and 11 sub-pillars: Export Promotion Policy; Institutional Framework; Business Environment; Infrastructure; Transport Connectivity; Access to Finance; Export Infrastructure; Trade Support; R&D Infrastructure; Export Diversification; and Growth Orientation.
- This edition has shown that most of the 'Coastal States' are the best performers, with Gujarat as the top-performer.
- The EPI's primary goal is to instil competition among all Indian states ('Coastal', 'Landlocked', 'Himalayan', and 'UTs/City-States') to bring about favourable export-promotion policies, ease the regulatory framework to prompt subnational export promotion, create the necessary infrastructure for exports, and assist in identifying strategic recommendations for improving export competitiveness.
- It promotes competitive federalism and a fair contest among States/UT

Framework

The 4 pillars and the rationale behind their selection is given below:

1. **Policy:** A comprehensive trade policy provides a strategic direction for exports and imports.
2. **Business Ecosystem:** An efficient business ecosystem can help attract investments and create an enabling infrastructure for businesses to grow.
3. **Export Ecosystem:** This pillar aims to assess the business environment, which is specific to exports.
4. **Export Performance:** This is the only output-based pillar and examines the reach of export footprints of states and union territories.

The index identifies **three major challenges** to India's export promotion efforts. These are

1. intra- and inter-regional differences in export infrastructure;
2. weak trade support and growth orientation across States; and
3. lack of R&D infrastructure to promote complex and unique exports.
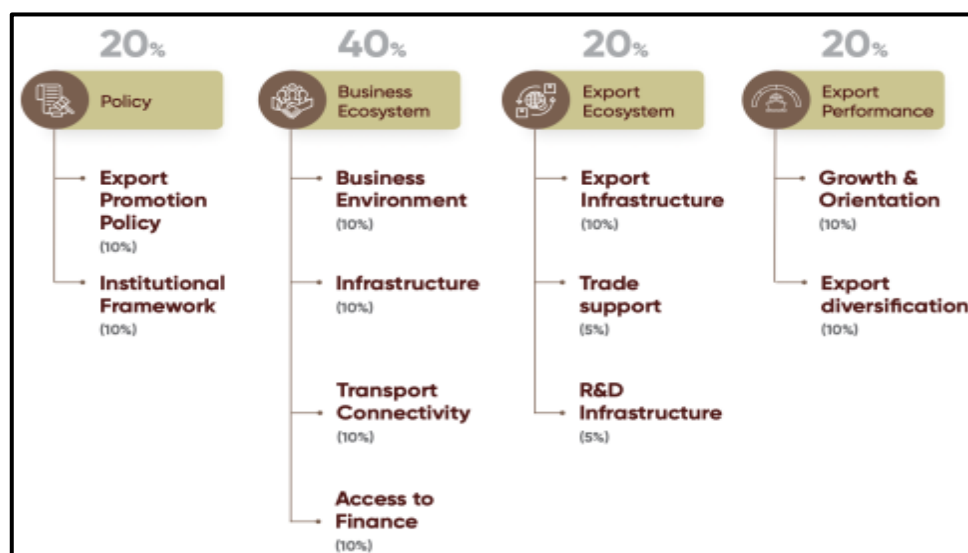
Exports from India:

- India had achieved the target of $400 billion in exports in FY2022 and complemented farmers, weavers, MSMEs, manufacturers, exporters for the achievement.

What is its significance?

- The achievement of $400 billion in merchandise exports represents a growth of over 21 per cent in exports compared to the previous record high of $330 billion achieved in FY2019 prior to the Covid-19 pandemic.
- Experts have noted that one of the key factors driving the surge in exports is pent up demand that was not met during major waves of the Covid-19 pandemic.
- Expansionary monetary policy by developed economies in response to the economic impact of the pandemic has also boosted demand for Indian exports.

What areas have been the key drivers of India's export growth?

- Areas that have been key drivers of India"s export growth include engineering goods which have seen a growth of 49.7 per cent in the first 11 months of the fiscal, electronics goods exports which have grown by 42.8 per cent and gems and jewellery exports which have grown by 57.3 per cent.
- Export of petroleum products have grown by 147.6 per cent driven by a steady increase in crude oil prices.

What has been the increase in imports?

- While exports have grown sharply India"s merchandise imports have grown even faster reaching $550 billion in the first 11 months of the fiscal through sharp growth in imports of crude oil, coal, gold, electronics and chemicals.
- Rising prices of commodities including crude oil and coal have played a significant role in adding to India's import bill and taking the trade deficit for the first 11 months to a record high of $176 billion.

INDIA'S SPACE ECONOMY   *GS-III ECONOMY*

Context

- A collaboration between two premier research and educational institutions in Thiruvananthapuram has shed light on India's "space economy".

Findings

- The estimated size of India's space economy, as a percentage of the GDP, has slipped from 0.26% in 2011-12 to 0.19% in 2020-21 - Centre for Development Studies (CDS) and the Indian Institute of Space Science and Technology (IIST) Report.
- In relation to GDP, India's spending is more than that of China, Germany, Italy and Japan, but less than the U.S. and Russia.

What is the space economy?

- The Space Economy is defined by OECD as, The full range of activities and the use of resources that create value and benefits to human beings in the course of exploring, researching, understanding, managing, and utilising space.

Overview – The Indian space sector

- The Indian space sector has been globally recognized for building cost-effective satellites, launching lunar probes and taking foreign satellites to space.
- The global space economy is estimated at ~US$ 423 billion. Currently, India constitutes 2-3% of the global space economy and is expected to enhance its share to >10% by 2030 at a CAGR of 48%.

ET tech

Aiming for the stars

Just in the last three years the number of startups in the space sector has increased from 11 in 2019 to 47 in 2021, according to the Economic Survey.

Number of startups in space sector (Total 101)

Year	Number
2012	1
2013	1
2014	1
2015	3
2016	1
2017	8
2018	7
2019	11
2020	21
2021	47

Note: ISRO/DOS doesn't register any start-ups. However, start-ups are registered with startupindia under DPIIT. Around 75 start-ups are shown under space technology category in the startupindia portal. But these numbers are not exhaustive, as some of the start-ups registered under other categories are also involved in the space domain **I Source:** ISRO

Indian space sector (2020-24) US$ billion

CAGR 48%

Year	Value
2020	10.4
2021E	15.4
2022F	22.8
2023F	33.7
2024F	49.9

India's space missions (as per financial year)

Mission	2019-20	2020-21	2021-22
Earth observation satellites	4	1+2*	2
Communication satellites	1	1	0
Navigation satellites	0	0	1
Space science satellites	1	0	1
Technology demonstrator	0	0	0
PSLV	4	2+1*	2
GSLV Mk II	0	0+1*	1
GSLV Mk III	1	0	0
Small satellite launch vehicle	0	0+1*	2
Gaganyaan	0	0	1 (Unmanned)
Total	11	4+5*	10

*Number of missions that were expected to be achieved by March 2021 at the time of releasing the report
Source: ISRO annual report 2021

Steps taken by the Government for Space sector

- The government recently updated the SpaceCom and SpaceRS policies, liberalizing the traditional satellite communication and remote sensing sectors.
- The government also released new rules for drones as well as guidelines for acquiring and producing geospatial data.
- Under various space tech initiatives: the interim independent nodal agency under the Department of Space-Indian National Space Promotion and Authorization Centre (IN-SPACe) has received close to 40 proposals from large industries, MSMEs (micro, small and medium enterprises), startups and academia.
- The proposals cover a broad range of activities, cutting across both upstream (launch vehicle and satellite manufacturing) as well as downstream (earth observation applications, communications, etc.)
- The national registration mechanism for space objects has been implemented, with five satellites registered: A total of six

memorandums of understanding have been signed with private or academic entities for sharing technical expertise and facilities.
- PM Gati Shakti National Master Plan: the government aims to provide multimodal connectivity to various economic zones and integrate the infrastructure linkages for movement of people, goods and services to improve logistics efficiency.
- It will also leverage technology extensively, including spatial planning tools with ISRO imagery developed by Bhaskaracharya National Institute for Space Applications and Geoinformatics.

Way Forward
- India is advantaged by its comparatively low operating costs.
- Removing regulatory blockages will pave the way for increased FDI into the sector.
- ISRO can pave the way for commercialization of small satellites by the private sector.
- The space ecosystem should become more vibrant, economically viable and self-sustaining.

SOVEREIGN GREEN BOND

GS-III   ECONOMY

Context
- India will issue at least Rs 24,000 crore ($3.3 billion) in sovereign green bonds as the country marks a shift towards a low-carbon economy

What is a Green Bond?
- A green bond is a type of fixed-income instrument that is specifically earmarked to raise money for climate and environmental projects.
- These bonds are typically asset-linked and backed by the issuing entity's balance sheet, so they usually carry the same credit rating as their issuers' other debt obligations.
- Green bonds may come with tax incentives to enhance their attractiveness to investors.

Details
- Green Bonds are issued by companies, countries and multilateral organisations to exclusively fund projects that have positive environmental or climate benefits and provide investors with fixed income payments. The projects can include renewable energy, clean transportation and green buildings, among others.
- Proceeds from these bonds are earmarked for green projects. This is unlike standard bonds, the proceeds of which can be utilised for various purposes at the discretion of the issuer.
- Green bonds issuers are also required to provide details regarding the project they intend to finance as well as its expected climate and environmental impacts.
- These bonds can be marketed toward Environmental, Social and Governance or ESG-focused funds. The green bond market has seen cumulative issuance worth more than $1 trillion since market inception in 2007.

Benefits
- Issuing an Indian sovereign green bond could catalyse more Indian corporate green issuances, adding to the US$1.86 trillion pool of global green bond investments to date.
- Sovereign green bonds have been issued with an average tenor of 14 years—the longest being 40 years issued by the Chilean government in 2021—drawing long-term investors like pension funds, insurers and those with a focus on environmental, social and governance issues.
- Longer maturities can lower the borrowing cost for green projects.
- In addition, a tighter interest rate spread has been observed with green bond issuances. This is important in light of rising inflation risk, however the spread is influenced by several macro-economic factors.

Challenges
- **Borrowing programme**:
  o The government has a gross borrowing programme of around 14.95-lakh crore.
  o But in this case there will be earmarking of the amount raised to specific targeted projects. Therefore, the crux is that the recipients of such funds should be compliant.
- **Monitoring challenge**:
  o There would be a challenge with respect to monitoring how this green grading performs.
  o This will be a challenge until such time the system of evaluation is streamlined as deviations from the norm are hard to capture.
- **Pricing issue**:

- o Should they be lower than the regular bond or higher is the major question here.
- o Ideally, it needs to be higher; this is because investors need to be rewarded for choosing to promote ESG goals.
- o On the other side it can be argued that the rates can be lower than normal because investors like to reward green projects, anyway.
- **Overseas launch:**
  - o The downside is that once the government goes global, then credit rating will matter a lot as all bonds issued globally need to be rated.
  - o Once one is rated by them, there is constant scrutiny on domestic policies. Presently, this does not matter because the government of India does not borrow from the overseas market.

Way Forward

- To tackle this immense challenge must involve both mitigation to avoid the unmanageable all while maintaining a focus on its social dimensions: To address climate change it requires unprecedented global cooperation across borders. Green bonds are the way to make this connection.
- Investment from a developed economy will be the need of the hour.
- The flows from green bonds could be derailed for some time due to the war between Ukraine and Russia but over the long term we should be moving ahead fast in reshaping the climate debate and ensuring more funding for climate friendly initiatives.

RISING OIL PRICES AND STAGFLATION
GS-III ECONOMY

Context

- With oil imports from Russia banned by the US and being phased out by the UK, crude prices are set to rise, particularly in the US and Europe and also the prices of edible oil are going to rise creating a problem for India

Global oil market

- There are three large players in the global oil market: US - 18%-19% (highest share in global output) Russia – 12% Saudi Arabia - 12%.
- Together, these three control almost 45% of all oil.
- Russia is the world's second-largest producer of oil as well as the second-largest exporter.

What is the main reason for increase in oil prices?

- The most immediate trigger for the spike is the decision by USA to ban the purchase of Russian oil in response to the invasion of Ukraine.
- Russia is the world's second-largest oil producer and, as such, if its oil is kept out of the market because of sanctions, it will not only lead to prices spiking, but also mean they will stay that way for long.

How will India be affected due to rising Oil Prices?

- While India is not directly involved in the conflict, it will be badly affected if oil prices move higher and stay that way.
- India imports more than 84% of its total oil demand and increase in oil prices is going to increase our import bill further widening the Current Account Deficit.
- Rise in crude oil prices will lead to increase in Prices of Petrol & Diesel, if the government doesn't cut its taxes.
- Higher petro & diesel prices will further increase inflation and raise the general price level (due to increase in transportation costs). A 10% increase in crude oil prices raises wholesale inflation by 0.9% and retail inflation by 0.5%.
- Higher inflation would rob Indians of their purchasing power, thus bringing down their overall demand.
- Private consumer demand is the biggest driver of growth in India, accounts for more than 55% of India's total GDP.

Other options

- **Emergency**: Strategic reserves are good enough only for emergencies.
- **Supplies from countries such as Venezuela and Iran:**
  - o Venezuela has the world's largest oil reserves but producing oil requires more than just reserves.
  - o The country's oil-producing apparatus is in disrepair partly due to the government's mismanagement but also because of harsh US sanctions.
  - o Oil-producing companies are in debt and most don't even have good quality drilling equipment.
- Iran will not increase output unless it gets the nuclear deal with the US.
- Production can be scaled up but it will take time, money and effort.
- Since individual production levels are quite low, several countries will have to come together and still they may not come

anywhere close to matching the levels that Russia produces.

What is 'stagflation'?

- Stagflation is an economic phenomenon marked by a combination of recession and high inflation. An economy is said to be in stagflation when the country's GDP (Gross Domestic Product) is growing at a slow rate, even as inflation is rising.
- But until the 1970s, stagflation was believed to be quite an improbable scenario as a slowing economy usually prevents high inflation by quelling demand. However, subsequent events have struck a blow to this notion.
- For instance, in the year 1973, during the oil shock, global economies witnessed sharp setbacks on the back of spiralling oil prices.
- This led to an upward spiral in inflation as higher fuel costs fed into transportation costs and ultimately resulted in higher priced goods and services. Inflation kept rising even as people were being laid off.
- Similarly, stagflation could occur if loose monetary policies or stimulus measures fail to lift an economy out of a slowdown, even as their stock price rises.

How is the global economy being threatened?

- While the expansive financial sanctions imposed on Russia by the U.S. and its western allies have sent the value of the rouble plunging by more than 60% against the dollar since the start of the conflict, the war-led disruptions to supply and the sanctions have sent the prices of several key commodities soaring: from wheat and corn, to metals including nickel and aluminium, and, most crucially, crude oil and gas.
- Brent crude futures surged to a high not seen since July 2008, and are currently about 29% higher than before the invasion began on February 24.
- The price of natural gas has also risen sharply in Europe amid concerns that supplies from Russia could be hit either on account of European nations agreeing to a U.S. proposal to shut the tap on Russian energy exports or by retaliatory sanctions by Moscow. Russia supplies Europe about 40% of its gas requirements, roughly a quarter of its oil and almost half its coal needs, and an embargo on energy supplies from Russia could send already high

INFLATION vs DEFLATION

CONCEPTS

INFLATION : It refers to consistent and substantial RISE in prices of goods and services in an economy over sometime.

DEFLATION : It refers to consistent and substantial FALL in prices of goods and services in an economy over sometime.

INFLATION	DEFLATION
Consistent and Substantial rise in the price is called as **INFLATION.**	Consistent and Substantial fall in the price is called as **DEFLATION.**
Inflation results in a fall in the purchasing power of money in real terms.	Deflation causes an increase in the purchasing power of money.
In the case of inflation, the banks reduce interest rates to increase money supply in economy	In case of deflation, the banks increases the interest rates to decrease the money supply in economy by encouraging savings.
Lack of technology and innovations leads to overdependence on manual labour who demands higher wages due to increased prices.	Improved technological usage, may lead to decreased input cost, which is passed on to the customer by way of reduced prices.

MEASURE

For both inflation and deflation, the best measure is the **Consumer Price Index (CPI)** which measures percentage change in prices of goods and services over a period of time.

CPI = (Price Index of base year – Price index of current year/ Price index of the base year) x 100

electricity costs in the countries comprising the eurozone skyrocketing. That in turn would hit consumers, as well as businesses and factories, forcing them to either raise prices or possibly even temporarily shut operations.
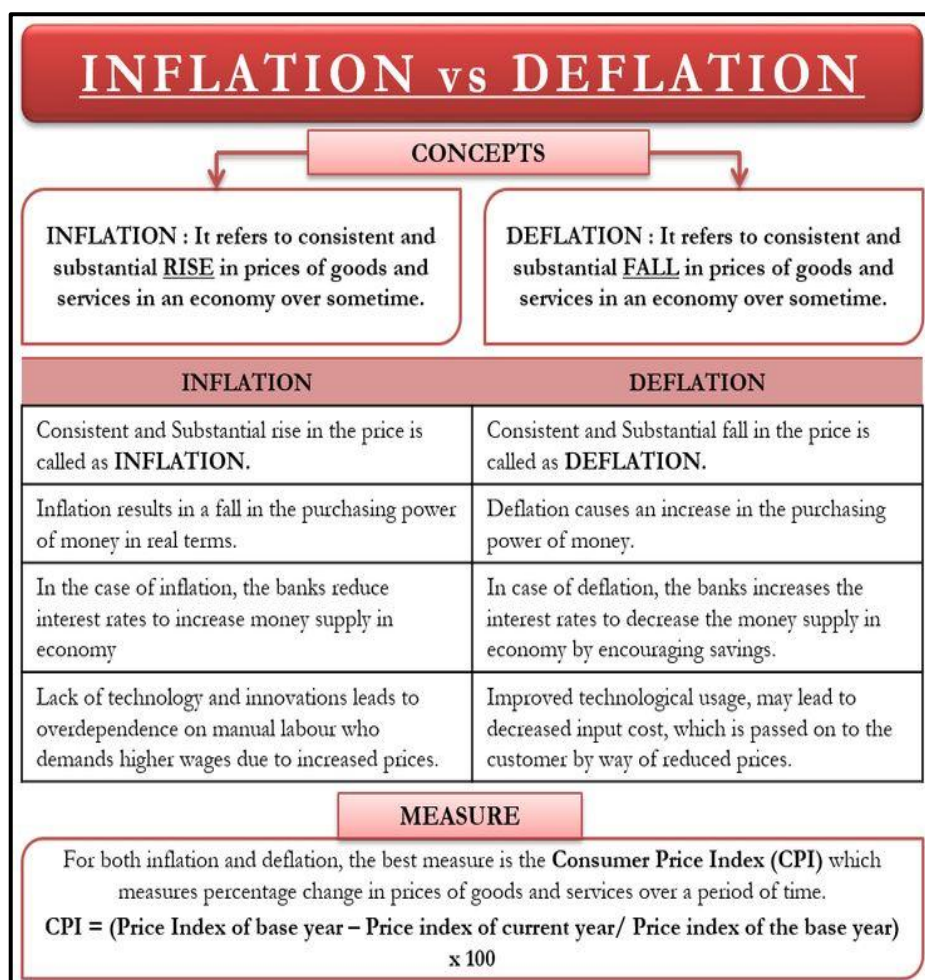
Is there a threat of stagflation in India due to rising Oil Prices?

- It cannot be denied that if oil prices stay high and for long, the inflation situation will worsen considerably and this would be coming after two years of already raised prices and reduced incomes.
- The other requirement is stalling growth and one of the indicators is unemployment. India is facing the most acute unemployment crisis it has seen in the past five decades
- So, yes, unlikely as it may be, it can be argued that we could be looking at stagflation in the near future.

STRENGTHENING OF PHARMACEUTICAL INDUSTRY (SPI) SCHEME

GS-III ECONOMY

Context
- Department of Pharmaceuticals, Ministry of Chemicals and Fertilisers has released the guidelines for the scheme "Strengthening of Pharmaceutical Industry (SPI)",

Aim
- The scheme will address the rising demand in terms of support required to existing Pharma clusters and MSMEs across the country to improve their productivity, quality and sustainability

Objective
- The objectives of the scheme "Strengthening of Pharmaceutical Industry (SPI) are to strengthen the existing infrastructure facilities in order to make India a global leader in the Pharma Sector.

Details
- Under the Scheme, financial assistance to pharma clusters will be provided for creation of Common Facilities.
- This will not only improve the quality but also ensure the sustainable growth of clusters.
- Further, in order to upgrade the production facilities of SMEs and MSMEs so as to meet national and international regulatory standards (WHO-GMP or Schedule-M), interest subvention or capital subsidy on their capital loans will be provided, which will further facilitate the growth in volumes as well as in quality.

Components
The scheme has 3 components/sub-schemes. These are -
1. **Assistance to Pharmaceutical Industry for Common Facilities (APICF),** to strengthen the existing pharmaceutical clusters' capacity for their sustained growth by creating common facilities;
2. **Pharmaceutical Technology Upgradation Assistance Scheme (PTUAS)** to facilitate Micro, Small and Medium Pharma Enterprises (MSMEs) of a proven track record to meet national and international regulatory standards;
3. **Pharmaceutical & Medical Devices Promotion and Development Scheme (PMPDS)** to facilitate growth and development of Pharmaceutical and Medical Devices Sectors through study/survey reports, awareness programs, creation of databases, and promotion of industry.

Details
- Under the **API-CF sub-scheme,** support for clusters for creation of common facilities with the focus on R&D Labs, Testing Laboratories, Effluent Treatment Plants, Logistic Centres and Training Centres in this order of priority with an outlay of 178 Cr for the scheme period of five years is proposed.
- Under the PTUAS **sub-scheme**, support for SME Industries is proposed, either through up to a maximum of **5%** per annum (6% in case of units owned and managed by SC/STs) of interest subvention or through Credit linked Capital subsidy of 10%. In both the cases, the loan supported under this is to a limit of 10 Crores and the eligible components of the loan have been listed out in the scheme guidelines. An outlay of 300 Cr has been earmarked for sub scheme for the scheme period of five years.
- Under the **PMPDS sub-scheme**, knowledge and awareness about the Pharmaceutical and MedTech Industry will be promoted. This will be done by undertaking studies, building databases and bringing industry leaders, academia and policy makers together to share their knowledge and experience for overall development of the Pharma and Medical Devices sector. An outlay of 21.5 Cr has been earmarked for the sub scheme for the scheme period of five years.

Significance
- It is expected that the units supported under this scheme will act as Demonstration Firms for the pharma clusters and MSE Pharma Industries, to develop on quality and technology upgradation fronts.

Challenges to India's Pharmaceutical Industry
- **A lack of a stable pricing and policy environment**- It has created a vague environment for investments and innovations. IPA suggests both the government and stakeholders work together to develop a plan to produce affordable Indian patients' drugs.
- **Lack of capabilities in the innovation space-**India is rich in its manpower and talent. The government should support the clinical trials and subjectivity in certain regulatory decision-making.
- **Generics market exporting**-Due to price attrition, the success of generic exports to the United States has started to plateau. Due to increased buyer consolidation and higher competition, this market is starting to fade.
- **Effect of external markets**- India is heavily dependent on other countries for active pharmaceutical ingredients (API) and

other intermediates. 80% of the APIs are imported from China.Implementation of infrastructure improvement in the field of internal facilities is necessary to stabilise supply.

- **Quality compliance inquiry-**India has undergone the highest number of Food and Drug Administration (FDA) inspections since 2009; therefore, continuous investment for upgrading quality standards will distract the capital away from other areas of development and growth is reduced.

Analysis of India's Pharmaceutical Industry

Strengths	Weakness
• Growing treatment naive patient population	• Low investments in innovative R & D
• Low cost of innovation, manufacturing and operations	• Poor all-round infrastructure is a major challenge
• Higher GDP growth leading to increased disposable income in the hands of general public and their positive attitude towards spending on healthcare	• Poor health insurance coverage.
• Data management functions for clinical trials	• Stringent pricing regulations affecting the profitability of pharma companies
• Fair protection of intellectual property rights	• Majority of companies lack the ability to compete with MNCs for New Drug Discovery, Research of molecules on a worldwide basis due to lack of resources
Opportunities	**Threats**
• Global demand for generics rising	• Wage inflation
• Rapid OTC and generic market growth	• Government expanding the umbrella of the Drugs Price Control Order (DPCO).
• Public-Private Partnerships for strengthening Infrastructure.	• Entry of foreign players (well-equipped technology-based products) into the Indian market
• Opening of the health insurance sector and increase in per capita income - the growth drivers for the pharma industry	• Improper systems and issues complicates conducting clinical trials scope in India
• Significant export opportunities. US$40 billion worth of drugs in the USA and US$25 billion worth of drugs in Europe are going off patent	• Drug Price Control Order puts unrealistic on product prices and profitability

NATIONAL FINANCIAL REPORTING AUTHORITY — *GS-III ECONOMY*

Context

- The government has appointed former finance secretary Ajay Bhushan Pandey as chairman of the National Financial Reporting Authority (NFRA) for a period of three years.

About

- The NFRA acts as an independent regulator for the auditing profession. The body has powers to review financial statements of companies, can seek explanations and probe irregularities with respect to accounting and auditing issues.

Roadmap of NFRA
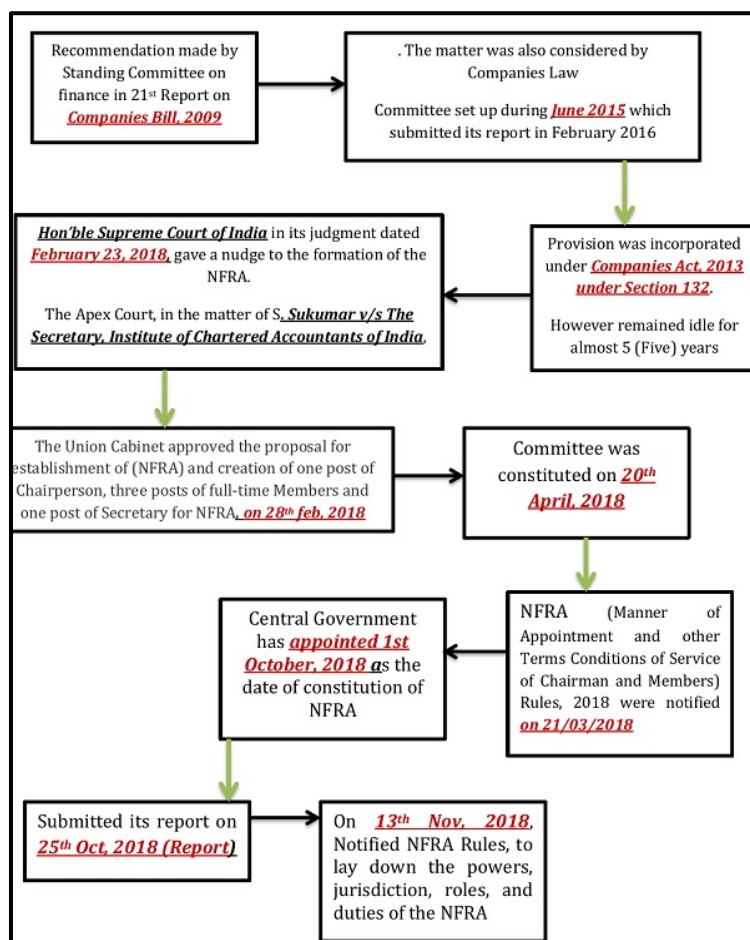
National Financial Reporting Authority (NFRA)

- The National Financial Reporting Authority (NFRA) is administered by the Ministry of Corporate Affairs under the Government of India to regulate the auditing standards in the country.
- Technical Advisory Committee (TAC) has been constituted by NFRA
- TAC has 7 members including the chairperson.

Primarily, it has two functions

- Aid and advise the Executive Body of the NFRA on issues related to the drafts of accounting standards and auditing standards.
- Provide inputs from the perspectives of users, preparers and auditors of financial statements.

Responsibilities

- According to the Companies Act of 2013, the National Financial Reporting Authority (NFRA) is responsible for making recommendations in accounting and auditing standards. It also oversees the Quality of Service provided by the accounting and audit professions.
- It has also been given the power to investigate matters of professional misconduct by chartered accountants or CA firms, impose a penalty and debar the CA or firm for up to 10 years.
- It is stated in the Act that "no other institute or body shall initiate or continue any proceedings in such matters of misconduct where the NFRA has initiated an investigation."
- It is expected that the NFRA's functioning would result in improved domestic and foreign investments, improved economic growth, assistance in the development of the audit profession and supporting the globalisation of business through compliance with international practices.

NFRA Members

- The NFRA is composed of one Chairperson, three full-time Members and one Secretary. The chairperson shall be a person of eminence and having expertise in accountancy, auditing, finance or law to be appointed by the Central Government.

National Financial Reporting Authority (NFRA) Jurisdiction

- The jurisdiction of NFRA for investigation of CAs and their firms under Section 132 of the Companies Act would extend to large public companies that are not listed (threshold prescribed in the rules) and listed companies.
- It is at the discretion of the Central Government to refer such other entities for investigation, involving public interest.
- Under the provision of the Chartered Accountant Act of 1949, the essential role of ICAI (Institute of Chartered Accountants of India) will continue in respect of its members in general and explicitly concerning audits about private limited companies, and public unlisted companies below the threshold limit to be notified in the rules.
- ICAI would continue playing the advisory role with respect to accounting and auditing standards and policies through recommendations to the NFRA.
- Quality audit with respect to public companies that are not listed and are below the prescribed threshold, private companies that are listed and those companies delegated by the NFRA would be continued to be done by the Quality Review Board (QRB).

NFRA Benefits

- India gains eligibility for IFIAR (International Forum of Independent Audit Regulators), which was denied earlier, resulting in enhancing the confidence of Foreign/Domestic investors and India's position on a global scale.
- Increase in foreign/domestic investors.
- IFIAR eligibility proves our international standards of business, further supporting globalisation.
- Further development of the auditing profession.
- Establishment of NFRA will free resources for the ICAI to work on developing new and complex skills needed in the uncertain world of technology.

UPI123PAY — GS-III ECONOMY

Context

- Recently, the Reserve Bank of India has launched a new Unified Payments Interface (UPI) payments solution for feature phone users dubbed 'UPI123Pay'.

Details

- The new UPI-based service is designed to bring the digital payments platform closer to a significant number of feature phone mobile subscribers in the country, which is estimated to be more than 40 crore.
- The new UPI payments system offers users four options to make payments without internet connectivity:
  o Interactive Voice Response (IVR),
  o app-based functionality,
  o missed call facility and
  o proximity sound-based payments.

What are these facilities?

- Using the IVR option, users would be required to initiate a secured call from their feature phones to a predetermined IVR
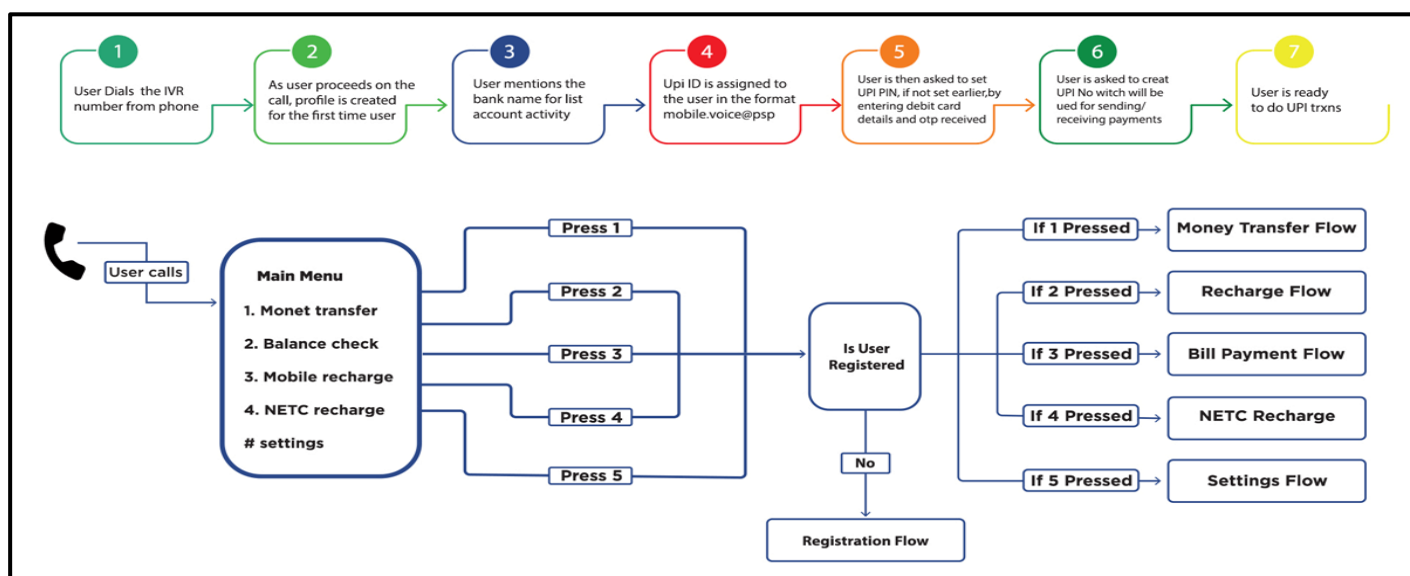
number and complete UPI on-boarding formalities to be able to start making financial transactions like money transfer, mobile recharge, EMI repayment, balance check, among others.

- The missed call facility will allow users to access their bank account and perform routine transactions such as receiving, transferring funds, regular purchases, bill payments, etc., by giving a missed call on the number displayed at the merchant outlet. The customer will receive an incoming call to authenticate the transaction by entering UPI PIN.
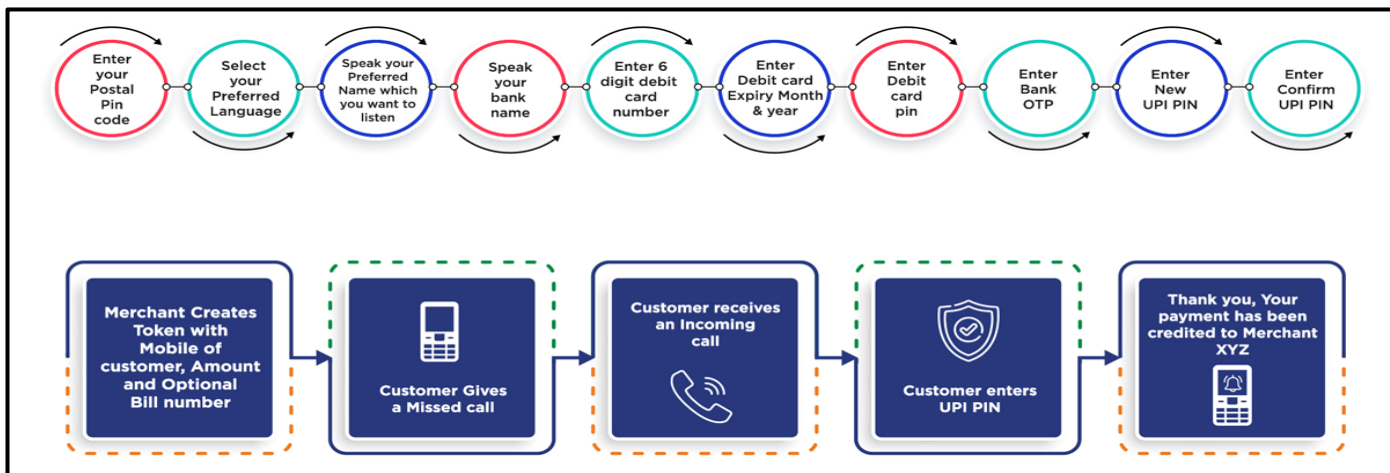
- They could also install an app on their feature phone through which several UPI functions, available on smartphones, will be available on their feature phone, except scan and pay feature which is currently not available.
- Finally, they could utilise the proximity sound-based payments option, which uses sound waves to enable contactless, offline, and proximity data communication on any device.

What is UPI?

- Unified Payments Interface (UPI) is a system that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing and merchant payments into one hood.
- It also caters to the "Peer to Peer" collect request which can be scheduled and paid as per requirement and convenience.
- Each Bank provides its own UPI App for mobile platforms.
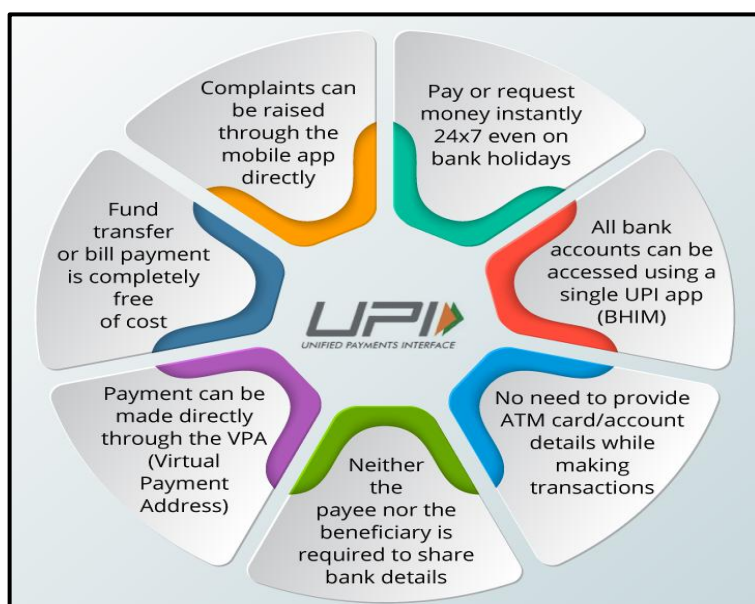
About 'National Payments Corporation of India'

- It is an umbrella organisation for operating retail payments and settlement systems in India.
- It is an initiative of the Reserve Bank of India (RBI) and Indian Bank's Association (IBA) under the provisions of the Payment and Settlement Systems Act, 2007.
- It has been incorporated as a #Not for Profit" Company under the provisions of Section 25 of Companies Act 1956 (now Section 8 of Companies Act 2013).
- The ten core promoter banks are State Bank of India, Punjab National Bank, Canara Bank, Bank of Baroda, Union Bank of India, Bank of India, ICICI Bank, HDFC Bank, Citibank and HSBC.
- In 2016 the shareholding was broad-based to 56 member banks to include more banks representing all sectors.

PM GATI SHAKTI NATIONAL MASTER PLAN

GS-III ECONOMY

Context
- The PM Gati Shakti - National Master Plan was announced last year with an aim to break departmental silos and bring in more holistic and integrated planning and execution of projects with a view to address the issues of multi-modal and last-mile connectivities.

Details
- a digital platform to bring 16 Ministries including Railways and Roadways together for integrated planning and coordinated implementation of infrastructure connectivity projects.
- The multi-modal connectivity will provide integrated and seamless connectivity for movement of people, goods and services from one mode of transport to another.
- It will facilitate the last mile connectivity of infrastructure and also reduce travel time for people.

Aim
- To give a new direction to the development of modern infrastructure through planning, implementation and monitoring and cutting down on time and cost overruns of projects.

Significance of the scheme
- PM Gati Shakti will incorporate the infrastructure schemes of various Ministries and State Governments like Bharatmala, Sagarmala, inland waterways, dry/land ports, UDAN etc.
- Economic Zones like textile clusters, pharmaceutical clusters, defence corridors, electronic parks, industrial corridors, fishing clusters, agri zones will be covered to improve connectivity &
- make Indian businesses more competitive.
- It will also leverage technology extensively including spatial planning tools with ISRO (Indian Space Research Organisation) imagery developed by BiSAG-N (Bhaskaracharya National Institute for Space Applications and Geoinformatics).

PM Gati Shakti is based on six pillars
- **Comprehensiveness:** It will include all the existing and planned initiatives of various Ministries and Departments with one centralised portal.
- **Prioritisation:** Through this, different Departments will be able to prioritise their projects through cross-sectoral interactions.
- **Optimization:** The National Master Plan will assist different ministries in planning for projects after identification of critical gaps.
- **Synchronisation:** PM Gati Shakti will help in synchronising the activities of each department, as well as of different layers of governance, in a holistic manner by ensuring coordination of work between them.
- **Analytical:** The plan will provide the entire data at one place with GIS based spatial planning and analytical tools having 200+ layers, enabling better visibility to the executing agency.
- **Dynamic:** All Ministries and Departments will now be able to visualise, review and monitor the progress of cross-sectoral projects, through the GIS platform, as the satellite imagery will give on-ground progress periodically and progress of the projects will be updated on a regular basis on the portal.

RISE IN GST REVENUES

GS-III ECONOMY

Context
- The Gross Goods and Services Tax (GST) revenue in February was 26% higher than pre-pandemic levels at ₹1,33,026 crore

Details
- Revenues from import of goods were 38% higher
- revenues from domestic transactions (including import of services) were 12% higher.
- GST Compensation Cess collections crossed ₹10,000 crore in a month for the first time
- That the GST collections exceeded ₹1.33 lakh crore despite the challenging pandemic situation in January.

Disparities
- While on an overall basis, the collections are 18% higher than the same period last year, there is significant divergence amongst States, with increases in the range of 2% to 23% amongst the large States
- Among the major industrial States,

- o Maharashtra and Karnataka recorded a 21% increase in GST revenues in February,
- o The growth rate was far lower at 5% for Tamil Nadu and 8% for Gujarat.
- o Odisha clocked 23% growth in GST revenues,
- o Telangana and Andhra Pradesh witnessed a growth of 13% and 19%, respectively.
- o Uttar Pradesh recorded a 9% uptick in revenues, while Punjab recorded 14% growth.
- o West Bengal and Madhya Pradesh GST revenues grew by a mere 2%.

Reasons for increase in GST revenue

- The improvement in revenue has also been due to various rate rationalisation measures undertaken by the Council to correct inverted duty structure
- Economic recovery,
- Anti-evasion activities
- Actions against fake billers

Good and Service Tax (GST)

- GST is known as the Goods and Services Tax.
- It is an indirect tax which has replaced many indirect taxes in India such as the excise duty, VAT, services tax, etc.
- The Goods and Service Tax Act was passed in the Parliament on 29th March 2017 and came into effect on 1st July 2017.
- It is levied on the supply of goods and services. Goods and Services Tax Law in India is a comprehensive, multi-stage, destination-based tax that is levied on every value addition.
- GST is a single domestic indirect tax law for the entire country.
- **Components**:
  - o CGST: It is the tax collected by the Central Government on an intra-state sale (e.g., a transaction happening within Maharashtra)
  - o SGST: It is the tax collected by the state government on an intra-state sale (e.g., a transaction happening within Maharashtra)
  - o IGST: It is a tax collected by the Central Government for an inter-state sale (e.g., Maharashtra to Tamil Nadu)

Benefits of GST

Advantages of **GST**

- GST eliminates the cascading effect of tax
- Composition scheme for small businesses
- The number of compliances is lesser
- Improved efficiency of logistics
- Unorganized sector is regulated
- Defined treatment for E-commerce operators
- Simple and easy online procedure
- Higher threshold for registration
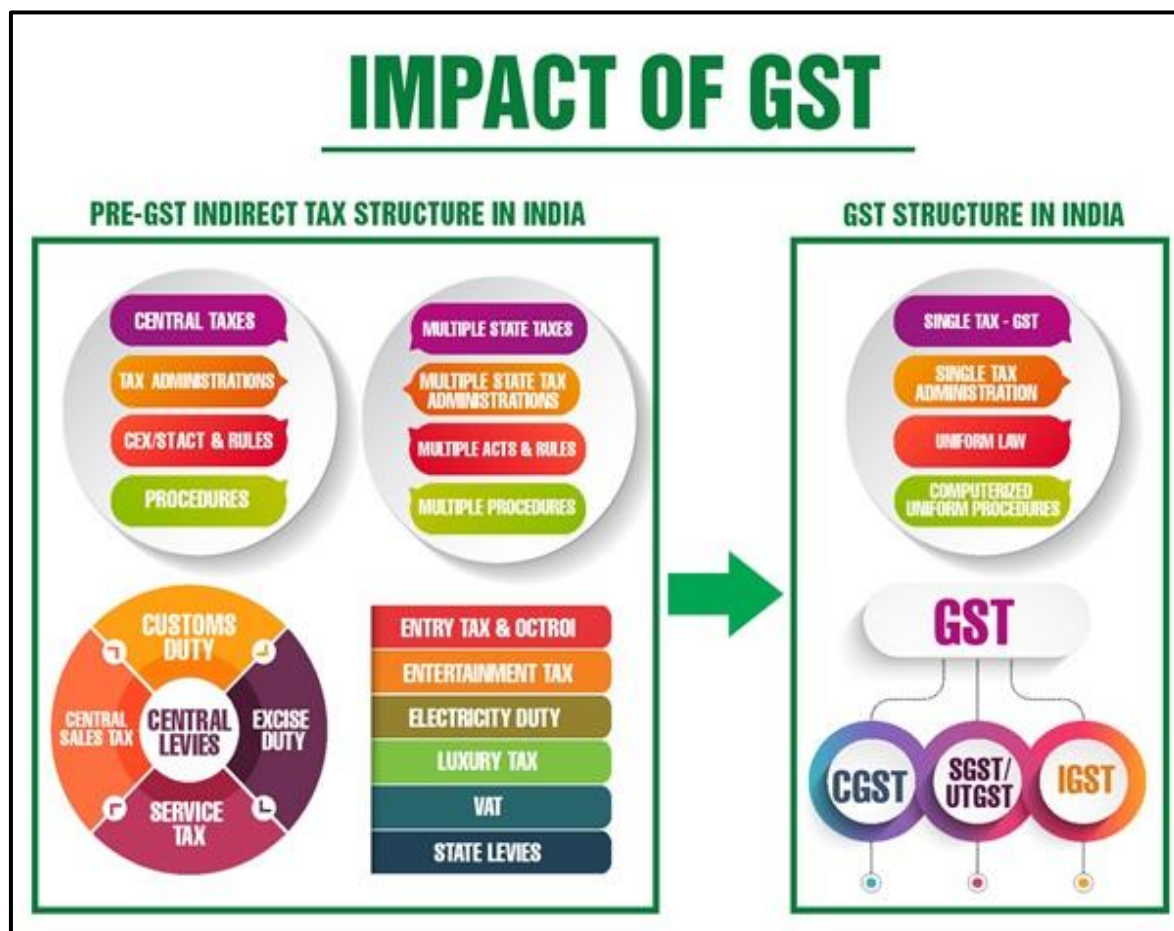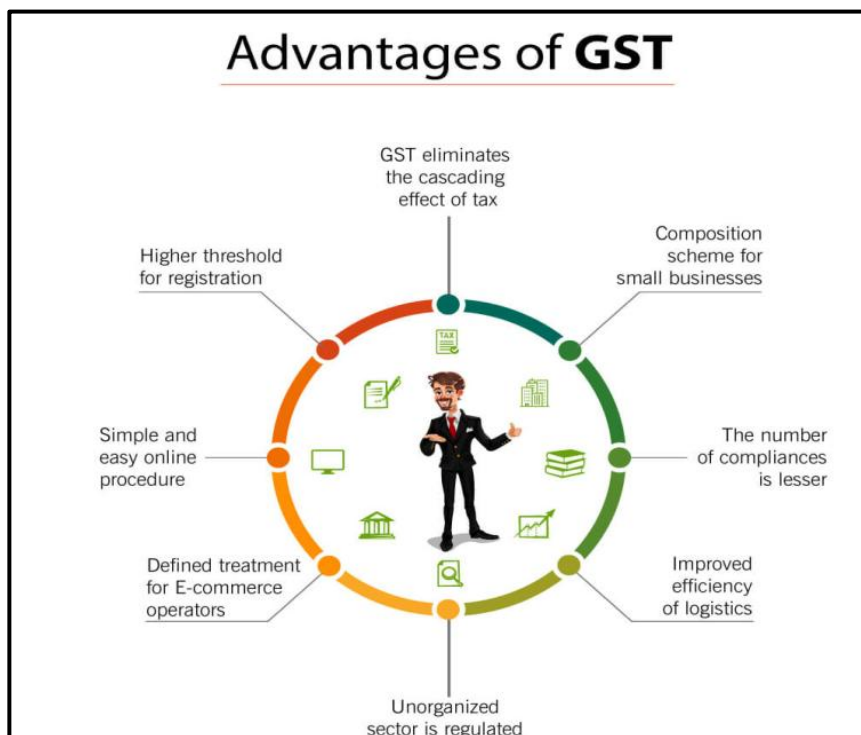
Potential ways to address the issues faced by businesses on the implementation of the GST

- Allow longer period for filing of tax returns such as quarterly filing
- Support taxpayer assistance like the Tax Return Preparer Scheme for Income Tax
- Introduce a GST suspension regime for small exporters
- Allow automatic refunds for certain categories of exporters using a risk based approach
- Move to fewer tax rates to address the issue of classification and refunds
- Postpone the introduction of the e-way bill until the system stabilises
- Clarify to taxpayers the administration of the GST by the dual Central and State Tax Administrations

GST COUNCIL
- The Government of India (GoI) introduced the GST Council to modify, regulate and reconcile the goods and services tax in India. The Council replaced all the existing multiple taxation processes and introduced new taxation methods to ease the taxation process for the taxpayers.

The GST Council will make recommendations on
- GST shall include taxes, cesses, and surcharges;
- Goods and services which possibly will be subject to, or exempt from, GST; The threshold maximum value of turnover for the function of GST;
- Rates of GST;
- GST laws, principles of levy, apportionment of IGST and principles associated with place of supply;
- Special provisions with respect to the eight northeastern states, Himachal Pradesh, Jammu and Kashmir, and Uttarakhand; and other associated matters.
- Other matters pertaining to the implementation and regulation of GST in India.

Composition of GST Council

- Union Finance Minister, Chairperson
- To be Elected, Vice Chairperson
- Union Revenue Secretary, Ex-Officio Secretary
- Union Minister of State, Revenue/Finance, Member
- Finance/Taxation/Any Other Minister of Each State, Member
- Chairman, CBEC, Ex-Officio Permanent Invitee
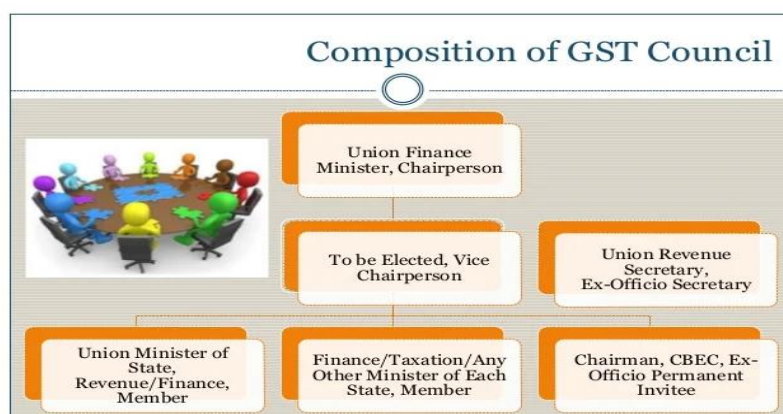
INDEX OF EIGHT CORE INDUSTRIES

Context
- As per the Ministry of Commerce, the growth rate of eight core industries came in at 3.7 percent in January 2022, as compared to the same period last year

The summary of the Index of Eight Core Industries is given below
- Coal production grew by 8.2 percent
- Petroleum refinery production climbed by 3.7 per cent
- Steel production increased by 2.8 per cent
- Cement production increased by 13.6 percent
- Electricity generation grew by 0.5 percent
- Crude oil production, however, took a hit as it declined by 2.4 percent.

Who releases the Index of Eight Core (ICI)?
- The Office of Economic Adviser, Department for Promotion of Industry and Internal Trade releases the Index of Eight Core Industries (ICI).

What are the 8 core sectors?
1. Coal,
2. Crude Oil,
3. Natural Gas,
4. Refinery Products,
5. Fertilisers,
6. Steel,
7. Cement and
8. Electricity.

Industry	Weight (In percentage)
Petroleum & Refinery production	28.04
Electricity generation	19.85
Steel production	17.92
Coal production	10.33
Crude Oil production	8.98
Natural Gas production	6.88
Cement production	5.37
Fertilizers production	2.63

Decreasing order by weightage
- **Refinery Products> Electricity> Steel> Coal> Crude Oil> Natural Gas> Cement> Fertilisers.**
- **Core sectors comprise 40.27% of the weight of items included in the Index of Industrial Production (IIP).**

Index of Industrial Production
- The Index of Industrial Production (IIP) is a composite indicator that measures the short-term changes in the volume of production of a basket of industrial products during a given period with respect to that in a chosen base period.

Details
- Tracks manufacturing activity in different sectors of an economy.
- The IIP number measures the industrial production for the period under review, usually a month, as against the reference period.
- IIP is a key economic indicator of the manufacturing sector of the economy.
- There is a lag of six weeks in the publication of the IIP index data after the reference month ends.

IIP Index Components
- Mining, manufacturing, and electricity are the three broad sectors in which IIP constituents fall.

Who releases Index of Industrial Production or IIP data?
- In the case of the Index of Industrial Production India, IIP data is compiled and published by CSO every month.
- The CSO or Central Statistical Organisation operates under the Ministry of Statistics and Programme Implementation (MoSPI).

IIP base year change
- The base year was changed to 2011-12 from 2004-05 in the year 2017.

IIP vs ASI
- While the IIP is a monthly indicator, the Annual Survey of Industries (ASI) is the prime source of long-term industrial statistics.
- The ASI is used to track the health of the industrial activity in the economy over a longer period.
- The index is compiled out of a much larger sample of industries compared to IIP.

PACER SCHEME   *GS-III SCIENCE & TECHNOLOGY*

Context
- Recently, the Polar Science and Cryosphere (PACER) scheme was approved by the government for continuation during 2021-2026.

About PACER Scheme
- PACER) is an **umbrella scheme that comprises of India's Antarctic program, Arctic program, Southern Ocean program and Cryosphere and Climate program.**

Implementation of PACER
- PACER is being **implemented by National Centre for Polar and Ocean Research (NCPOR).**
- NCPOR**situated in Goa** is an **autonomous institute under the Ministry of Earth Sciences.** NCPOR was established in 1998.

Recent and Noteworthy Accomplishments under PACER SCHEME
<u>[Polar Scientific Expedition to Antarctica (39th & 40th executed. 41st Expedition is ongoing)]</u>
- Identification of a no. of new species of bacteria from Antarctica- **30/240 new species so far have been dicovered by Indian scientists**.
- Preparation of **comprehensive geological and geomorphological maps of the Schirmacher Oasis.**
- Studies of cold adaptability in the harsh environment of Antarctica.**Data that can be used for our armed forces serving the Himalayas.**
- Identification of a no. of lipases &proteases (digestive enzymes) active at low temperatures and **useful for the biotechnology industry**.
- Dronning Maud Land (cDML) studies can help us understand the **modern snow accumulation patterns around the ice rises.**

<u>[Establishment of Atmospheric observatories in Antarctica - at Maitri and Bharati stations]</u>
- These observatories now have **automatic weather stations, sensors to measure aerosol & GHG concentrations.**

<u>[Indian Southern Ocean Expedition in Antarctica (Recent - 11th Indian Southern Ocean Expedition, 2020)]</u>
- Various atmospheric, oceanographic measurements were conducted in the Prydz Bay and other fronts. The database will throw light on several unanswered questions: **biogeochemical fluxes of carbon, nitrogen, silica and iron and their influence on the trophic structure, the role of the Southern Ocean in modulating the global climate etc.**
- Sediment cores were collected from lakes to **reconstruct the past climate** associated with the **ice-sheet dynamics**.

<u>[Arctic Expedition (Recent - 2019-20 Expedition)]</u>
- 23 research projects were carried out. **IndARC mooring system was successfully retrieved and deployed in Kongsfjorden, Svalbard.**

Upcoming Deliverables under the PACER Scheme
- **To construct the third research base in Antarctica**: A **state-of-the-art year-round research base, at Larsemann Hills, East Antarctica** with living space and laboratory facilities.
- **Rebuilding of the Maitri station to incorporate modern energy conservation systems** i.e. power generation through wind and solar power, a waste conservation and disposal strategy (example: recycle treated water)**to meet Environmental Protocol.**
- **Constructing a research-cum-supply vessel for polar programmes**- So far, India has been managing the transportation of the expedition personnel and cargo to and back from Antarctica through chartered cargo vessels. These cargo vessels are **unsuitable for oceanographic research work.** Owning our own ice breaker vessel will reduce India's dependence on foreign vessels. Also, equipping the vessel with state-of-the art scientific instrumentation will allow us to undertake oceanographic research simultaneously.

Important links:
Antarctic-Treaty:<u>https://iasgyan.in/blogs/antarctic-treaty</u>
About Indian Antarctic Program and Arctic Program:<u>https://www.iasgyan.in/daily-current-affairs/pacer-initiative</u>

ARTEMIS MISSION   *GS-III SCIENCE & TECHNOLOGY*

Context
- NASA has invited U.S. companies other than Space X to build additional astronaut Moon Landers as it makes strides to return humans to the lunar surface under Artemis Mission.

Artemis

- **About:** The Artemis Program is a **United States-led international human spaceflight program.** The Program **began in 2017.**
- **Goal:** Its primary goal is **to return humans to the Moon, specifically the lunar south pole, by 2025**. Also-
  - It envisages **landing the first woman on the Moon**.
  - Mid-term objective is **a sustainable human presence on the Moon.**
  - Long-term objectives are **extraction of lunar resources,** and eventually, **make crewed missions to Mars and beyond feasible.**[Note: The first mission to take astronauts to the Moon was the Apollo Program -1968 to 1972].
- **Implementing Agencies**: **NASA and U.S. commercial spaceflight contractors**, in partnership with the **European Space Agency** and the **space agency's of other nations**. Other countries have been invited to join the program through signing the governing **Artemis Accords.**
- **Launch Vehicle:** NASA's new rocket is the **Space Launch System (SLS).** It is the **most powerful rocket ever in the world.**
- **Mandate:** SLS **will carry the Orion spacecraft with up to four astronauts** riding aboard to lunar orbit. Then, **astronauts will dock Orion at a small spaceship called the Gateway.** This is where astronauts will prepare for missions to the Moon and beyond. The **crew will take trips from the Gateway to the lunar surface in a new human landing system**, and then return to the Gateway. When their work is finished, the crew will return to Earth aboard Orion.
- **Space-suits:** The astronauts will wear **Exploration Extravehicular Mobility Unit, or xEMU.** These spacesuits feature **advanced mobility, communications &interchangeable parts** that can be configured for spacewalks in microgravity or on a planetary surface.

The Artemis 3 crew will visit the Moon's South Pole. No one has ever been there. At the Moon, astronauts will
- Search for the Moon's water and use it.
- Study the Moon to discover its mysteries.
- Learn how to live and work on the surface of another celestial body.
- Test the technologies we need before sending astronauts on missions to Mars, which can take up to three years roundtrip.

Significance of Artemis Mission

- **Artemis, will:**
  - Demonstrate new technologies, capabilities, and business approaches needed for future exploration including Mars.
  - Study the Moon to learn more about the origin and history Earth, the Moon, and our solar system.
  - Inspire a new generation and encourage careers in STEM.
- The Moon is a "test bed" for Mars. A test bed is a place to prove that a technology or idea will work. The Moon is a place to demonstrate that astronauts will one day be able to work away from Earth on Mars for long periods of time.

- The Artemis Accords are an **international agreement between governments participating in the Artemis Program**. Drafted by NASA and the U.S. Department of State, the Accords establish **a framework for cooperation in the civil exploration and peaceful use of the Moon, Mars, and other astronomical objects**. They are explicitly **grounded in the United Nations Outer Space Treaty of 1967**, which signatories are obliged to uphold.
- **The Accords have been signed by:** Australia, Canada, Italy, Japan, Luxembourg, the United Arab Emirates, the United Kingdom, the United States, Ukraine, South Korea, New Zealand, Brazil, Poland, Mexico, Israel, Romania, Bahrain, and Singapore.
- **Note: India has not signed** the Artemis Accords.

SCIENCE BEHIND SOLAR JETS OF PLASMA — *GS-III SCIENCE & TECHNOLOGY*

Context
- Recently, Indian Researchers have explained the origin of 'spicules' on the Sun, using laboratory experiments.
- This unravels the science behind the jets of plasma on the Sun's chromosphere.

Jets of plasma/Spicules

- Solar jets or spicules, are **powerful plasma streams constantly ejecting from the Sun's chromosphere** (an atmospheric layer above the Sun's visible surface).
- These solar jets **rise and fall back under the influence of the Sun's gravity**, which is 20 to 30 times greater than Earth.
- Some solar jets releasing from the Chromosphere are so energetic that **they propel into the solar corona (outer layer) and beyond (in the form of Solar Flare, Solar Wind and Coronal mass ejections).**

- **Plasma** – It is the fourth state of matter consisting of electrically charged particles **made of positive ions and free-moving electrons.**
- The solar plasma can be imagined as **threaded by magnetic field lines**, much like the long chains in polymer solutions.
- The Sun's plasma is so hot that **the most energetic charged particles can escape from the Sun's gravity and fly away, out into space.** We call this plasma the solar wind because it blows out away from the Sun and past the planets, interacting with their magnetic fields and/or atmospheres.

Mechanism: Role of Convection

- The Sun's surface is **constantly in the state of convection powered by the nuclear energy obtained from the Sun's dense core**.
- The convection provides **strong periodic kicks and triggers enabling the plasma to eject as jet streams**.
- The chromosphere is 500 times lighter than the plasma in the photosphere. Therefore, these strong kicks from the bottom **shoot the chromospheric plasma outward at ultrasonic speeds (waves with frequency more than 20 kHz) in the form of thin columns or spicules.**
- Spicules come in all sizes and speeds.

Ingredients propelling Solar Jets

The four key ingredients favoring solar jets are:

1. The Plasma's Fluid Nature,
2. Gravity,
3. Strong Quasi Periodic Triggers to Eject The Plasma and
4. The Sun's Powerful Magnetic Field giving it Specific Direction for Ejection.

Also read: https://www.iasgyan.in/blogs/structure-of-the-sun; https://www.iasgyan.in/daily-current-affairs/geomagnetic-storm; https://www.iasgyan.in/daily-current-affairs/solar-corona; https://www.iasgyan.in/daily-current-affairs/muse-and-helioswarm

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5 G — GS-III SCIENCE & TECHNOLOGY

Context

- Prime Minister Narendra Modi was speaking at a webinar to discuss Union Budget allocations for science and information technology and said the budget laid emphasis on "sunrise sectors" such as 5G.

5G

- 5G is the **fifth generation of cellular technology**. It is a new global wireless standard after 1G, 2G, 3G, and 4G networks.
- 5G enables a new kind of network that is **designed to connect virtually everyone and everything together** including machines, objects, and devices.
- 5G wireless technology is meant to deliver higher **multi-Gbps peak data speeds, ultra low latency, more reliability, massive network capacity, increased availability, and a more uniform user experience** to more users.
- **Network Standard:** MIMO

Comparison	2G	3G	4G	5G
Introduced in year	1993	2001	2009	2018
Technology	GSM	WCDMA	LTE, WiMAX	MIMO, mm Waves
Access system	TDMA, CDMA	CDMA	CDMA	OFDM, BDMA
Switching type	Circuit switching for voice and packet switching for data	Packet switching except for air interference	Packet switching	Packet switching
Internet service	Narrowband	Broadband	Ultra broadband	Wireless World Wide Web
Bandwidth	25 MHz	25 MHz	100 MHz	30 GHz to 300 GHz
Advantage	Multimedia features (SMS, MMS), internet access and SIM introduced	High security, international roaming	Speed, high speed handoffs, global mobility	Extremely high speeds, low latency
Applications	Voice calls, short messages	Video conferencing, mobile TV, GPS	High speed applications, mobile TV, wearable devices	High resolution video streaming, remote control of vehicles, robots, and medical procedures

Read more about the technology here: https://www.iasgyan.in/blogs/the-evolution-of-5g-technology

- The government of India will conduct a spectrum auction this year, which will facilitate the roll-out of 5G mobile services by private telecom operators during the financial year 2022-23.
- A scheme for design-led manufacturing will be launched to build a strong ecosystem for 5G **as part of the production-linked incentive scheme** – Budget 2022.

Potential Economic impact of 5G in India

Summary of 5G Use Cases
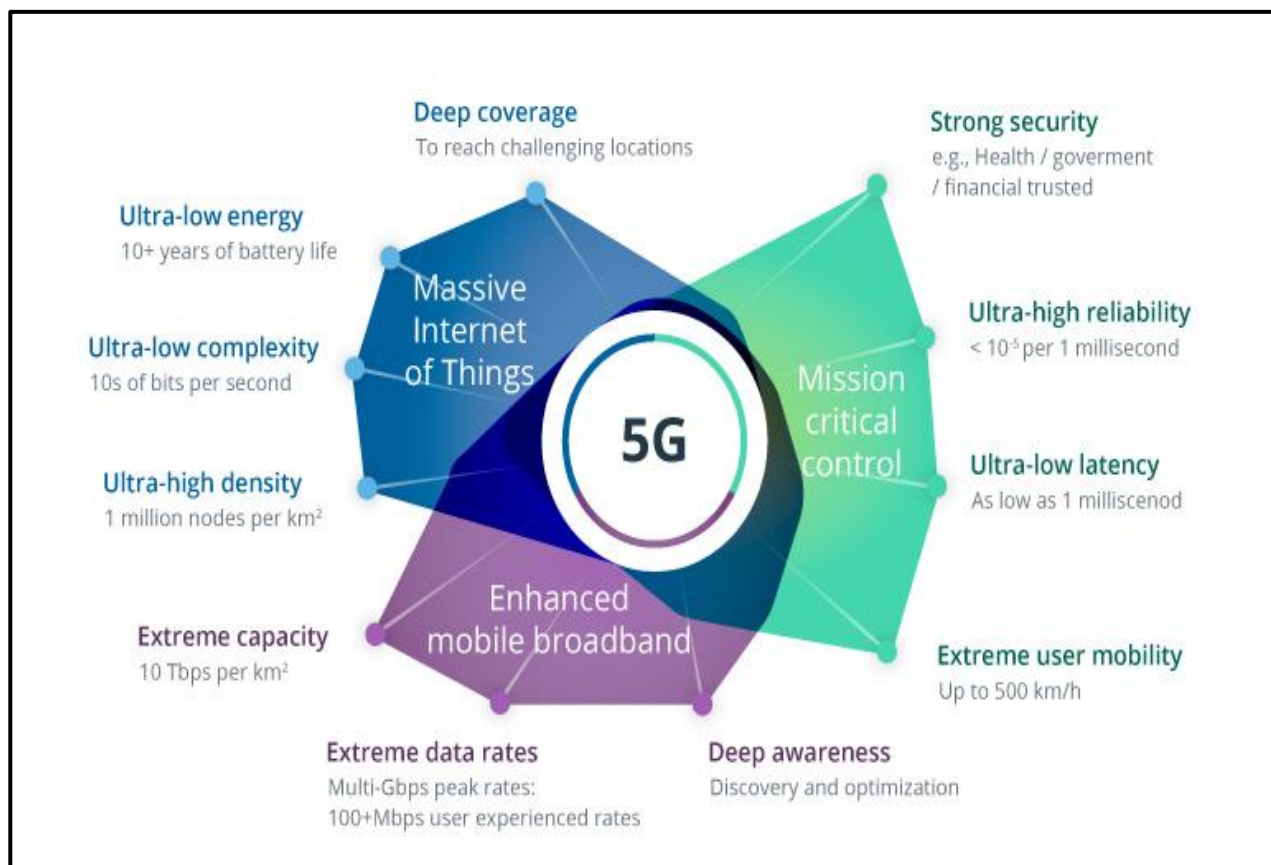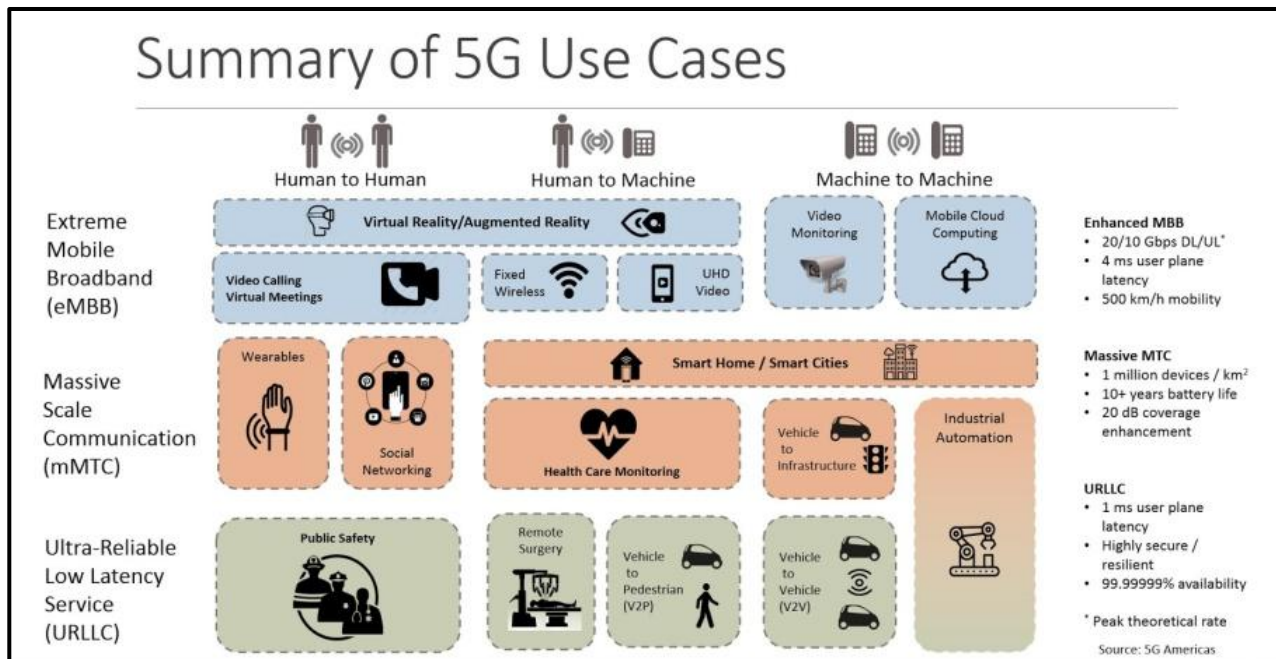
Employment

- The telecommunications sector in general, and 5G, in particular, is poised to **enable growth and bolster employment opportunities.**

Industries

- 5G will bring hundreds of Megabits—even Gigabits—at low latency**, speeds that can potentially change the way most—if not all—industries work, today**. It will bring the country up-to-speed with the West.

Innovation

- 5G and the slew of "interconnected" devices the technology will enable, **will make the country "future-ready" and boost further innovation.**
- Bringing it under the PLI scheme for design-led manufacturing and build a strong ecosystem for 5G, will further boost local innovation in the domain.

Connections and Revenue potential

- Global telecom industry GSMA has forecast that **India will have about 70 million 5G connections by 2025.**
- 5G is expected to create a cumulative **economic impact of $1 trillion in India by 2035**, according to a report by a government-appointed panel.
- According to a report by Ericsson, **5G-enabled digitalisation revenue potential in India will be above $27 billion by 2026.**

Mobile market

- The 5G wireless technology is a multipurpose wireless network for mobile, fixed and enterprise wireless applications. It incorporates all type of advanced features that makes it powerful and in huge demand in near future. It has a bright future and will be a revolution in the mobile market.

Banking Sector

- The spectrum will provide faster and simpler payment options, which will make mobile and digital payments even more appealing to the masses and merchants alike, further boosting usage. This is **key to economic growth.**

Fraud prevention

- Processing data, verifying the nature of transactions, confirming transaction amounts and funds availability, consulting multiple data instances in real-time, coupled with customer geo-location and merchant ID, will reduce fraud detection errors and false positives, thereby protecting consumers and the bank thereby **leading to a healthy economy.**

Boost to IT Sector

- The IT sector will invite lucrative offers in terms of innovation, manufacturing and employment opportunities.
- It will provide us the opportunity to mitigate any tech related inadequacies caused due to data speed and help us augment our product offerings by aiding comprehensive R&D in smaller pockets of the country.

Boost to rural economy

- Public 5G built and operated in a decentralised manner will also help us create more jobs in rural areas.

Challenges

- Telecom companies have pointed out that the **reserve price of the airwaves is very high.**
- Telecom industry body Cellular Operators Association of India (COAI) has also **expressed concerns about the financial**

health of the sector amid intense competition.

- The COAI has pointed out that **5G is overpriced by at least 30% to 40% compared to international standards** and auction in other markets such as South Korea and the U.S.
- **Physical objects block 5G signals easier than 4G,** and, even when unobstructed, 5G signals do not carry as far. This means that more towers are needed to support a comprehensive network.
- There are also challenges with the **integration of this technology to provide services in different application scenarios**.

Way Ahead

- To address the challenges, we need a **drastic change in the design of cellular architecture**.
- We also need to meet 5G system performance requirements such as femtocell - **stringent latency, network scalability, very long battery life, and green communications.** It is a challenge to satisfy these requirements and minimize costs at the same time.
- 5G technology has significant transformative potential for the Indian economy. To unlock that potential, the Indian government **must encourage investment in the form of timely and affordable spectrum**.
- **Widespread high-quality networks** maximise access to mobile broadband services for a lower cost to users, including enterprises, which, in turn, drive a significant impact on the digital and the overall economy.

To Read more about 5 G, visit:

https://www.iasgyan.in/blogs/5g-technology-a-primer
https://www.iasgyan.in/daily-current-affairs/the-technology-behind-5-g

GLOBAL CHIP SHORTAGE	GS-III SCIENCE & TECHNOLOGY

Context

- The Russian invasion is making the global chip shortage situation worse.

How difficult is it to manufacture Chips?

- Manufacturing advanced logic chips **requires extraordinary precision,** along with huge long-term bets in a field subject to rapid change.
- Manufacturing a chip typically **takes more than three months and involves giant factories, dust-free rooms, multi-million-dollar machines, molten tin and lasers.**
- Plants cost billions of dollars to build and equip, and they have to run flat-out 24/7 to recoup the investment.
- A factory also **gobbles up enormous amounts of water and electricity** and is **vulnerable to** even the **tiniest disruptions,** whether **from dust particles or distant earthquakes.**

Basic Requirements for Chip Facility:
- A clean environment, ie, low air particulate matter,
- abundant supply of clean, fresh water,
- uninterrupted and stable power supply,
- quick access to an international airport or seaport,
- first-world levels of road infrastructure from the said port to the fab
- close proximity to well-trained technical talent

Challenges faced by the semi-conductor Industry

- The world's top chipmakers still can't manufacture chips fast enough to satisfy the market's insatiable appetite.

The COVID-19 crisis

- After reaching its peak in 2011, the laptop market growth slowed down with the rise of alternatives such as smartphones and tablets. Then, the pandemic hit. This shift led to a surge in demand of chips.
- The pandemic disrupted semiconductor shipments as global demand for new mobile devices, PCs, and data center upgrades surged in response to remote work, online learning, and other stay-at-home trends.

Declining memory chip prices

- Memory chip prices soared in 2017 and 2018, but declined in 2019 and 2020 amid sluggish demand from the PC and smartphone markets.

The ongoing tech war

- The tech war between the U.S. and China, which intensified under President Donald Trump and is continuing under President Joe Biden, is another pressing issue.
- The U.S. has already **levied sanctions against several big Chinese companies**, including SMIC and Huawei, amid national security concerns.

- Those sanctions are **exacerbating the shortage of advanced chips in China.**
- They're also spurring the Chinese government to aggressively invest in its domestic chipmakers to reduce its overall dependence on overseas technologies -- which could cause a messy decoupling of the U.S. and Chinese markets.

Fluctuating forecasts

- Automakers that cut back drastically early in the pandemic underestimated how quickly car sales would rebound.
- They rushed to re-up orders late in 2020, only to get turned away because chipmakers were stretched supplying computing and smartphone giants like Apple Inc.

Stockpiling

- Chinese companies began building up inventory to ensure it could survive U.S. sanctions that were set to cut it off from its primary suppliers.

Disasters

- Several recent setbacks -- including a power outage at TSMC, a production pause at Samsung, and a fire at the Japanese auto chipmaker Renesas -- all highlight the fragility of the semiconductor supply chain.

How is the Russia-Ukraine crisis protracting this shortage?

- Palladium and neon are two resources that are key to the production of semiconductor chips.
- Now that **Russia supplies over 40 per cent of world's palladium and Ukraine produces 70 per cent of neon**, there can be global chip shortage to worsen if the military conflict persiss.
- During the 2014-15 Crimea invasion, neon prices went up several times over, serving an indication of the seriousness of the current crisis for the semiconductor industry.

NEON AND PALLADIUM

- Neon gas is **used in the photolithography process** that is the most common **method for fabricating integrated circuits.** Specifically, the **neon gas is used in the laser machines that carve the integrated circuits**. For use of neon gas in the semiconductor industry, the **gas has to reach 99.99% purity levels** — which makes it a rarity. More than half of semiconductor-grade neon comes from Ukrainian companies Incas and Cryoin.
- Palladium is used for multiple purposes in semiconductor and electronic manufacturing. It is **used to coat electrodes that help control flow of electricity.** It is also **used in plating of microprocessors and printed circuit boards** — which is an essential process of chip making. **Russia accounts for nearly half the global supplies of palladium** and the multiple trade sanctions on Moscow threaten to constrain the availability of the element.

Impact

Disrupted supply chain

- The semiconductor shortage severely disrupts the supply chain and constrains the production of many electronic equipment types.
- Production of laptops, tablets, smartphones and other electronic devices are impacted by the shortage of semiconductors.

Increasing Prices

- Foundries are increasing wafer prices, and in turn, chip companies are increasing device prices.

Production Disruption in automobile Sector

- Domestic and global automobile manufacturers cut output and halt production due to the semiconductor shortage.
- According to data from Society of Indian Automobile Manufacturers (SIAM), automobile wholesales in India declined 11 percent year-on-year in August 2021.
- Chip shortages are expected to wipe out $210 billion of sales for carmakers in 2022, with production of 7.7 million vehicles lost.

Challenges specific to India

Competition

- It is difficult to compete with neighbouring countries like China and Vietnam which have been favourite destinations for global chip manufacturers due to better cost-efficiency.

Massive investment

- In addition to the huge cost, running in billions of dollars, manufacturing even a single chip requires hundreds of gallons of pure water, which may also be hard to find in India in the required quantities.

Infrastructure

- There have been challenges in setting up of Semiconductor Wafer Fabrication (FAB) units in India.
- India is still not unto the par in terms of the basic infrastructure needed.

Power Supply

- An uninterrupted power supply is another major hurdle.

- The heart of the issue is that India is still not unto the par in terms of the basic infrastructure needed to pursue endeavours in the chip manufacturing space.

Price pressure

- There is also constant price pressure from other global players, particularly China which is also building a homegrown chip program for the adoption of local semiconductors in 70% of its products by 2025.

Dependency on Imports

- India **imports 100% of its semiconductors.**
- Around 40 percent of India's demand is met through imports from China, despite the frequent geopolitical impasse that the two nations find themselves in.

> **Global Giants**
> - Taiwan holds a virtual monopoly in the global chip manufacturing industry.
> - The company is responsible for over half of all semiconductor chips that are manufactured in the world, and the country as a whole is responsible for over 60 percent of global production.
> - Other major centres include South Korea and the US.

Government efforts

Development of sustainable semiconductor and display ecosystem in the country Programme

- The comprehensive programme for the **"development of sustainable semiconductor and display ecosystem in the country"** is aimed at making India a global hub of electronic system design and manufacturing.
- The scheme would provide fiscal support of up to 50% of the project cost for setting up semiconductor and display fabrication units.

100% FDI in the ESDM

- In 2016, the government allows **100% FDI in the ESDM sector through an automatic route to attract investments** including from Original Equipment Manufacturers (OEMs) and Integrated Device Manufacturers (IDMs).

Electronics development Fund

- The Department of Electronics and Information Technology (DeitY) has established an Electronics Development Fund (EDF) managed by Canara Bank to provide risk capital and to attract venture funds, angel funds and seed funds for incubating R&D and fostering the innovative environment in the sector.

Initiatives under Telecom and Electronic Policies

- Some of the initiatives outlined in the National Electronics policy and the National Telecom policy are in the process of implementation, such as Preferential Market Access (PMS), Electronics Manufacturing Clusters (EMC) and Modified Special Incentive Package Scheme (M-SIPS).

Scheme for Promotion of manufacturing of Electronic Components and Semiconductors (SPECS)

- Ministry of Electronics and Information Technology (MeITy) has drawn up the Scheme for Promotion of manufacturing of Electronic Components and Semiconductors (SPECS).

Production-linked incentive scheme (PLI) scheme

- Under the scheme, the Centre will offer financial support to companies that want to manufacture a range of semiconductor goods in India.
- The subsidy will bring down the production costs of companies manufacturing such goods, and thus encourage them to set up new factories and other facilities.

Global efforts

- Factories that produce wafers cost tens of billions of dollars to build, and expanding their capacity can take up to a year for testing and qualifying complex tools. In the US, the Biden administration's $2 trillion infrastructure investment package includes $50 billion for the semiconductor industry.
- The South Korean government has announced a massive $451 billion investment to help companies boost production of semiconductors.
- Many tech companies have begun developing their own chips, a move that will not only alleviate the current supply concerns but will likely help the industry in the long-run.
- Western countries are **focusing on the need to shift manufacturing within their countries and become self-reliant.**
- **Amid, the Russia-Ukraine Crisis,** the U.S. government is looking to **pass the CHIPS Act, a law that would provide semiconductor firms with $52 billion in subsidies** to advance chip making in the country.

Way Ahead

- As 5G mobile networks proliferate with many people working from home, the need for more powerful, energy-efficient chips is only going to grow.

- The rise of artificial intelligence is another force pushing innovation, since AI relies on massive data processing.
- Indian semiconductor industry is set for a stable upsurge with bright prospects **provided India's generic obstacles like redtape-ism, fund crunch and infrastructural deficits are adequately addressed.**
- **Steps needed to be taken:**
1. **Land Acquisition by the government:** acquire the land and develop a special economic zone (SEZ) which would encompass a complete semiconductor manufacturing ecosystem.
2. **Cover all ancillaries:** The monetary benefits being extended for setting up a fab should be made available for all the ancillary units manufacturing specialty chemicals to clean room apparel.
3. **Focus on simple technology:** The requirements are less stringent and the fabs less expensive. These companies typically operate at much lower gross margins as opposed to the large fabs and OEMs.
- With the implementation of fabrication capabilities in India, the country could achieve a degree of self-sufficiency in the sector of semiconductors.
- Building a strong semiconductor industry would put an end to the country's reliance on imports to meet its semiconductor needs and will help in the creation of jobs.

MERCURY POLLUTION

Context

- At the second round of the fourth Meeting of the Conference of the Parties to the Minamata Convention on Mercury (COP-4.2), Government of Indonesia as well as the United Nations have sought support and commitment from parties to the Minamata Convention for a **Bali Declaration** on combatting Global Illegal Trade of Mercury.
- This non-binding declaration calls upon parties to:
  - **enhance international cooperation and coordination for combatting illegal trade in mercury.**
  - Develop practical tools and notification and information-sharing systems for monitoring and managing trade in mercury
  - **Exchange experiences and practices** relating to combating illegal trade in mercury, including reducing the use of mercury in artisanal and small-scale gold mining
  - Share examples of national legislation and data and information related to such trade

The Minamata Convention on Mercury

- Named after the Japanese city of Minamata, the convention aimed at protecting the human health and the environment from the effects of mercury. The naming the treaty after the Japanese city was symbolic as it undergone severe incident of mercury poisoning.
- Controlling the anthropogenic releases of mercury throughout its lifecycle has been a key factor in shaping the obligations under the Convention.
- It was **adopted in 2013 and entered into force August 16, 2017.**
- Under it **137 parties** or countries from Africa, Asia-Pacific, eastern Europe, Latin America and the Caribbean, western Europe and other regions have been working together to
  - **control the supply and trade of mercury**
  - **reduce the use**
  - **emissions and release of mercury**
  - **raise public awareness and**
  - **build necessary institutional capacity since 2017.**
- It is a powerful tool to rid the planet of toxic substances. It is essential to tackle the **triple planetary crisis of climate change, nature and biodiversity loss, and pollution and waste.**

What was the need to adopt this declaration?

- Increase in global illegal mercury trade, notably in the artisanal and gold mining (ASGM) sector prompted Indonesia to propose a non-binding Bali Declaration on combating it.
- According to the International Union for Conservation of Nature estimates, globally, 10-20 million people work in the ASGM sector and many of them use mercury on a daily basis. As a result, 838 tonnes of mercury was being released into the air in 2015 by ASGM alone, making the sector the largest contributor to anthropogenic mercury emissions.

Mercury Pollution

- Mercury is a naturally occurring element **that is found in air, water and soil.**
- **Types of Sources**
  - **Natural sources of mercury** include volcanic eruptions and emissions from the ocean.
  - **Anthropogenic (human-caused) emissions** include mercury that is released from fuels or raw materials, or from uses in products or industrial processes.
  - It **occurs naturally** in the earth's crust, but human activities, such as **mining and fossil fuel combustion**, have led to widespread global mercury pollution.
- Mercury emitted into the air eventually settles into water or onto land where it can be washed into water.
- Once deposited, certain microorganisms can change it into **methyl mercury**, a highly toxic form that builds up in fish, shellfish and animals that eat fish. **Most human exposure to mercury is from eating fish and shellfish contaminated with methyl mercury.**
- **Major contributors:** Globally, **artisanal and small-scale gold mining** (ASGM) is the largest source of anthropogenic mercury emissions (37.7%), followed by **stationary combustion of coal** (21%). Other large sources of emissions are non-ferrous metals production (15%) and cement production (11%) (UNEP report)
- **Effects:**
  - Exposure to mercury threatens our health, with many often **irreversible toxic effects**. Developing fetuses and young children are most at risk. Mercury pollution also harms **wildlife and ecosystems.**
  - The inhalation of mercury vapour can produce harmful effects on **the nervous, digestive and immune systems, lungs**

and kidneys, and may be fatal. The inorganic salts of mercury are corrosive to the skin, eyes and gastrointestinal tract, and may induce kidney toxicity if ingested.

How to reduce human exposure from mercury sources?

There are several ways to prevent adverse health effects, including

- **Promote the use of clean energy sources that do not burn coal:** Burning coal for power and heat is a major source of mercury. Coal contains mercury and other hazardous air pollutants that are emitted when the coal is burned incoal-fired power plants, industrial boilers and household stoves.
- **Eliminate mercury mining, and use of mercury in gold extraction and other industrial processes:** Mercury is an element that cannot be destroyed; therefore, mercury already in use can be recycled for other essential uses, with no further need for mercury mining.
- **Phase out use of non-essential mercury-containing products and implement safe handling, use and disposal of remaining mercury-containing products** including:
- batteries
- measuring devices, such as thermometers and barometers
- electric switches and relays in equipment
- lamps (including some types of light bulbs)
- dental amalgam (for dental fillings)
- skin-lightening products and other cosmetics
- pharmaceuticals.
- In health care, **mercury-containing thermometers and sphygmomanometers are being replaced by alternative devices.**
- Dental amalgam is used in almost all countries, a phase down should be pursued by promoting disease **prevention and alternatives to amalgam**; research and development of cost-effective alternatives; education of dental professionals and the raising of public awareness.
- Inorganic mercury is added to some skin-lightening products in significant amounts. **Many countries have banned mercury-containing skin-lightening products because they are hazardous to human health.**

PM2.5 POLLUTION   GS-III ENVIRONMENT & ECOLOGY

Context

- No country in 2021 met the updated air quality guidelines defined by the World Health Organization (WHO), a new report found.
- In September 2021, the WHO tightened the global air quality norms and lowered the annual concentration of PM2.5 to five microgram (µg) from 10µg.
- **IQ Air** is a Swiss air quality technology company specialising in protection against airborne pollutants, and developing air quality monitoring and air cleaning products.

Key findings of report by report by IQAir

- Concentration of particulate matter 2.5 (PM2.5) was found to be within WHO standards in only 222 out of 6,475 cities.
- The **concentration in 93 per cent of the cities was 10 times the new guidelines**. This was the case in **48 per cent of India's cities.**
- Dhaka (Bangladesh), N'Djamena (Chad), Dushanbe (Tajikistan) and Muscat (Oman) followed Delhi in the list of polluted capital cities.
- **India specific**:
    o India was among **the top five countries** with the **highest concentration of PM2.5**
    o Delhi is the most polluted capital in the world. The city recorded an increase of over 14 per cent in the concentration of PM2.5 in 2021 compared to 2020.
    o Of the 15 most polluted cities in Central and South Asia in 2021, 12 were in India.

What is Particulate Matter 2.5 ($PM_{2.5}$)?

- The term fine particles, or particulate matter 2.5 ($PM_{2.5}$), refers to tiny particles or droplets in the air that are **two and one half microns or less in width.**

$PM_{2.5}$ affect on health

- Particles in the $PM_{2.5}$ size range **are able to travel deeply into the respiratory tract**, reaching the lungs.
- Exposure to fine particles can cause **short-term health effects** such as eye, nose, throat and lung irritation, coughing, sneezing, runny nose and shortness of breath.

- **Long term exposure** to fine particulate matter may be associated with increased rates of chronic bronchitis, reduced lung function and increased mortality from lung cancer and heart disease.

Where does PM$_{2.5}$ come from?

There are outdoor and indoor sources of fine particles.

- Outside, fine particles primarily come from <u>car, truck, bus and off-road vehicle (e.g., construction equipment, snowmobile, locomotive) exhausts, other operations that involve the burning of fuels such as wood, heating oil or coal and natural sources such as forest and grass fires.</u> Fine particles also form from the **reaction of gases or droplets in the atmosphere from sources such as power plants.**
- PM$_{2.5}$ is also produced by common indoor activities like tobacco smoke, cooking (e.g., frying, sautéing, and broiling), burning candles or oil lamps, and operating fireplaces and fuel-burning space heaters (e.g., kerosene heaters).

International impact of PM 2.5

- The WHO estimates that air pollution "kills an estimated seven million people worldwide every year" and their data "shows that 9 out of 10 people breathe air containing high levels of pollutants.
- NASA satellite data pertaining to PM 2.5 and found that **"more than 4 in 10 Indians are exposed to 5 times the safe limit of particulate matter in the air they breathe.**

Measure taken by GoI

National Clean Air Program (NCAP)

- It was **launched in 2019.**
- **Aim:** to reduce pollution by 20-30 % by 2024, particularly in 132 non-attainment cities.
- **Fund allocation:** Under the NCAP, Rs 375.44 crore was provided to 114 cities from 2018-19 to 2020-2021 and Rs 290 crore allocated to 82 cities for 2021-2022. The programme has an allocation of Rs 700 crore envisaged for 2021-2026.
- **Target to bring down pollution by 2024:**
  - Country's current annual safe limits for PM 2.5 and PM 10 are 40 micrograms/per cubic metre (ug/m3) and 60 micrograms/per cubic metre.
  - The NCAP has set a target of reducing key air pollutants PM10 and PM2.5 (ultra-fine particulate matter) by 20-30% by 2024, taking the pollution levels in 2017 as the base year.
- **Membership:** Apart from experts from the industry and academia, the programme is expected to be a collaboration between the Ministry of Road Transport and Highways, Ministry of Petroleum and Natural Gas, Ministry of New and Renewable Energy, Ministry of Heavy Industry, Ministry of Housing and Urban Affairs, Ministry of Agriculture, Ministry of Health, NITI Aayog, and Central Pollution Control Board.

INDIA'S ARCTIC POLICY   /GS-III ENVIRONMENT & ECOLOGY

Context

- India's Arctic policy titled 'India and the Arctic: building a partnership for sustainable development' launched.

About India's Arctic policy

- India's Arctic policy would play an essential role in preparing the country for a future where humankind's biggest challenges, like climate change.
- Implementing India's Arctic policy will involve multiple stakeholders, including academia, the research community, business, and industry
- India's Arctic policy shall be implemented through an action plan, and an effective governance and review mechanism involving the inter-ministerial Empowered Arctic Policy Group.
- India's Arctic policy aims to promote the following agenda —
  - Strengthening national capabilities and competencies in science and exploration, climate and environmental protection, maritime and economic cooperation with the Arctic region. Institutional and human resource capacities will be strengthened within Government and academic, research and business institutions.
  - Inter-ministerial coordination in pursuit of India's interests in the Arctic.
  - Enhancing understanding of the impact of climate change in the Arctic on India's climate, economic, and energy security.
  - Contributing better analysis, prediction, and coordinated policymaking on the implications of ice melting in the Arctic on India's economic, military and strategic interests related to global shipping routes, energy security, and exploitation of mineral wealth.
  - Studying linkages between polar regions and the Himalayas.
  - Deepen cooperation between India and countries of the Arctic region under various Arctic forums, drawing expertise

from scientific and traditional knowledge.

- o Increase India's participation in the Arctic Council and improve understanding of the complex governance structures in the Arctic, relevant international laws, and geopolitics of the region.
- The National Centre for Polar and Ocean Research (NCPOR) in Goa, an autonomous institute under the Ministry of Earth Sciences, is the nodal institution for India's Polar research programme, which includes Arctic studies.

India and Arctic region

- India has a significant stake in the Arctic.
- It is one of thirteen nations holding **Observer status in the Arctic Council**, a high-level intergovernmental forum that addresses issues faced by the Arctic governments and the indigenous people of the Arctic.
- The country maintains that all human activity should be sustainable, responsible, transparent, and based on respect for international laws.
- In 2014 and 2016, India's first multi-sensor moored observatory in **Kongsfjorden**and the northernmost atmospheric laboratory in **Gruvebadet, NyAlesund**, were launched in the Arctic region. Until 2022, India has successfully conducted thirteen expeditions to the Arctic.

About Arctic Council

- The Arctic Council is a **high-level intergovernmental forum** that addresses issues faced by the Arctic governments and the indigenous people of the Arctic.
- The eight countries with sovereignty over the lands within the Arctic Circle constitute the members of the council: **Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden, and the United States.**
- Outside these, there are some observer states.
- The **1996 Ottawa Declaration** established the Arctic Council as a forum for promoting cooperation, coordination, and interaction among the Arctic states, with the involvement of the Arctic Indigenous communities and other Arctic inhabitants on issues such as sustainable development and environmental protection.
- Observer status is open to **non-Arctic states** approved by the Council at the Ministerial Meetings that occur once every two years. Observers have **no voting rights** in the Council.

GREAT INDIAN BUSTARD   *GS-III ENVIRONMENT & ECOLOGY*

Context

- As per the studies conducted by Wildlife Institute of India, there are around **150 Great Indian Bustards left** across the country which includes about **128 birds in Rajasthan and less than 10 birds each in the States of Gujarat, Maharashtra, Andhra Pradesh and Karnataka.**

Great Indian Bustard (GIB)

- GIB is one of the most **critically threatened species** in India, with less than 150 birds left in the wild.
- GIBs are **one of the heaviest flying birds** in India.
- Experts say only two districts in Rajasthan — **Jaisalmer and Barmer** — have a breeding GIB population in the wild.
- The bird can also be found in **very small numbers in Gujarat, Madhya Pradesh, Karnataka, Maharashtra and Andhra Pradesh.**

Steps taken by the Government for protection of Great Indian Bustards in the country

- A site for establishment of a Conservation Breeding Centre for the Great Indian Bustard has been identified at Kota District, Rajasthan, under the project '**Habitat Improvement and Conservation Breeding of Great Indian Bustard-an integrated approach'**.
- A satellite **conservation breeding facility** with

The GIB is among the heaviest birds that can fly

THE GREAT INDIAN BUSTARD
GIB has been put in the Red List of the International Union for Conservation of Nature

2011
The year the species was enlisted in the critically endangered category

DID YOU KNOW?
The Great Indian Bustard was proposed as a candidate for the National Bird of India and was under consideration.

The bird is hunted for its meat in Pakistan

PAKISTAN

It migrates from Rajasthan to Pakistan

150
The approx population of the species in 2018

↑ Height
3.3ft tall

Weight
18 kg

THREATS TO THE BIRD
- Annual and perennial non-timber crops
- Renewable energy
- Transportation and power lines
- Human intrusions and disturbance
- Invasive and other problematic species, genes & diseases

THE GIB IS RESTRICTED TO POCKETS IN
1. Andhra Pradesh
2. Gujarat
3. Karnataka
4. Maharashtra
5. Madhya Pradesh
6. Rajasthan

incubator, hatcher, chick rearing and housing for captive birds has been set up at Sam, **Jaisalmer, Rajasthan**.

- The Great Indian Bustard is **listed in Schedule-I of the Wild Life (Protection) Act, 1972,** thereby, according it highest degree of legal protection from hunting.
- Important habitats of Great Indian Bustards are designated as National Parks/Sanctuaries for their better protection.
- The species has been identified for conservation efforts under the component **'Species Recovery Programme' of the Centrally Sponsored Scheme (CSS)-Development of Wildlife Habitat**.
- The Ministry with financial support from National Authority for **Compensatory Afforestation Funds has sanctioned an outlay of Rs. 33.85 crores** for the duration of five years for the programme '**Habitat Improvement and Conservation Breeding of Great Indian Bustard-an integrated approach'** to build up captive population of Great Indian Bustard.
- Ministry has also constituted a Task Force for suggesting Eco- friendly measures **to mitigate impacts of power transmission lines and other power transmission infrastructures** on wildlife including the Great Indian Bustard.
- The Great Indian Bustard has been **included in the Appendix I of Convention on Migratory Species (CMS)** of the basis of proposal submitted by India. It was also the **mascot of the prestigious 13th CMS Conference of Parties held in Gandhinagar** giving wider publicity for the conservation of the species.

HIMALAYAN GRIFFONS VULTURES
GS-III ENVIRONMENT & ECOLOGY

Context
- 100 vultures-all Himalayan griffonsdie of suspected poisoning in Assam.

About Himalayan griffons
- The Himalayan vulture (Gyps himalayensis) or Himalayan griffon vulture is an **Old World vulturenative to the Himalayas and the adjoining Tibetan Plateau**.
- It is one of the **two largest Old World vultures and true raptors**.
- It is listed as **Near Threatened** on the IUCN Red List.
- Himalayan vultures are **susceptible to toxicity induced by diclofenac**, a drug whose residues in domestic animal carcasses has led to rapid declines in populations of other Gyps vultures across Asia.

Why vultures are important to protect nature?
- V**ultures, as carcass feeders**, play a significant ecological role. The scavenger birds **hold the key for a natural mechanism of infection control.**
- **V**ultures are the scavengers who do the **work of cleaning up, and keeping the ecosystem healthy.** D**espite feeding on infected carcass, vultures do not get infected.**
- The acids in their stomach are potent enough to kill the pathogen. Thus, the **chain of infection is broken.** It invisibly controls the spread of harmful pathogens causing deadly anthrax, cholera, foot and mouth disease, rabies and distemper.
- The birds also **prevent the contamination of water sources**, especially in the wild.
  - When animals die near watering hole, there is an imminent danger of contamination resulting in a quick spread of infections and mass death.
  - But vultures devour the carcasses in totality thereby preventing a tragic mishap.

Vultures in India
- **In India, we have nine species of vultures**
- One can spot the **long-billed vulture (Indian vulture), red-headed vulture, white-rumped vulture and the Egyptian vulture** in the Nilgiris Biosphere of the Western Ghats.
- Restoring the population is an uphill task as **vultures are slow breeders**.
- If they become extinct, there

Declining population India has nine species of vultures, six of which are found in Assam

Vultures of the genus 'Gyps'
- Oriental white-backed (Assam, critically endangered)
- Long-billed (critically endangered)
- Slender-billed (Assam, critically endangered)
- Himalayan griffon (Assam, winter visitor from Himalayas)
- Eurasian griffon (Assam, winter visitor from Himalayas)

Single representative species
- Egyptian
- Bearded
- Cinereous (Assam)
- King (Assam, critically endangered)

will be a huge ripple effect. Other **scavengers like rats and dogs may take over, temporarily, but with that comes problems like increased incidence of rabies.**

- According to scientific studies, a veterinary, non-steroidal, anti-inflammatory drug called **diclofenac** administered to cattle had **led to a catastrophic decline of vulture species in the South Asian region.**
- Though diclofenac is now banned, other equally harmful drugs are still in use.

BIRD'S EYE VIEW

9 RECORDED SPECIES: Oriental white-backed, long-billed, slender-billed, Himalayan, red-headed, Egyptian, bearded, cinereous and the Eurasian Griffon.

(4 CRITICALLY ENDANGERED, 1 ENDANGERED, 3 NEAR THREATENED)

THE CRISIS: A massive dip in vulture populations came into limelight in the mid-90s, and in 2004 the cause of the crash was established as diclofenac, a veterinary nonsteroidal anti-inflammatory drug.

WHAT NEXT AFTER 2006 PROJECT:

- Testing of nonsteroidal anti-inflammatory drugs on vultures, development of new NSAIDs
- Covering two more species in the breeding programme that earlier focussed on 3 critically endangered species
- Additional conservation breeding centres and four rescue centres planned across India
- Nationwide vulture survey once in four years

Vulture Conservation Programme

- The **Central Zoo Authority (CZA) and Bombay Natural History Society (BNHS)** established the Vulture Conservation Breeding Programme.
- The **Vulture Safe Zone programme** is being implemented at eight different places in the country. Attempts are made to secure the population of vulture by ensuring the minimum use of Diclofenac and an area is declared a Vulture Safe Zone only when no toxic drugs are found in undercover pharmacy and cattle carcass surveys, for two consecutive years, and the vulture populations are stable and not declining.
- The action plan **aims to carry forth what has already been set in motion by ensuring that sale of veterinary NSAIDs is regulated and livestock are treated only by qualified veterinarians**.
- Additional Conservation Breeding Centres are also being planned across the country, along with Vulture Conservation Centres with samples and information collected from the wild analysed and stored at these centres — one each in **Uttar Pradesh, Tripura, Maharashtra, Karnataka and Tamil Nadu.**
- Four rescue centres have been proposed for different geographical areas like Pinjore in the north, Bhopal in ventral India, Guwahati in Northeast and Hyderabad in South India.

BOMA CAPTURING TECHNIQUE ⁄⁄ GS-III ENVIRONMENT & ECOLOGY

Context

- Boma technique adopted for translocating deer from Keoladeo National Park in Rajasthan's Bharatpur district to improve the prey base in Mukundara Hills Tiger Reserve, situated 450 km away.

About Boma capturing technique

- **A boma is traditionally known throughout Africa as an enclosure, stockade or fort used to secure and protect people's livestock.**
- It involves luring of animals into an enclosure by chasing them through a funnel-like fencing. The funnel tapers into an animal selection-cum-loading chute, supported with grass mats and green net to make it opaque for animals, which are herded into a large vehicle for their transport to another location.
- It was **earlier utilised to capture wild elephants for training and service**. But presently make a **significant contribution in the prey base management.**
- Following its adoption in **Madhya Pradesh** in recent years, Boma has been put to practice **for the first time in Rajasthan.**

Mukundara Hills National Park

- It is a national park in Rajasthan, India.
- It was established in 2004 and consists of three wildlife sanctuaries: **Darrah Wildlife Sanctuary, National Chambal Sanctuary, and JawaharSagar Wildlife Sanctuary**.
- It is located in the **Khathiar-Gir dry deciduous forests**.
- The National Tiger Conservation Authority's (NTCA) technical committee has approved a proposal to shift two tigers from Ranthambhore National Park to Mukundara, which lost two tigers and two cubs in 2020 and is now left with an eight-year-old tigress.
- Mukandara Hills National Park was once **considered for the reintroduction of the Asiatic lion**.

PERMAFROST PEATLANDS

Context
- Permafrost peatlands in Europe and western Siberia might be approaching their tipping point faster than expected, a new study warned.

Peatlands
- These are a **class of wetlands**, which are ecosystems flooded with water.
- Waterlogged conditions limit microbial decay of dead plant materials rich in carbon dioxide. This **prevents the reintroduction of the gas into the atmosphere**.
- Peatlands, occupy **only 3 per cent of the global land surface, store twice as much carbon as all the world's forests**.
- Peatlands buried under frozen ground or permafrost exist as **permafrost peatlands**.
- They are found in the **northern parts of Alaska, Canada, Russia and parts of northern Europe**.

What is Permafrost?
- Defined as **ground (soil, rock and any included ice or organic material) that remains at or below zero degree Celsius for at least two consecutive** years.
- Permafrost is spread across an area of over 23 million square kilometers, covering about **15% of the land area of the globe.**

What will be the immediate effects as permafrost melts due to increasing global temperatures?
- The first impacts that are very rapid will **affect countries where roads or buildings were constructed on permafrost.** The Russian railways are an example.
- Releasing of **carbon dioxide**, and **methane**, which is **about 25 to 30 times more potent as a greenhouse gas than carbon dioxide.**
- The total quantity of carbon that is now buried in the permafrost is estimated at about **1500 billion tonnes and the top three meters of the ground has about 1000 billion tonnes.**
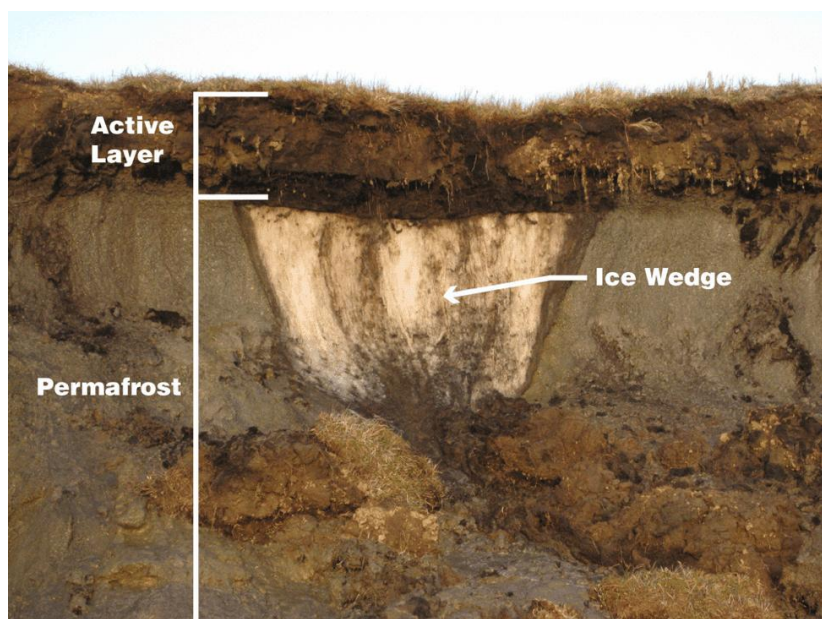
What can be done?
- **Strong climate change mitigation policies** can limit or reverse the rate and extent at which Europe and western Siberia can lose the right climatic conditions to support permafrost peatlands.
- There is need to map these remote region using advance technologies.
- Need to limit global greenhouse gas emissions.

MUGGER CROCODILES

Context
- Some 50 mugger crocodiles have died in the last one month in a prominent waterbody of Rajasthan's Kota city as a result of it being filled up for developmental activities.

About Kala Talab
- The Kala Talab ('black pool') is **connected via a canal to the Chambal river.**
- It is rich in aquatic life including mugger crocodiles, but has **not been declared a wetland**.
- However, the **rules of the Wild Life (Protection) Act, 1972**, are applicable here as it concerns a Schedule I animal.

Crocodiles in India
- There are three species of crocodilians—saltwater, Mugger and Gharial.

Mugger

- The mugger crocodile, also called the **Indian crocodile, or marsh crocodile, is found throughout the Indian subcontinent.**
- It is listed as **vulnerable by IUCN**.
- The mugger is mainly a **freshwater species**, and found in lakes, rivers and marshes.

Gharial

- The Gharial or fish eating crocodile is native to the Indian subcontinent.
- It is listed as **Critically Endangered** by IUCN.
- Small released populations are present and increasing in the rivers of the National Chambal Sanctuary,Katarniaghat Wildlife Sanctuary, Son River Sanctuary and the rainforest biome of Mahanadi in Satkosia Gorge Sanctuary, Orissa.
- The Gharial is found in only some rivers of India which include:
    - o Chambal
    - o Girwa
    - o Ganges
    - o Yamuna
    - o Kali
    - o Kosi
    - o Gandak

Saltwater Crocodile

- It is the **largest** of all living reptiles.
- It listed as **least concern** by IUCN.
- It is found throughout the **east coast of India.**
- **Odisha is the only State in India** having all three species gharial, mugger and saltwater crocodile.
- The State forest department began conservation of these crocodile species in 1975 by establishing three rearing centresTikarpada for gharials in Angul district, Ramatirtha for muggers in Mayurbhanj and Bhitarkanika for saltwater crocodiles in Kendrapara district.

CROC ESTIMATES

MUGGER CROCODILE: Muggers are reported from over ten states of the country. The wild population is tentatively estimated to be 2,500-3,500 individuals in India

SALTWATER CROCODILE: This species inhabits the eastern coast of India. Around 1,000 adults are estimated to be surviving in India

GHARIAL: It is estimated that there are just 500-550 adult individuals of this IUCN rated critically endangered species currently surviving in the country. It is found in the Ganges, Chambal, Ramganga and Mahanadi

HOW TO DISTINGUISH

Gharials are said to be easy to distinguish between all the crocodile species that are found in India. It has long and slender jaws and a ghara (pot like structure). Mugger crocodile also known as marsh crocodile, is a more broad-snouted than the saltwater crocodile.

ALLIGATOR VERSUS CROCODILE

COMPARING THE 2 CROCODILIANS

ALLIGATOR	CROCODILE
U-shaped rounded snout	V-shaped rounded snout
Live in freshwater	Live in freshwater and saltwater
Have wide jaws; upper jaw is wider than the lower jaw	Have narrow jaws; upper and lower jaws are of the same size
Only upper teeth is visible when the mouth is closed	Both upper and lower teeth is visible when the mouth is closed
No functioning salt glands	Functioning salt glands
Sensory pits on scales around the jaw.	Sensory pits in every scale of the body

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IPCC'S SIXTH ASSESSMENT REPORT

GS-III ENVIRONMENT & ECOLOGY

Context

- The second part of the IPCC's Sixth Assessment Report released.

IPCC's Assessment Report

- The Assessment Reports, the first of which had come out in 1990, are the **most comprehensive evaluations of the state of the earth's climate**.
- This **Geneva-based** Intergovernmental Panel on Climate Change (IPCC) Assessment reports **gives the periodic status check that are most widely accepted scientific view of the state of the Earth's climate.**
- Hundreds of experts go through every available piece of relevant, published scientific information to prepare a common understanding of the changing climate.
- The four subsequent assessment reports, each thousands of pages long, **came out in 1995, 2001, 2007 and 2015**. These have **formed the basis of the global response to climate change**.
- The **fourth assessment** report, which came out in 2007, won the IPCC the **Nobel Peace Prize**.
- IPCC reports form the **scientific basis on which countries across the world build their policy responses to climate change.** These reports, on their own, **are not policy prescriptive**: They do not tell countries or governments what to do.
- The **First Assessment Report** led to the setting up of the **UN Framework Convention on Climate Change**, the umbrella agreement under which international negotiations on climate change take place every year.

PREVIOUS IPCC ASSESSMENT REPORTS: HIGHLIGHTS

FIRST REPORT, 1990
- Emissions resulting from human activities are increasing atmospheric concentrations of greenhouse gases
- Global temperatures have risen by 0.3°–0.6°C in 100 years. In business-as-usual scenario, likely to increase by 2°C compared to pre-industrial levels by 2025, and 4°C by 2100
- Sea-level likely to rise 65 cm by 2100
- Report formed basis for negotiation of UN Framework Convention on Climate Change in 1992

SECOND REPORT, 1995
- Revises projected rise in global temperatures to 3°C by 2100, and sea-level rise to 50 cm
- The scientific underpinning for Kyoto Protocol in 1997

THIRD REPORT, 2001
- Revises predicted temperature rise to 1.4°–5.8°C by 2100 compared to 1990
- Rainfall to increase; sea-level likely to rise by 80 cm from 1990 by 2100.
- Frequency, intensity and duration of extreme weather events to increase
- Presents new and stronger evidence

to suggest most of warming attributable to human activities

FOURTH REPORT, 2007
- Greenhouse gas emissions rose by 70% between 1970 and 2004
- Atmospheric concentrations of CO_2 in 2005 (379 ppm) the highest in 650,000 years
- In worst-case scenario, global temperatures could rise 4.5°C by 2100 from pre-industrial levels; sea-levels could be 60 cm higher than in 1990
- Wins 2007 Peace Nobel for IPCC
- Report is the scientific input for the 2009 Copenhagen climate meeting

FIFTH REPORT, 2014
- Temperature rise by 2100 could be 4.8°C from pre-industrial times
- Atmospheric concentrations of CO_2, CH_4 and N_2O "unprecedented" in last 800,000 years
- More frequent and longer heat waves "virtually certain"
- "Large fraction of species" face extinction
- Forms scientific basis for negotiations of Paris Agreement in 2015

- The **Second Assessment Report** was the basis for the **1997 Kyoto Protocol**.
- The **Fifth Assessment Report** of 2014, guided the **Paris Agreement**.
  - The Paris Agreement, seeks to keep the rise in global temperatures "well below" 2°C from pre-industrial times, while "pursuing efforts" to limit it to 1.5°C.

IPCC's sixth Assessment Report

- The **first part** of the report was centred around the **scientific basis of climate change**.
- The **second part** talks about **climate change impacts, risks and vulnerabilities, and adaptation options.**
- The **third and final part** of the report will look into the **possibilities of reducing emissions**.

Key findings

- It has warned of multiple climate change-induced disasters in the next two decades even if strong action is taken to reduce the emissions of greenhouse gas emissions.
- Over 3.5 billion people, over **45% of the global population, were living in areas highly vulnerable to climate change.**
- **India as one of the vulnerable hotspots**, with several regions and important cities facing very high risk of climate disasters such as **flooding, sea-level rise and heat-waves.**
- For the **first time**, it has made an **assessment of regional and sectoral impacts of climate change**. It has included risks to, and vulnerabilities of, mega-cities around the world.
  - For example, Mumbai is at high risk of sea-level rise and flooding, while Ahmedabad faces serious danger of heat-waves.
  - Several cities, including Chennai, Bhubaneshwar, Patna and Lucknow, approaching dangerous levels of heat and humidity.
- For the **first time**, the IPCC report has looked at the **health impacts of climate change**. It has found that **climate change is**

increasing vector-borne and water-borne diseases. Deaths related to circulatory, respiratory, diabetic and infectious diseases are likely to increase with a rise in temperature.

- It has found **gaps in adaptation** due to **lack of funds and political commitment** and **absence of reliable information and a sense of urgency.**

PLASTIC POLLUTION
GS-III ENVIRONMENT & ECOLOGY

Context
- Representatives from 175 countries at fifth session of the United Nations Environment Assembly (UNEA-5.2) agreed **to end plastic pollution and formulate an internationally binding treaty by 2024.**

More about news
- The resolution establishes an **Intergovernmental Negotiating Committee** to complete a draft global legally binding agreement by the end of 2024
- The INC is expected to present a legally binding instrument, which would reflect <u>diverse alternatives to address the full lifecycle of plastics, the design of reusable and recyclable products and materials and the need for enhanced international collaboration to facilitate access to technology, capacity building and scientific and technical cooperation.</u>
- Under the legally binding agreement, <u>countries will be expected to develop, implement and update national action plans reflecting country-driven approaches to contribute to the objectives of the instrument.</u>
- They will be expected to promote national action plans to work towards the prevention, reduction and elimination of plastic pollution and to support regional and international cooperation.
- INC's **mandate does not grant any stakeholder a two-year pause.** UNEP will work with any willing government and business across the value chain to shift away from single-use plastics, as well as to mobilise private finance and remove barriers to investments in research and in a new circular economy.

What is Plastic Pollution?
- Plastic pollution occurs when **plastic has gathered in an area and has begun to negatively impact the natural environment** and create problems for plants, wildlife, and even the human population.
- This includes killing plant life and posing dangers to local animals.
- Plastic is an incredibly useful material, but it is not biodegradable.

Various Causes of Plastic Pollution
- As plastic is **less expensive**, it is one of the most widely available and overused items in the world today.
- **Rapid urbanization and population growth** increase the demand of cheap plastics.
- Since it is an **affordable and durable material**, it is utilized in every other way possible, from packaging materials to plastic bottles and containers, straws to plastic carry bags.
- Plastic takes **400 years and even more to Decompose**. The decomposition rate of plastic typically ranges from 500 to 600 years, depending on the type.
- **Abandoned Fishing Nets**
- Disposal of plastic is often **mismanaged**; it ends up in landfills.
- **Burning plastic is incredibly toxic** and can lead to harmful atmospheric conditions and deadly illnesses.

Serious Effects of Plastic Pollution
- **Negative Effects on Human Health:** Microplastics entering the human body via direct exposures through ingestion or inhalation can lead to an array of health impacts, including inflammation, genotoxicity, oxidative stress, apoptosis, and necrosis, which are linked to an array of negative health outcomes including cancer, cardiovascular diseases.
- **Plastic-contaminated seafood**: Scientists have found micro plastics in 114 marine species, and around one-third of these end up on our plates.
- **Upsets the Food Chain**: Because it comes in sizes large and small, polluting plastics even affect the world's tiniest organisms, such as plankton.
- **Groundwater Pollution:** Most of the litter and pollution affecting the world's oceans and groundwater comes from plastics.
- **Land Pollution:** When plastic is dumped in landfills, it interacts with water and forms hazardous chemicals. When these chemicals seep underground, they degrade the water quality. The wind carries and deposits plastic from one place to another, increasing the land litter.
- **Air Pollution:** Burning of plastic in the open air leads to environmental pollution due to the release of poisonous chemicals.
- **Economic impacts:** Plastic pollution costs **$13 billion in economic damage** to marine ecosystems per year. This includes losses to the **fishing industry and tourism, as well as the cost to clean up beaches.** Economic costs include those linked to **clean-up**

operations, litter removal, the repair and replacement of damaged vessels and gear, reduced fishing catches, and a decline in coastal tourism and impact on related industries.

- **Marine life:** The most visible and disturbing impacts of marine plastics are the **ingestion, suffocation and entanglement** of hundreds of marine species. Marine wildlife such as seabirds, whales, fishes and turtles, **mistake plastic waste for prey, and most die of starvation as their stomachs are filled with plastic debris.**

Plastic Waste Management Rules, 2016
- It aims to **increase minimum thickness of plastic carry bags from 40 to 50 microns**.
- Expand the jurisdiction of applicability from the municipal area **to rural areas**, because plastic has reached rural areas also.
- **Extended Producer Responsibility**: To bring in the responsibilities of producers and generators, both in plastic waste management system and to introduce collect back system of plastic waste by the producers/brand owners, as per extended producers responsibility
- **Introduced collection of plastic waste management fee** through pre-registration of the producers, importers of plastic carry bags/multilayered packaging and vendors selling the same for establishing the waste management system
- Promote **use of plastic waste for road construction** as per Indian Road Congress guidelines or energy recovery, or waste to oil etc. for gainful utilization of waste and also address the waste disposal issue.

What are microplastics?
- Microplastics are **plastic debris smaller than 5mm in length**, or about the size of a sesame seed.
- They come from a variety of sources, one of them is when larger pieces of plastic degrade into smaller pieces, which are difficult to detect.

Why is microplastic pollution especially harmful?
- The **durability of plastic**, which implies that plastic can take hundreds to thousands of years to decompose depending on the type of plastic and where it has been dumped.
- In the oceans, plastic pollution **impacts marine life, ocean health, coastal tourism and even human health.**
- Over the past few years, various news reports have shown that **marine animals such as whales, seabirds and turtles unknowingly ingest plastic and often suffocate.**
- For humans, too, marine plastic pollution is harmful if it **reaches the food chain**. For instance, microplastics have been found in **tap water, beer and even salt**.
- One of the first studies to estimate plastic pollution in human ingestion that was published in June 2019 said that an average person eats at least **50,000 particles of microplastic each year**.

OUR OCEANS ARE INUNDATED WITH PLASTIC

- **8mn** metric tonnes of plastic leak into oceans worldwide every year
- **323 mn** tonnes plastic produced in 2015 = 900 Empire state buildings
- **5-13mn** tonnes of plastic entered the marine environment in **2010**
- **$13 bn** tonnes the cost of the environment damage caused by plastics
- About **60-90 %** of marine litter is made up of plastic -- bags, polymers, fishing gear, food and beverage containers
- **1,200** total affected species and the number is rising

In India, seas near Mumbai, Kerala and the Andaman and Nicobar Islands among the worst polluted in the world

Measures taken by government
- India has pledged to **ban all single-use plastics by 2022.**
- All offices of central and state governments and major PSUs have been told to prohibit single-use plastic products.
- India has **banned imports of solid plastic waste**.
- India has passed the Plastic Waste Management Rules, 2016 and introduced the **Extended Producer Responsibility.**

Way Forward
The 3R's +E Strategy
- **Reduce:** To efficiently reduce plastic pollution, there is an evident need of reducing our usage of plastic.
- **Reuse:** Many plastic items can be reused or used for different purposes. Before throwing plastic items, it is important to consider how they can be reused.
- **Recycle:** Plastic recycling consists of collecting plastic waste and reprocessing it into new products, to reduce the amount of plastic in the waste stream.
- **Educate:** Another crucial solution is education in order to increase awareness and behavioral change.
Legal wayout
- **Law can be framed** and used to tackle plastic pollution and support a circular plastics economy.
- **Policy shifts** can reduce plastic pollution by incentivizing changes in both business and consumer behavior, as well as in

plastic design, alternatives and recycling.

- Governments can also **impose taxes** to deter the production or use of single-use plastics, or **offer tax breaks, subsidies and other fiscal incentives to encourage alternatives to single-use plastic products**.
- **Product standards, certifications and labeling requirements can be designed to educate the public on the environmental impacts of plastic**, and on the health and safety hazards involved in their production and use.
- **Extended Producer Responsibility (EPR) programs** can ensure that manufacturers maintain responsibility for single-use plastic products throughout the whole life cycles of those products.

Conclusion

- There is no silver bullet to solving the world's plastic problem. It will require governments at both the national and sub-national levels to tackle the regulation of single-use plastic products, determining what policy approaches they want to use and what type of legislation will support their objectives.

STATE OF INDIA'S ENVIRONMENT REPORT 2022   *GS-III   ENVIRONMENT & ECOLOGY*

Context

- Union minister of environment, forests and climate change, released Down To Earth's Annual State of India's Environment Report 2022 at the Anil Agarwal Dialogue organised by Delhi-based non-profit Centre for Science and Environment (CSE).
- The Anil Agarwal Dialogue is a four-day annual conclave of journalists.

The SoE 2022 report

- It is published **every year by Down To Earth** and **Centre for Science and Environment**.
- It is a comprehensive documentation of the year's major developments and happenings in a wide range of subjects and issues — ranging from climate change, waste management, and the pandemic to air and water pollution, industrial contamination and food.
- The report has a comprehensive set of infographics and statistical analysis of **how India's states are faring in meeting the Sustainable Development Goals (SDGs).**

Key highlights of State of India's Environment (SoE) 2022 report

- The 2022 report states that **India is behind on at least 17 key government targets that have a deadline in 2022** and the slow progress made so far means that the deadlines are unlikely to be met.
- It highlighted three extremely critical issues that confronts the nation today are **climate change, desertification, and the sustainability-affordability linkage**
- India has slipped three spots from last year's **117 to rank 120** on the 17 Sustainable Development Goals.
- **Uttar Pradesh and Bihar** are below the national average in 11 and 14 SDGs, respectively. Kerala, Tamil Nadu and Himachal Pradesh fared best.
- With respect to **SDG 1 (poverty eradication),** six of the poorest performers include Bihar, Jharkhand, Odisha, Madhya Pradesh, Uttar Pradesh and Chhattisgarh.

STATE's REPORT CARD
Poverty Eradication Score **41 out of 100**
Rank **19th among 21 states**
Odisha among 6 poor performers with a score less than 50
Odisha had scored 59 in 2018 and 47 in **2019**

- Meghalaya, Assam, Gujarat, Maharashtra and West Bengal — also feature in the list of worst performers as far as **ending hunger and malnutrition is concerned (SDG 2).**
- In **water and sanitation (SDG 6),** the performance of Delhi, Rajasthan, Assam, Punjab and Arunachal Pradesh is a cause for concern .
- **SDG 7 —** related to **clean and affordable energy** has seen an above average performance, with most states achieving the target.
- In **climate action (SDG 13)**, 13 states and two Union territories score below the national average. Odisha tops the good performance chart, followed by Kerala; Jharkhand and Bihar bring up the rear.
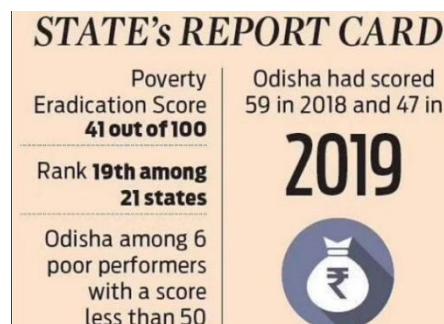
Sustainable Development Goals target

- SDG targets have been set in a wide array of fields and sectors—from **economy and employment, to housing, agriculture, land records, sustainable environment and energy.**
- **Economy:** The target for the economy is to raise the gross domestic product to nearly $4 trillion by 2022-23. The economy has **largely shrunk during the COVID-19 pandemic**, making it even more difficult to meet the deadline.
- **Employment:** The target is to increase the female labour force participation rate to at least 30 per cent by 2022-23; it stood at 17.3 per cent in January-March 2020.
- **Housing:** The targets are to construct 29.5 million housing units under Pradhan MantriAwasYojana (PMAY)-Rural and 12

million units under PMAY-Urban; only about 46.8 per cent and 38 per cent respectively of the targets under 'Housing for All' have been achieved.

- **Provision of drinking water:** The target is to provide safe piped drinking water to all by 2022-23; only 45 per cent of the target has been achieved.
- **Agriculture:** The target is to double farmers' income by 2022. While the average monthly income of an agricultural household has increased to Rs 10,218 from Rs 6,426. The share of income from crop production in the average monthly income of an agricultural household has, in fact, dropped — to 37.2 per cent in 2018-19, from 48 per cent in 2012-13.
- **Digitisation of land records:** Another target is to digitise all land records by 2022. While states like Madhya Pradesh, West Bengal and Odisha have made good progress, states like Jammu and Kashmir, Ladakh and Sikkim languish at 5 per cent, 2 per cent and 8.8 per cent digitisation of land records, respectively. Overall, **14 states have witnessed deterioration in the quality of land records since 2019-20.**
- **Air pollution:** The target is to bring down PM2.5 levels in Indian cities to less than 50 microgramme per cubic metre (µg/m3). In 2020, when vehicular movement was restricted due to the pandemic, 23 of the 121 cities monitored for PM2.5 exceeded 50 µg/m3.
- **Solid waste management:** The target is to achieve 100 per cent source segregation in all households. The overall progress is 78 per cent; and while states like West Bengal and Delhi are woefully behind. Manual scavenging is targeted for eradication, but India still has 66,692 manual scavengers.
- **Increasing the forest cover:** The target is to increase it to 33.3 per cent of the geographical area, as envisaged in the National Forest Policy, 1988. By 2019, 21.67 per cent of India was under forest cover.
- **Energy:** The target is to achieve 175 GW of renewable energy generation capacity by 2022. Only 56 per cent of this target has been achieved thus far.

Context

- Only a few states had enacted National Floodplains Zoning Policy. Floodplain delineation and demarcation are yet to be undertaken by the States – Ministry of Jal Shakti said in Rajya Sabha.

Background: Status of Floods in India

NDRF Report

- 40 million hectares (10% of the land mass)in India is prone to floods.
- On an average every year, 7.5 million hectares of land is affected, 1600 lives are lost and more than Rs. 1,800 croresis incurred.

Statistics

- Between 1970 and 2004, 3 floods occurred per year on an average. However, between 2005 and 2019, the yearly average rose to 11.19 districts were affected annually on an average until 2005. After 2005, the number jumped to 55.

- 2017 analysis suggests that 4.48 million Indians are exposed to riverine floods, the highest in the world.
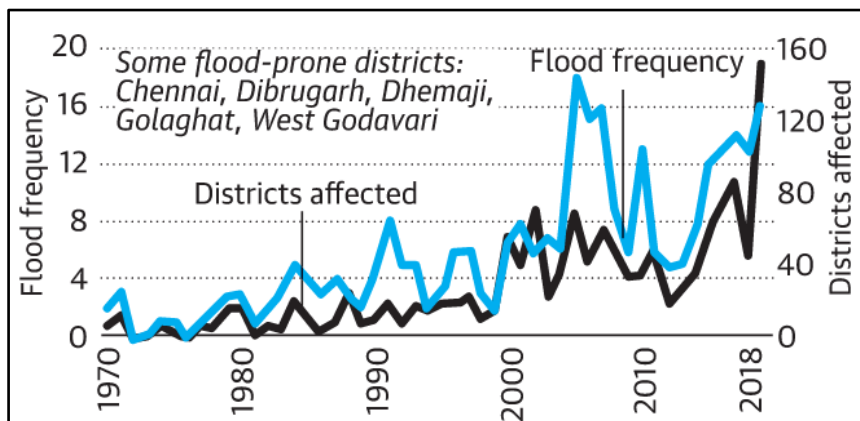
Floodplains

- Floodplains are land areas adjacent to rivers and streams that are subject to recurring inundation and floods.
- Floodplains are therefore "flood-prone" and are hazardous to development activities if the vulnerability of those activities exceeds an acceptable level.

Flood-plain zoning

- Flood-plain zoning measures aim at **demarcating zones or areas likely to be affected by floods of different magnitude or frequencies and probability levels. It is hazard mapping to be precise.**
- After demarcation it is important to **specify the types of permissible developments/constructions in these zones**, so that whenever floods actually occur, the damage can be minimized.
- Flood Plain Zoning has been **recognized by NDMA as an effective non-structural measure for flood management.**
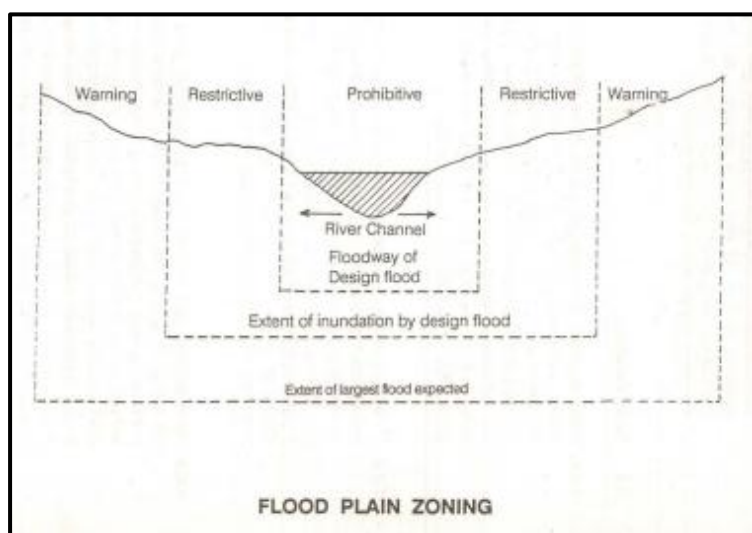
Steps taken in this regard

Ministry of Water Resources

- In 1975 it had issued a draft Model Bill on floodplains and asked the states to frame legislation.

Rashtriya Barh Aayog and CWC

- Rashtriya Barh Aayog (1980) recommended that flood plain management should be undertaken and legislation should be enacted.
- Accordingly, Central Water Commission (CWC) prepared guidelines for flood plain zoning and a model bill in 1975 was circulated.
- **Only** the states of **Manipur, Rajasthan, Uttarakhand and erstwhile State of Jammu & Kashmir** had enacted the legislation. And even in these states, implementation is virtually absent.

Flood Risk Maps

- To help the States to properly demarcate the flood prone areas, CWC through Survey of India, **initiated preparation of flood risk maps.**

NDMA Guidelines

- NDMA suggested that <u>areas that are likely to be affected by floods in a frequency of 10 years should be reserved for green areas like parks, gardens etc and concrete structures should not be allowed there.</u>

National Water Policy of 2012

- Formulated by the Ministry of Water Resources, it specified preparation of digital elevation models and frequency-based Flood inundation maps. But <u>Morphological studies of rivers have not been done.</u>

National Mission for Clean Ganga

- NMCG has advised all states in Ganga basin for demarcation, delineation and notification of river flood plains and removal of encroachment from river bed/floodplain of the river Ganga and its tributaries in adherence to the River Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016.

Ministry of Jal Shakti

- Ministry of Jal Shakti has continuously impressed upon the States the need to adopt flood plain zoning approach. However, <u>delineation and demarcation of flood plains is yet to be undertaken.</u>

NGT orders

- The tribunal, in **Manoj Mishra Vs Union of India**2015 case relating to the issue of Yamuna and Ganga rivers had ordered demarcation of the floodplains and directed that floodplain zoning should be taken with the reference of flood once in 25 years.
- In 2017, the NGT in **MC Mehta Vs Union of India** case had also talked about categorisation of different floodplain zones into zones like <u>No Development Zone, Regulated Zone and a Free Zone for Development while hearing the issues related to the Ganga river.</u>

2016 Draft River Regulation Zone Rules

- The rules proposed <u>demarcation of active floodplains, high flood lines, and high to low impact zones, and then limiting development within these zones</u>. MoEFCC circulated the rules.

The ground-level implementation of these had always remained far from adequate.

Implementation Challenges

Reluctance of States

- The land on riverbanks and even waters are state subject. <u>Water:</u> Entry 17 of List II (State List); <u>Land:</u> entry 18 of List II.
- Rules and guidelines have been opposed by many states, because of the political and practical challenges.

> Maharashtra deleted its River Regulation Zone policy in 2015 – a decision now being protested by residents near the Ulhas River – and decided to build a new airport in Navi Mumbai on low-lying land.

Livelihood Destabilization

- There are concerns about existing habitations and economic activities on riverbanks being destabilised.
- Population pressure and want of alternative livelihood systems are other roadblocks.

Lack of clarity in terms of Constitutional provisions

- Flood control and mitigation are not directly mentioned in any of the three legislative lists of Seventh Schedule.

Impact

- NDMA observe that "the reluctance of states to enact zoning has <u>led to increase in encroachment on floodplains, sometimes authorised and duly approved by planning authorities".</u>
- Floodplain encroachments had been a <u>prime reason for the floods in Kerala and Pune</u> - State and Central Pollution Control Board Report.
- Reckless construction over wetlands, floodplains, or riverbeds – natural features that absorb and mitigate heavy rainfall or a river's overflow – <u>caused + aggravated the floods in Mumbai in 2005 and 2017, Uttarakhand in 2013, Srinagar in 2014, Chennai in 2015 and Kerala in 2018.</u>

International Guidelines and Examples

UN Guidelines

- UN guidelines on flood management <u>call for "wise use" of floodplains</u>. They suggest wetlands, agriculture and green reserves along water courses that will not only act as buffers against flood but nurse fisheries and enable storage and recharge of groundwater. In less risky zones, <u>building codes would be needed to reduce flood damage to homes</u>.

World Meteorological Organisation Guidelines

- The WMO promotes integrated flood management that includes land use planning in its arsenal of anti-flood measures.

Flood management in US

- US, has long managed floods through hazard mapping and public insurance – cover is mandatory for mortgages in 100-year flood zones.

Europe

- In Europe, a 2007 directive is encouraging countries to expand beyond the traditional flood control of dams and dykes to include more natural measures, including **restoring floodplains to "give rivers more space".**
- In European countries and the United States **insurance firms charge a higher premium on flood insurance for people living closer to the floodplains** and lesser for those living away from the vulnerable sites.

Need of the hour

- **Going beyond the centre-state jurisdiction issues** and opting for a river basin approach in implementing flood plain zoning - Observer Research Foundation (ORF) 2020 Study.
- **Stringent legislation** to govern the Indian river floodplains. Concrete law protecting it from encroachment.
- A **long-term plan that goes beyond piecemeal measures** like building embankments and dredging to control floods.
- **An integrated basin management plan** that brings all the river-basin sharing countries as well Indian states on board.
- Compensating those displaced, their rehabilitation and enabling alternate sources of livelihood – a complex, long-term but sustainable management requires **strong political will.**
- **Local community participation** can help overcome some of the challenges. So will **flood hazard mapping and publication**. Example: Builders can be forced to publicize the flood risk rating of their projects along with carpet area and parking.
- **Amendment of laws for allowing higher insurance premiums for properties lying within floodplains**, to reflect the risks of living in such vulnerable areas.

Final Thoughts

- Preserving natural land use – forests, river banks, wetlands – is often painted as antithetical to development. This is a false dichotomy that is not only outdated but dangerous in an age of extreme weather.
- Climate change is showing us the economic costs of ignoring the environment, the limits to our ability to bind and control nature, and the advantages of working with natural systems rather than against them.

LVIV

Context

- Several missiles hit an aircraft repair plant in the western Ukrainian city of Lviv, destroying its building.

Details

- **About:** Lviv is **a city in Western Ukraine**. It is **one of the main cultural centres of Ukraine.**
- **Location:** It **lies on the edge of the Roztochia Upland**, east of Polish border and **north of the eastern Carpathian Mountains.**
- **River: River Poltva flows through the city** directly beneath Lviv's central street.
- **Climate:** Lviv's **climate is humid continental (Köppen climate classification Dfb)** with cold winters and warm summers.

WEDDEL SEA

Context

- The Endurance, the lost vessel of Antarctic explorer Sir Ernest Shackleton, was found at the bottom of the Weddell Sea.

About

- The Weddell Sea **is part of the Southern Ocean and contains the Weddell Gyre**.
- Its land boundaries are defined by the bay formed from the **coasts of Coats Land and the Antarctic Peninsula**.
- The **easternmost point is Cape Norvegia at Princess Martha Coast, Queen Maud Land**.
- Various ice shelves, including **the Filchner-Ronne Ice Shelf, fringe the Weddell sea.**

CHILKA LAKE

Context

- The Odisha government has proposed to ban movement of mechanised fishing boats in Mangalajodi area on the banks of Chilika lake — an important bird area (IBA) — in order to provide migratory birds an undisturbed ecosystem for six months ever year.

Chilika Lake

- **About**: Chilika Lake is a shallow bar-built estuary with large areas of mudflats.
- **Geography and location:** Chilika Lake is a **brackish water lagoon, spread over the Puri, Khurda and Ganjam districts of Odisha**. The western and southern margins of the lake are **fringed by the Eastern Ghats hill range.**It is **situated at the mouth of the Daya River,** flowing into the Bay of Bengal.
- **Islands:** The six major islands of the lake are **Parikud, Phulbari, Berahpura, Nuapara, Nalbana, and Tampara.**
- **Size:** It covers an area of **over 1,100 km2**. It is the **biggest lake of India after Kerala's Vembanad Lake.**

This lake is the **largest coastal lagoon in India and the largest brackish water lagoon in the world** after The New Caledonian barrier reef in South Pacific Ocean. It is the **largest salt water lake in India.**
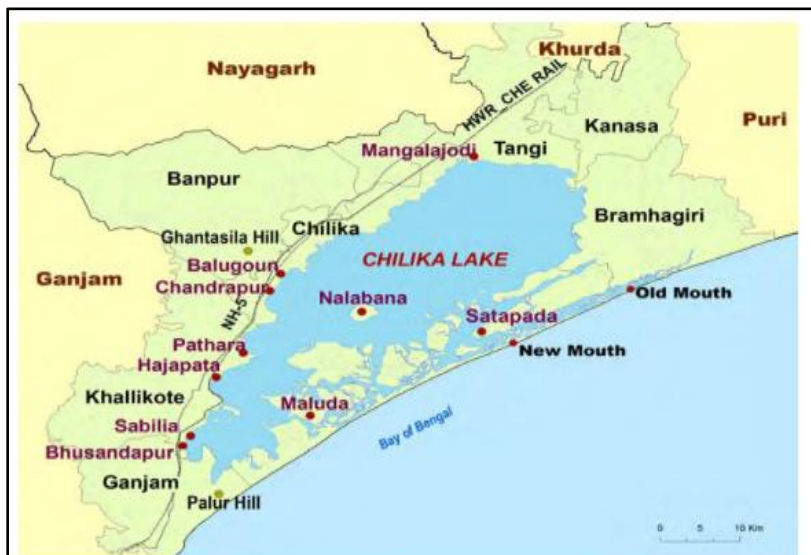
Figure-1
Geographical location of Chilika Lake, Odisha, India

Note: Largest inland salt water lake- Sambhar lake of Rajasthan.

- **Recognition:** It has been listed as a **tentative** UNESCO World Heritage site. In **1981**, Chilika Lake was designated **the first Indian wetland of international importance under the Ramsar Convention**.
- **Important Bird Area:** It is the **largest wintering ground for migratory birds on the Indian sub-continent**. The lagoon hosts over 160 species of birds in the peak migratory season. Birds from as far as the **Caspian Sea, Lake Baikal, Aral Sea** and other remote parts of Russia, Kirghiz steppes of Kazakhstan, Central and southeast Asia, Ladakh and Himalayas come here. These birds **travel as much as 12,000 km to reach Chilika Lake.**
- **Climate:** A **tropical monsoon climate** prevails over the drainage basin area of the lake. The lake experiences **South–west and North-east monsoons.**

ZAPORIZHZHIA POWER PLANT

Context

- Russian forces in Ukraine have been shelling the Zaporizhzhia power plant.

Details

- The Zaporizhzhia nuclear power plant, built between 1984 and 1995, is the **largest nuclear power plant in Europe and the ninth largest in the world.**
- It **produces one-fifth of Ukraine's electricity**.
- The plant is located in **south-east Ukraine in Enerhodar on the banks of the Kakhovka reservoir on the Dnieper river.**
- It is about 200km from the contested Donbas region and 550km **south-east of Kyiv.**

Fig: Nuclear Power plants in Ukraine

GS-I
CULTURE & HISTORY

Pandrethan temple

Context

- The Chinar Corps had adopted the ancient excavation site of Pandrethan within the cantonment and after restoration, had named it 'Dharohar'.

About Pandrethan temple

- It is an **8th century heritage site** situated in Srinagar's Badamibagh.
- The site near Shiva temple was excavated by the British-era ASI in 1913, yielding several **Buddhist sculptures and rubbles of a Chaitya assignable to the 8th century.**
- It has been preserved and rejuvenated by the Chinar Corps of the Indian Army.
- The site hosts several excavated figurines tracing back to the 2nd century –two large monolithic rock shiva lingams, seven Gandhara-style sculptures and a huge rock carving of the feet of a monolithic statue.
- Pandrethan is an **ancient stone temple dedicated to Lord Shiva** that lies within a square shaped tank to the **north of Jhelum River**.
- The temple, also once known as Meru Vardhana Swami, was built by **Meru, minister to King Partha who ruled Kashmir from 921-931 AD.**
- The roof of the temple was carved out of a single piece of rock and known for its impressive designs and illustrations.
- The domed roof and arches of the temple are the **best examples of classic Kashmiri architecture**.

Pal-Dadhvan massacre

Context

- Gujarat government marked 100 years of the Pal-Dadhvav killings, calling it a massacre "bigger than the JallianwalaBagh".

About the Pal-Dadhvav massacre

- It took place on **March 7, 1922**, in the Pal-Chitariya and Dadhvaav villages of Sabarkantha district, then part of Idar state.
- On the day of Amalki Ekadashi, a major festival for tribals, villagers from Pal, Dadhvav, and Chitariya had gathered on the banks of river **Heir as part of the 'Eki movement'**, led byMotilalTejawat.
- The movement was **to protest against the land revenue tax (lagaan) imposed on the peasants by the British and feudal lords.**
- The **Mewad Bhil Corps** (MBC), a paramilitary force raised by the British heard of this gathering and reached the spot.
- The MBC commanding officer, **HG Sutton**, ordered his men to fire upon them. Nearly 1,000 tribals (Bhils) fell to bullets.
- While the British claimed some 22 people were killed, the Bhils believe 1,200-1,500 of them died.
- In the Jallianwala Bagh massacre of April 13, 1919, **500-1,000 people** are said to have been killed after General Reginald Edward Dyer's forces opened fire on peaceful protesters.

Santhali Sohrai murals

Context

- The Santhali communities of Odisha and Jharkhand are changing their ways of painting Sohrai murals.

Sohrai Khovar Painting

- It is a **traditional and ritualistic mural art** being practised by local tribal women during local harvest and marriage seasons using local, naturally available soils of different colours in the area of Hazaribagh district of **Jharkhand.**
- The style features a **profusion of lines, dots, animal figures and plants**, often representing religious iconography.
- In 2020, **Jharkhand received a Geographical Indication tag** for its Sohrai art particularly for the murals painted by women in

Hazaribagh district who do not belong to the Santhal tribe.

- The murals of Hazaribagh are more primordial with different motifs, whereas the **SanthaliSohrai art features only geometric shapes.**
- Women of Hazaribagh only use earth colours — red, black and white — for their murals.

Savitribai and Jyotirao Phule

Context

- Governor Bhagat Singh Koshyari has recently received flak for his remarks on the social reformist couple Jyotirao and SavitribaiPhule.

Mahatma Jyotirao and Savitribai Phule

- The social reformist couple work towards **female education and empowerment**, and towards **ending caste- and gender-based discrimination.**
- They strove to **oppose child marriage** and also **organised widow remarriages.**
- Savitri at the age of ten was married to Jyotirao, who was thirteen years old at the time. Jyotirao started to educate his wife at home and trained her to become a teacher.
- In 1848, the Phules**started a school for girls**, Shudras and Ati-Shudras in Poona.
- In 1853, Jyotirao-Savitribai opened a **care centre for pregnant widows** to have safe deliveries and to end the practice of infanticide owing to social norms.
- The **BalhatyaPratibandhakGriha** (Home for the Prevention of Infanticide) started in their own house in Pune.
- The **SatyashodhakSamaj (The Truth-Seeker's Society)** was established on September 24, 1873 by Jyotirao-Savitribai. The Samaj advocated for social changes, including **economical weddings, inter-caste marriages, eradication of child marriages, and widow remarriage.**
- The Phules were **popularising female education, establishing an institutional structure of schools in India.**
- In Bhida Wada school established by SavitribaiPhule, she hired **Fatima Begum Sheikh,** who was the sister of Jyotiba's friend Usman Sheikh. **Fatima became the first Muslim woman teacher in the country.**

About Mahatma Jyotiba Phule

- He was the **first to establish an orphanage for the underprivileged**.
- He was an Indian social activist, thinker, anti-caste social reformer and writer from Maharashtra.
- His work extended to many fields, including **eradication of untouchability and the caste system and for his efforts in educating women and exploited caste people**.
- He was bestowed with honorific **Mahātmā title** by Maharashtrian social activist **Vithalrao Krishnaji Vandekar in 1888.**
- A Pune-based newspaper, **Deenbandhu,** provided the voice for the views of the **SatyashodhakSamaj**.

Theyyam

Context

- Recently, **Kerala Tourism department** have started live streaming of an annual **temple festival called Theyyam performances**, to promote cultural tourism.

About Theyyam

- It is the **popular ritual art form** of worship in **Kerala and Karnataka**.It encompasses **dance, mime and music.**
- It consisted of thousand-year-old traditions, rituals and customs. It is considered as a **channel to a god**.
- The **origin of this art form** dates back to 1000 years and is connected to **tribal animism**.
- There are about **456 types of Theyyam**.
- Theyyam is **performed by males**, except the **Devakoothutheyyam**, which is the only Theyyam ritual performed by women.
- Theyyam is performed predominantly in the **North Malabar region of Kerala and Mangalore region of Karnataka.**
- It is performed in front of the **village shrine, groves, and in the houses as ancestor worship**.
- The theyyam period is from the **10th of Malayalam month Thulam (October/November) and comes to a close by the end of June.**
- The performers of Theyyam belong to communities like Vannan, Malayan, Mavilan, Velan, Munnoottan, Anjunnoottan, Pulayar, Kopalar and others.
- The **main instruments** used for Theyyam performance are **Chenda, VeekanChenda, Ilathalam and Kuzhal**.
- The performer's face is painted and he has a tuft of hair on his head. There are different patterns of facial makeup. Some Theyyams even bear fire on their hair.
- Theyyams are **performed in sacred groves** and other places usually once in a year and is known as Kaliyattam.

Sri Aurobindo

Context

- India is celebrating the 150th anniversary of the greatest avatar of the 20th century, Sri Aurobindo.

About Sri Aurobindo

- Sri Aurobindo (1872 –1950) was an Indian philosopher, yoga guru, poet, and Indian nationalist.
- He was also a journalist, **editing newspapers such as BandeMataram**.
- He joined the Indian movement for independence from British colonial rule, **until 1910** and then became a spiritual reformer, introducing his visions on human progress and spiritual evolution.

Contribution

- He was involved in **AnushilanSamiti.**
- He was arrested in the aftermath of a number of bombings linked to his organization in a public trial where he faced charges of treason for **Alipore Conspiracy.**
- However Sri Aurobindo could only be convicted and imprisoned for writing articles against British colonial rule in India.
- During his stay in the jail, he had mystical and spiritual experiences, after which he moved to Pondicherry, leaving politics for spiritual work.
- At Pondicherry, Sri **Aurobindo developed a spiritual practice he called Integral Yoga**.
- In 1926, **with the help of his spiritual collaborator, MirraAlfassa (referred to as "The Mother"), Sri Aurobindo Ashram was founded.**
- **Works:** His main literary works **are The Life Divine**, which deals with the philosophical aspect of Integral Yoga; **Synthesis of Yoga,** which deals with the principles and methods of Integral Yoga; and **Savitri: A Legend and a Symbol,** an epic poem.

Konark Sun Temple

Context

- Odisha plans to make Konark-the coastal temple town a 100 per cent solar town and also place it among India's first few zero emission cities or towns.

More about news

- Odisha is keen to **reduce dependency on conventional sources of power generation and shift towards renewable energy.**
- By 2022-end, the state has **targeted to generate 2,750 megawatt (MW) from renewable energy sources** like the sun, wind, biomass, small hydro and waste-to energy (WTE), etc.
- Solar energy will be utilised to run the Sun Temple and Konark town on solar energy.

Achieving Net Zero

- Konark's transition to renewable energy is part of an ambitious plan by the Union Ministry of New and Renewable Energy (MNRE).
- The OREDA (Odisha Renewable Energy Development Agency), a nodal agency of the Government of Odisha is executing this plan **to transform Konark into a zero emission city** by December 2022.
- Shifting from grid to solar energy will help reduce the electricity consumption of the Sun Temple.

About Konark Sun Temple

- It is a 13th-century CE (year 1250) Sun temple at Konark about 35 kilometres (22 mi) northeast from Puri on the coastline of **Odisha, India.**
- The temple is attributed to **king Narasimhadeva I** of the **Eastern Ganga Dynasty** about 1250 CE.
- Dedicated to the **Hindu Sun God Surya**, what remains of the temple complex has the appearance of a 100-foot (30 m) high chariot with immense wheels and horses, all carved from stone.
- Also called the **Surya Devalaya**, it is a classic illustration of the Odisha style of Architecture or **Kalinga Architecture.**
- This temple was called the **"Black Pagoda"** in European sailor accounts as early as 1676 because it looked a great tower which appeared black.
- Similarly, the Jagannath Temple in Puri was called the **"White Pagoda".**
- Declared a UNESCO world heritage site in 1984, it remains a major pilgrimage site for Hindus, who gather here every year for the **ChandrabhagaMela** around the month of February.
- Konark Sun Temple is depicted on the reverse side of the Indian currency note of Rs 10 to signify its importance to Indian cultural heritage.

Lachit Borphukan

Context

- In Assam, President Ram NathKovind inaugurated the year-long celebration of the 400th birth anniversary of Lachit Borphukan, commander of the Ahom forces and an icon of Assamese nationalism.

About Lachit Borphukan

- He was **commander of the Ahom forces** and an **icon of Assamese nationalism**.
- He is known for his leadership in the **1671 Battle of Saraighat** that thwarted a drawn-out attempt by Mughal forces under the command of Ramsingh I to take over Ahom kingdom.

1671 Battle of Saraighat

- Ahom kings ruled large parts of what is now Assam, and parts of what are neighbouring states today, for nearly 600 years between the 13th and 19th centuries.
- Between 1615 and 1682, the Mughal Empire under Jahangir and Aurangzeb made a series of attempts to annex the Ahom kingdom.
- In 1662, Mughal Governor of Bengal Mir Jumla's forces engaged with the Ahom army and went on to occupy part of the territory under Ahom rule.
- Between 1667 and 1682, the Ahoms under a series of rulers, launched a counter-offensive to reclaim lost territories. This included the battles Lachit.

Battle of Alaboi

- In 1669, Aurangzeb dispatched the Rajput Raja Ram Singh I to recapture territories won back by the Ahoms.
- The battle of Alaboi was fought on August 5, 1669 in the Alaboi Hills near North Guwahati.

GEOGRAPHY

Zoji La Tunnel

Context

- Indian Army can use Zojila tunnel in September 2024, two years ahead of deadline - Authorities.

About

- Zoji La Tunnel is a **14.2 km long road tunnel** under construction under Zoji La pass in NH-1 in the Himalayas.
- It will be **India's longest road tunnel, and Asia's longest bi-directional tunnel.**

Purpose of the Tunnel

- The tunnel **will connect Srinagar and Leh through Dras and Kargil.**
- The passage **will begin at Sonmarg** in the Union Territory of Jammu and Kashmir, **and terminate at Minamarg**, in the Union Territory of Ladakh.
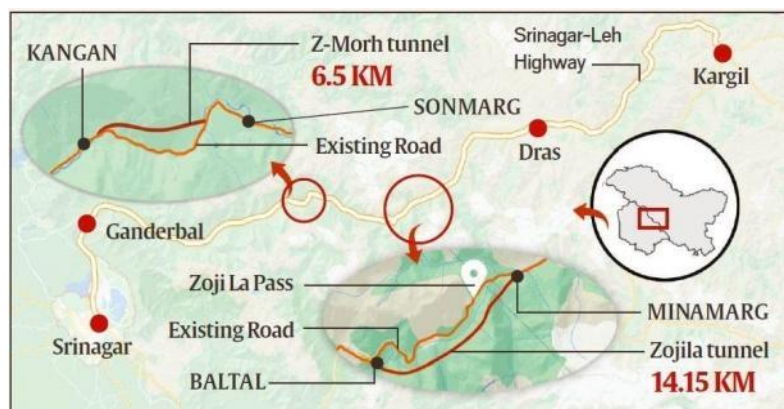
Presently, the Zojila Pass that connects Srinagar to Ladakh is motorable only for six months. This is because accumulation of snow makes it inaccessible during winters. It creates inconveniences for civilians in Ladakh who have to stockpile the ration before winter sets in.

Significance

- **All weather Connectivity:** The tunnel, **at a height of 11,500 feet**, will provide **all-weather, perennial connectivity between Srinagar (Kashmir) and Ladakh.**
- **Reduce Travel Time**: Travel time on Zojila Pass is 3 hrs. The **journey through the tunnel can be completed within just 15 minutes now.**
- **Reduce Distance:** The **distance from Baltal to Minamarg will come down to 13 km from the present 40 km**.
- **Integrated Development:** The project is expected to lead to **integrated development of both Jammu and Kashmir and Ladakh.**
- **Safe Passage**: The tunnel, which is covered from the top, **will provide a passage safe from avalanches in the winter months.**
- **Economic and Socio-Cultural Integration:** The construction of Zozila Tunnel shall bring about **all round economic and socio-cultural integration of these regions which remains cut-off from rest of the country** during winters due to heavy snowfall for about six months.
- **Employment:** The project is expected to generate **employment opportunities for locals.**
- **Boost to tourism:** Better transportation networks will **boost the tourism sector in the region.**
- **Strategic importance:** Need for the Zojila tunnel was **first felt during the 1999 Kargil war.** The strategic tunnel will connect to Ladakh where China's People's Liberation Army (PLA) is aggressively pushing its territorial claims along the Line of Actual Control (LAC). It will ensure **safer travel for defence and military vehicles**, which are active in the border territory. The tunnel **will provide logistics flexibility and operational mobility to the Indian Army as it will reduce the travel time on**

Zojila Pass from 3.5 hours to 15 minutes.

Cyclone Asani

Context

- The deep depression over the Andaman Sea did not eventually intensify into a tropical storm that it was supposed to i.e - Cyclone Asani. The **name Cyclone Asani was suggested by Sri Lanka.**

Conditions for development of Tropical Cyclones

- Sufficiently warm **sea surface temperatures (higher than 27° C).**
- Atmospheric instability.
- High humidity in the lower to middle levels of the troposphere.
- Enough Coriolis force to sustain a low pressure center.
- A pre-existing low level focus or disturbance.
- Low vertical wind shear.

Note: While these conditions are necessary for tropical cyclone formation, they do not guarantee that a tropical cyclone will form.

Some Cyclones that hit India

- Cyclone Jawad – Bay of Bengal
- Cyclone Gulaab– Bay of Bengal
- Cyclone Tauktae–Arabian Sea
- Cyclone Yaas– Bay of Bengal
- Cyclone Nisarga–Arabian Sea
- Cyclone Amphan– Bay of Bengal
- Cyclone Kyarr – Arabian Sea
- Cyclon Hikka– Arabian Sea
- Cyclone Fani– Bay of Bengal
- Cyclone Bulbul– Bay of Bengal
- Cyclone Kyarr–Arabian Sea

Read about Tropical Cyclones in detail here: https://www.iasgyan.in/daily-current-affairs/cyclone-asani

GS-II
POLITY

Prevention of unlawful conversion of religion bill (Haryana)

Context

- The State government of Haryana introduced an anti-conversion Bill.

Details

- The State government of Haryana introduced the Haryana Prevention of Unlawful Conversion of Religious Bill, 2022.
- The bill is introduced to create a deterrent for people involved in forced religious conversion activities.
- **The Bill seeks to "prohibit religious conversions which are effected through misrepresentation, force, undue influence, coercion, allurement or by any fraudulent means or by marriage or for marriage by making it an offense".**
- According to the draft Bill, the **burden of proof shall be on the accused.**

Law making process at State level

- **Step 1** - The State cabinet approves the draft of the Bill.
- **Step 2** - The State government introduces the bill in the State assembly or Vidhan Sabha.
- **Step 3** - Discussion on the bill in the state assembly, members give their suggestions, and at the end voting is done.
- **Step 4** - Once a bill is passed by the state assembly, it is sent to the Governor for his final assent. Once the Governor gives his assent, it shall be enacted as law and implemented across the state.

Arguments in Favor of anti-conversion bill

- **These laws only ban and punish forceful religious conversion.**
- **Fundamental rights under Article 25 'Right to propagate a religion" did not extend to forced conversions.**
- There is no fundamental right to convert another person to one's own religion.

Arguments against anti-conversion bill

- According to some activists **"Such laws are used to target religious minorities and interfaith couples".**
- These laws would be used to target even voluntary conversions, and curb the fundamental rights "**Freedom of conscience"** under Article 25.

- These Acts do not satisfy the test of reasonableness and fairness, and also go against the Fundamental rights under Article 14 and Article 21" of the Constitution.

Sealed cover Jurisprudence

Context

- Two separate Benches of the Supreme Court tore into the "sealed cover jurisprudence" (sealed cover reports in court) practised by the government in courts.

Details

- **The Supreme Court was critical about how the government and its agencies file reports in sealed envelopes directly in court without sharing the contents with the opposite party.**
  o This is usually done on the ground that the contents are highly sensitive in nature, and may injure even national security or public order.
  o Another reason given by State agencies is that the disclosure would affect ongoing investigation.

About sealed cover jurisprudence

- **It is a practice used by the Supreme Court and sometimes lower courts, of asking for or accepting information from government agencies in sealed envelopes that can only be accessed by judges.**
- **While a specific law does not define the doctrine of sealed cover, the Supreme Court derives its power to use it from Rule 7 of order XIII of the Supreme Court Rules and Section 123 of the Indian Evidence Act of 1872.**
  o It is stated under the said rule that if the Chief Justice or court directs certain information to be kept under sealed cover or considers it of confidential nature, no party would be allowed access to the contents of such information, except if the Chief Justice himself orders that the opposite party be allowed to access it.
  o It also mentions that information can be kept confidential if its publication is not considered to be in the interest of the public.

GOVERNANCE

Vibrant Village program

Context

- The Union Government announced that villages on the northern border will be covered under the new Vibrant Villages Programme.

About Vibrant Villages Programme

- **The Union Budget 2022-23 has announced that villages on the northern border will be covered under the new Vibrant Villages Programme**.
- The activities will include construction of village infrastructure, housing, tourist centers, road connectivity, provisioning of decentralized renewable energy, direct to home access for Doordarshan and educational channels, and support for livelihood generation.
- Existing schemes will be converged and their outcomes will be defined and monitored on a constant basis. Additional funding for these activities will be provided.
- The programme aims to enhance infrastructure in villages along India's border with China, in states like Himachal Pradesh, Uttarakhand, and Arunachal Pradesh.
- **The 'Vibrant Villages Programme' aims to initiate the transformation of India's border villages. This is imperative to secure the country's sovereignty and further safeguard them from any possible friction with the neighbors.**

Udaan Project

Context

- Rajasthan government has launched the 'Udaan project' to support female education through scholarship schemes.

About Udaan Project

- The Udaan project was launched by the Rajasthan government in partnership with 'IPE Global'.
- **It was launched to support the education of rural girls through scholarship schemes and provide them with continuing access to schooling.**
- **The main objective of the project is to keep girls in schools through their enrolment at the secondary level while ensuring that the eligible ones among them get their scholarships**.
- Organise mass awareness campaign to mobilise support from rural communities to support girls' education and boost their attendance in school.

- o The methods include a constant discussion with Panchayati Raj institutions to identify dropouts and counselling the parents and students as well.
- **Eligibility**
  - o Scholarships were available to the girls belonging to Scheduled Castes, Scheduled Tribes, Other Backward Classes and minority communities.
  - o Daughters of labourers holding Shramik cards were also eligible to receive scholarships and other facilities.

Significance of the Udaan Project

- It addresses the challenge of the low enrolment of girls in Schools.
- It encourages girl students to achieve their aspirations of education.
- It minimizes the gender gap in school education.
- Motivation sessions with students/parents.
- Continuous monitoring of student progress with feedback.
- **The financial relief under the Udaan Project would allow them to utilise the family income for other important requirements such as nutritious food and medicines.**

National e-Vidhan Application

Context

- National eVidhan Application is a Project for making Digital Legislatures.

About National eVidhan Application

- **National eVidhan Application (NeVA) is a Mission Mode Project for Digital Legislatures to make the functioning of all Legislative Houses in the country paperless.**
- **It has been developed on the theme of '*One Nation – One Application*'.**
- NeVA is transforming all State Legislatures into 'DIGITAL HOUSES' so as to enable them to transact entire Government Business on digital platforms including information exchange with the State Government Departments in digital mode.
- **Bihar Legislative Council became the first House in the country to transit to NeVA platform completely.**
- Keeping in view the federal structure and autonomy of the State/UT Legislatures, all are being encouraged to adopt NeVA.
- NeVA is Unicode compliant software having provision for easy access to various documents like List of Questions, List of Business, Reports etc. bilingually viz. English and any regional language.
  - o This application is spearheading the principle of 'One Nation- One Application' with the objective of Cloud First and Mobile First to serve Members' FIRST.

Significance of NeVA

- Technical and financial provisions have been made under NeVA for creating digital archives of entire legacy data and making it available to users including Members and citizens in easy to search mode through mobile App and website as well.
- **It will help in fiscal consolidation and also promote transparency and accountability in the system; it will make the system more accessible for citizens.**

Start-up Village Entrepreneurship Programme

Context

- Indian Institute of Entrepreneurship (IIE) signed a MoU with the Ministry of Rural Development (MoRD), to promote entrepreneurship at a local level.

Details

- **The Indian Institute of Entrepreneurship (IIE) under the Ministry of Skill Development and Entrepreneurship (MSDE) signed a Memorandum of Understanding (MoU) with the Ministry of Rural Development (MoRD), to promote entrepreneurship at a local level.**
- The Ministry support Start-up Village Entrepreneurship Programme (SVEP), under the National Rural Livelihoods Mission (NRLM).

About Start-up Village Entrepreneurship Programme (SVEP)

- **It is a sub-component of the DeendayalAntyodayaYojana – National Rural Livelihoods Mission (DAY-NRLM) of the Ministry of Rural Development.**
- The core objective of the Mission is to promote employment opportunities in rural India, mainly by developing self-employment opportunities for rural people.
  - o Developing a sustainable model for Village Entrepreneurship Promotion.
- **The programme would encourage the rural poor to start their own businesses.**
- Use of integrated Information and Communications Technology (**ICT**) techniques and tools for training, capacity building, business advisory services, and the provision of loans from banks, SHGs, and other institutions.
- **Eligibility**

     o   Beneficiaries under MGNREG.

     o   Belonged to marginalised sections, women, SC and ST communities.

     o   Any Rural artisans and any rural poor who is willing to be entrepreneurial and self-reliant are eligible to be part of this programme.

- The Indian Institute of Entrepreneurship (IIE), Guwahati, Assam, will act as the National Resource Organisation (NRO) for the Start-up Village Entrepreneurship Programme (SVEP).

     o   It will also provide support to the State Rural Livelihoods Mission (SRLM).

Objectives of Start-up Village Entrepreneurship Programme (SVEP)

- To support the rural poor to set up enterprises.
- Providing a sustainable model for Village Entrepreneurship through integrated ICT techniques and tools for training and capacity building.
- To provide advisory services to enterprises and provide loans from banks/SHG & other institutions.
- Develop local resources by training the village community.

Significance of the Start-up Village Entrepreneurship Programme (SVEP)

- **It aims to support entrepreneurs in rural areas to set up local enterprises.**
- It will support local resources by providing training to the village Community.
- It will help rural entrepreneurs to access finance for starting their enterprises.
- **It provides training, research, and consulting services in small and micro-enterprises, with a special focus on entrepreneurship development**.
- It will improve the decision-making capabilities of existing and potential entrepreneurs.

SOCIAL JUSTICE

UDISE+ Report

Context

- Report on Unified District Information System for Education Plus (UDISE+) released by the Ministry of Education.

Details

- **The Ministry of Education released a detailed report on Unified District Information System for Education plus (UDISE+) 2020-21 on school education in India.**

About UDISE+ 2020-21 Report

- In 2020-21 total students enrolled in school education from primary to higher secondary increased as compared to the enrollment in 2019-20.
- **Gross Enrolment Ratio (GER) which measure the general level of participation has improved in 2020-21 at all levels of school education compared to 2019-20.**
- Higher numbers of teachers are engaged in school education during 2020-21 compared to 2019-20.
- In 2020-21 the Pupil Teacher Ratio (PTR) stood at 26 for primary, 19 for upper primary, 18 for secondary and 26 for higher secondary, showing an improvement since 2018-19.
- In 2020-21 more girls are enrolled in primary to higher secondary as compared to the enrollment of girls in 2019-20.
- 84% of schools have functional electricity facilities.
- 95.2% of schools have functional drinking water.
- 93.91% of schools have functional girl's toilet facilities.
- **40% of the schools have functional computers.**
- **During 2020-21, 39.7 lakh students of government aided, private school students shifted to Government schools.**

About UDISE+

- **The UDISE+ system of online data collection from the schools was developed by the Department of School Education and Literacy in the year 2018-19.**
- It aims to overcome the issues related to the practice of manual data filling in paper format and then feeding them on computers at the block or district level in the UDISE data collection system since 2012-13.
- In UDISE+ system, improvements have been made particularly in the areas related to data capture, data mapping and data verification.

SAMARTH Initiative

Context

- The Union Government launched the "SAMARTH" Campaign on the occasion of International Women's Day 2022.

Details

- **On the occasion of International Women's Day 2022, the Union Ministry of MSMEs has launched a Special Entrepreneurship Promotion Drive for Women "SAMARTH".**
- The initiative aims to develop entrepreneurship culture among women by offering several additional benefits for women in the schemes implemented by the Ministry.
- **Following benefits will be available to aspiring and existing women entrepreneurs:**
  - 20% Seats will be allocated for women in free Skill Development Programs organized under skill development schemes of the Ministry.
  - 20% of MSME Business Delegations sent to domestic and international exhibitions will be dedicated to women owned MSMEs.
  - 20% Discount on annual processing fee on Commercial Schemes.
  - Special Drive for registration of women-owned MSMEs under Udyam Registration.

Significance of the "SAMARTH" initiative

- **Through this initiative, the Ministry of MSME will provide Skill Development and Market Development Assistance to women and more than 7500 women candidates from rural and sub- urban areas will be trained in the FY 2022-23.**
- Thousands of women will get marketing opportunities to showcase their products in domestic and international exhibitions.
- Single Point Registration Scheme.

Women Entrepreneurs in India

- **Nearly 3 million micro, small, and medium enterprises with full or partial female ownership contribute more than 3 % of industrial output and employ over 8 million people.**
- **78% of women enterprises belong to the services sector.**

Concerns

- **Social status of women and prevalent social norms in India influence financial institutions and the ability of women entrepreneurs to access finance**.
- Absence of collateral security and guarantee/support.
- Limited financial awareness and understanding of financial products/ services.
- **Bank branches are unwelcoming to women customers.**
- **Lack of confidence or hesitation to approach financial institutions**.
- Lack of reliable information about financial management makes the women entrepreneurs less attractive to financiers.

INTERNATIONAL RELATIONS

International Day to Combat Islamophobia

Context

- The UN General Assembly has adopted a resolutionto proclaim March 15 as the International Day to Combat Islamophobia.
- The resolution, introduced by **the Organisation of Islamic Cooperation (OIC),** was co-sponsored by Afghanistan, Bangladesh, China, Egypt, Indonesia, Iran, Iraq, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Lebanon, Libya, Malaysia, Maldives, Mali, Pakistan, Qatar, Saudi Arabia, Turkey, Turkmenistan, Uganda, United Arab Emirates, Uzbekistan and Yemen.

India's stand

- India expressed concern over phobia against one religion being elevated to the level of an international day.
- It is important that the **United Nations remains above such religious matters** which may seek to divide us rather than bring us together on one platform of peace and harmony and treat the World as One Family.
- India **condemns all acts motivated by antisemitism, Christianophobia or Islamophobia**, such phobias are not restricted to Abrahamic religions only.
- These contemporary forms of religiophobia can be witnessed in **the increase in attacks on religious places of worship** like gurudwaras, monasteries and temples or in the spreading of hatred and disinformation against non-Abrahamic religions in many countries.
- India is proud that pluralism is at the core of its existence.

Finlandization

Context

- President Emmanuel Macron of France invoked a "Finlandization" of Ukraine as one of the models on the table for defusing tensions with Russia.
- Later he denied making the remark, which appeared to put him at odds with not only the Ukrainians but also the United

States.

What is 'Finlandization'?

- The term refers to **Finland's strict neutrality** during the Cold War, enshrined in a **1948 treaty with Moscow** when tensions between the Soviet Union and the West were at a high.
- The treaty ensured Finland that unlike other countries in Eastern Europe, it would not face a Soviet invasion, but in return, it agreed to stay out of NATO and allowed the giant next door to exercise significant influence over its domestic and foreign policy.
- The principle of neutrality was rooted in the **Agreement of Friendship, Cooperation, and Mutual Assistance** that Finland signed with the USSR in April 1948.

Ukraine and Finlandization

- Ukraine, formerly a part of the Soviet Union, has increasingly tilted toward the West, economically and politically, while resisting Russian influence.
- In 2008, NATO said it planned eventually for Ukraine to join the alliance, a popular idea within the country, though it has never actually applied for membership and NATO officials say it would not happen any time soon.
- "Finlandization" would allow Moscow a heavy hand in Ukrainian affairs. It goes against what Ukraine has been striving for, that is joining NATO and the E.U.

How "Finlandization" is the best course Ukraine can take?

- Thismodel had been floated earlier in 2014, the year Russia annexed Crimea and fighting broke out in Ukraine's eastern Donbas region.
- Russia is determined to expand his sphere of influence and undermine an independent Ukrainian government, and the West making it clear it would not go to war against Russia to defend Ukraine.

Motor Vehicles Agreement (MVA)

Context

- Bangladesh, India, Nepal moving ahead on Motor Vehicles Agreement (MVA) of the sub-regional Bangladesh-Bhutan-India-Nepal (BBIN) project. Bhutanese parliament has decided not to endorse the plan over sustainability and environmental concerns.

About Motor Vehicles Agreement (MVA)

- In 2015, Bangladesh-Bhutan-India-Nepal signed the Bangladesh-Bhutan-India-Nepal (BBIN) Motor Vehicles Agreement.
- World Bank has analysed the pact and said that a **"trust deficit"** between the two countries was a major reason why there was no seamless movement of cargo between the two countries.
- Major gaps that need to address in the MVA include inadequate **transport infrastructure, protective tariffs and nontariff barriers**
- It will promote **safe, economical efficient and environmentally sound road transport** in the sub-region and will further help each country in creating an institutional mechanism for regional integration.
- **Asian Development Bank** has supported the project as part of its South Asian Subregional Economic Cooperation programme.

EU-STYLE DRIVING NOW **COMES CLOSER HOME**

Entry and exit points

- Banglabandha (Bangladesh) — Phulbari (India) – Panitanki (India) – Kakarvitta (Nepal)
- Burimari (Bangladesh) – Changrabandha (India) – Phuntsholing (Bhutan)
- Petrapole (India) – Benapole (Bangladesh)
- Tamabil (Bangladesh) – Dawki (India)
- Akhaura (Bangladesh) – Jaynagar (India)
- More entry and exit points will be designated over the next few years
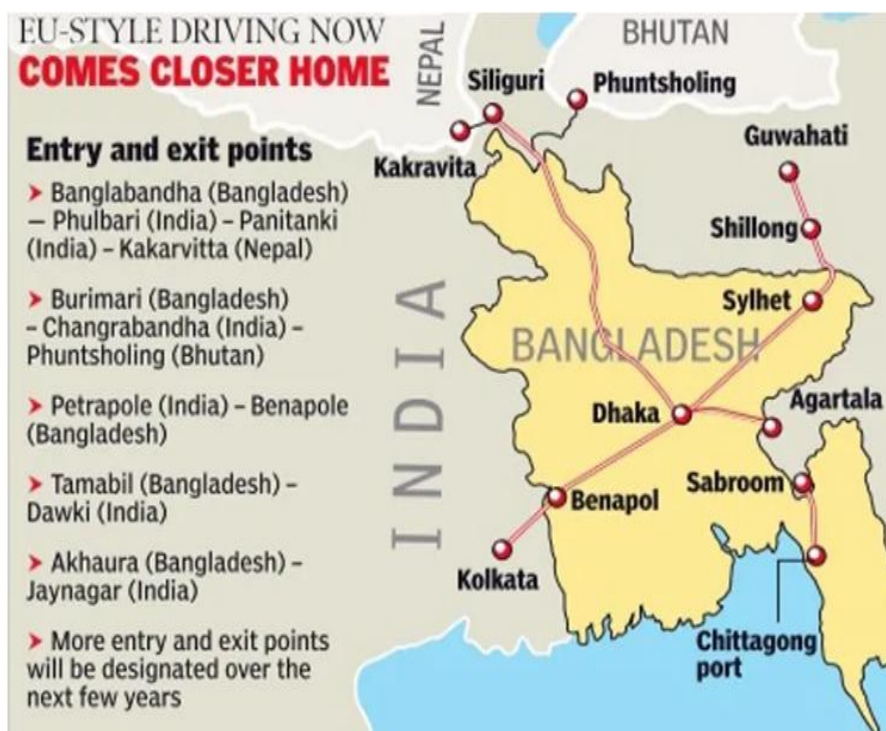
North Atlantic Treaty Organization (NATO)

Context

- Ukraine's pursuit of NATO membership has been cited as a key factor in Russia invading the former Soviet territory.

What is NATO?

- The North Atlantic Treaty Organization is a **military alliance** created in 1949.

- **Aim:** <u>to provide collective security against Soviet expansionism and to encourage European political integration in the aftermath of World War II.</u>
- It serves as a **collective security system**, wherein its member states agree to mutually defend any attack on a member party.
- **Membership**: There are **30 countries** that are currently part of NATO. **Two** countries in **North America** and **28European countries**, including several former Soviet nations.

What does it take to become a member of the alliance?

- It employs an "**open door policy"** for aspiring members.
- Any European country can become a member of the Alliance at the invitation of the North Atlantic Council.
- Aspiring nations have to **meet certain political, economic, and military standards to join.** That includes
  - New members must **uphold democracy**, including tolerating diversity
  - New members must be making progress toward a **market economy**
  - Their military forces must be **under firm civilian control**
  - They must be **good neighbors and respect sovereignty** outside their borders
  - They must be **working toward compatibility with NATO forces**

Biological and Toxin Weapons Convention

Context

- Russia called for a Security Council meeting on the issue of biological laboratories in Ukraine.

India's stand

- India said any matters relating to obligations under the Biological and Toxin Weapons Convention should be addressed through consultation and cooperation between the parties concerned.
- All parties must ensure full and effective implementation of the BTWC in letter and spirit.

Biological and Toxin Weapons Convention (BTWC)

- It is a disarmament treaty that **effectively bans biological and toxin weapons** by prohibiting their **development, production, acquisition, transfer, stockpiling and use.**
- Having entered into force on 26 March **1975,** the BWC was the **first multilateral disarmament treaty** to ban the production of an entire category of weapons of mass destruction.
- The convention is of **unlimited duration**.
- **Membership:** As of January 2022, 183 states have become party to the treaty. India has signed and ratified this treaty.
- Convention's effectiveness has been limited due to insufficient institutional support and the absence of any formal verification regime to monitor compliance.

Turkey's stake in Ukraine war

Context

- Turkey has been seeking to mediate between Russia and Ukraine.

Turkey's interest in the crisis

- Turkey, gateway between Europe and Asia, is a member of NATO.

Turkey-Russia relations

- Russia is a friend of Turkey but also an age-old geopolitical rival, Turkey did notrecognizedcrimea annexation by Russia.
- Russia's proximity to the PKK, the Turkish Kurdish rebel group, is a major irritant for Turkey.
- Russia is now among **Turkey's main trade partners**. Turkey's economy depends heavily on imports from Russia.
- There is a gas pipeline now under the Black Sea from Russia to Turkey.
- In 2020, Turkey bought the **S 400 Triumf surface-to-air missile defence system from Russia**, and was sanctioned by the United States under its CAATSA law.
- Russia is building a nuclear power plant in Ayukku in southern Turkey.
- Russia has been angry with Turkey for arming Ukraine.

Turkey-Ukraine relations

- Turkey is also a **close trading and strategic partner of Ukraine**. Their bilateral trade in 2019 was about $ 2.15 billion, with Turkey a major exporter to Ukraine.
- Turkey supplies Ukraine with a **lethal missile carrier drone**, which Ukraine has been using against Russian tanks during the current conflict.
- Turkey signed a **Free Trade Agreement** and an **agreement to co-manufacture the armed long-range Bayrakthar drone in Ukraine.**

Turkey in the conflict

- Turkey has described the **Russian invasion of Ukraine as unacceptable** and a blow to regional peace.
- It has **rejected Russia's recognition of the "republics" of Luhansk and Donetsk**.

- It used the word 'war' five days after the invasion, and was one of the 80 sponsors of the General Assembly resolution titled "Russian Aggression in Ukraine".
- Turkey also **invoked clauses of the 1936 Montreux Convention**.
  - A convention that put **Turkey in charge of the Bosphorous and Dardanelles Straits**, to **bar the passage of warships through the Bosphorous Straits.**
- In its efforts to mediate, Turkey is seeking to take on the role of the regional leader. Turkey **has not joined the sanctions against Russia** but after a meeting of NATO foreign ministers and asking for a "close co-ordination" towards finding a diplomatic solution to the Ukraine war.

Montreux Convention

Context

- Turkey is set to implement Montreux Conventionto limit the movement of Russian warships between the Mediterranean Sea and the Black Sea.

Montreux Convention

- The 1936 **Montreux Convention Regarding the Regime of the Straits**, often referred to as the Montreux Convention.
- Under this convention, **Turkey has control over both the Bosporus and Dardanelles straits.**
- In the **event of a war**, the pact gives Turkey the **right to regulate the transit of naval warships and to block the straits to warships belonging to the countries involved in the conflict.**
- **It regulates maritime traffic through the Black Sea.**
- It guarantees **"complete freedom"** of passage for all civilian vessels during peacetime and permits Turkey to restrict the passage of navies not belonging to Black Sea states.
- **Military vessels are limited in number, tonnage and weaponry, with specific provisions governing their mode of entry and duration of stay.**
- **Warships must provide advanced notification to Turkish authorities, which, in turn, must inform the parties to the Convention.**
  - The **Bosporus and Dardanelles straits**, also known as the **Turkish Straits or the Black Sea Straits**, connect the Aegean Sea and the Black Sea via the Sea of Marmara.
  - It is the **only passage through which the Black Sea ports can access the Mediterranean and beyond.**

International Court of Justice

Context

- Ukraine has accused Russia of falsely claiming that "acts of genocide have occurred in the Luhansk and Donetsk oblasts of Ukraine", and of using that as a pretext to recognise the independence of these regions and of going to war against Ukraine.

International Court of Justice (ICJ)

- It is the **principal judicial organ** of the United Nations (UN).
- It **was established in June 1945** by the **Charter of the United Nations** and **began work in April 1946.**
- ICJ is the **successor to the Permanent Court of International Justice (PCIJ)**, which was brought into being by the League of Nations in 1922.
- **Seat:** ICJ is based at the **Peace Palace in The Hague**. It is the **only one of the six principal organs of the UN that is not located in New York City**.
- **Roles:** "to settle legal disputes submitted to it by States and to give advisory opinions on legal questions referred to it by authorized United Nations organs and specialized agencies".
- **Membership: All members of the UN are automatically parties to the ICJ statute**, but this does not automatically give the ICJ jurisdiction over disputes involving them. The ICJ gets jurisdiction **only if both parties consent to it.**
- **Appellate**: The judgment of the **ICJ is final and technically binding on the parties to a case**. There is **no provision of appeal;** it can at the most, be subject to interpretation or, upon the discovery of a new fact, revision.

- ICJ has **no way to ensure compliance of its orders, and its authority is derived from the willingness of countries to abide by them.**
- ICJ has **15 judges** who are elected to **nine-year terms** by the **UN General Assembly and Security Council**, which vote simultaneously but separately. Four Indians have been members of the ICJ so far. Justice Dalveer Bhandari, former judge of the Supreme Court, has been serving at the ICJ since 2012.

India at the ICJ

- India has been a party to a case at the ICJ on **six occasions**, four of which have involved Pakistan.
- They are:
  o Right of Passage over Indian Territory (Portugal v. India, culminated 1960);
  o Appeal Relating to the Jurisdiction of the ICAO Council (India v. Pakistan, culminated 1972);
  o Trial of Pakistani Prisoners of War (Pakistan v. India, culminated 1973);
  o Aerial Incident of 10 August 1999 (Pakistan v. India, culminated 2000);
  o Obligations concerning Negotiations relating to Cessation of the Nuclear Arms Race and to Nuclear Disarmament (Marshall Islands v. India, culminated 2016); and
  o **(Kulbhushan) Jadhav** (India v. Pakistan, culminated 2019).

ICJ Vs. ICC

ICJ vs. ICC

	International Court of Justice (ICJ) La Cour Internationale de Justice (CIJ)	International Criminal Court (ICC) La Cour pénale internationale (CPI)
Year Court Established	1946	2002
UN-Relationship	Official court of the U.N., commonly referred to as the "World Court."	Independent. May receive case referrals from the UN Security Council.
Location	The Hague, The Netherlands	The Hague, The Netherlands
Types of Cases	Contentious between parties & Advisory opinions	Criminal prosecution of individuals
Subject Matter	Sovereignty, boundary, & maritime disputes, trade, natural resources, human rights, treaty violations, treaty interpretation, and more.	Genocide, crimes against humanity, war crimes, crimes of aggression
Funding	UN-funded.	Assessed contribution from state parties to the Rome Statute; voluntary contributions from the U.N.; voluntary contributions from governments, international organizations, individuals, corporations and other entities.

Cluster bombs and thermobaric weapons

Context

- Russia has been accused for using cluster bombs and vacuum bombs in the ongoing war against Ukraine.

About cluster bombs

- According to the **2008 Convention on Cluster Munitions**, a cluster munition means a **"conventional munition that is designed to disperse or release explosive submunitions each weighing less than 20 kilograms, and includes those explosive submunitions".**
- Cluster munitions are **non-precision weapons that are designed to injure or kill human beings indiscriminately over a large area,** and to destroy vehicles and infrastructure such as runways, railway or power transmission lines.
- They can be dropped from an **aircraft or launched in a projectile that spins in flight, scattering many bomblets as it travels.**
- The Convention on Cluster Munitions specifically identifies "cluster munition remnants", which include **"failed "failed cluster munitions, abandoned cluster munitions, unexploded submunitions and unexploded bomblets"**.

What is a thermobaric weapon?

- They are known as **aerosol bombs, fuel air explosives, or vaccum bombs**.
- It **uses oxygen from the air for a large, high-temperature blast**.
- A thermobaric weapon **causes significantly greater devastation than a conventional bomb of comparable size.**
- **It** can be fired as rockets from tank-mounted launchers or dropped from aircraft.
- As they hit their target, a **first explosion** splits open the bomb's fuel container, releasing a cloud of fuel and metal particles that spreads over a large area.
- A **second explosion** then occurs, igniting the aerosol cloud into a giant ball of fire and sending out intense blast waves that can destroy even reinforced buildings or equipment and **vaporise human beings**.

Is it legal to use these weapons?

- Countries that have **ratified** the **Convention on Cluster Munitions** are **prohibited from using cluster bombs**.
- As of date, there are 110 state parties to the convention, and 13 other countries have signed up but are yet to ratify it.
- **Neither Russia nor Ukraine are signatories.**
- **Vacuum bombs are not prohibited by any international law or agreement**, but their use against civilian populations in built-up areas, schools or hospitals, could attract action under the Hague Conventions of 1899 and 1907.
- **International humanitarian lawprohibits the use of inherently indiscriminate weapons** such as cluster munitions.

International Monsoons Project Office

Context

- Union Minister of State (Independent Charge) Science & Technology launched the International Monsoons Project Office (IMPO).
- India will soon lunch the third phase of **Monsoon Mission**. First **launched in 2012**, the Monsoon Mission has been a **flagship project undertaken by the MoES to improve overall understanding of Indian monsoons.**

Why International Monsoons Project Office (IMPO) has been launched?

- To keep in coordination with the global monsoon research to predict effectively and well in advance.
- Most of the Indian agricultural land is irrigated by the southwest monsoon only.
- To expand an integrated scientific approach to solve the seasonal variability of monsoons, enhancing the prediction skill of monsoons and cyclones, strengthening monsoon research for better support operations and services, thereby promoting knowledge sharing and capacity building in areas of monsoon research crucial for agriculture, water resources and disaster management, hydropower and climate-sensitive socio-economic sectors.
- IMPO will give **huge impetus to global monsoon research yielding mutual benefits to both the international and Indian research fraternity.**

About IMPO

- The International Monsoons Project Office (IMPO), **hosted by the Pune based Indian Institute of Tropical Meteorology (IITM)**, an autonomous institute under the Ministry of Earth Sciences.
- The IMPO functions as an **International Project Office of the World Meteorological Organization's (WMO's) World Weather Research Programme (WWRP) and the WMO/IOC-UNESCO/ISC World Climate Research Programme (WCRP).**
  - Both the World Climate Research Programme and World Weather Research Programme are international programmes coordinated by the United Nations World Meteorological Organisation (WMO).
- The International Monsoons Project Office (IMPO) will be functional **initially for five years**.
- IMPO would support activities of the Monsoons Panel, jointly established by the World Climate Research Programme's CLIVAR (Climate and Ocean Variability, Predictability, and Change) and GEWEX (Global Energy and Water Exchanges) projects.

Bucharest Nine

Context

- Envoys to India of nine Eastern European countries jointly wrote an article to "acquaint the Indian public with the basic facts on the ground" about the "premeditated, unprovoked and unjustified Russian aggression in Ukraine.

The "Bucharest Nine"

- It is a **group of nine NATO countries** in **Eastern Europe** that became part of the US-led military alliance after the end of the Cold War.
- **Organisation:**
  - The Bucharest Nine or Bucharest Format, often **abbreviated as the B9.**
  - It was **founded on November 4, 2015**, and takes its name from Bucharest, the capital of Romania.
- **Significance:** theB9 offers a **platform for deepening the dialogue and consultation among the participant allied states**, in order to articulate their specific contribution to the ongoing processes across the North-Atlantic Alliance, in total compliance with the **principles of solidarity and indivisibility** of the security of the NATO Member States.
- **Composition:** Romania and Poland, Hungary, Bulgaria, the Czech Republic, Slovakia, and the three Baltic republics of Estonia, Latvia, and Lithuania.
- All members of the B9 are **part of the European Union (EU) and North Atlantic Treaty Organisation (NATO).**
- **B9 Reaction on Ukraine invasion by Russia:** The B9 countries have been critical of Russia aggression against Ukraine since 2014, when the war in the Donbas started and Russia annexed the Crimean peninsula.

HEALTH

Postpartum Haemorrhage

Context

- Postpartum haemorrhage (PPH) has been a leading cause of maternal deaths in Kerala for the better part of the last decade, according to a report prepared by the Kerala Federation of Obstetrics and Gynaecology.

Postpartum bleeding

- **About:** Postpartum bleeding or postpartum hemorrhage (PPH) is often defined as the <u>**loss of more than 500 ml or 1,000 ml of blood within the first 24 hours following childbirth.**</u>
- **Cause:** Poor contraction of the uterus following childbirth, a tear of the uterus, or poor blood clotting, Hematoma formation, Placenta problems are other possible causes. It occurs more commonly in those who: <u>**already has a low amount of red blood.**</u>

Findings of the recent report: Situation in Kerala

- PPH deaths were the largest contributors till 2010-2011.Malappuram district has remained consistent in recording the highest maternal deaths every year since 2011. In 2019-2020, it recorded 25 deaths.Of the total 1,076 maternal deaths in the past decades, 17.56 per cent were due to PPH.PPH deaths were highest in the 20-29 age group. This is also the age group that has the highest number of deliveries.A third of PPH deaths were recorded in caesarean births.

PPH in India and the World

- WHO statistics suggest that <u>**35% of maternal deaths worldwide are due to PPH.**</u>
- About **one in 100 to five in 100 women have postpartum hemorrhage** and it is a globally leading cause of maternal morbidity and mortality.
- At least **38 per cent maternal deaths in India are caused due to postpartum hemorrhage (PPH),** exacerbated by widespread anemia among pregnant women.

GS-III

ECONOMY

Sagar Parikrama

Context

- The Department of Fisheries, Ministry of Fisheries, Animal Husbandry and Dairying, Government of India has launched the 'Sagar Parikrama' program on the occasion of 75th Azadi Ka Amrit Mahotsav

About the initiative:

- 'Sagar Parikrama' aims to
  - o facilitate interaction with fishermen, coastal communities and stakeholders so as to disseminate information of various fisheries related schemes and programs being implemented by the Government,
  - o demonstrating solidarity with all fisher folk, fish farmers and concerned stakeholders as a spirit of Atma Nirbhar Bharat
  - o promote responsible fisheries with focus on sustainable balance between the utilisation of marine fisheries resources for food security of nation and livelihoods of coastal fisher communities, and
  - o protection of marine ecosystems. 'Sagar Parikrama' program envisages to cover the maritime States/UTs in a phased manner.
- It will also benefit fishermen with awareness of various beneficiary oriented schemes and programs being implemented by the Government and showcase them the best practices that may be adopted.
- The first phase will span from *Mandvi to Porbandar* covering the <u>entire coastline of Mandvi</u> on the coast of the Arabian Sea in the <u>Kutch district</u> of Gujarat situated at the estuary where the river Rukmavati meets the Gulf of Kutch.

Reserve Bank Innovation Hub

Context

- Reserve Bank of India (RBI) governor Shaktikanta Das inaugurated the Reserve Bank Innovation Hub (RBIH) in Bengaluru.

Objective

- It is intended to encourage and nurture financial innovation in a sustainable manner through an institutional set-up.
- aims to create an ecosystem that focuses on promoting access to financial services and products for the low-income population in the country.
- to bring world-class innovation to the financial sector in India, coupled with the underlying theme of financial inclusion

Possible outcomes

- The Hub would bring convergence among stakeholders - BFSI Sector, Start-up ecosystem, Regulators & Academia - in the

financial innovation space
- This initiative will put RBI in an exclusive group of select global central banks that are enterprising enough to change the mode of engagement while dealing with innovation
- The Hub is expected to build an ecosystem for development of prototypes, patents and proofs of concept and promote cross-thinking, spanning regulatory domains and national boundaries
- The Hub also has plans to identify and mentor start-ups having maximum potential.
- The Hub is also expected to collaborate with various government Ministries, Departments and academia to identify problem statements in different domains and explore potential solutions.

About RBIH:
- The Reserve Bank Innovation Hub is a wholly owned subsidiary of the Reserve Bank of India (RBI) set-up to promote and facilitate an environment that accelerates innovation across the financial sector.
- It was set up as a Section-8 company under Companies Act, 2013 with an initial capital contribution of Rs. 100 crore.

Initiatives for Financial Inclusion
- Pradhan Mantri Jan Dhan Yojana (PMJDY)
- Atal Pension Yojana (APY)
- Pradhan Mantri Vaya Vandana Yojana (PMVVY)
- Stand Up India Scheme
- Pradhan Mantri Mudra Yojana (PMMY)
- Pradhan Mantri Suraksha Bima Yojana (PMSBY)
- Sukanya Samriddhi Yojana
- Jeevan Suraksha Bandhan Yojana
- Credit Enhancement Guarantee Scheme (CEGS) for Scheduled Castes (SCs)
- Venture Capital Fund for Scheduled Castes under the Social Sector Initiatives
- Varishtha Pension Bima Yojana (VPBY)

Micro Finance Regulations

Context
- The Reserve Bank of India (RBI) allowed microfinance institutions to fix interest rates on loans, with a caveat that the rates should not be usurious.

Changes introduced
- **Definition of microfinance Loans-** RBI revised the definition of microfinance loan to indicate a collateral-free loan given to a household having annual income of up to ₹3 lakh. Earlier, the upper limits were ₹1.2 lakh for rural borrowers and ₹2 lakh for urban borrowers.
- **Regulated entities (REs)** should put in place a board-approved policy regarding pricing of microfinance loans, a ceiling on interest rate and all other charges applicable to microfinance loans.
- "The revision of the income cap to ₹3 lakh will expand the market opportunity and interest rate cap removal will promote risk-based underwriting
- Each RE has to disclose pricing-related information to a prospective borrower in a standardised, simplified factsheet
- Any fees to be charged to the microfinance borrower by the RE and/ or its partner/ agent will be explicitly disclosed in the factsheet. The borrower will not be charged any amount which is not explicitly mentioned in the factsheet.
- **Penalty**, if any, for delayed payment will be applied on the overdue amount and not on the entire loan amount
- Any **change in interest rate** or any other charge shall be informed to the **borrower well in advance a**nd these changes shall be effective only prospectively
- As per the new norms the minimum requirement of microfinance loans for NBFC-MFIs stands revised to 75% of the total assets.

Benefits
- Extremely comprehensive, the harmonised regulations will usher in a new era/beginning for the microfinance sector where a common regulatory framework will be applicable to all regulated entities of the RBI
- Besides creating a level playing field, the framework will address issues of over indebtedness and multiple lending which were of paramount concern for the sector.
- More importantly, the RBI has taken a prudent view of the bottlenecks that are present in credit delivery, addressing each of them.
- The revision of household income was a progressive move with far-reaching implications as more needy, low-income households will now come into the purview of accessible credit, taking us closer to our financial inclusion goal.

What are the 'micro-finance institutions'?

- MFI is an organisation that offers financial services to low income populations. These services include microloans, microsavings and microinsurance.
- MFIs are financial companies that provide small loans to people who do not have any access to banking facilities. The definition of "small loans" varies between countries. In India, all loans that are below Rs.1 lakh can be considered as microloans.
- In most cases the so-called interest rates are lower than those charged by normal banks, certain rivals of this concept accuse microfinance entities of creating gain by manipulating the poor people's money.

Unemployment in India (PLFS)

Context

- The unemployment rate had shot up sharply during the nationwide lockdown in 2020 during the first wave of the pandemic.

Details

- India's urban unemployment rate jumped to 12.6 per cent in the April-June quarter of 2021, compared to 9.3 per cent in the January-March quarter.
- It, however, eased from the 20.8 percent level seen during the first wave of the Covid pandemic, the latest Periodic Labour Force Survey (PLFS) released by the National Statistical Office (NSO) shows.

Periodic Labour Force Survey (PLFS) –

- **National Statistical Office (NSO) releases** the Periodic Labour Force Survey (PLFS)
- PLFS has **two fold objectives**:
  o To estimate the key employment and unemployment indicators (viz. Worker Population Ratio, Labour Force Participation Rate, Unemployment Rate) in the short time interval of three months for urban areas only in the Current Weekly Status (CWS).
  o To estimate employment and unemployment indicators in both usual status and CWS in both rural and urban areas annually.
- Before PLFS, the NSSO (previous name of NSO) used to bring the data related to employment and unemployment based on its quinquennial household socio-economic survey programme.

Key Terms

- **Unemployment Rate (UR):** UR is defined as the percentage of persons unemployed among the persons in the labour force.
- **Labour Force Participation Rate (LFPR):** LFPR is defined as the percentage of persons in the labour force (i.e. working or seeking or available for work) in the population.
- **Female Labour Force Participation Rate:** It is the share of working-age women who report either being employed, or being available for work.
- **Worker Population Ratio (WPR):** WPR is defined as the percentage of employed persons in the population.
- **Activity Status**: The activity status of a person is determined on the basis of the activities pursued by the person during the specified reference period.
  o **Usual Status**: The activity status is determined on the basis of the reference period of the last 365 days preceding the date of survey, it is known as the usual activity status of the person.
  o **Current Weekly Status** (CWS): The activity status determined on the basis of a reference period of the last 7 days preceding the date of survey is known as the current weekly status (CWS) of the person.

National Statistical Office

- NSO is the central statistical agency of the Government mandated under the Statistical Services Act 1980 under the Ministry of Statistics and Programme Implementation.
- It is responsible for the development of arrangements for providing statistical information services to meet the needs of the Government and other users for information on which to base policy, planning, monitoring and management decisions.
- The services include collecting, compiling and disseminating official statistical information.
- All business operations in NSO are done in compliance with international standards, procedures and best practices.

Open Network Digital commerce (ONDC)

Context

- The Minister of Commerce and Industry said that Open Network for Digital Commerce (ONDC) would democratise e-

commerce and will protect small businesses by granting them equal opportunity.

What is Open Network for Digital Commerce?

- It is a <u>platform</u> to <u>make e-commerce processes open source</u> for online retailers.
- It is <u>expected to digitise the entire value chain</u>, standardise operations, promote inclusion of suppliers, derive efficiencies in logistics and enhance value for consumers.
- It is a government initiative to create an open public digital infrastructure to develop and transform the Indian digital commerce ecosystem for both goods and services by increasing its reach to every individual and business enterprise.
- It is an initiative of the Department for Promotion of Industry and Internal Trade (DPIIT) under the Ministry of Commerce and Industry.
- It was formed on December 31, 2021, ONDC as a private sector non-profit company and aims to ensure that small retailers get an equal opportunity to engage with big firms, protect their businesses and serve customers with modern ways of delivery.
- The government-backed platform intends to increase the ease of doing business online and to expand alternatives for both buyers and sellers to engage in the digital commerce space.

How will ONDC work?

- It will empower merchants and consumers by breaking silos to form a single network to drive innovation and scale, transforming all businesses from retail goods, food to mobility.
- The government has also rolled out a detailed procedure for the functioning of the platform which aims to ensure confidentiality and privacy of data in the network.
- It will not mandate sharing of any transaction-level data by participants with ONDC and work with them to publish anonymised aggregate metrics on network performance without compromising on confidentiality and privacy.
- It will be compliant with the Information Technology Act, 2000 and designed for compliance with the emerging personal data protection bill.

SWAP Auction

Context

- The Reserve Bank of India (RBI) has conducted a $5 billion dollar-rupee swap auction as part of its liquidity management initiative, leading to infusion of dollars and sucking out of the rupee from the financial system.

Details

- The RBI sold $5.135 billion to banks and simultaneously agreed to buy back the dollars at the end of the swap settlement period.
- When the central bank sells dollars, it sucks out an equivalent amount in rupees, thus reducing the rupee liquidity in the system. Dollar inflow into the market will strengthen the rupee which has already hit the 77 level against the US dollar.
- The swap auction can be done in the reverse way also when there is shortage of liquidity in the system. The RBI then buys dollars from the market and releases an equivalent amount in the rupees.

Impact

- The central bank's move will reduce the pressure on inflation and strengthen the rupee.
- With the rupee under pressure and inflation posing a big risk to the economy, the central bank is expected to come out with more such measures to rein in inflation and prevent a big slide in the rupee.

CEPA between India and Bangladesh

Context

- India is looking to advance the Comprehensive Economic Partnership Agreement (CEPA) with Bangladesh.

Details

- The two countries have been making endeavours to deepen trade ties
- the two sides also discussed other issues of mutual interest, including development of railway and port infrastructure, border haats (markets), regional connectivity through multimodal transportation and harmonisation of standards
- Bangladesh is India's biggest trade partner in South Asia.
- "Bilateral trade between India and Bangladesh has grown steadily over the last decade and the exports of Bangladesh have tripled over the last decade to cross $1 billion in 2018-19.
- The two nations have approved a detailed project proposal (DPP) for development of rail and road based inland container depot at Ishwardi and plan to open border markets that were closed due to Covid restrictions

The Minister of Commerce and Industry, Consumer Affairs, Food and Public Distribution and Textiles, Shri Piyush Goyal listed four focus areas for strengthening India-Bangladesh relationship:

1. **Uninterrupted Supply chain is the need of the hour:** Improving this connectivity further is imperative for expansion of our bilateral trade and realisation of the investment potential of Bangladesh and eastern India.
2. **Need to give more impetus to Joint Production of Defence Equipment: As the defence cooperation has not progressed.**

3. Explore potential areas of investments, like Textiles, Jute products, Leather & Footwear, APIs for Pharmaceuticals, Medical Equipment, Digital Health & Education Services, Agribusiness, Electronics, Renewable Energy, etc**.**

4. **India and Bangladesh can become 'Pharmacy of the world':** During COVID-19, vaccines produced in India, - Covaxin & Covershield created a niche for themselves as safe vaccines. Time has now come for joint manufacturing of vaccines and other medicines!

Types of Trade Agreements:

Table: Levels of Integration and Restrictions on Sovereignty

Integration Level	Goal	Case	MS of Case	Restrictions on Sovereignty (little, medium, high)
Free Trade Agreement	Eliminate tariffs and quotas	North American Free Trade Agreement	Canada, Mexico, United States	Low
Custom Union	FTA + common external tariffs	Southern Common Market	Argentina, Brazil, Paraguay, Uruguay, Venezuela	Low
Common Market	Custom Union + freedom of movement	European Free Trade Association	Iceland, Liechtenstein, Norway, Switzerland	Medium
Monetary Union	Common Market + common currency	Economic and Monetary Community of Central Africa	Cameroon, Central African Republic, Chad, Republic of Congo, Equatorial Guinea, Gabon[3]	Medium
Economic Union	Monetary Union + entity institutions, primarily economic ones	Caribbean Single Market and Economy	12 countries in the Caribbean, Central & South America[4]	High
Political Union	Economic Union + entity government	European Union	28 countries in Europe[5]	High[6]

Minimum Assured Returns Scheme (MARS)

Context

- The Pension Fund Regulatory and Development Authority, which operates the National Pension System, is preparing to launch a guaranteed return scheme

Details

- The Minimum Assured Return Scheme (MARS) will provide an additional option to the salaried class and others under the National Pension Scheme (NPS).
- The scheme will offer guaranteed returns to the investors.
- The investor will receive returns based on the market conditions.
- Any shortfall will be made good by the sponsor, and the surplus will get credited to the subscriber's account.

What kind of guarantee will the scheme offer?

- It is likely to offer two kinds of guarantee options:
  o **Fixed guarantee-** Under the fixed guarantee option, the guaranteed return is fixed along with the accumulation phase.
  o **Floating guarantee–** Under the floating guarantee option, the guaranteed rate of return is not fixed along with the savings phase. Such a type of guarantee depends on developing the 1-year interest rate until retirement.

Other parameters:

Lock-in period:

- lock-in may be applicable on each contribution, and will be applied based on the period since that contribution has been made.
- Withdrawals are likely to be directly linked to the lock-in period.
- The subscriber may have the option to withdraw or to stay invested after the lock-in period.

Minimum contribution:

- Minimum and maximum monetary limits on contributions may be prescribed.

- The attraction for investors will be the minimum guaranteed return.

About PFRDA:
- The Pension Fund Regulatory and Development Authority is the regulatory body under the jurisdiction of the Ministry of Finance , Government of India for overall supervision and regulation of pensions in India.
- PFRDA regulates NPS, subscribed by employees of Govt. of India, State Governments and by employees of private institutions/organisations & unorganised sectors.

National Pension System:
- National Pension System (NPS) is a voluntary retirement savings scheme laid out to allow the subscribers to make defined contributions towards planned savings thereby securing the future in the form of Pension. It is an attempt towards a sustainable solution to the problem of providing adequate retirement income to every citizen of India.

Benefits of NPS Account

i) Low Cost:-
- NPS is considered to be the world's lowest cost pension scheme. Administrative charges and fund management fees are also lowest.

ii) Simple:-
- All applicant has to do is to open an account with any one of the POPs being run through all Head Posts Offices across India and get a Permanent Retirement Account Number(PRAN)

iii) Flexible:-
- Applicant can choose his/her own investment option and Pension Fund or select Auto choice to get better returns.

iv) Portable:-
- Applicants can operate an account from anywhere in the country and can pay contributions through any of the POP-SPs irrespective of the POP-SP branch with whom the applicant is registered, even if he/she changes his/her city, job etc and also make contribution through eNPS. The account can be shifted to any other sector like Government Sector, Corporate Model in case the subscriber gets the employment.

National Pension System

Eligibility Indian citizen in the 18-60 age bracket

Lock-in Period Matures at 60

Partial Withdrawal Upto 25% after 3 years of account opening

Asset Classes Equity (E), Government Bond (G), Corporate Bond (C), Alternative Investment (A)

Investment Choice Active (Subscriber allocates), Auto (As per life cycle fund)

Cost Low Cost, Fund Management Fee capped at 0.01%

NPS Account Can be opened online at NSDL or Karvy Website

Types of NPS Accounts

Tier 1- Premature withdrawal not allowed. Tax deduction benefits upto Rs. 2 lakh per annum.

Tier 2- Funds can be withdrawn any time but lock-in of 3 years for claiming tax benefits.

SCIENCE & TECHNOLOGY

Daylight Harvesting Technology

Context
- Ministry of Science & Technology has decided to promote a unique and India's first, Start-up in latest Daylight Harvesting Technology.

Daylight Harvesting Technology
- Daylighting is a **term used for bringing of natural sunlight into buildings and rooms for illumination thereby reducing electrical lighting energy consumption.**
- This is accomplished using **lighting control systems that are able to dim or switch electric lighting in response to changing daylight availability.**
- The solar energy spectrum has 45 per cent energy as visible light and this can be used to harvest building illumination for

about nine to eleven hours a day.

Significance

- Lighting is a fundamental requirement of our daily life. Daylight is available universally and it is a **very clean and cost-efficient source of energy.**
- The proposed technologies, harvest huge quantities of sunlight for a building and make available for building illumination which **reduces electrical lighting energy consumption by 70-80%,** besides reducing air-conditioning (cooling load) consumption.
- It will thus **reduce carbon footprint and improve the building energy efficiency**.
- Meeting our energy requirement during the day by using daylight harvesting technology will contribute immensely to meet one of the commitments of the **five nectars of 'Panchamrit' -- to make India as Net Zero emission country by 2070."**
- This unique project in itself may prove to be a game changer & may become a mass movement for Environmental Conscious Life Style in years to come.
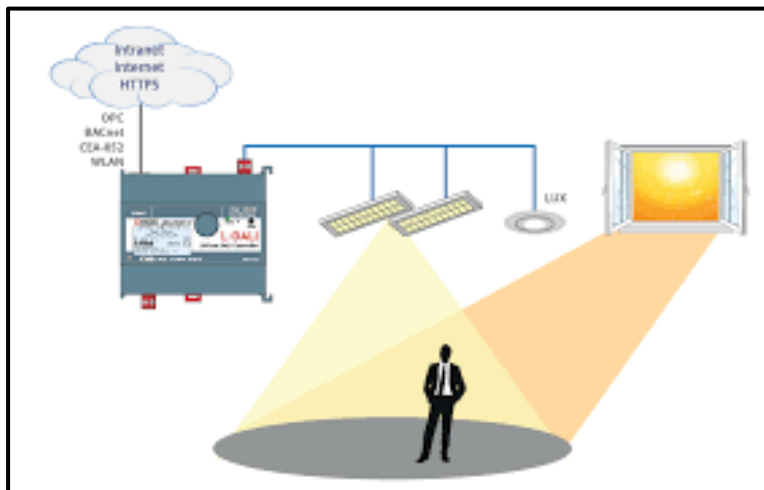
Hydrogen Production with Electrolysis of Urea

Context

- Indian Scientists have designed an electro-catalyst system for energy-efficient hydrogen production with the help of electrolysis of urea.

Methods of hydrogen production

- There are four main sources for the commercial production of hydrogen: **natural gas, oil, coal, and electrolysis**; which account for 48%, 30%, 18% and 4% of the world's hydrogen production respectively.
- Fossil fuels are the dominant source of industrial hydrogen.

Electrolysis Method

- Electrolysis is a promising option for carbon-free hydrogen production from renewable and nuclear resources.
- Water Electrolysis is the **process of using electricity to split water into hydrogen and oxygen.**
- In urea electrolysis, **instead of splitting of water, urea undergoes electro-oxidation.**

Advantages of Urea Electrolysis

Energy Efficient

- Production of Hydrogen through water electrolysis/splitting **is energy-intensive.**
- The energy requirement for production of hydrogen through water electrolysis **can be reduced by 70 % through urea electrolysis.**

Low Cost

- In the urea electrolysis, **Nickel-based catalysts are used, which are earth-abundant and low cost.**
- Thus, the urea electrolysis is **helpful towards urea-based waste treatment with low-cost hydrogen production.**

Urea Abundance

- India is one of the largest urea producing countries in the world. In 2019-20 it produced 244.55 LMT of urea.

Challenge with urea oxidation

Catalyst Poisoning

- The big challenge associated with oxidation of urea in urea electrolysis is **retaining the prolonged activity of the catalyst.**
- The strong adsorption of the reactive intermediate (COx) on the active site (referred to as **catalyst poisoning) causes activity loss.**
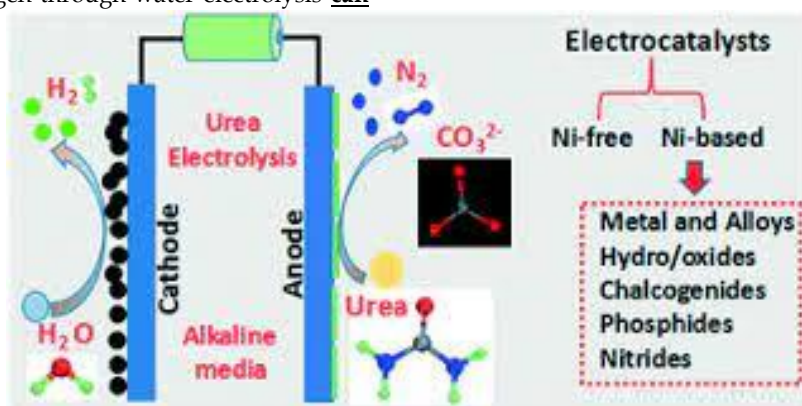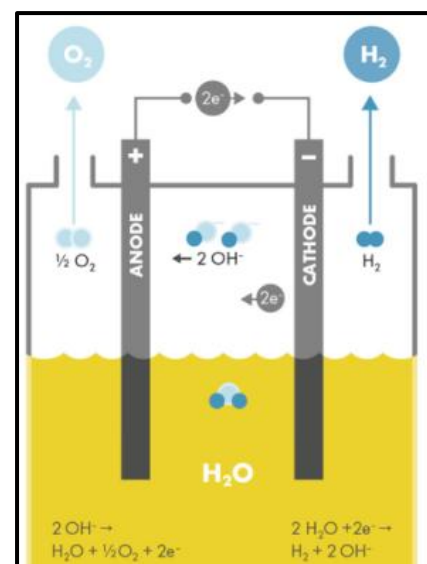
Final Thought

- Once the catalyst poisoning challenge is overcome, the process can be promising for producing Hydrogen.
- The nitrogenous **fertilizer industries generate a high concentration of ammonia and urea as effluents.**
- This **can be utilized for energy production** towards our country's benefits.

Coronal Mass Ejections

In News

- Indian researchers have developed a simple technique of separating the constant background of the Solar Colona and revealing the dynamic corona. It will help in CME detection.

CMEs

- **About:** Coronal Mass Ejections (CMEs) are **large expulsions of plasma and magnetic field from the Sun's corona**. They can eject billions of tonnes of coronal material and carry an embedded magnetic field (frozen in flux) that is stronger than the background solar wind interplanetary magnetic field (IMF) strength.
- **Speed:** CMEs **travel outward from the Sun at speeds ranging from slower than 250 km per second (km/s) to as fast as near 3,000 km/s.** The **fastest Earth-directed CMEs can reach our planet in as little as 15-18 hours.** Slower CMEs can take several days to arrive.
- **Expansion:** They **expand in size as they propagate away from the Sun**.
- **Impact:** CMEs are capable of driving the Space Weather in near-Earth space. CMEs can cause **radio and magnetic disturbances on the Earth.** A massive CME **can impact any planet or spacecraft** in its path. CMEs can **aurora** and other effects.

Solar Flare VS CMEs VS Solar Storm

- A solar flare is an **intense burst of radiation that comes from the release of magnetic energy linked with the sunspots**. Flares are essentially giant **bursts of X-rays and energy that travel at the speed of light**. They are often seen as **flashes of light on the Sun.** Solar flares impact Earth only if they occur on the side of the sun facing the Earth.
- CMEs are massive clouds of particles that are **pushed out into space from the Sun's atmosphere**. The outer corona is made up of strong magnetic fields. **In places where these magnetic fields are closed**, usually **over sunspot groups, the solar atmosphere can spontaneously release bubbles of gas and magnetic fields, which are called coronal mass ejections.** Thus, CME may occur **when the twisted magnetic field holding up a prominence becomes unstable and rises up** very suddenly and quickly.**Solar flares and CMEs can occur both independently as well as together.**
- Solar storm is essentially a term used to describe **atmospheric effects that are experienced on Earth from events like coronal mass ejections and solar flares that occur on the Sun**. It is a result of either one or both of the following incidents on the star's surface that impact our planet.

Read: https://www.iasgyan.in/daily-current-affairs/solar-corona; https://www.iasgyan.in/blogs/solar-cycle

Boltzmann Medal

Context

- Deepak Dhar, physicist, from the Indian Institute of Science Education and Research, Pune, has been selected for the Boltzmann medal.

About

- The Boltzmann Medal (or Boltzmann Award) is a prize **awarded to physicists that obtain new results concerning statistical mechanics.**
- It is named after the celebrated physicist Ludwig Boltzmann.
- The Boltzmann Medal is **awarded once every three years by the Commission on Statistical Physics of the International Union of Pure and Applied Physics**, during the STATPHYS conference.
- The award consists of a gilded medal; its front carries the inscription Ludwig Boltzmann, 1844--1906.

The International Union of Pure and Applied Physics is **an international non-governmental organization** whose mission is to assist in the worldwide development of physics, to foster international cooperation in physics, and to help in the application of physics toward solving problems of concern to humanity. It was **established in 1922** and the first General Assembly was held in 1923 in Paris.

Black Boxes

Context

- China's aviation authority announced that a flight recorder, commonly known as "black box", "from China Eastern MU5735 was found.

What are Black boxes?

- These are two **large metallic boxes containing recorders** kept on most aircraft.
- The recorders **record the information about a flight, and help reconstruct the events leading to an aircraft accident.**
- Black boxes are a blazing, **high-visibility orange in colour**.

Types

- **CVR:** The cockpit voice recorder (CVR) **records radio transmissions** and other sounds in the cockpit, such as **conversations between the pilots, and engine noises.**
- **FDR:** The flight data recorder (FDR) records more than 80 different types of information **such as altitude, airspeed, flight heading, vertical acceleration, pitch, roll, autopilot status, etc.**

History

- The use of black boxes **dates back to 1950s**, when, plane crashes investigators were unable to arrive at a cause for the accidents. An Australian scientist named **David Warren is often credited with their invention.**

Technicalities

- In the initial days of the black box, a **limited amount of data was recorded** on wire or foil. Thereafter magnetic tape was used, and **modern models contain solid state memory chips.**
- The recording devices, each **weighing about 4.5 kg**, are stored inside a unit that is generally made out of **steel or titanium.** They are **insulated from extreme heat, cold or wetness**.
- To make black boxes discoverable under water, they are **equipped with a beacon that sends out ultrasound signals for 30 days.**
- **Black boxes are mandatory on commercial flights**. Their purpose on aircraft is **not to establish legal liability**, **but to identify the causes of a mishap** and, therefore, help to prevent adverse incidents in the future.

Black boxes vital in reconstructing accidents

Commercial aircraft carry two so-called black boxes. While they do nothing to help the plane in flight, they are vitally important to accident investigators in the aftermath of a plane crash

Cockpit — Boeing 777-200ER — Black boxes

Solid State Flight Data Recorder — **Cockpit Voice Recorder**

Power supply
Crash Survivable Memory Unit: Stainless steel or titanium CSMU can withstand impact 3,400 times force of gravity

Units record for 25 hours — 122mm

Insulation and thermal block: Protection up to 1,100°C

Interface and Controller Board: ICB records some 3,000 flight parameters, including airspeed, altitude, how engines are working, status of key systems – autopilot and autothrottle – and position of wing flaps and rudder

Flash memory

Underwater Locator Beacon: Transmits from depth of 6,000m, every second for 30 days

Source: Honeywell ED-55 Flight Data Recording System — © GRAPHIC NEWS

Variable Refresh Rate

Context

- Google is testing support for variable refresh rates (VRR) in the Chromebook OS 101 Dev Channel.

What is VRR?

- Refresh rate is the **number of times a display is capable of refreshing in a second.**
- It is **measured in hertz (Hz).** So, a 30 Hz or a 60 Hz display can refresh 30 or 60 times per second, respectively.
- The **higher the refresh rate, the better the quality of viewing experience**.
- Displays with over 120 Hz can deliver a smoother and more comfortable viewing experience. This is necessary while playing video games or watching videos.

GSAT 7 Series Satellites

Context

- The Indian Army will soon get the much awaited **dedicated communication satellite GSAT-7B** that will boost its operational capabilities.

GSAT 7 Series satellites

- GSAT 7 series satellites are advanced satellites developed by the Indian Space Research Organisation (ISRO) **to meet the communication needs of the defenceservic**

GSAT 7 satellite (Rukmini)

- **Launch:** The GSAT 7 satellite was launched in **2013** from an **Ariane 5 ECA rocket from Kourou in French Guiana.**
- **Orbit:** The satellite was injected **into a geosynchronous transfer orbit (GTO).**
- **Weight and Coverage:** It is a **2,650 kg satellite which has a footprint of nearly 2,000 nautical miles in the Indian Ocean region**.
- **Services provided (specific):Also dubbed as Rukmini**, this satellite helps the Navy to have a **secure, real time communication link between its land establishments, surface ships, submarines & aircraft since a decade.**

GSAT-7A Satellite (Angry Bird)

- **About:** GSAT-7A, dubbed the "Indian Angry Bird"**, was launched in 2018**. The 2,250-kg military communications satellite helps in **connecting all assets of the Indian Air Force**
- **Coverage:** GSAT-7A provides communication capability to users **in Ku-band over the Indian region**.
- **Key role:** Boosting the **connectivity between the ground radar stations, airbases and the airborne early warning and control aircraft (AEW&C) of the IAF.**It **helps in satellite controlled operations of unmanned aerial vehicles (UAVs)**. This gives a great deal of reliability to the operations as compared to ground controlled operations.

A further GSAT 7C satellite would facilitate real time communication with IAF's software defined radio communication sets. It will increase the capability of the IAF to communicate beyond the line of sight in a secure mode.

What will be the role of the GSAT 7B satellite?

- The GSAT 7B **will primarily fulfill the communication needs of the Army as a dedicated satellite**. Currently, the Army is using just 30 per cent of the communication capabilities of the **GSAT 7A satellite as GSAT 7 A has been designed specifically for the Indian Air Force (IAF).**
- The GSAT 7B **will also help the Army enhance its surveillance in border areas.**

Small Satellite Launch Vehicle (SSLV)

Context

- ISRO successfully conducted the ground testing of the newly developed solid booster stage (SS1) for its new Small Satellite Launch Vehicle (SSLV).

Launch vehicle

- Launchers or Launch Vehicles are used to carry spacecraft to space.

SSLV

- **About:** The Small Satellite Launch Vehicle (SSLV) is a **small-lift launch vehicle developed by ISRO.**
- **Mass:** The SSLV is the smallest vehicle **at 110-ton mass** at ISRO.
- **Fuel:** SSLV is a **three-stage, all-solid launch vehicle.**
- **Payload Capacity:** It has a **payload capacity to deliver 600 kg to low Earth orbit (500 km)** or **300 kg to Sun-synchronous orbit (500 km)** for launching small satellites.
- **Orbital drop offs:** It has the **capability to support multiple orbital drop-offs.**
- **Significance:** The SSLV was **developed with the aim of launching small satellites commercially at drastically reduced price and higher launch rate** as compared to Polar Satellite Launch Vehicle (PSLV).

Read: https://www.iasgyan.in/daily-current-affairs/satellite-launch-vehicles

https://iasgyan.in/daily-current-affairs/small-satellite-launch-vehicle

ExoMars Mission

Context

- The European Space Agency's ExoMars 2022 mission won't launch in September 2022 as planned because ESA has suspended all cooperation with Russia's space program Roscosmos amid Russia- Ukraine War.

ExoMars Mission

- **About:** ExoMars (Exobiology on Mars) is a programme to explore Mars and understand if life ever existed on Mars.
- **Agencies involved:**European Space Agency (ESA) and the Russian space agency Roscosmos. NASA's participation in the 2022 ExoMars Rover mission includes providing key electronic components for the rover.
- **Objectives:** The goals of ExoMars are to:
  o Search for signs of past life on Mars.
  o Investigate how the Martian water and geochemical environment varies.
  o Investigate atmospheric trace gases and their sources.
  o Demonstrate the technologies for a future Mars sample-return mission.
- **Phases**
1. **Part I:**
- The **first part of the programme was launched in 2016**.
- In this **a Trace Gas Orbiter was placed into Mars orbit** and the **Schiaparelli EDM lander was released**.

- The orbiter is operational but the lander crashed in **MeridianiPlanum** on Mar's surface.
- The Trace Gas Orbiter (TGO) maps the sources of methane (CH4) and other trace gases present in the Martian atmosphere that could be evidence for possible biological or geological activity.
2. **Part II:**
- The second part of the programme was planned to launch this year in 2022. It is supposed to deliver a European rover, **"Rosalind Franklin,"** via a **Russian lander, "Kazachok,"** which will also serve as a surface platform for conducting science experiments.

Trivia
Meridiani Planum is a **plain located 2 degrees south of Mars's equator.** It hosts a rare **occurrence of gray crystalline hematite**. On Earth, hematite is often formed in hot springs or in standing pools of water. Therefore, many scientists believe that the hematite at Meridiani Planum may be indicative of ancient hot springs or that the environment contained liquid water.

Gallium Nitride

Context
- Union Minister Rajeev Chandrasekhar recently visited the Gallium Nitride Ecosystem Enabling Centre and Incubator (GEECI) facility at the Indian Institute of Sciences (IISc). He said that in the coming years Gallium Nitride (GaN) will play a key role in enabling e-vehicles and wireless communication.

What is GaN?
- **About:** Gallium nitride (GaN) is a **very hard, mechanically stable wide band-gap semiconductor**. It has a hexagonal crystal structure.

The band gap is the **minimum amount of energy required for an electron to break free of its bound state**. When the band gap energy is met, the electron is excited into a free state, and can therefore participate in conduction.

Conventional semiconductors like silicon have a band-gap in the range of **1 - 1.5 electronvolt (eV), whereas wide-bandgap** materials have bandgaps **in the range above 2eV.** Generally, wide-band-gap semiconductors have electronic properties which fall in between those of conventional semiconductors and insulators.

Wide-bandgap semiconductors (WBGS) are semiconductor materials that **permit devices to operate at reduced energy consumption and much higher voltages, higher frequencies than conventional semiconductor materials** like silicon and gallium arsenide.

Wider bandgap is particularly important **for allowing devices that use them to operate at much higher temperatures, on the order of 300 °C.**

- **Properties:** With faster switching speed, higher thermal conductivity and lower on-resistance, power devices based on GaN significantly outperform silicon-based devices.

Structure of Gallium Nitride (GaN)

Gallium (Ga) ● Nitrogen (N)

A hexagonal wurtzite crystal structure, where the lattice constants of a-axis (horizontal) and c-axis (vertical) are different from each other

Main Features of Gallium Nitride (GaN) Semiconductors

- Usable in environments with high pressure and high temperature
- Big energy difference between the conduction band and the valence band
- Quick signal switching speed
- Low energy loss rate

- **Use:** GaN is used in the production of **semiconductor power devices, light-emitting diodes (LEDs), lasers, and photonics**.

It is used in RF components that cover **antenna switches, filters, power amplifiers and tuners;** (RF components' application areas cover cellular phones, tablets, e-readers, GPS devices, laptops, smart TV's, and others).

- **Advantage:** GaN's **ability to conduct electrons more than 1000 times more efficiently than silicon**, while being **able to be manufactured at a lower cost than silicon** has led to its rise. It is a higher performing semiconductor material.

GaN attributes in a nutshell
- Lower on-resistance giving lower conductance losses.
- Faster devices yielding less switching losses.

- Less capacitance resulting in fewer losses when charging and discharging devices.
- Less power needed to drive the circuit.
- Smaller devices taking up less space on the printed circuit board.
- Lower cost.

Gallium Nitride Technology is of strategic importance with its application to 5G, space and defence application.

ENVIRONMENT & ECOLOGY

Shirui Lily festival

Context

- Manipur Chief minister inaugurated the five-day-long 'Shirui Lily Festival' in Manipur's Ukhrul district.

About 'Shirui Lily Festival':

- It is an eco-tourism festival of **Manipur started in 2017**.
- It celebrates the **State Flower of Manipur** and the event is a part of Manipur Tourism's efforts to **increase awareness about the endangered species of Manipur's Shirui Lily found only in the Shirui Hills.**
  - **The Shirui Hills** is known for a unique species of land-lily, the Shirui Lily which grows at a height of about 8,500 ft above sea level.
- The festival featured demonstrations of the age-old traditions and culture of the inhabitants of the district of Ukhrul. The festival is being organized during the month of May keeping in mind the peak blooming season of the flower.
- Shirui Lily, also called "Siroy Lily or LiliumMacklinae" is a **rare pinkish white flower** found **only in the Shirui Hill range** in the Ukhrul district of Manipur.
- The Shirui Lily flower resembles the shape of a bell. It **blooms only during the months of April to June** every year.

New Gin Berry Species

Context

- The New gin berry species discovered from the Kanyakumari Wildlife Sanctuary in Tamil Nadu.

More about news

- **Name:** Glycosmisalbicarpa, the species belongs to the Orange family, Rutaceae.
- **Distinct feature:** bears distinct large white fruit
- It is **endemic to the southern Western Ghats**.
- **Significance:** Many of the related plants of these taxonomic groups are being **utilised for their medicinal values and food.**

Northern River Terrapin

Context

- In just six weeks after the release, at least three of the ten individuals of the Northern River Terrapin have travelled hundreds of kilometers and are now in Bangladesh.

The Northern River Terrapin

- It is a freshwater turtle.
- **Common Names:** Batagur, Common Batagur, Four-toed Terrapin, River Terrapin
- **Conservation Status:**
  - **IUCN** :   Critically Endangered
  - **IWPA** :   Schedule I
  - **CITES** :   Appendix I
- **Habitat and distribution:** It is found in India and **Bangladesh (Sundarbans), Myanmar, Malaysia** (peninsular), Indonesia (Sumatra), Thailand, and Cambodia.
- **Characteristics, Habitat and Behaviour:** The species has an **upturned snout**. It lives in coastal mangrove estuaries and creeks, but ventures far upstream during the breeding season. An omnivore, it feeds on waterside plants and small animals such as clams.
- **Major Threats**
  - Hunting and harvesting of eggs.
  - Pollution and loss of habitat including nesting beaches, mangrove forest and other food sources.

- o   Incidental drowning by getting trapped in fishing nets and traps, accidental death resulting from power boats.
- o   Destructive fishing practices, siltation and sedimentation due to watershed activities such as logging.
- Government is running conservation breeding programme of this species.

Hornbill Nest Adoption Program (HNAP)

Context

- The Hornbill Nest Adoption Program (HNAP), a community-based hornbill conservation programme that is celebrating its tenth year of success in 2022. HNAP operates in the forests outside Arunachal Pradesh's Pakke Tiger Reserve.

Pakke Tiger Reserve and Nyishi tribe:

- Pakke Tiger Reserve harbour four species:
  - o   great hornbill
  - o   rufous-necked hornbill
  - o   wreathed hornbill (classified as 'vulnerable' species)
  - o   oriental pied hornbill.
- The reserve forest is home to several villages and settlements of the Nyishi tribe.
- Earlier, most **Nyishi followed animistic beliefs**. The men wear elaborate headgear called 'podum', which is a woven cane cap adorned with the upper beak and casque of the great hornbill and also the tail feathers of other birds such as the racket-tailed drongo or a raptor.

About Great Indian Hornbill

- Hornbills are **indicators of the health** of a forest.
- They are **seed dispersers** and rightly called the '**farmers of the forest'**.
- **Threats:** habitat loss, fragmentation and hunting.
- **IUCN Red List Status**- Vulnerable
- Found in the Indian subcontinent and Southeast
- State bird of Kerala and Arunachal Pradesh.
- **Schedule I of the Wildlife Protection Act,** 1972

About Hornbill Nest Adoption Program (HNAP)

- It was officially launched in 2012 by the **Nature Conservation Foundation (NCF)** in partnership with the **Ghora-Aabhe Society** (a council of village headmen in the Nyishi tribe) and the **Arunachal Pradesh Forest Department.**
- Taking inspiration from **PilaiPoonswad's initiative in Thailand** (that protects several species of hornbills in partnership with local villagers, while nests were adopted by Thai citizens or foreigners), the idea of the HNAP was proposed.
- It is based on the idea that the **local community protects the habitat and the nests, while other citizens and institutions adopt nests to support the running costs of the programme**.
- Thus, the hornbill chicks have three sets of parents: the **biological parents, the local Nyishi nest protectors, and adoptive hornbill parents who support the programmefinancially.**
- **HNAP has been awarded the Sanctuary Asia Award 2014 and the India Biodiversity Award 2016.**

World Water Day

Context

- The World Water Day is celebrated to raise public awareness about the significance of fresh water and sustainable management of this significant resource.
- One of the main focuses of World Water Day is **to support the achievement of 'Sustainable Development Goal 6: water and sanitation for all by 2030.'**

Why is it important?

- According to the UN, **one in three people lives without safe drinking water** even today.
- **By 2050, up to 5.7 billion people may be living in areas where water is scarce** for at least one month a year.
- Observance of the World Water Day seeks **to reaffirm that water and sanitation measures are key to reducing poverty, achieving environmental sustainability and economic growth.**

World Water Day

- **World Water Day 2022theme:** 'Groundwater: Making The Invisible Visible' is the theme of World Water Day 2022, proposed by IGRAC.
- **HISTORY:** Officially the idea of World Water Day was a resolution adopted by the **UN General Assembly conference on Environmental and Development in Rio De Janeiro in 1992.** It was then that the United Nations General Assembly adopted a resolution stating that every year, March 22 will be marked as World Water Day **starting 1993**.
- It is an annual event **to increase community awareness about understanding the importance of water conservation.**
- **Significance**: Itis promoted globally by UN agencies to stimulate people across the world by organising promotional activities

to encourage the people, make them address the critical water issues, and also coordinate with the international activities.

- The Government of India has adopted the **Jal Jeevan Mission** to ensure water conservation and access to clean drinking water for our citizens.

Lead poisoning

Context

- High levels of lead were found in the blood of thousands of children living around the Kabwe mine in Zambia.

Lead:

- It is a **naturally occurring toxic metal** found in the Earth's crust.
- Its widespread use has resulted in extensive environmental contamination, human exposure and significant public health problems.
- Lead is used in **pigments, paints, solder, stained glass, lead crystal glassware, ammunition, ceramic glazes, jewellery, toys and some cosmetics and traditional medicines**.
- Drinking water delivered through lead pipes or pipes joined with lead solder may contain lead. Much of the lead in global commerce is now obtained from recycling.

Sources of environmental contamination

- Mining and smelting
- Manufacturing and recycling activities,
- use of leaded paint and leaded aviation fuel.

Routes of exposure

- **inhalation of lead particles** generated by burning materials containing lead, for example during smelting, recycling, stripping leaded paint and using leaded aviation fuel; and
- **ingestion of lead-contaminated dust**, water (from leaded pipes) and food (from lead-glazed or lead-soldered containers).
- An additional source of exposure is the use of certain types of traditional medicines and cosmetics.

Lead poisoning

- Young children are particularly vulnerable to the toxic effects of lead and can suffer profound and permanent adverse health impacts, particularly on the **development of the brain and nervous system**.
- Lead also causes long-term harm in adults, including increased **risk of high blood pressure and kidney damage.**
- Exposure of pregnant women to high levels of lead can cause **miscarriage, stillbirth, premature birth and low birth weight.**

Indian Pangolin

Context

- Forest officials seized live pangolins from the Valmiki Tiger Reserve of Bihar.

About Pangolins

- Pangolins, despite being listed in **Schedule I of Wildlife (Protection) Act, 1972** continue to be the **world's most trafficked mammal.**
- The **Indian pangolin is the largest among eight pangolin species**.
- The nocturnal animal lives in burrows and **feed on ants and termites.**
- It practices **Volvation.**
  - **Volvation is a defensive behavior in certain animals, in which the animal rolls its own body into a ball, presenting only the hardest parts of its integument, or its spines to predators.**

Pangolins in India

- Both Indian Pangolin (Maniscrassicaudata) and the Chinese Pangolin (Manispentadactyla) are found in India.

Endangered pangolins

The world's most heavily trafficked mammal

No reliable global population estimates but drastic local declines documented

Behaviour
- Solitary, nocturnal
- Digs long burrows to hunt termites and for shelter
- Can climb trees
- Good swimmer
Diet: ants, termites
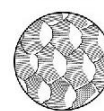
Scales
- Made from keratin, the substance that also forms human hair and nails
- Sought on the black market for supposed medicinal benefits

Defence
- Rolls into a ball
- Easy to catch for illegal meat and medicine market

Trafficking
- Increasing **demand for their meat and body parts** is fuelling illegal hunting
- More than **1 million pangolins** believed to have been **poached** from the wild in the past decade
- CITES* in September 2016 banned all international trade

Eight species of pangolin worldwide

Four Asian species
Critically endangered
- Chinese
- Malayan

Endangered
- Indian
- Philipine

Four African species
Vulnerable
- African white-bellied
- Griant ground
- Temminck's ground
- Long-tailed

Young travel on mother's tail

*Convention on International Trade in Endangered Species

Habitat

Indian Pangolin

- Widely distributed in India, except the arid region, high Himalayas and the North-East.
- The species is also found in Bangladesh, Pakistan, Nepal and Sri Lanka.

Chinese Pangolin

- Found in the Himalayan foothills in Eastern Nepal, Bhutan, Northern India, North-East Bangladesh and through Southern China.

Threats to Pangolins in India:

- **Hunting and poaching** for use as a **protein source and traditional medicine** and international trade for its meat and scales in East and South East Asian countries, particularly China and Vietnam.
- **Protection Status**
- **IUCN Red List**
- Indian Pangolin: **Endangered**
- **Chinese Pangolin: Critically Endangered**
- Both these species are listed under **Schedule I, Part I of the Wildlife (Protection) Act, 1972**.

Syllipsimopodi Bideni

Context

- A fossil unearthed in central Montana of a species named Syllipsimopodibideni represents the oldest-known relative of today's octopuses and boasts 10 arms.

Syllipsimopodibideni

- "Syllipsimopodi" means "prehensile foot" - its arms are an evolutionary modification of the foot of mollusks - and "bideni" recognizes U.S. President Joe Biden, who had just been inaugurated when the study was submitted for publication.
- Syllipsimopodi represents the **only member of the octopus lineage with 10 arms,** meaning two were lost in later evolution.
- Capture of prey is **facilitated by the two longer tentacles** with the eight shorter arms helping to manipulate the prey and transport it to the beak.
- Syllipsimopodi prowled the **warm waters of a tropical bay** - Montana at the time was situated close to the equator. It may have been a mid-level predator, eating smaller invertebrates.
- Syllipsimopodi lived during the **Carboniferous Period**, a time of important evolutionary changes in other marine life that included the appearance of more modern-looking fishes.
- About 4-3/4 inches (12 cm) long, it had a **torpedo-shaped body and squid-like appearance**.
- It also is the **oldest-known creature with suckers**, which enable the arms to better grasp prey and other objects.
- The fossil help in understanding of how octopuses evolved.
- The preserved fossil reveals two parallel rows of suckers up and down each arm, dates to about **328 million years ago.**

Octopuses

- Octopuses, ranging from the one-inch (2.5 cm) star-sucker pygmy octopus to the 30-foot (9-meter) giant Pacific octopus, are known for their otherworldly appearance, with bulbous heads, large eyes and beak-like jaws.
- They are adept **at camouflage** - changing colors and even textures to mimic their surroundings - and can maneuver their bodies into tiny cracks and crevices.
- They also are **capable of tool use and problem-solving**.
- Octopuses are the **most intelligent invertebrates**, and among the most intelligent animals overall.
- Octopuses are cephalopods, a marine invertebrate group dating back to roughly 530 million years ago and distinguished by having arms or tentacles. Cephalopods today also include squids, cuttlefishes and nautiluses.

ANTIMICROBIAL RESISTANCE

Context

Responsible and sustainable use of antimicrobials in humans, terrestrials and human health systems is the most important method to control AMR spread from food and human health systems, according to Global Leaders Group (GLG) on Antimicrobial Resistance.

About

Antimicrobial resistance is the resistance acquired by any microorganism (bacteria, viruses, fungi, parasite, etc.) against antimicrobial drugs (such as antibiotics, antifungals, antivirals, antimalarials, and anthelmintics) that are used to treat infections.

Microorganisms that develop antimicrobial resistance are sometimes referred to as "superbugs".

As a result, standard treatments become ineffective, infections persist and may spread to others.

Reasons

The misuse of antimicrobials in medicine and inappropriate use in agriculture.

Contamination around pharmaceutical manufacturing sites where untreated waste releases large amounts of active antimicrobials into the environment.

Measures

National Programme on AMR containment

National Action Plan on AMR

AMR Surveillance and Research Network

ICMR along with Research Council of Norway (RCN) initiated a joint call for research in antimicrobial resistance in 2017.

ICMR along with the Federal Ministry of Education and Research (BMBF), Germany has a joint Indo-German collaboration for research on AMR.

Antibiotic Stewardship Program

Integrated One Health Surveillance Network for AMR

World Health Organization (WHO) has identified AMR as one of the top ten threats to global health.

AMR in India

India, with its combination of large population, rising incomes that facilitate purchase of antibiotics, high burden of infectious diseases and easy over-the-counter access to antibiotics, is an important locus for the generation of resistance genes

The multi-drug resistance determinant, New Delhi Metallo-beta-lactamase-1 (NDM-1), emerged from this region to spread globally.

In India, over 56,000 newborn deaths each year due to sepsis are caused by organisms that are resistant to first line antibiotics.

Way forward

Countries should develop guidance, implement and monitor release of antimicrobials from food systems, manufacturing facilities and human health systems into the environment. This should be done considering the prevention and management measures in national action plans on AMR

For the human health sector, countries should develop and implement antimicrobial stewardship policies

The antimicrobial manufacturing sector should develop national antimicrobial manufacturing pollution standards to better control and monitor antimicrobial pollution

International technical organisations working on food systems should develop tools and guidance to support the implementation of the Codex Code of practice to minimise and contain foodborne AMR

Governments should enforce laws to reduce antimicrobial use that's not done under the guidance of a trained healthcare provider, ensuring equitable access to quality antimicrobials

Waste discharge from food-producing animal farms, aquaculture farms and crop fields must be effectively treated and / or managed in food systems

Research and development in this area should be enhanced to gain a comprehensive understanding of the risks to human and animal health posed by antimicrobials in the environment

Cost-effective and greener waste management technologies should be explored

Surveillance and data availability are critical for making an informed decision

CENTRAL ARMED POLICE FORCES

Context

Centre has approved the Modernisation Plan-IV scheme for Central Armed Police Forces. It will equip the forces with modern state-of-the-art weapons and equipment as per their operational requirement, keeping in view their deployment pattern in different theatres. Besides, upgraded IT solutions will also be provided to them. The scheme with a total outlay of 1,523 crore rupees to be implemented by the Home Ministry from February 2022 to March 2026.

Union Home Minister Amit Shah pitched for a "hybrid" security model where the CISF could train and certify private security agencies so that the latter can take over the task of efficiently guarding various kinds of industrial and manufacturing units in the country.

Border Security Force
is the border guards of the country and is called the 'India's First Line of Defence'.

Assam Rifles
established in 1835, the oldest of all paramilitary forces, plays a crucial role in North East India, handling counterinsurgency and border security operations.

Central Industrial Security Force
was established in 1969, under an Act of Parliament, "Central Industrial Security Force Act, 1968." It provides integrated security cover to the PSUs, airports, SEZs, nuclear installations, space establishments, seaports, power plants, sensitive Government buildings, heritage monuments. CISF is also responsible to provide protection to the persons classified as Z Plus, Z, X, Y.

Central Reserved Police Force
was established by the enactment of the CRPF Act in 1949. The primary mission of the Central Reserve Police Force is counter-insurgency operations. It also assists the State and Union Territories in police operations to maintain law and order. Apart from this, the force participates as a police force in the UN peace-keeping missions.

Indo-Tibetan Border Police
was created under the CRPF Act. It guards the Indo-Tibetan border and the mountainous regions of the India-China border and monitors the northern borders. It has been deployed in UN peacekeeping missions as well.

Sashatra Seema Bal
They guard Indo-Nepal and Indo-Bhutan Borders. They are also deployed during elections as polling booth security.

Other Forces

Special Forces of India

National Security Guards: is a special forces unit under the Ministry of Home Affairs. It is established to counter the surge of militancy in the country.

Special Protection Group: is the most elite, nodal protection agency in the country. It is an armed force of the Union for providing immediate security to the Prime Minister of India, the former Prime Minister and members of their close family members. The Special Protection Group (SPG) under the Cabinet Secretariat commences under Special Protection Group Act, 1988.

Indian Army: is the land-based component of the armed forces. It is evolved from the armed forces of the East India Company, ultimately turned into the British Indian Army and the Indian Army after independence. It is commanded by the Chief of Army Staff (COAS). The Special Force of Indian Army is Parachute Regiment

Military Forces

Indian Navy: secures India's maritime borders and interests. It also safeguards Indian trading vessels by combating piracy on the high seas. Along with this, it assists the common people during disasters. It is commanded by the Chief of the Naval Staff - an Admiral. The Marine Commando Force, also known as MARCOS is a Special Forces unit of the Indian Navy.

Indian Air Force: primary responsibility is to secure the Indian airspace and to conduct aerial warfare during a conflict. Chief of Air Staff (An Air Marshal) is the commander of the air forces in India. Garud Commando Force is the special forces unit of the Indian Air Force.

IPCC CLIMATE REPORT

Context

The latest report of the Intergovernmental Panel on Climate Change (IPCC) has warned of multiple climate change-induced disasters in the next two decades even if strong action is taken to reduce the emissions of greenhouse gas emissions.

Key findings

- Half a million more people are at risk of serious flooding every year, and a billion living on coasts will be exposed by 2050. Rising temperatures and rainfall are increasing the spread of diseases in people, such as dengue fever, and in crops, livestock and wildlife.

- 3.5 billion people are highly vulnerable to climate impacts and half the world's population suffers severe water shortages at some point each year. One in three people are exposed to deadly heat stress, and this is projected to increase to 50% to 75% by the end of the century.

- Even if the world keeps heating below 1.6C by 2100 – and we are already at 1.1C – then 8% of today's farmland will become climatically unsuitable, just after the global population has peaked above 9 billion. Severe stunting could affect 1 million children in Africa alone. If global heating continues and little adaptation is put in place, 183 million more people are projected to go hungry by 2050.

- The ability to produce food relies on the water, soils and pollination provided by a healthy natural world, and the report said protection of wild places and wildlife is fundamental to coping with the climate crisis. But animals and plants are being exposed to climatic conditions not experienced for tens of thousands of years. Half of the studied species have already been forced to move and many face extinction.

- Maintaining the resilience of nature at a global scale depends on the conservation of 30% to 50% of Earth's land, freshwater and oceans, the IPCC report said. Today, less than 15% of land, 21% of freshwater and 8% of oceans are protected areas, and some regions, like the Amazon, have switched from storing carbon to emitting it.

About IPCC

- Intergovernmental Panel on Climate Change is made up of the world's leading climate scientists, charged with publishing regular comprehensive updates of global knowledge on the climate crisis, intended to inform government policymaking.

- Each "assessment report" takes about five to seven years to complete, involving hundreds of scientists reviewing the work of thousands more experts. The current report – being published in four parts, from August 2021 to October 2022 – is the sixth since the body was set up in 1988.

- The three working groups that make up the IPCC each publish their own reports. The first looks at the physical basis of climate science – that is, how the chemistry and physics of the atmosphere are changing and are likely to change in future, and whether human influence is responsible. The second – the group producing the latest report – assesses the effects of climate change, such as extreme weather, droughts, floods and temperature rises, and how humanity can adapt to these.

- The third group looks at ways of cutting emissions, and the fourth report is a synthesis, to be published in October, ahead of the Cop27 UN climate summit, to be held in Egypt in November.

- IPCC reports form the scientific basis on which countries across the world build their policy responses to climate change. These reports, on their own, are not policy prescriptive: They do not tell countries or governments what to do. They are only meant to present factual situations with as much scientific evidence as is possible.

What now

- And yet, these can be of immense help in formulating the action plans to deal with climate change. The detailed nature of this latest report, with respect to regional and sectoral impacts, presents actionable intelligence, particularly for countries that lack the resources or the capacity to make their own impact assessments.

- The fact that these findings are the product of the combined understanding of the largest group of experts on climate science lends it a credibility greater than any individual study.

- These reports also form the basis for international climate change negotiations that decide on the responses at the global level. It is these negotiations that have produced the Paris Agreement, and previously the Kyoto Protocol.

ANTI-LYNCHING LAWS

Context

Bills passed against lynching in the past four years have not been implemented, with the Union government taking the view that lynching is not defined as a crime under the Indian Penal Code (IPC).

What is lynching

Lynching is a premeditated extrajudicial killing by a group. It is most often used to characterize informal public executions by a mob in order to punish an alleged transgressor, or to intimidate a group.

It is an extreme form of informal group social control and often conducted with the display of a public spectacle for maximum intimidation.

Need

It fills a void in our criminal jurisprudence.

At present there is no law that criminalises mob killings. The Indian Penal Code has provisions for unlawful assembly, rioting, and murder but nothing that takes cognisance of a group of people coming together to kill (a lynch mob).

Under Section 223 (a) of the Criminal Procedure Code (CrPC), to prosecute together two or more people accused of the same offence committed in the course of the "same transaction".

But the provision falls far short of an adequate legal framework for prosecuting lynch mobs

Reasons for rise

Major reason for the recent rise in lynchings is impunity.

The lynch mobs that murdered several people were confident of getting away with it. So far, the state has done little to shake that confidence.

The problem is not mob lynching per se but the mob lynching of minorities, for that is where impunity kicks in.

In the case of cow-linked lynchings, a lot depends on whether the incumbent in power considers it compatible with its political interests to crack down on such attacks.

Who is responsible to manage it

As per the Constitution, 'Police' and 'Public Order' are State subjects and State governments are responsible for controlling crime, maintaining law and order and protecting the life and property of the citizens.

National Crime Records Bureau does not maintain specific data related with respect to lynching incidents in the country.

There is "no separate" definition for such incidents under the existing IPC. Lynching incidents can be dealt with under Section 300 and 302 of IPC.

Section 302 provides that whoever commits murder shall be punished with death or imprisonment for life and shall also be liable to fine. Offence of murder is a cognisable, non- bailable and non-compoundable offence.

SC Guidelines

There shall be a "separate offence" for lynching and the trial courts must ordinarily award maximum sentence upon conviction of the accused person to set a stern example in cases of mob violence.

The state governments will have to designate a senior police officer in each district for taking measures to prevent incidents of mob violence and lynching.

The state governments need to identify districts, sub-divisions and villageswhere instances of lynching and mob violence have been reported in the recent past.

The nodal officers shall bring to the notice of the DGP about any inter-district co-ordination issues for devising a strategy to tackle lynching and mob violence related issues.

Every police officer shall ensure to disperse the mob that has a tendency to cause violence in the disguise of vigilantism or otherwise.

Central and the state governments shall broadcast on radio, television and other media platforms about the serious consequences of mob lynching and mob violence.

Despite the measures taken by the State Police, if it comes to the notice of the local police that an incident of lynching or mob violence has taken place, the jurisdictional police station shall immediately lodge an FIR.

The State Governments shall prepare a lynching/mob violence victim compensation scheme in the light of the provisions of Section 357A of CrPC within one month from the date of this judgment.

If a police officer or an officer of the district administration fails to fulfill his duty, it will be considered an act of deliberate negligence.

ANTI-CONVERSION IN INDIA

Context

The Haryana Cabinet approved the draft of the Haryana Prevention of Unlawful Conversion of Religion Bill, 2022, which seeks to prohibit religious conversion effected through misrepresentation, force, undue influence, coercion, allurement or by any fraudulent means or by marriage or for marriage, by making it an offence.

Laws in India

Constitutional Provision: The Indian Constitution under Article 25 guarantees the freedom to profess, propagate, and practise religion, and allows all religious sections to manage their own affairs in matters of religion; subject to public order, morality, and health.

There has been no central legislation restricting or regulating religious conversions.

However, since 1954, on multiple occasions, Private Member Bills have been introduced in (but never approved by) the Parliament, to regulate religious conversions.

Further, in 2015, the Union Law Ministry stated that Parliament does not have the legislative competence to pass anti-conversion legislation.

Over the years, several states have enacted 'Freedom of Religion' legislation to restrict religious conversions carried out by force, fraud, or inducements.

Rulings of SC

Hadiya Judgement 2017:
Matters of dress and of food, of ideas and ideologies, of love and partnership are within the central aspects of identity.
Neither the State nor the law can dictate a choice of partners or limit the free ability of every person to decide on these matters.
The principle that the right to marry a person of one's choice is integral to Article 21.

K.S. Puttuswamy or 'privacy' Judgment 2017:
Autonomy of the individual was the ability to make decisions in vital matters of concern to life.

The SC in its various judgments, has held that faith, the state and the courts have no jurisdiction over an adult's absolute right to choose a life partner.

Issues

Uncertain and Vague Terminology

Antithetical to Minorities

Antithetical to Secularism

CYBERSECURITY

Context

A new report from a Beijing-based cybersecurity firm said hackers linked with the U.S. National Security Agency (NSA) were found to have inserted "covert backdoors" that may have given them access to sensitive information in dozens of countries, including India, Russia, China and Japan.

Types of attacks

- Phishing: It is the method of trying to gather personal information using deceptive e-mails and websites.
- Man-in-the-middle (MitM) attacks, also known as eavesdropping attacks, occur when attackers insert themselves into a two-party transaction. Once the attackers interrupt the traffic, they can filter and steal data.
- Social engineering is an attack that relies on human interaction to trick users into breaking security procedures in order to gain sensitive information that is typically protected.
- Malware, short for malicious software refers to any kind of software that is designed to cause damage to a single computer, server, or computer network. Ransomware, Spy ware, Worms, viruses, and Trojans are all varieties of malware.
- Denial of Service attacks: A Denial-of-Service (DoS) attack is an attack meant to shut down a machine or network, making it inaccessible to its intended users. DoS attacks accomplish this by flooding the target with traffic, or sending it information that triggers a crash.
- A SQL injection attack specifically targets such kind of servers, using malicious code to get the server to divulge information it normally wouldn't.
- Cross-Site Scripting (XSS): Similar to an SQL injection attack, this attack also involves injecting malicious code into a website, but in this case the website itself is not being attacked.

Components

- Application Security,
- Information security, Network Security, Disaster Recovery Planning

About

Cyber Security is protecting cyber space including critical information infrastructure from attack, damage, misuse and economic espionage.

Need

- Photos, videos and other personal information shared by an individual on social networking sites can be inappropriately used by others, leading to serious and even life-threatening incidents.
- Companies have a lot of data and information on their systems. A cyber attack may lead to loss of competitive information (such as patents or original work), loss of employees/customers private data resulting into complete loss of public trust on the integrity of the organization.
- A local, state or central government maintains huge amount of confidential data related to country (geographical, military strategic assets etc.) and citizens. Unauthorized access to the data can lead to serious threats on a country.

Motives behind cyberattacks

- To seek commercial gain by hacking banks and financial institutions.
- To attack critical assets of a nation.
- To penetrate into both corporate and military data servers to obtain plans and intelligence.
- To hack sites to virally communicate a message for some specific campaign related to politics and society.

Mechanisms

International

- International Telecommunication Union (ITU) is a specialized agency within the United Nations which plays a leading role in the standardization and development of telecommunications and cyber security issues.
- Budapest Convention on Cybercrime
- Internet Governance Forum (IGF): It brings together all stakeholders i.e. government, private sector and civil society on the Internet governance debate.
- Internet Corporation for Assigned Names and Numbers (ICANN): It is a non-profit organization responsible for coordinating the maintenance and procedures of several databases related to the namespaces and numerical spaces of the Internet, ensuring the network's stable and secure operation

Indian

- Information Technology Act, 2000
- National Cyber Policy, 2013
- Cyber Swachhta Kendra
- Training under the Information Security Education and Awareness Project
- National Critical Information Infrastructure Protection Centre
- Cyber Surakshit Bharat Initiative
- National Cyber security Coordination Centre

GEOSPATIAL TECHNOLOGY IN INDIA

Types

- Remote Sensing: imagery and data collected from space- or airborne camera and sensor platforms.
- Geographic Information Systems (GIS): can be used to detect geographic patterns in other data, such as disease clusters resulting from toxins, sub-optimal water access, etc.
- Global Positioning System (GPS): a network of satellites which can give precise coordinate locations to civilian and military users with proper receiving equipment
- Internet Mapping Technologies: software programs like Google Earth and web features like Microsoft Virtual Earth are changing the way geospatial data is viewed and shared.

Policies in India

- National Geospatial Policy 2016
- National Map Policy 2005
- Civil Aviation Requirement (CAR), 2012
- The Remote Sensing Data Policy (RSDP - 2001 and 2011)
- The National Data Sharing and Accessibility Policy-2012 (NDSAP-2012)
- Geospatial Information Regulation Bill, 2016

About

Geospatial technologies is a term used to describe the range of modern tools contributing to the geographic mapping and analysis of the Earth and human societies.

Major uses

- Agriculture Sector.
- Electric Utilities.
- Climate Change and Disaster Management
- Earth Observation Capabilities
- Education
- Governance
- Healthcare
- Land and Forest Resource Management
- Social Sector
- Water Resource Management

Major GIS Initiatives

*Natural Resources Information System;
*National Spatial Data Infrastructure;
*Bhuvan Image Portal;
*Delhi State Spatial Data Infrastructure;
*National Urban Information System;
*Establishing G2G GIS by National Informatics Centre;
*Recent efforts at modernization of land records under NLRMP;
*Restructured Advanced Power Development & Reform Program (R-APDRP)
*Various City GISs (example Mumbai, Bangalore, Kanpur, Kolkata).

INDIGENISATION OF DEFENCE

Context

Prime Minister Narendra Modi on Friday stressed the importance of customisation and uniqueness of defence systems for having a surprise element over the adversaries. Uniqueness and surprise elements could only happen when the defence equipment is developed in the country.

Present scenario

Millennium Aero Dynamics and Cochin Shipyard jointly developed and produced the INS Vikrant. It is the first aircraft carrier built in India completely.

BARC and DRDO jointly developed India's first indigenous nuclear submarine Arihant.

HAL along with Taneja Aerospace and Aviation Limited (TAAL) is developing Dhruv multirole helicopter, Light Combat Helicopter (LCH) and Rudra armed helicopter. They are also manufacturing Tejas Light Combat Aircraft in India.

DRDO is currently working on an indigenous unmanned aerial vehicle named Nishant.

Under the Integrated Guided Missile Development Programme (IGMDP), India developed 5 missiles

Currently, India's defence sector imports stand at 70%. This makes India the 2nd largest arms importer in the world, only next to Saudi Arabia. According to the Stockholm International Peace Research Institute (SIPRI), in 2019, India became the third-largest defence spender in the world. So, indigenisation of the defence sector is necessary to reduce the Fiscal Deficit.

Need

As per the government estimates, just 20-25% import reduction will directly create 100,000 to 120,000 additional highly skilled jobs in India.

Indigenous equipment will increase the trust and confidence of the Indian defence forces. It will also strengthen India's image in the global arena.

According to SIPRI, India's military expenditure in 2019 was 2.4% of its GDP. It was higher than the combined expenditure on health(1.5%GDP) and research (0.7% of GDP).

IPRI data mentions India as the 23rd largest country in terms of defence exports. This shows under-performance considering the fact that, India spent $71.1 billion in the defence sector in 2019 alone.

India shares porous borders with hostile neighbours. Currently, imported equipment in India are creating multiple challenges related to their Maintenance, Repair & Overhaul (MRO) due to non-availability of spares and assemblies.

Challenges

Currently, India depends on DRDO and defence PSUs for the majority of its needs. There is an issue of land acquisition in India.

There are bureaucratic and political hurdles in India. Indian defence suppliers also take more time to complete the projects

Most of the Indian defence budget goes towards salaries, retirement benefits, perks and benefits, MRO of equipment etc. This limits the government capacity to focus on long-term budgeting towards the defence sector.

Defence forces being on the ground of the battlefield, know that the border areas demand some specific design and characteristics of the equipment. But there is a conflict between the manufacturers and defence forces in India regarding the design, capacity etc of the defence equipment.

Initiatives

India introduced the Defence Procurement Policy to focus on self-reliance.

Establishment of E-Biz Portal. It is an online portal to process applications for Industrial Licences (IL). The Government also set up Innovations for Defence Excellence (iDEX) framework.

Removal of annual capacity restriction criteria for defence industries.

Government also approved the Strategic Partnership Policy.

Change in FDI policy.

Recently the government imposed a ban on 101 import items in the defence sector to boost indigenisation.

5G TECHNOLOGY

Context

The rollout of the 5G C-band spectrum (3.7 GHz-3.98 GHz) in the U.S., – after a pushback since December 2021 (the original roll-out date) – led to several major airlines, including Air India, temporarily cancelling their flights to the U.S. over fears of spectrum interference with crucial aircraft navigation systems.

An aviation expert said the main worry is of 'radio emissions at the top of the C-band's 3.98 GHz frequency 'bleeding over' into the 4.2 GHz-4.4 GHz band used by civil aircraft radio altimeters.

Issue

There are differences in the way 5G technology has been deployed in other countries. These include lower power levels; frequencies that are 'of a different proximity to frequencies that are used by aviation equipment' and a different placement of antennas in the vicinity of airports.

Previous generations

1G: analog telecommunications standard introduced in the 1970s for voice communications. It used FM and FDMA and a bandwidth of 30 kHz. Issues are poor voice quality, poor battery quality, and large phone size.

2G: digital standard, circuit switched technology introduced in 1980s. It used CDMA, GSM, TDMA technologies.

2.5G/2.75G: 2.5G introduced a new packet-switching technique that was more efficient than 2G. 2.75G provided a theoretical threefold speed increase. Both were not defined formally as wireless standards.

3G: used Code Division Multiple Access Technique (CDMA). It used technologies such as W-CDMA and HSPA (high speed packet access). It provided IP connectivity for real-time and non-real-time services.

4G: may be regarded as the extension of 3G but with a faster Internet connection, more bandwidth, and a lower latency. WiMAX and LTE (Long-Term Evolution), claim to be about 5 times faster than 3G services.

Challenges

*Challenges faced with the new technologies enabling 5G, integration of this technology to provide services in different application scenarios.

* High projected cost and that it is incompatible with the previous generations.

* Physical objects block 5G signals easier than 4G, and, even when unobstructed, 5G signals do not carry as far. This means that more towers are needed to support a comprehensive network.

* Usage and popularization of 5G-capable phones and devices.

Benefits

* Faster speed: 10 times higher with 4G
* Shorter delays: 5G should reduce latency (the time between cause and effect
* Increased connectivity: more people will be able to communicate at the same time.
* Excellent capability to support both software and consultancy.
* High data rate at the edge of the cell and better coverage area.
* It has low battery consumption.
* High data rates, 1- 10 Gbps connections to end points, 1 millisecond end-to-end round trip delay
* high throughput, improved spectrum efficiency, better mobility support, and high connection density

ESSENTIAL PRACTICE TEST

Context

The action of some pre-university colleges in Karnataka refusing entry to Muslim girl students wearing hijabs, or head-scarves, has now become a national controversy.

While the girls have been protesting against being denied access to education, the counter-protests by a section of Hindu students wearing saffron shawls and turbans have led to a tense situation outside some campuses

Kerala court, by an interim order, has directed that students should not wear attire linked to any religion until it resolves the legal questions arising from the issue.

Bijoe Emmanuel vs. State of Kerala (1986) pertained to three children belonging to the Jehovah's Witnesses sect refusing to sing the national anthem during the morning assembly. The Supreme Court ruled in the students' favour, holding that their expulsion violated their freedom of expression under Article 19(1)(a) as well as their right to freely practise and profess their faith under Article 25(1).

Constitutional provisions

The test in this approach is to find out whether a student who asserts religious freedom for a course of action that the authorities find objectionable genuinely and conscientiously holds that belief or not. Such a belief is constitutionally protected.

The freedom of conscience and to profess, practise and propagate religion is guaranteed by Article 25. This freedom is subject to 'public order, morality and health'.

As for the wearing of hijab, the students are relying on a Kerala High Court judgment that had in 2016 allowed two Muslim students to take the All India Pre-medical Test while wearing a hijab, after holding that it was an essential part of Islam. In a different case, the Kerala High Court declined to intervene in favour of a Muslim student who was not allowed to wear a head-scarf by a school.

How do we draw the line between matters of religion and matters other than religion?

The 'essential practice' doctrine can be traced to a 1954 decision of the Supreme Court in Commissioner, Hindu Religious and Charitable Endowments, Madras vs. Sri Lakshmindra Thirtha Swamiar of Sri Shirur Mutt, commonly known as the 'Shirur Mutt' case.

This litigation involved action sought to be taken by the Madras government against a mutt over some disputes over the handling of financial affairs. The madathipathi's contention was that the Government could not interfere in the mutt's right to manage its own affairs under Article 26. Under this Article, what was protected was the right "to manage its own affairs in matters of religion".

It was in this context that the court said: "In the first place, what constitutes the essential part of a religion is primarily to be ascertained with reference to the doctrines of that religion itself."

However, this attempt to differentiate what essentially distinguishes a religious matter from other matters was taken up in subsequent judgments to mean that courts are required to distil the essence of a religion to see whether a particular practice or act fell under the category of religion or not.

Hence, some acts obtained constitutional protection by being declared "essential" to the practice of that religion and some were denied protection on the ground that they were not essential to it.

Criticism

The first criticism is that it was never intended to be a test to find out if a particular practice is essential to the practice of the religion, but was only made to distinguish a matter of religion from a matter other than religion. However, a long line of judicial decisions seem to endorse the applying of this test to dispose of cases.

the second criticism is that the doctrine of essentiality appears to allow courts to go deeply into the scriptures and tenets of a religion or a religious denomination to find out if the practice or norm that is at the heart of the issue is essential. This is seen as a theological or ecclesiastical exercise, which courts are forced to wade into.

A more reasonable approach will be to apply the test of constitutional morality and legitimacy to the issue at hand. Applying the principles of equality, dignity and civil rights to a particular practice may be better to decide the constitutionality of a practice than a theological enquiry.

Issues for court

Is the denial of entry a violation of their freedom of conscience and freedom to practise their religion under Article 25?

Government is of the view that compelling a student to remove the head-scarf is not a violation of Article 25.

Whether the wearing of head-scarves will have an adverse impact on law and order by pitting two communities against one another, and thereby, enable the Government to prohibit religious attire in the interest of public order – one of the grounds on which a right under Article 25 can be curbed.

Whether the ban on such attire will come within the power to restrict freedom of religion in the interest of public order, health and morality.

From the Muslim students' point of view, they have a fundamental right to wear a hijab as part of their right to practise their religion